

## SECTION VII CIRCUIT DIAGRAMS

### 7-1. INTRODUCTION.

7-2. This section contains a functional block diagram schematic diagrams and component location diagrams for the 3575A Gain-Phase Meter.

### 7-3. FUNCTIONAL BLOCK DIAGRAM.

7-4. The Functional Block Diagram, Figure 7-1, is a detailed block diagram that shows the overall relationship between the major circuit elements in the 3575A. The diagram shows the main signal paths and provides voltages and waveforms that should be beneficial when troubleshooting the instrument.

### 7-5. SCHEMATIC DIAGRAMS.

7-6. The schematic diagrams, Figures 7-2 through 7-11, show the detailed circuits of the standard Model 3575A and Options 001 thru 003. Each schematic is assigned a numerical call out (1 through 10) which is used for interconnection referencing on the schematics and for schematic referencing on the functional block diagram and troubleshooting trees. The schematics are arranged to

provide as much signal continuity as possible and assemblies do not necessarily appear in the order of their reference designations. Refer to Table 7-1 for a complete cross reference listing.

### 7-7. Measurement Conditions.

7-8. Voltages and waveforms are provided on the schematics to aid in troubleshooting the instrument. Unless otherwise specified, all voltages and waveforms were obtained with a 2 V rms (+6 dBV), 1 kHz sine wave applied to both inputs (inputs in phase) and the 3575A controls set as follows:

Voltage Range . . . . . 0.2 mV - 2 V  
(both channels)  
FREQUENCY RANGE .10 Hz - 100 kHz  
PHASE REFERENCE . . . . . + A

### 7-9. Notes.

7-10. Refer to the General Schematic Notes (Page 7-2) for further information concerning the schematic diagrams.

Table 7-1. Assembly Cross Reference.

Assembly Number	Assembly Title	Assembly Part Number	Schematic Number	Figure Number
A1	Preamplifier Assembly	03575-66501	1	7-2
A2	Preamplifier Assembly	03575-66501	1	7-2
A3	Log Converter Assembly	03575-66503	1	7-2
A4	Log Converter Assembly	03575-66503	1	7-2
A5	Phase Detector Assembly	03575-66505	2	7-3
A6	Current Source Assembly	03575-66506	3	7-4
A7	Phase Control Filter Assembly	03575-66507	4	7-5
A8	Function Switching Assembly	03575-66508	5	7-6
A9	Output Filter Assembly	03575-66509	6	7-7
A10*	Output Filter Assembly	03575-66509	6	7-7
A11	Phase Control Logic Assembly	03575-66511	3	7-4
A12A	Panel Meter Connector Assembly	03575-66550	10	7-11
A12B*	Panel Meter Connector Assembly	03575-66551	10	7-11
A13	Front Panel Switching Assembly	03575-66513	5	7-6
A14	Power Supply Assembly	03575-66514	8	7-9
A15	Power Supply Mother Board Assembly	03575-66515	8	7-9
A16A	Interface Substitution Assembly	03575-26516	5	7-6
A16B**	Interface Assembly Negative	03575-66552	9	7-10
A16C†	Interface Assembly Positive	03575-66553	9	7-10
A17	Mother Board Assembly	03575-66517		
A18	Power Input Module	5060-1200	8	7-9
A19**†	Interface Connector Assembly	03575-66519	9	7-10
A20,21,22	Digital Panel Meter (std & opt 001)	5060-9188	7	7-8
A20,21,22	Digital Panel Meter (opt 002 & 003)	5060-9127	7	7-8


\*Option 001—003    \*\*Option 002    †Option 003

## GENERAL SCHEMATIC NOTES

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX WITH ASSEMBLY OR SUBASSEMBLY DESIGNATION(S) OR BOTH FOR COMPLETE DESIGNATION.

2. COMPONENT VALUES ARE SHOWN AS FOLLOWS UNLESS OTHERWISE NOTED.

RESISTANCE IN OHMS  
CAPACITANCE IN MICROFARADS  
INDUCTANCE IN MILLIHENRYS

3.  DENOTES EARTH GROUND. USED FOR TERMINALS WITH NO LESS THAN A NO. 18 GAUGE WIRE CONNECTED BETWEEN TERMINAL AND EARTH GROUND TERMINAL OR AC POWER RECEPTACLE.

4.  DENOTES FRAME GROUND. USED FOR TERMINALS WHICH ARE PERMANENTLY CONNECTED WITHIN APPROXIMATELY 0.1 OHM OF EARTH GROUND.

5.  DENOTES GROUND ON PRINTED CIRCUIT ASSEMBLY. (PERMANENTLY CONNECTED TO FRAME GROUND).

6.  DENOTES ASSEMBLY.

7.  DENOTES MAIN SIGNAL PATH.

9.  DENOTES FEEDBACK PATH.

10.  DENOTES FRONT PANEL MARKING.

11.  DENOTES REAR PANEL MARKING.

12.  DENOTES SCREWDRIVER ADJUST.

13. \* AVERAGE VALUE SHOWN, OPTIMUM VALUE SELECTED AT FACTORY. THE VALUE OF THESE COMPONENTS MAY VARY FROM ONE INSTRUMENT TO ANOTHER. THE METHOD OF SELECTING THESE COMPONENTS IS DESCRIBED IN SECTION V OF THIS MANUAL.

14.  DENOTES SECOND APPEARANCE OF A CONNECTOR PIN.

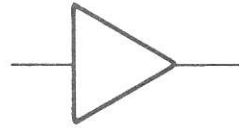
15. 924 DENOTES WIRE COLOR: COLOR CODE SAME AS RESISTOR COLOR CODE. FIRST NUMBER IDENTIFIES BASE COLOR, SECOND NUMBER IDENTIFIES WIDER STRIP, THIRD NUMBER IDENTIFIES NARROWER STRIP. (e.g. 924 = WHITE, RED, YELLOW.)

17. ALL RELAYS ARE SHOWN DEENERGIZED.

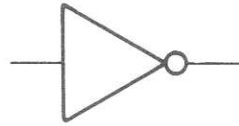
18. WAVEFORMS AND AC VOLTAGE MEASUREMENTS WERE MADE WITH RESPECT TO CHASSIS GROUND USING AN OSCILLOSCOPE WITH A 10:1 DIVIDER PROBE (10 MEGOHM, 10 pF). THE VOLTAGE LEVELS SHOWN ON THE WAVEFORMS ARE ACTUAL VOLTAGE LEVELS AND ARE NOT TO BE CONFUSED WITH OSCILLOSCOPE SETTING. THE VOLTAGE LEVELS SHOWN ARE NOMINAL AND MAY VARY FROM ONE INSTRUMENT TO ANOTHER. A VARIATION OF  $\pm 10\%$  IN MEASUREMENTS SHOULD BE ALLOWED.

19. DC VOLTAGE LEVELS WERE MEASURED WITH RESPECT TO CIRCUIT GROUND USING A VTVM WITH 10 MEGOHM

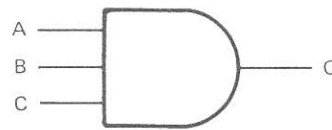
INPUT IMPEDANCE. THE VOLTAGE LEVELS SHOWN ARE NOMINAL AND MAY VARY FROM ONE INSTRUMENT TO ANOTHER DUE TO CHANGE IN TRANSISTOR CHARACTERISTICS. A VARIATION OF  $\pm 10\%$  SHOULD BE ALLOWED.



DENOTES BUFFER

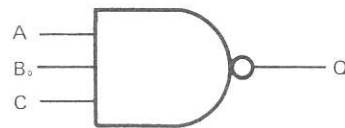


DENOTES INVERTER



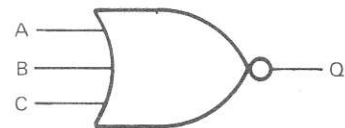
DENOTES AND GATE

A	B	C	Q
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	1



DENOTES NAND GATE

A	B	C	Q
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	0



DENOTES NOR GATE

A	B	C	Q
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	0



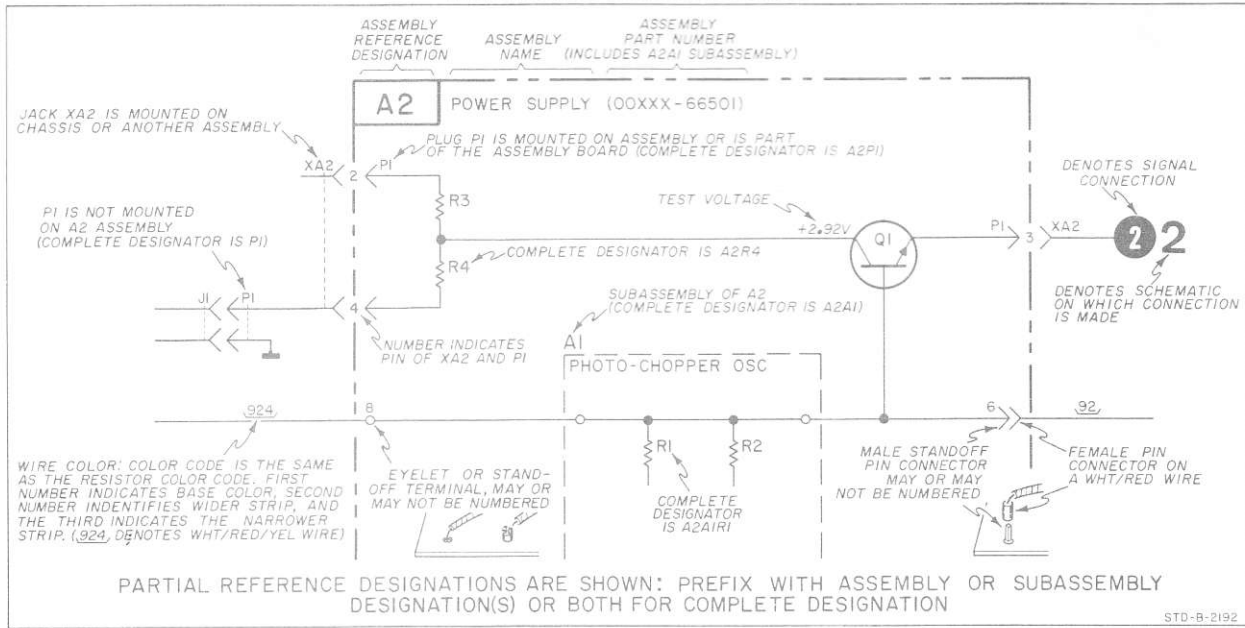
DENOTES EXCLUSIVE OR GATE

A	B	Q
0	0	0
0	1	1
1	0	1
1	1	0

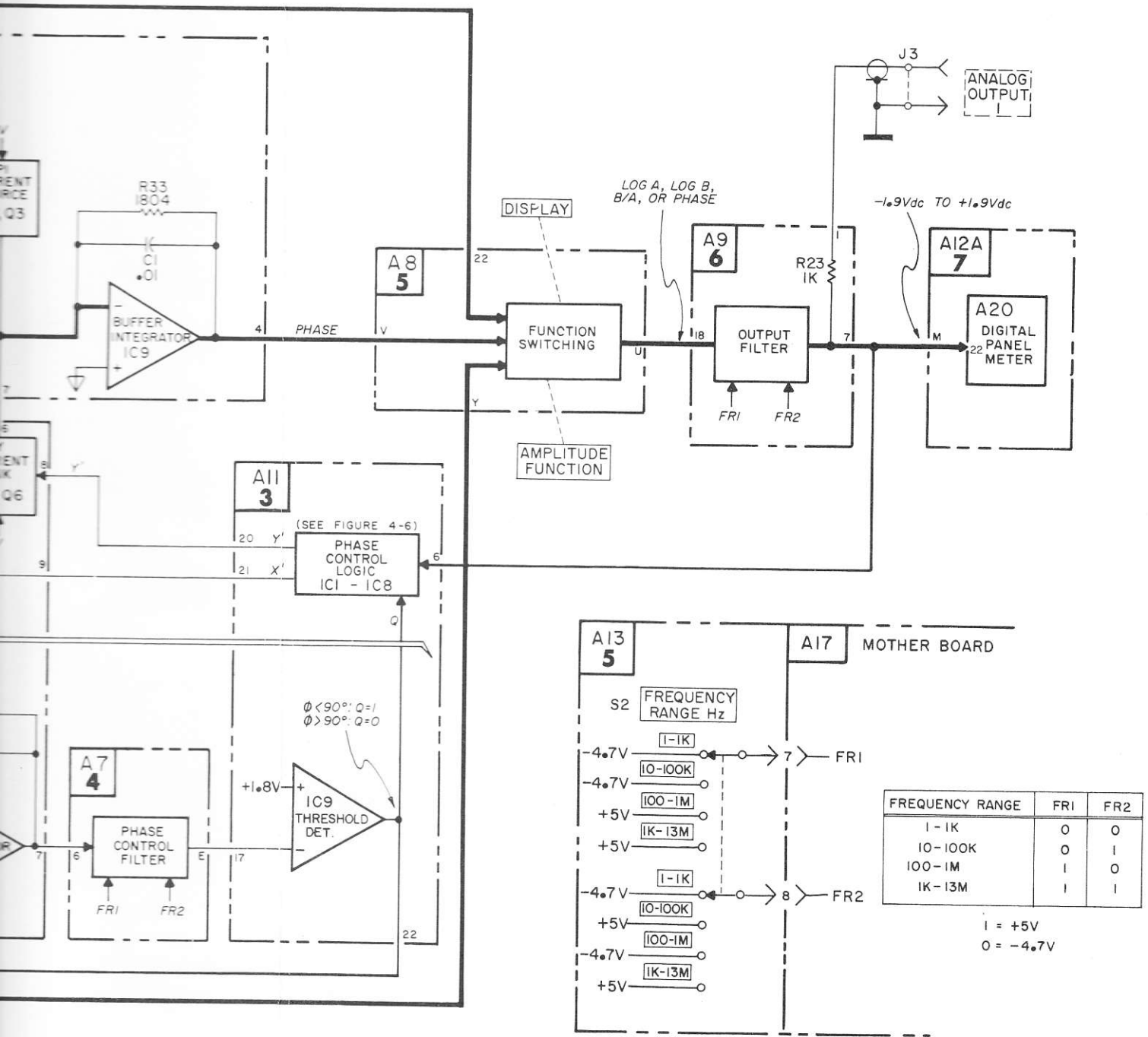


Pin No.	Connection	Pin No.	Connection	Pin No.	Connection	Pin No.
11	XA6-11, XA13-4, XA14-5, XA11-10, XA10-10, XA9-10	XA7 -A	XA3-3, XA5-2, XA6-2, XA2-9	L	XA8-10, XA16-16	14
12	XA6-12	B	XA8-Z	M	XA8-11, XA12-R, XA9-8, XA10-8, XA14-8	15
13	XA6-13, XA7-13-P, XA14-9	C	XA7-N-12, XA1-12, XA3-12, XA14-8	N	XA8-N, XA9-9, XA10-9, XA11-9, XA14-4	16
14	XA6-14, XA7-14-R, XA14-10	D	XA14-6, XA2-11, XA4-11	P	XA8-13, XA12-9, XA9-10, XA10-10, XA11-10, XA14-5	17
15	GND	E	XA11-17	R	XA8-14, XA12-U, XA9-11, XA10-11, XA11-11, XA14-9	18
16	GND	F	XA11-18	S	XA8-15, XA12-V, XA9-12, XA10-12, XA11-12, XA14-10	19
17	GND	H	XA11-19	T	XA8-16, XA9-13, XA10-13, XA11-13, XA14-1-2	20
18	XA1-18, XA3-18, XA6-18, XA4-18, XA2-18, XA7-20, XA16-S	J	XA7-8, XA3-8, XA11-21, XA6-9	U	XA9-18	21
19	XA1-19, XA3-19, XA6-19, XA4-19, XA2-19, XA7-21, XA16-14	K	NC	V	XA6-4, XA5-4	22
20	XA4-14, XA2-14, XA14-10	L	XA7-10, XA5-10, XA11-14, XA14-4	W	NC	
21	XA4-21, XA8-9-K, XA16-T	M	XA7-11, XA14-5	X	NC	
22	XA16-U	N	XA7-12, XA1-12, XA3-12, XA14-8	Y	XA4-7	
XA6 - 1	GND	P	XA7-13, XA5-13, XA6-13, XA14-9	Z	XA7-B	
2	XA5-2, XA2-9, XA3-3, XA7-A	R	XA7-14, XA5-14, XA6-14, XA14-10			
3	XA5-3, XA4-8, XA16-13, XA8-X-1 XA12-D	S	GND			
4	XA5-4, XA8-V	T	GND			
5	XA5-6	U	GND			
6	XA5-7	V	XA10-22, XA9-22			
7	XA1-6, XA7-6	W	XA10-21, XA9-21			
8	XA11-20	X	XA10-20, XA9-20			
9	XA3-8, XA7-8-J, XA11-21	Y	NC			
10	XA5-10, XA11-14, XA14-4	Z	XA4-22			
11	XA5-11, XA13-4, XA14-5, XA11-10 XA10-10, XA9-10	XA8 - 1	XA12-D, XA8-X, XA16-13, XA5-3, XA4-8, XA6-3	XA9 - 1	XA10-15 Analog Output 1	
12	XA5-12	2	XA12-E	2	NC	
13	XA5-13, XA7-13-P, XA14-9	3	XA12-H	3	NC	
14	XA5-14, XA7-14-R, XA14-10	4	NC	4	NC	
15	GND	5	XA12-L	5	XA9-7, XA12-M, XA10-6, XA11-6	
16	GND	6	NC	6	XA8-H-7, XA12-12-N-19-W, XA10-5	
17	GND	7	XA8-H, XA12-12-N-19-W, XA9-6, XA10-5, XA11-8, XA14-1-2	7	XA9-5, XA12-M, XA10-6, XA11-6	
18	XA1-18, XA3-18, XA5-18, XA4-18, XA2-18, XA7-20, XA16-S	8	XA8-J, XA16-15	8	XA8-11-M, XA12-R, XA10-8, XA14-8	
19	XA1-19, XA3-19, XA5-19, XA4-19, XA2-19, XA7-21, XA16-14	9	XA8-K, XA4-21, XA5-21, XA16-T	9	XA8-12-N, XA10-9, XA11-9, XA14-4	
20	NC	10	XA8-L, XA16-16	10	XA8-13-P, XA12-T, XA10-10, XA11-10, XA14-5	
21	NC	11	XA8-M, XA12-R, XA9-8, XA10-8 XA14-8	11	XA8-14-R, XA12-U, XA10-11, XA11-11, XA14-9	
22	NC	12	XA8-N, XA9-9, XA10-9, XA11-9, XA14-4	12	XA8-15-S, XA12-V, XA10-12, XA11-12, XA14-10	
XA7 - 1	XA3-9	13	XA8-P, XA12-T, XA9-10, XA10-10, XA11-10, XA14-5	13	XA8-16-T, XA10-13, XA11-13, XA14-1-2	
2	XA1-5, XA3-4, XA5-5, XA4-9	14	XA8-R, XA12-U, XA9-11, XA10-11, XA11-11, XA14-9	14	XA9-13	
3	XA1-9	15	XA8-S, XA12-V, XA9-12, XA10-12, XA11-12, XA14-10	15	NC	
4	XA1-11, XA3-11, XA14-7	16	XA8-T, XA9-13, XA10-13, XA11-13, XA14-1-2	16	NC	
5	NC	17	XA10-18	17	NC	
6	XA1-6, XA6-7	18	XA4-3, XA2-7, XA16-V	18	XA8-U	
7	NC	19	XA4-4, XA2-20, XA8-A, XA12-F, XA16-9	19	NC	
8	XA3-8, XA11-21, XA6-9, XA7-J	20	XA4-6	20	XA10-20, XA7-X	
9	NC	21	XA3-6	21	XA10-21, XA7-W	
10	XA7-L, XA5-10, XA11-14, XA14-4	22	XA3-7	22	XA10-22, XA7-V	
11	XA7-M, XA14-5	XA8 -A	XA8-19, XA4-4, XA2-20, XA12-F, XA16-P	XA10- 1	Analog Output No. 2	
12	XA7-N, XA1-12, XA3-12, XA14-8	B	XA12-10, XA16-P	2	NC	
13	XA7-P XA5-13, XA6-13, XA14-9	C	XA12-J	3	NC	
14	XA7-R, XA5-14, XA6-14, XA14-10	D	XA12-K	4	NC	
15	GND	E	XA12-11	5	XA9-6, XA8-H-7, XA12-12-N-19-W	
16	GND	F	NC	6	XA9-5-7, XA12-M, XA11-6	
17	GND	H	XA8-7, XA12-12-N-19-W, XA9-6, XA6-5, XA11-8, XA14-12	7	XA12-P, XA11-7	
18	NC	J	XA8-8, XA16-15	8	XA9-8, XA8-11-M, XA12-R, XA14-8	
19	NC	K	XA8-9, XA4-21, XA5-21, XA16-T	9	XA9-9, XA8-12-N, XA11-9, XA14-4	
20	XA1-18, XA3-18, XA6-18, XA5-18, XA4-18, XA1-18, XA16-S			10	XA8-13-P, XA12-T, XA9-10, XA11-10, XA14-5	
21	XA1-19, XA3-19, XA6-19, XA5-19, XA4-19, XA2-19, XA16-14			11	XA8-14-R, XA12-U, XA9-11 XA11-11, XA14-9	
22	XA3-22			12	XA8-15-S, XA12-V, XA9-12, XA11-12, XA14-10	
				13	XA8-16-T, XA9-13, XA11-13, XA14-1-2	

## REFERENCE DESIGNATIONS

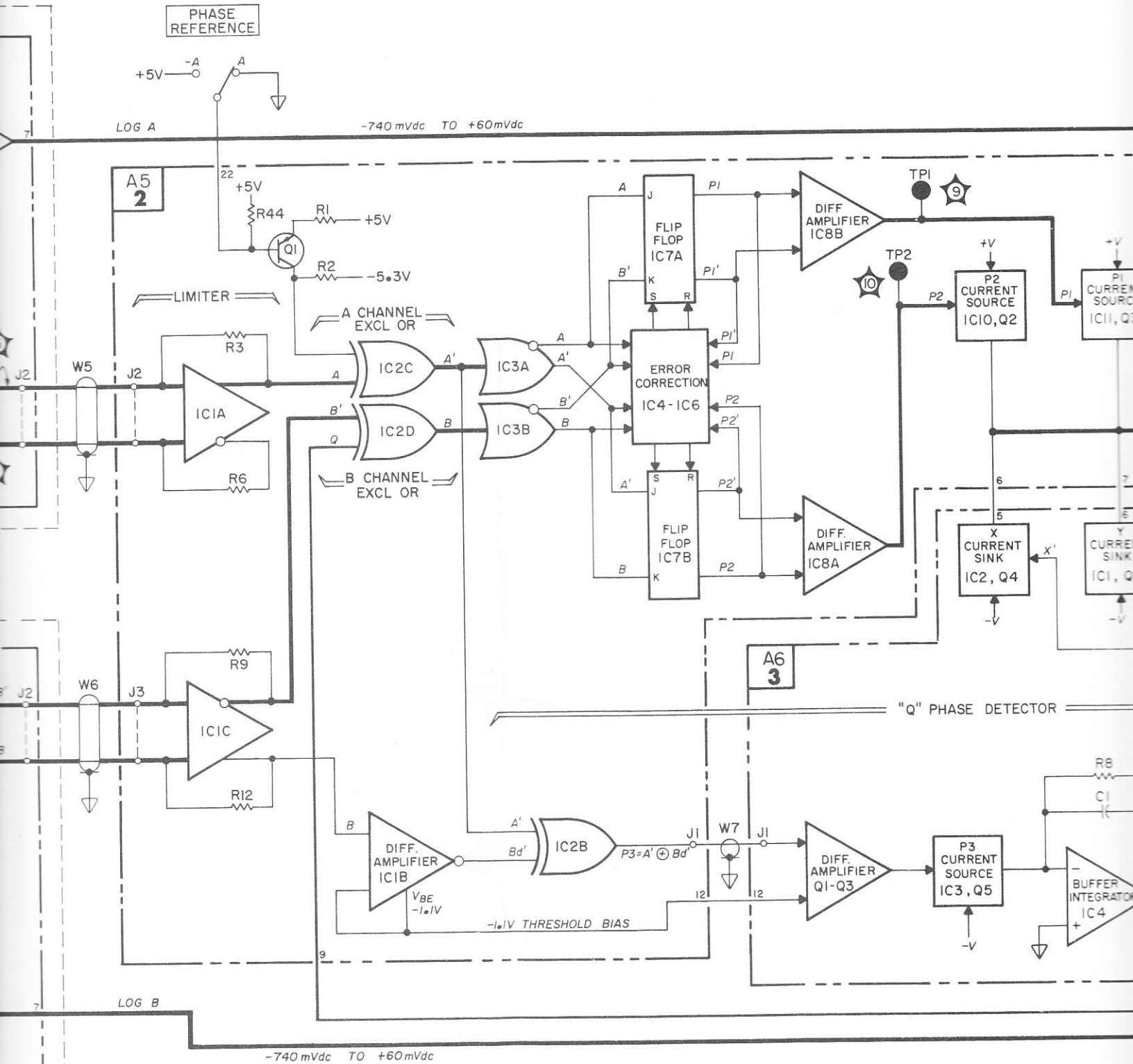


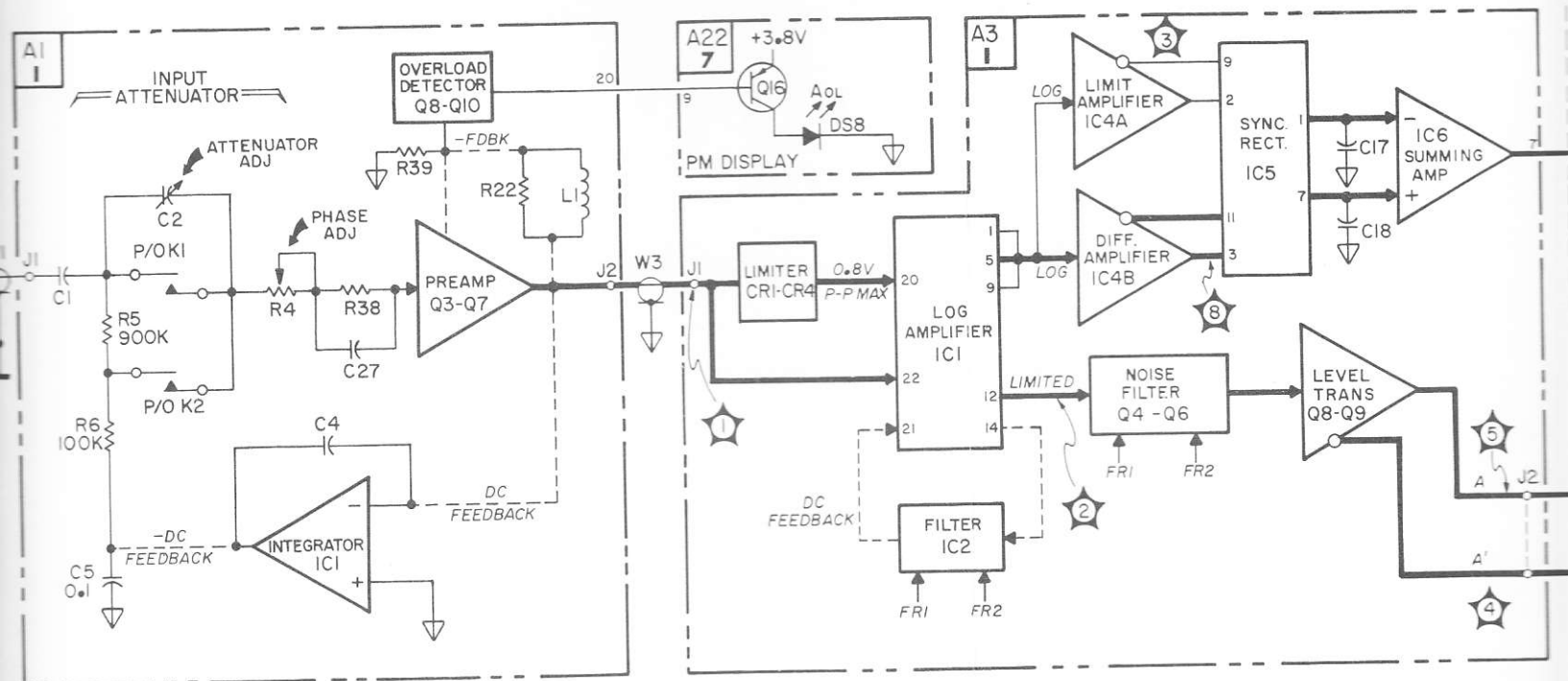
Pin No.	Connection	Pin No.	Connection	Pin No.	Connection
XA1 - 1	GND	13	XA4-13, XA14-9	XA4 - 1	GND
2	GND	14	XA4-14, XA5-20, XA14-10	2	GND
3	GND	15	GND	3	XA2-7, XA16-V, XA8-18
4	GND	16	GND	4	XA2-20, XA8-19-A, XA12-F, XA16-9
5	XA3-4, XA7-2, XA5-5, XA4-9	17	GND	5	NC
6	XA7-6, XA6-7	18	XA4-18, XA5-18, XA6-18, XA3-18	6	XA8-20
7	XA8-W, XA16-18	19	XA1-18, XA7-20, XA16-S	7	XA8-Y
8	NC	19	XA4-19, XA5-19, XA6-19, XA3-19	8	XA16-13, XA5-3, XA6-3, XA8-X-1
9	XA7-3	20	XA1-19, XA7-21, XA16-14	9	XA5-5, XA3-4, XA1-5, XA7-2
10	XA3-10, XA14-4	20	XA4-4, XA8-19-2, XA12-F, XA16-R	10	XA2-10, XA14-4
11	XA3-11, XA14-7, XA7-4	21	NC	11	XA2-11, XA7-D, XA14-6
12	XA3-12, XA7-12-NC, XA14-8	22	XA2-8, XA12-Y, XA16-17	12	XA14-8
13	XA3-13, XA14-9			13	XA2-13, XA14-9
14	XA3-14, XA14-10			14	XA2-14, XA5-20, XA14-10
15	GND			15	GND
16	GND	XA3 - 1	GND	16	GND
17	GND	2	GND	17	GND
18	XA3-18, XA6-18, XA5-18, XA4-18, XA2-18, XA7-20, XA16-S	3	XA7-A, XA5-2, XA6-2, XA2-9	18	XA2-18, XA5-18, XA6-18, XA3-18, XA1-18, XA7-20, XA16-S
19	XA3-19, XA6-19, XA5-19, XA4-19, XA2-19, XA7-21, XA16-14	4	XA1-5, XA7-2, XA5-5, XA4-9	19	XA2-19, XA5-19, XA6-19, XA3-19
20	XA16-13, XA4-8, XA5-3, XA6-3, XA8-X, XA12-D	5	NC	19	XA1-19, XA7-21, XA16-14
21	NC	6	XA8-21	20	NC
22	NC	7	XA8-22	21	XA8-9-K, XA5-21, XA16-T
		8	XA7-8-J, XA11-21, XA6-9	22	XA7-Z
		9	XA7-1		
		10	XA1-10, XA14-4	XA5 - 1	GND
		11	XA1-11, XA14-7, XA7-4	2	XA6-2, XA2-9, XA3-3, XA7-A
		12	XA1-12, XA7-12-NC, XA14-8	3	XA6-3, XA4-8, XA16-13, XA8-X-1, XA12-D
		13	XA1-13, XA14-9	4	XA6-4, XA8-V
		14	XA1-14, XA14-10	5	XA4-9, XA3-4, XA1-5, XA7-2
		15	GND	6	XA6-5
		16	GND	7	XA6-6
		17	GND	8	NC
		18	XA1-18, XA6-18, XA5-18, XA4-18, XA2-18, XA7-20, XA16-S	9	XA11-22
		19	XA1-19, XA6-19, XA5-19, XA4-19, XA2-19, XA7-21, XA16-14	10	XA6-10, XA11-14, XA14-4, XA7-10-L
		20	NC		
		21	NC		
		22	XA7-22		
XA2 - 1	GND				
2	GND				
3	GND				
4	GND				
5	NC				
6	NC				
7	XA16-V, XA4-3, XA8-18				
8	XA12-Y, XA2-22, XA16-17				
9	XA5-2, XA6-2, XA3-3, XA7-A				
10	XA4-10, XA14-4				
11	XA4-11, XA14-6, XA7-D				
12	NC				



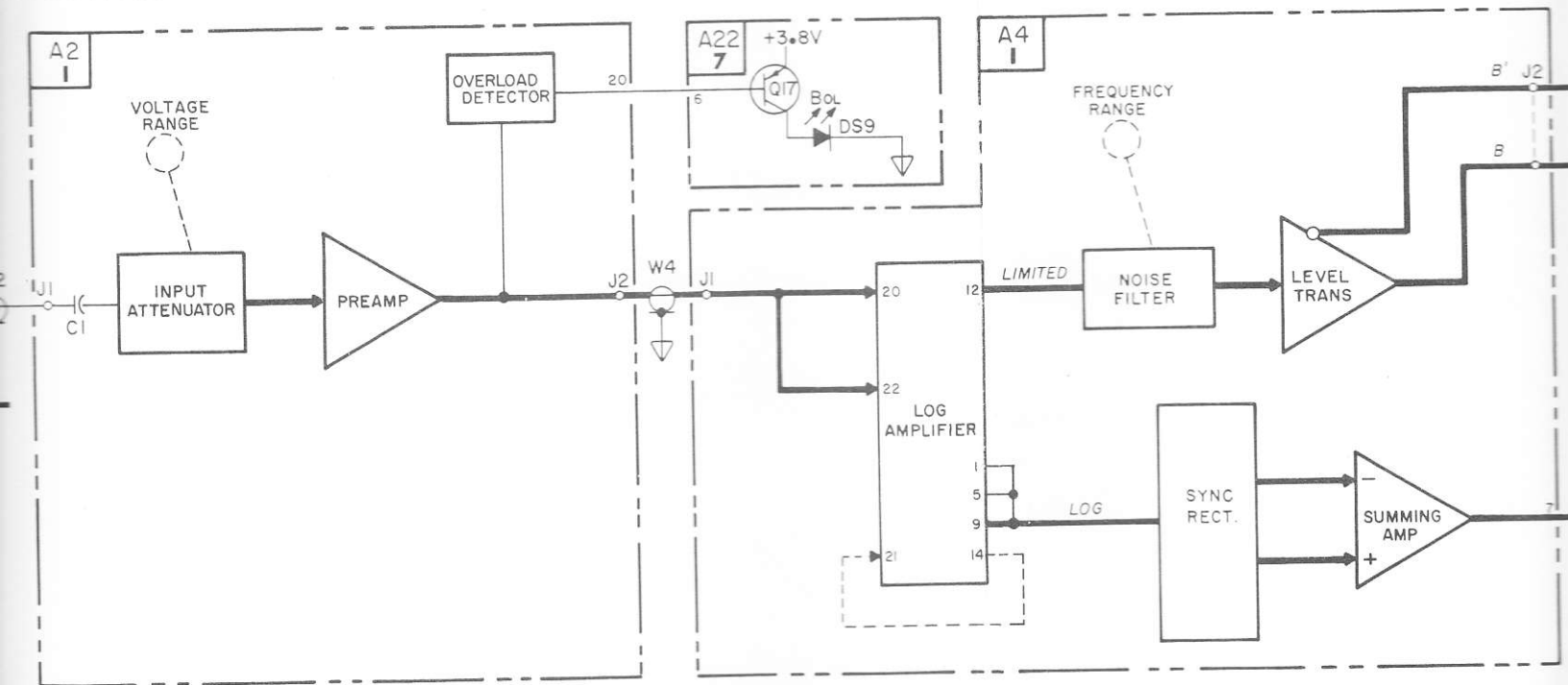
COPYRIGHT 1972 by HEWLETT-PACKARD COMPANY  
3575-J-2844

Figure 7-1. Functional Block Diagram.  
7-5/7-6

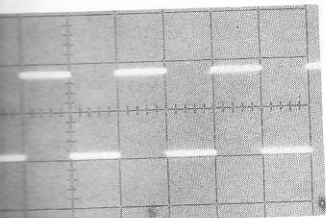




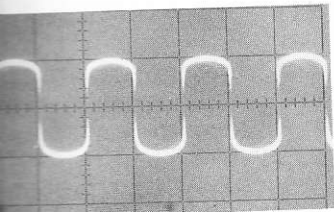
NOTE:  
CHANNELS A AND B ARE IDENTICAL. CHANNEL B IS SHOWN IN SIMPLIFIED BLOCK FORMAT.



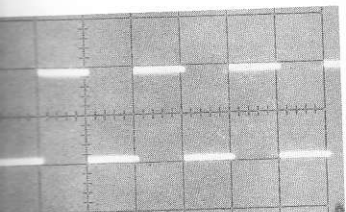




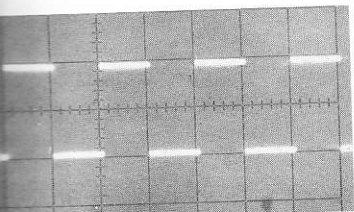
1 V/cm (10 X .1 V range)



.5 V/cm (10 X .05 range)

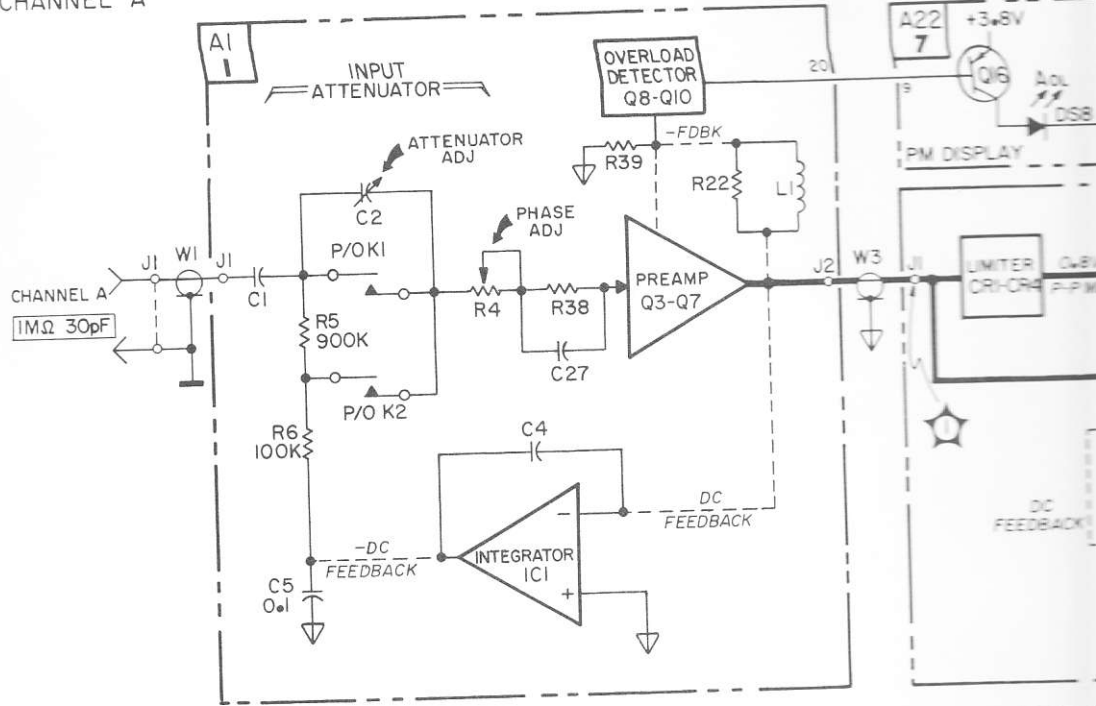


.5 V/cm (10 X .05 range)



.5 V/cm (10 X .05 range)

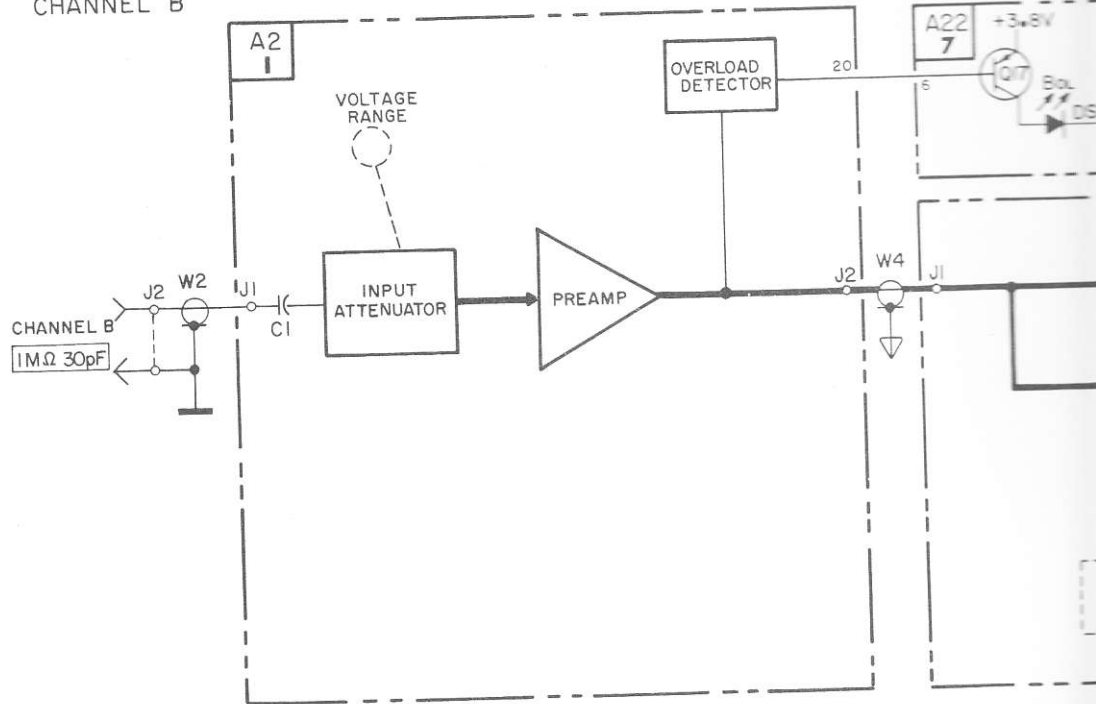
CHANNEL A



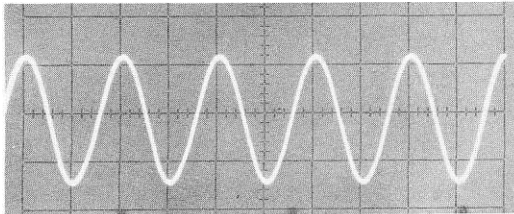
NOTE:

CHANNELS A AND B ARE IDENTICAL. CHANNEL B IS SHOWN IN SIMPLIFIED BLOCK FORM.

CHANNEL B

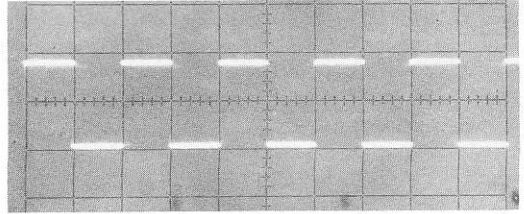


1



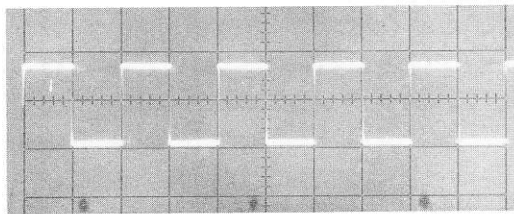
.5 ms/cm, 2 V/cm (10 X .2 V range)

5



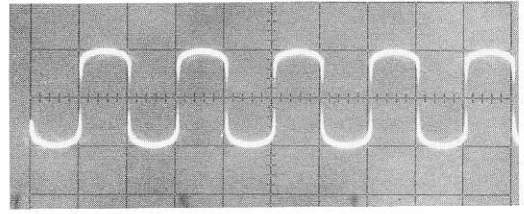
.5 ms/cm, 1 V/cm (10 X .1 V range)

2



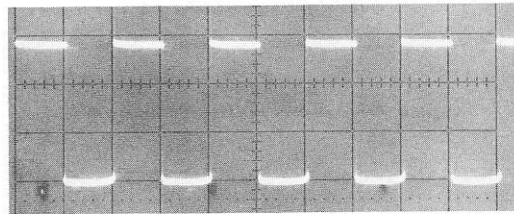
.5 ms/cm, .5 V/cm (10 X .05 V range)

8



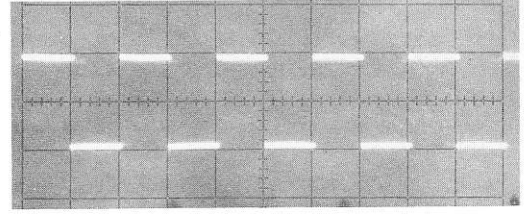
.5 ms/cm, .5 V cm (10 X .05 range)

3



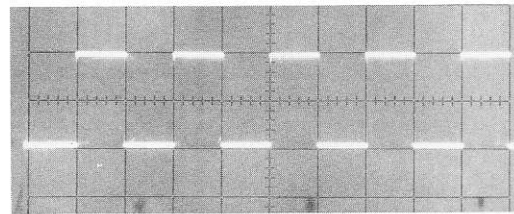
.5 ms/cm, .2 V/cm (10 X .02 V range)

9



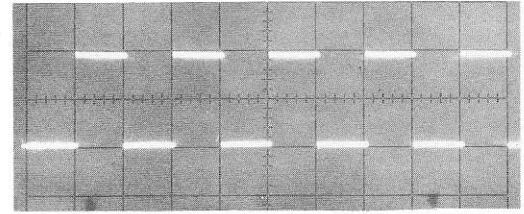
.5 ms/cm, .5 V/cm (10 X .05 range)

4



.5 ms/cm, 1 V/cm (10 X .1 V range)

10



.5 ms/cm, .5 V/cm (10 X .05 range)

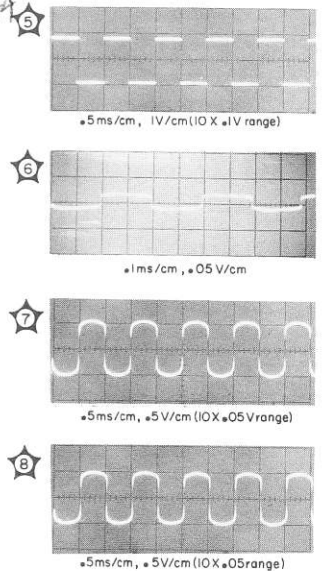
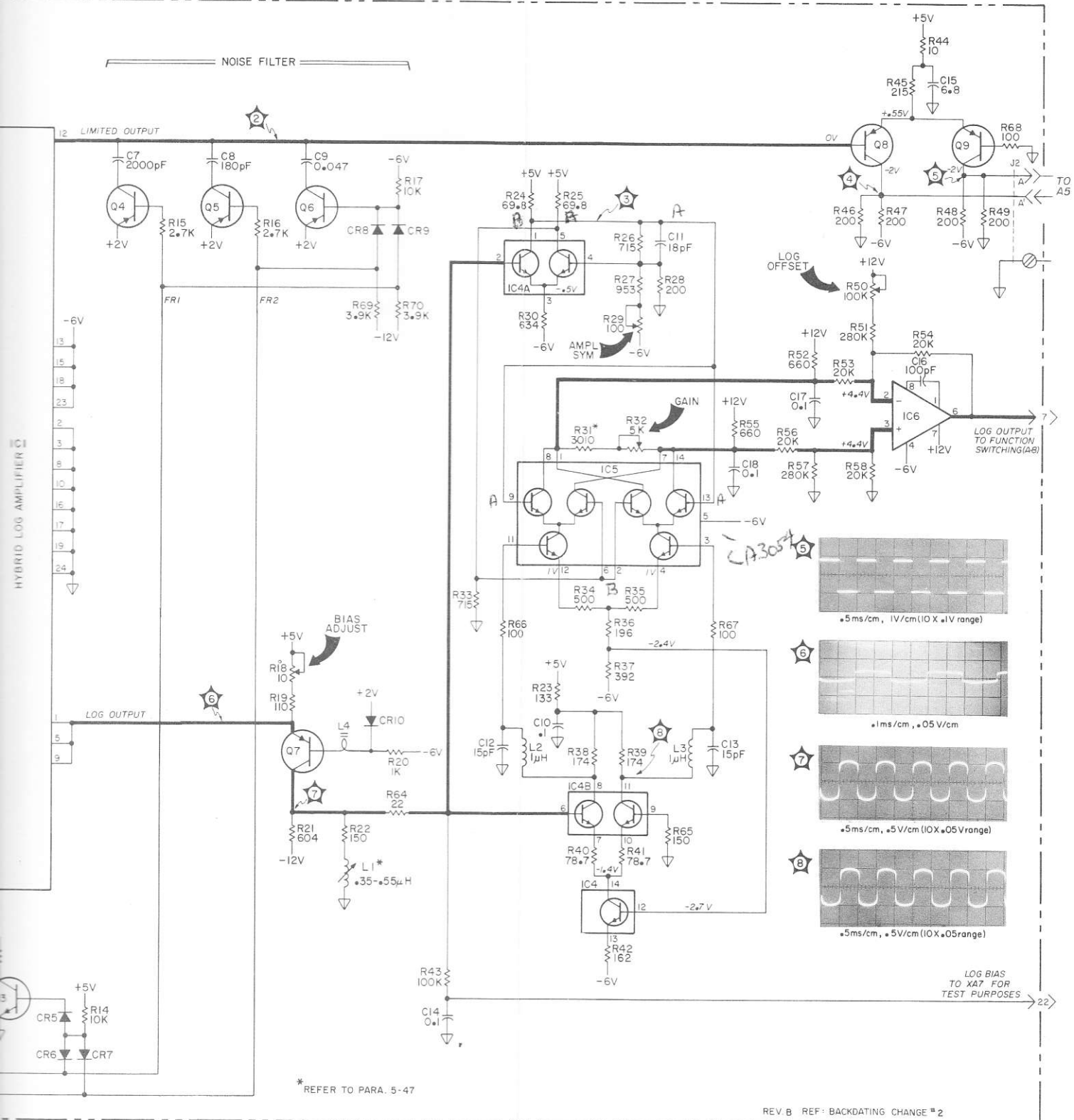
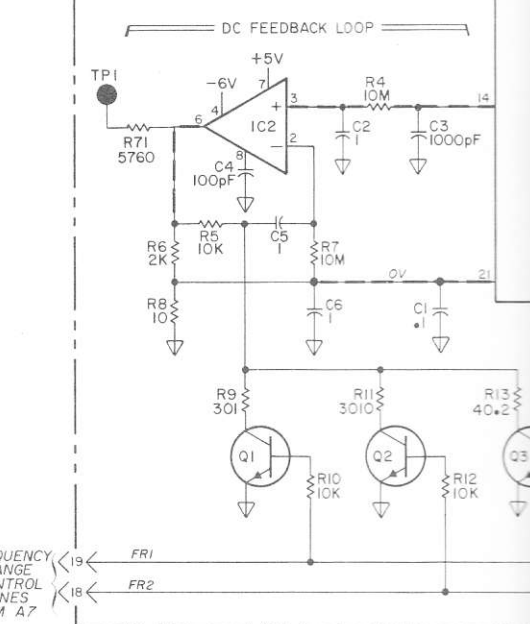
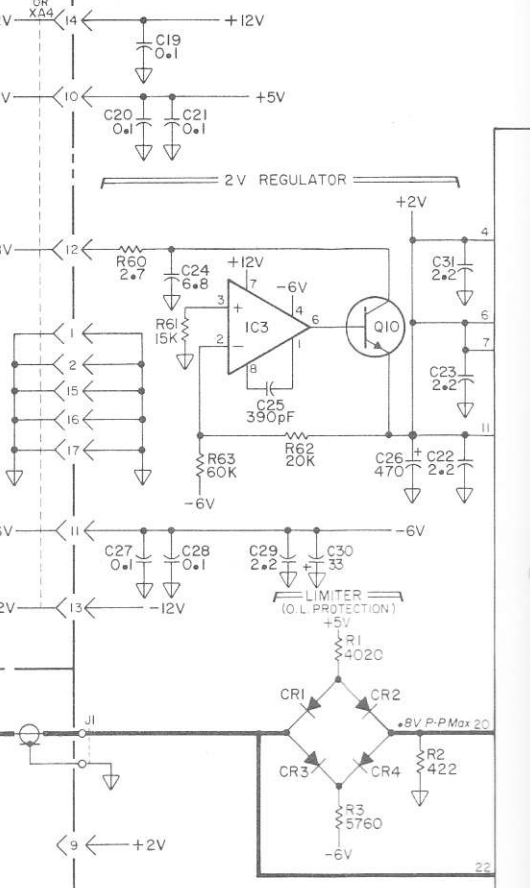
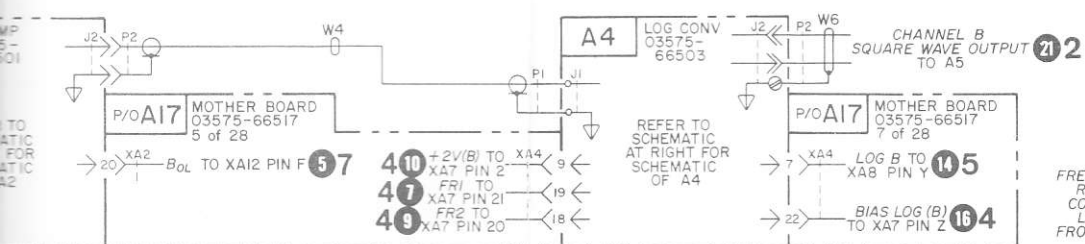
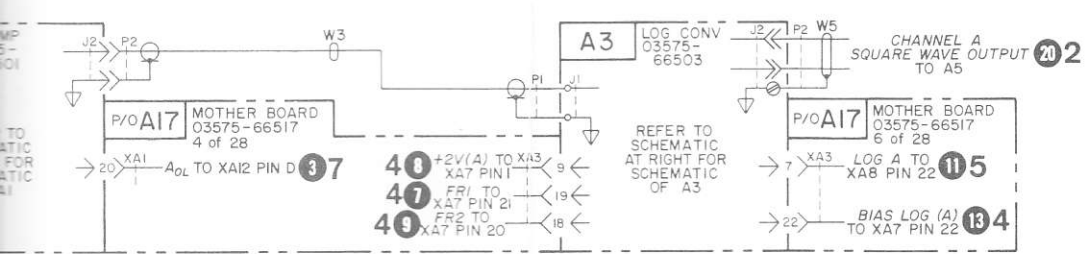
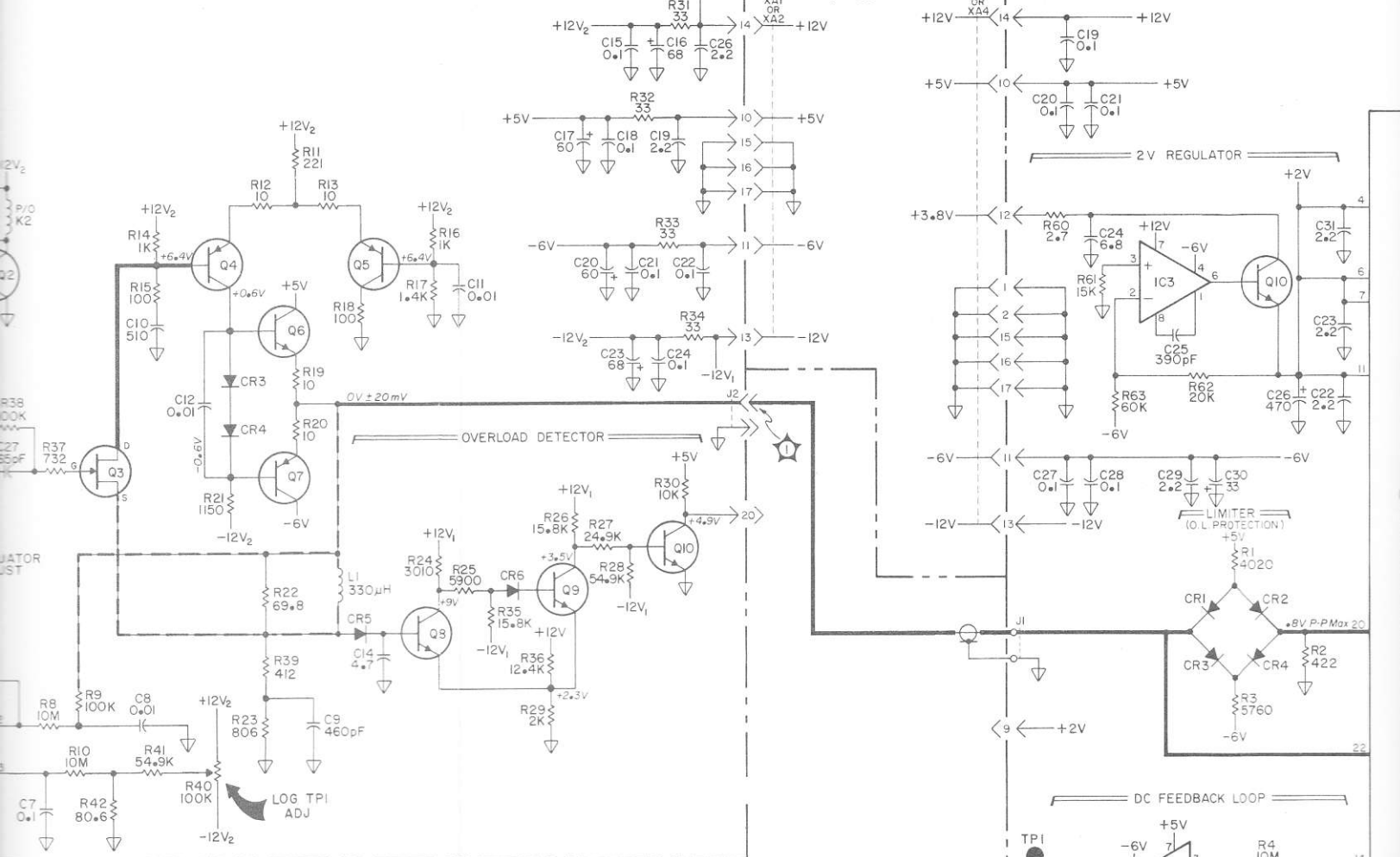


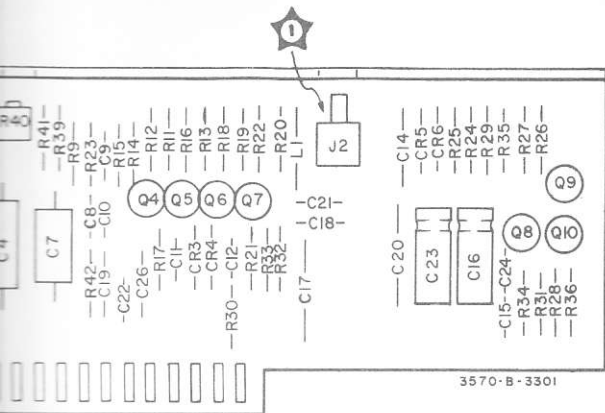
Figure 7-2. Preamplifier (A1/A2) and Log Converter (A3/A4) Schematics and Component Location Diagrams.

7-7/7-8

P/O A17 MOTHER BOARD 03575-66517 1 of 28

A3 OR A4 LOG CONVERTER 03575-66503

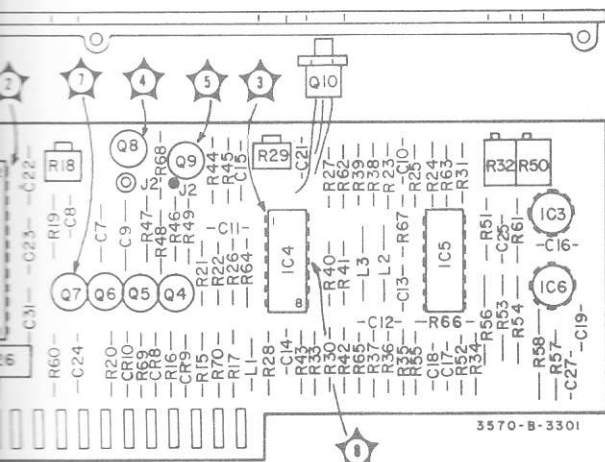




A1 or A2

hp Part No. 03575-66501

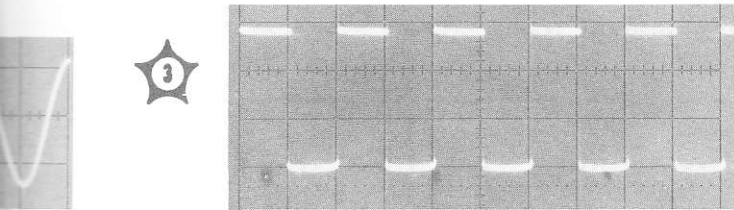
Rev. D



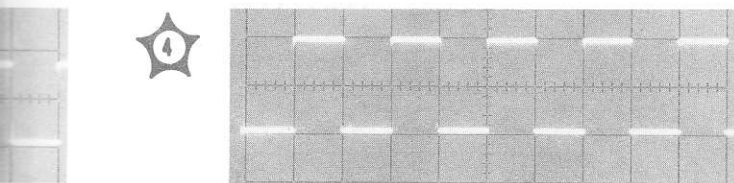
A3 or A4

hp Part No. 03575-66503

Rev. C

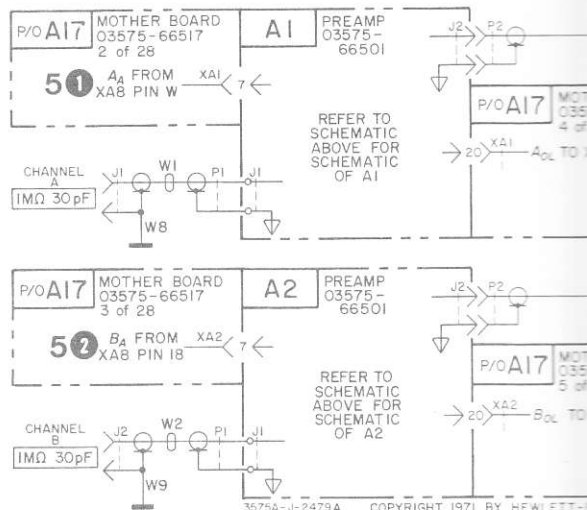
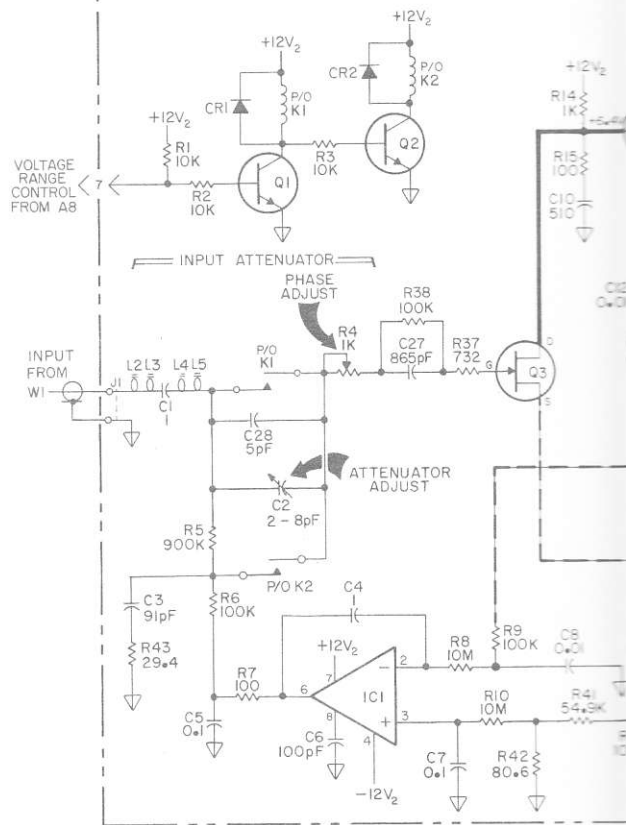


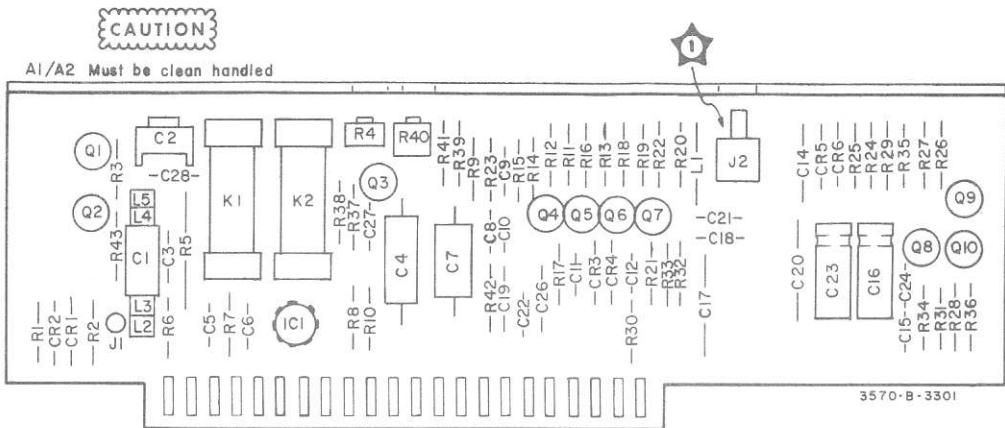
.5 ms/cm, .2 V/cm (10x .02 V range)



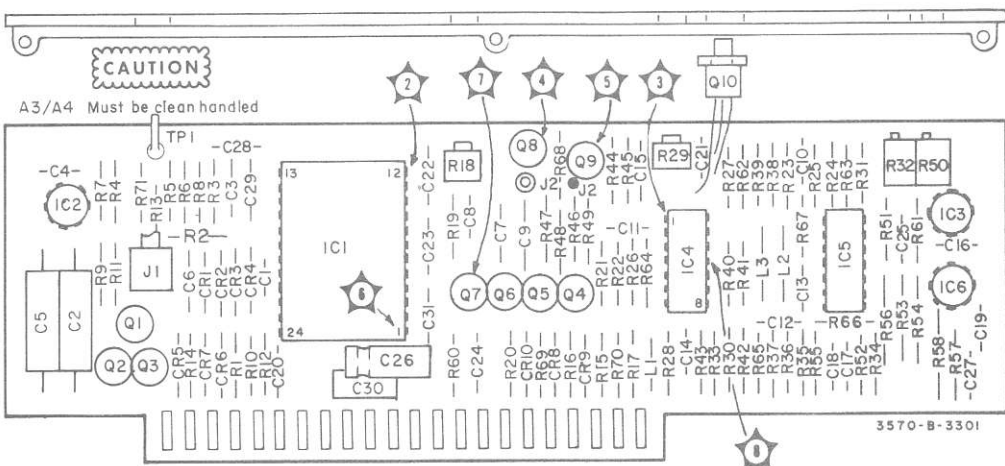
.5 ms/cm, 1 V/cm (10x .1 V range)

A1 OR A2 PREAMPLIFIER 03575-66501

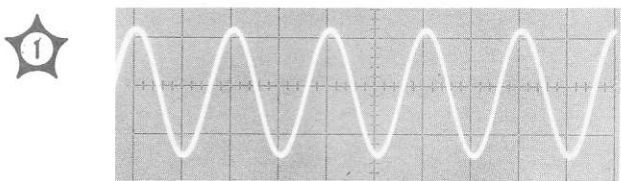




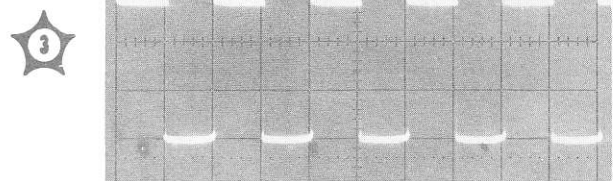
A1 or A2  
 hp Part No. 03575-66501  
 Rev. D



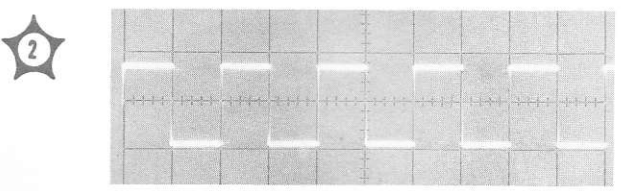
A3 or A4  
 hp Part No. 03575-66503  
 Rev. C



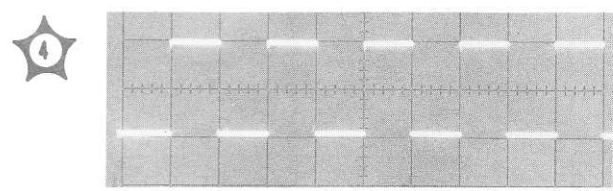
.5 ms/cm, 2 V/cm (10x .2 V range)



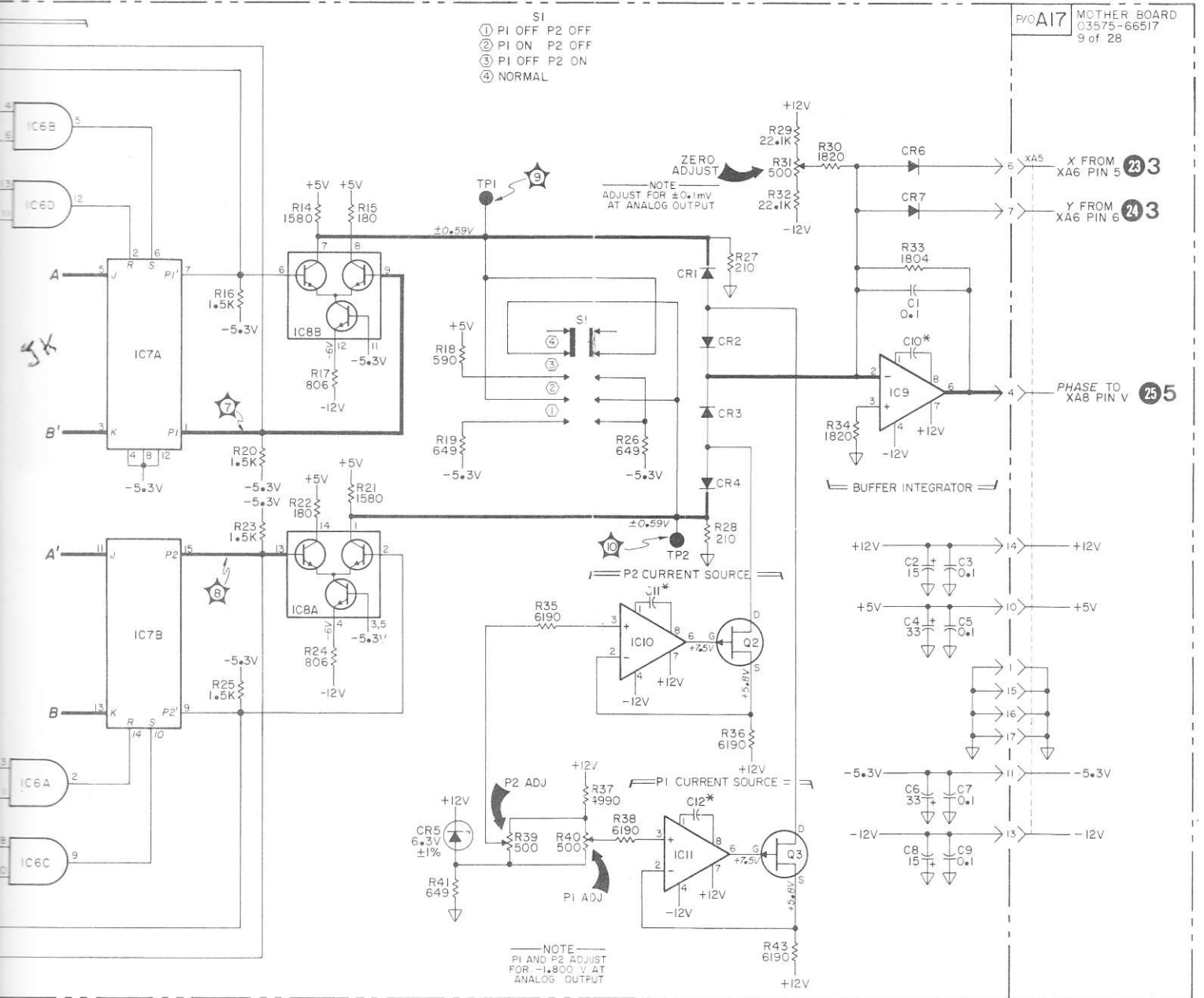
.5 ms/cm, .2 V/cm (10x .02 V range)



.5 ms/cm, .5 V/cm (10x .05 V range)



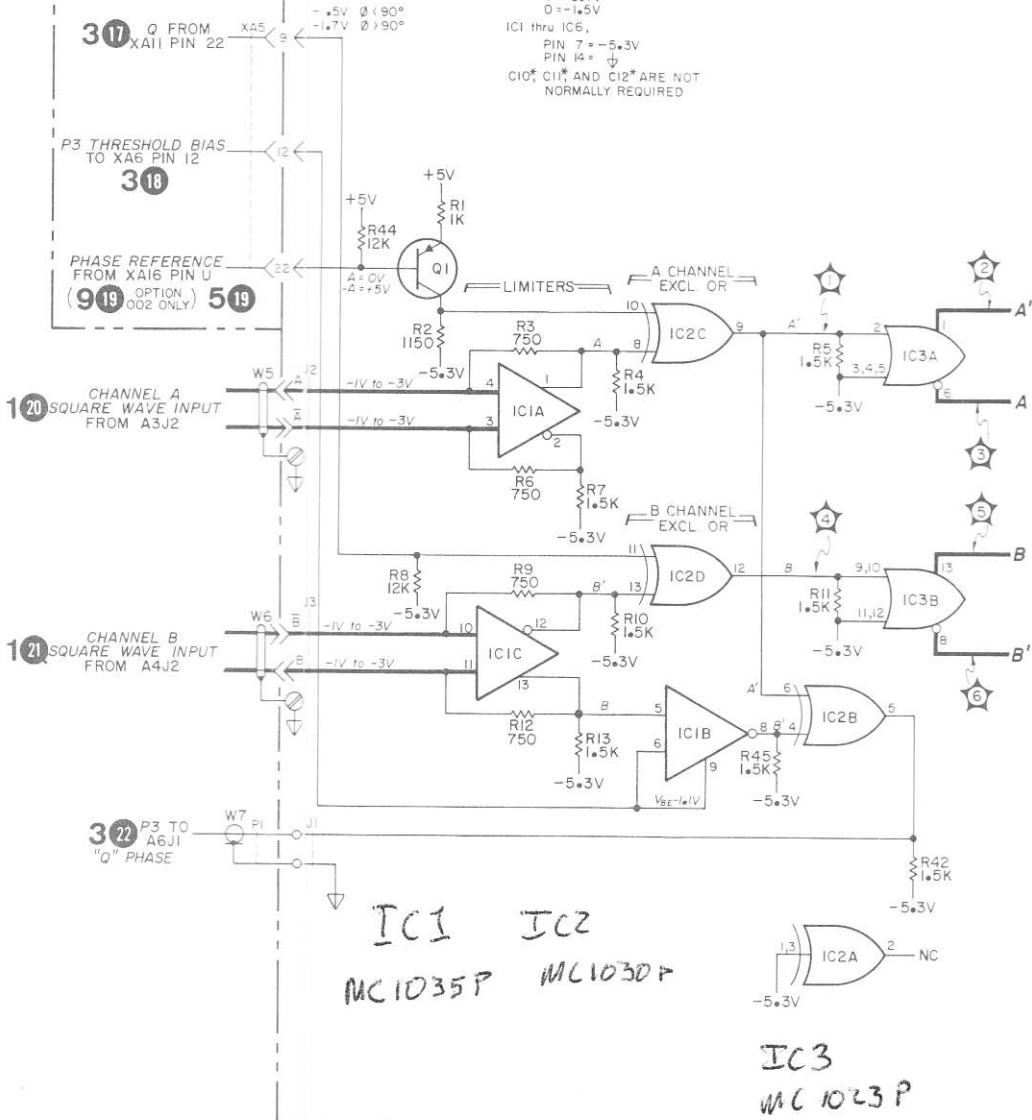
.5 ms/cm, 1 V/cm (10x .1 V range)



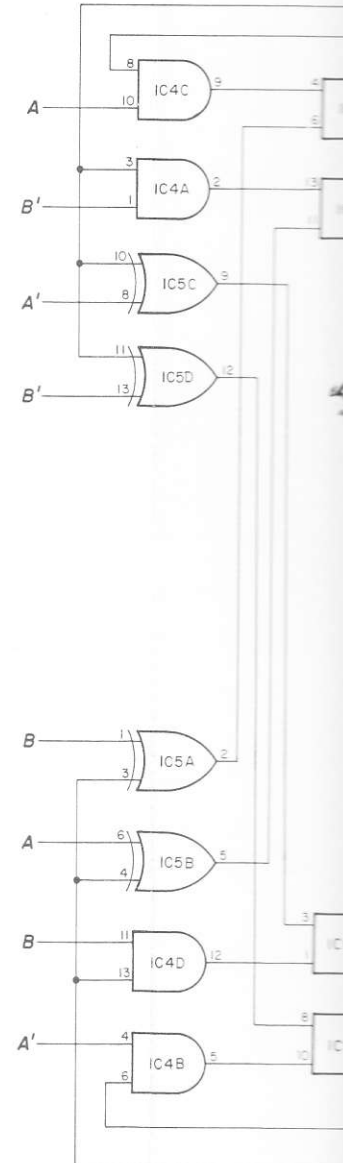
7  
 dual AC coupled  
 JK FF

Figure 7-3. Phase Detector (A5) Schematic and Component Location Diagram.

NOTES:  
 IC1-IC7 USE ECL LOGIC  
 I = -0.7V  
 O = -1.5V  
 IC1 thru IC6,  
 PIN 7 = -5.3V  
 PIN 14 =  $\phi$   
 IC10, IC11, AND IC12 ARE NOT  
 NORMALLY REQUIRED

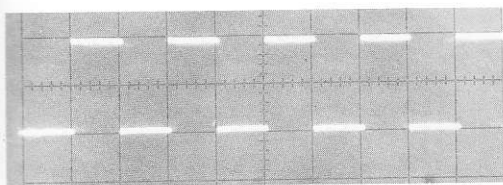
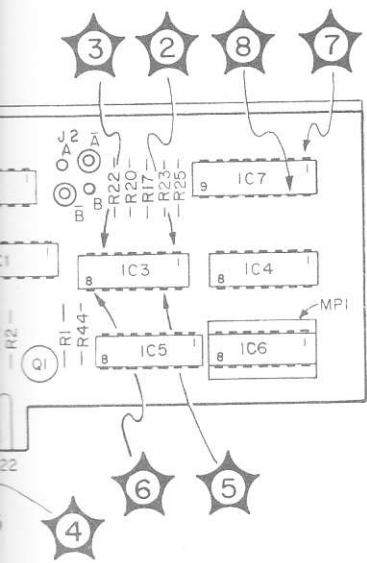


ERROR CORRECTION

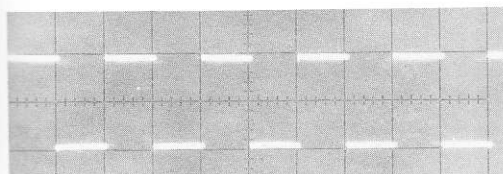


IC4 MC 1047B  
 IC5 MC1030P  
 IC6 MC 1047B  
 IC7 ECL  
 JK





.5 ms/cm, .5 V/cm (10x .05 range)



.5 ms/cm, .5 V/cm (10x .05 range)

P/O A17

317

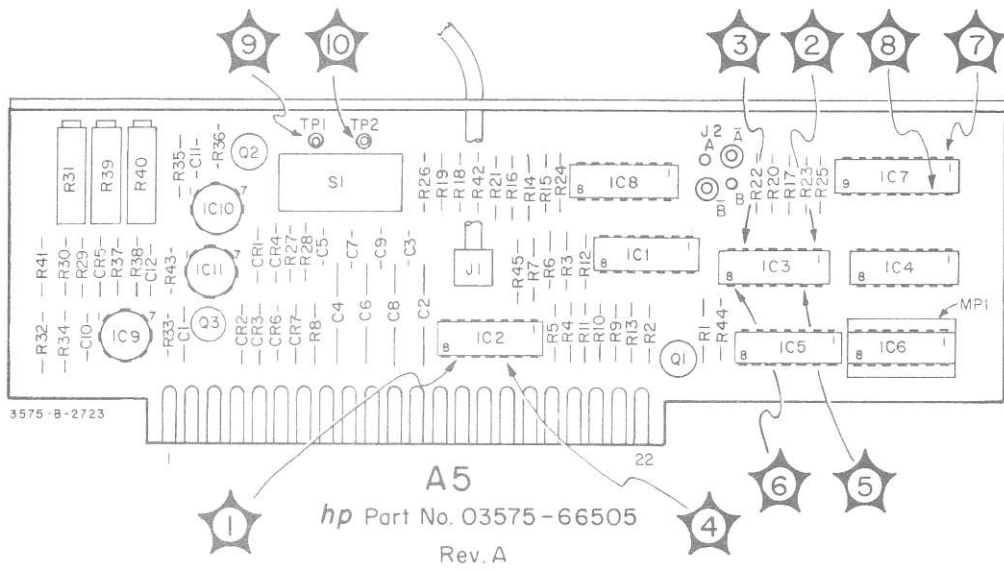
P3 THRESH  
TO XA5  
36

PHASE RE  
FROM XA  
(919)

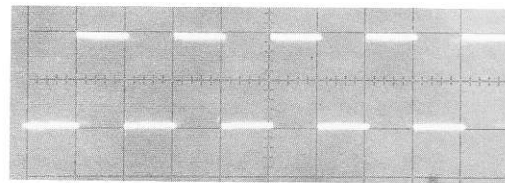
120 CHANN  
SQUARE WA  
FROM

121 CHANN  
SQUARE WA  
FROM

322

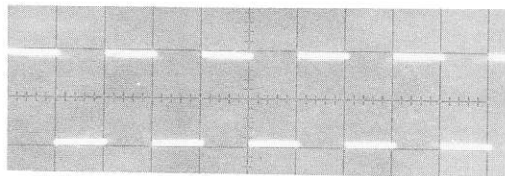


1 2 6 8 & 10



.5 ms/cm, .5 V/cm (10x .05 range)

3 4 5 7 & 9



.5 ms/cm, .5 V/cm (10x .05 range)

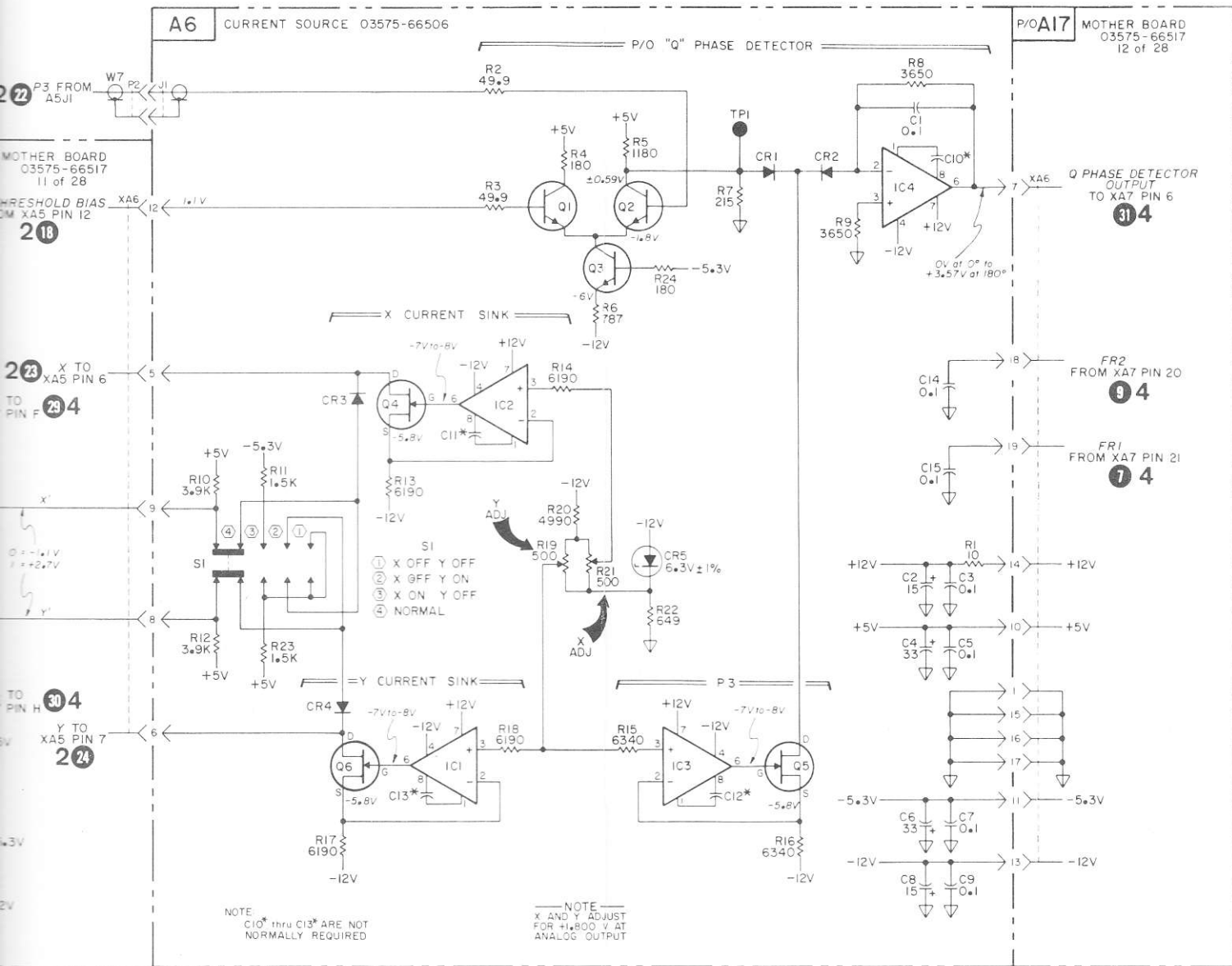
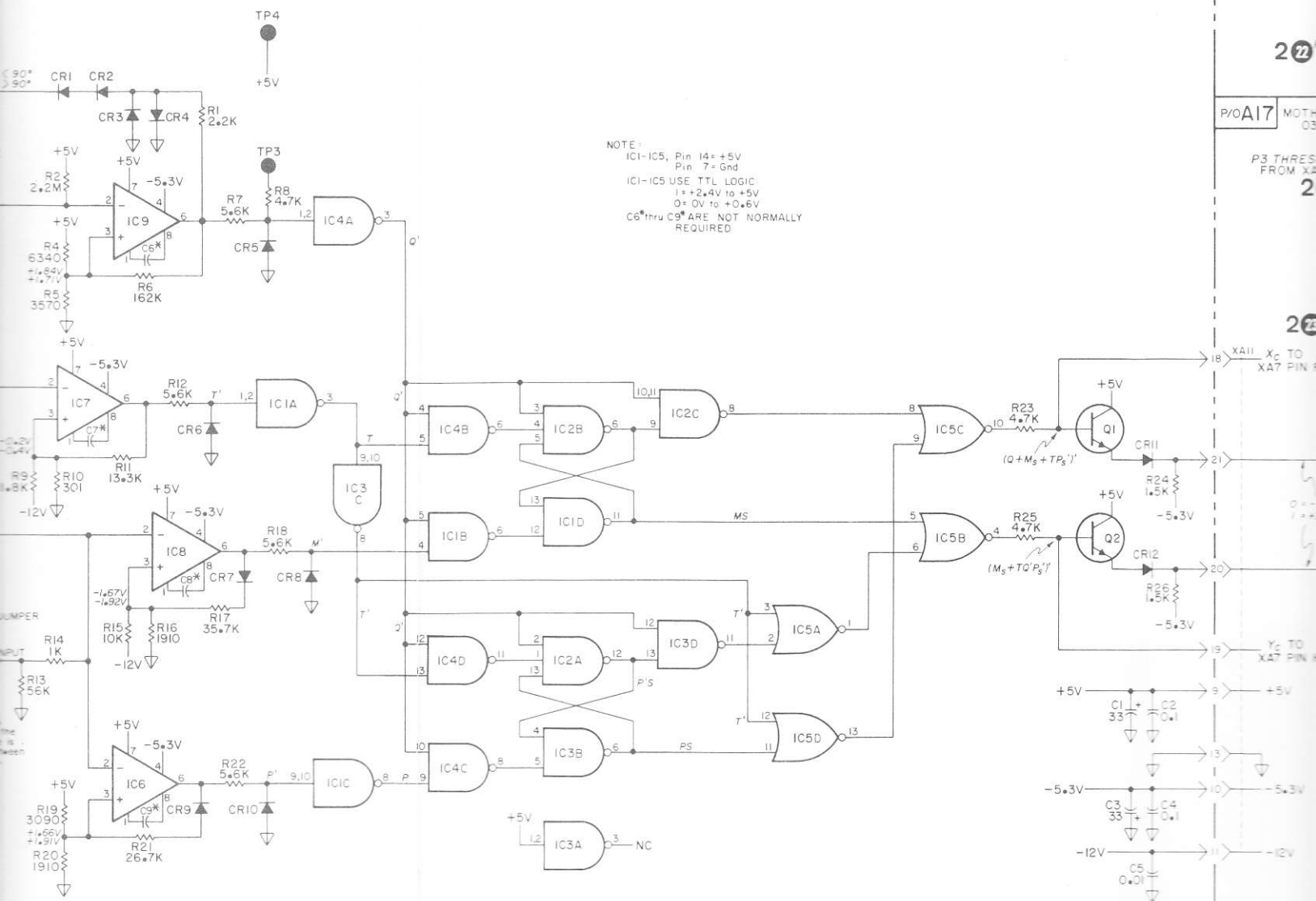


Figure 7-4. Current Source (A6) and Phase Control Logic (A11) Schematics and Component Location Diagrams.



22

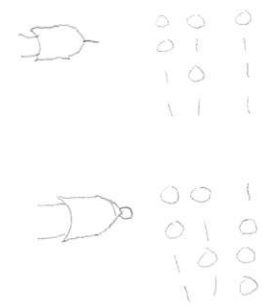
P/OA17 MOTH 03

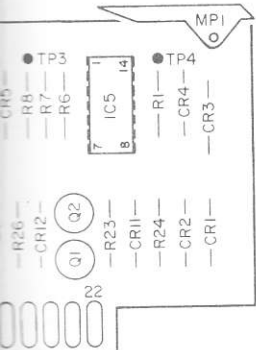
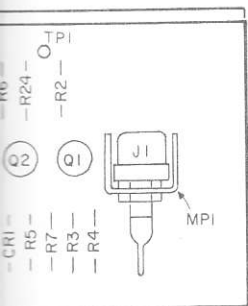
P3 THRESH FROM XA 2

22

XA11 Xc TO XA7 PIN F

Yc TO XA7 PIN H



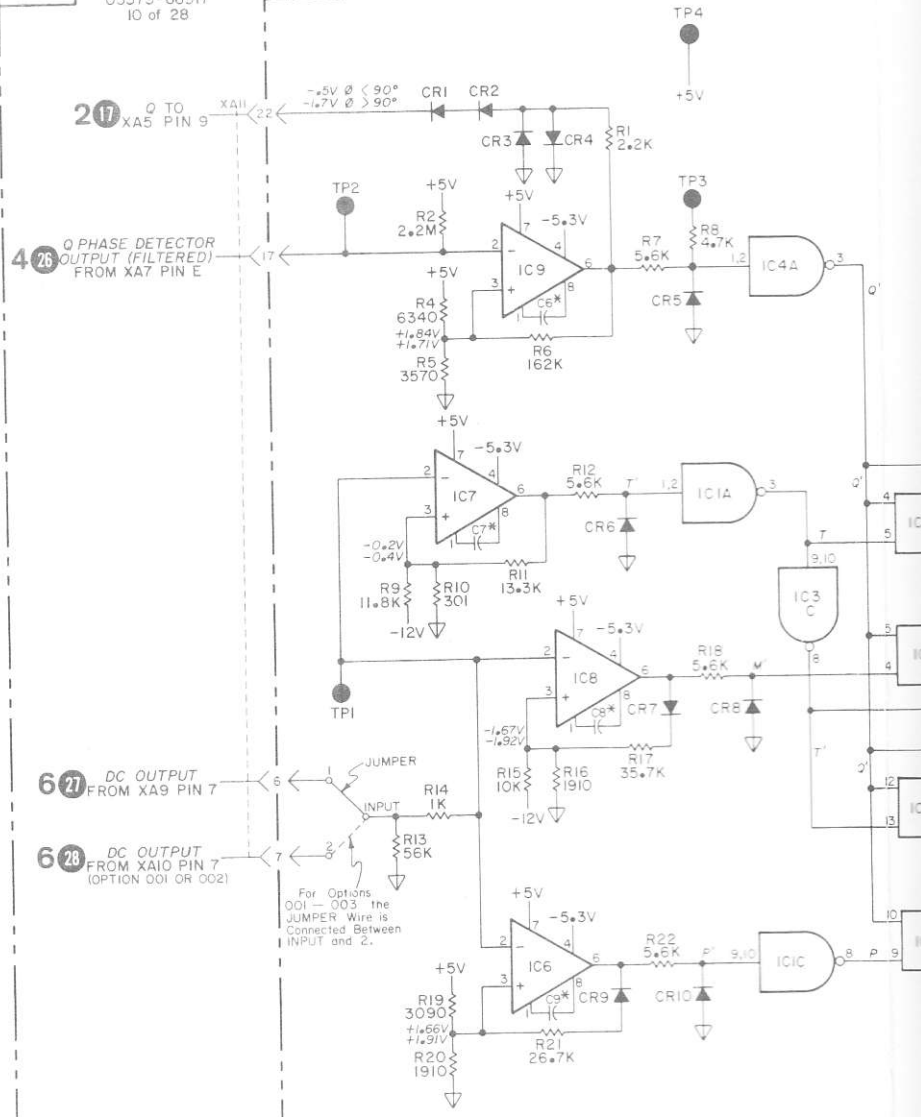


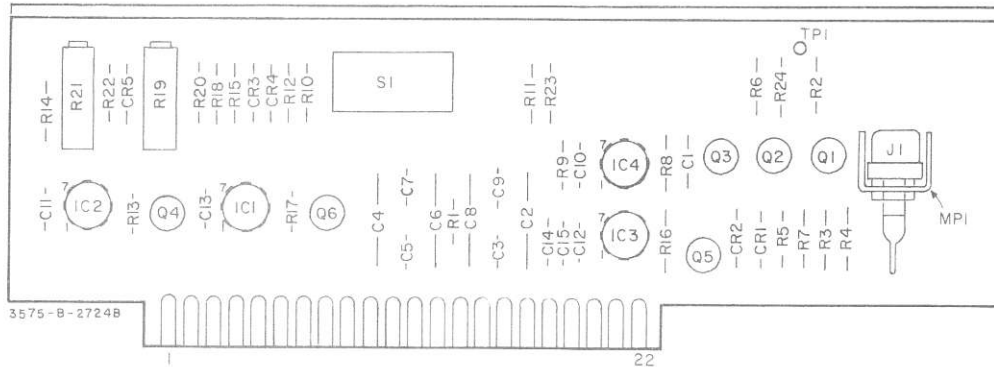
P/O A17

MOTHER BOARD  
03575-66517  
IO of 28

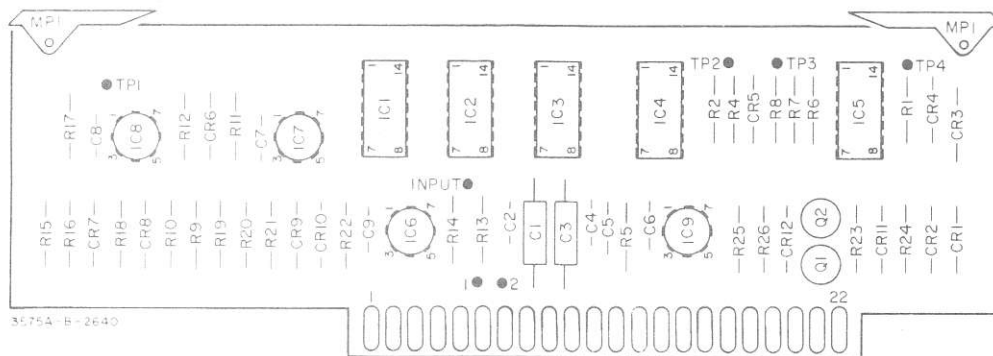
A11

PHASE LOGIC 03575-66511

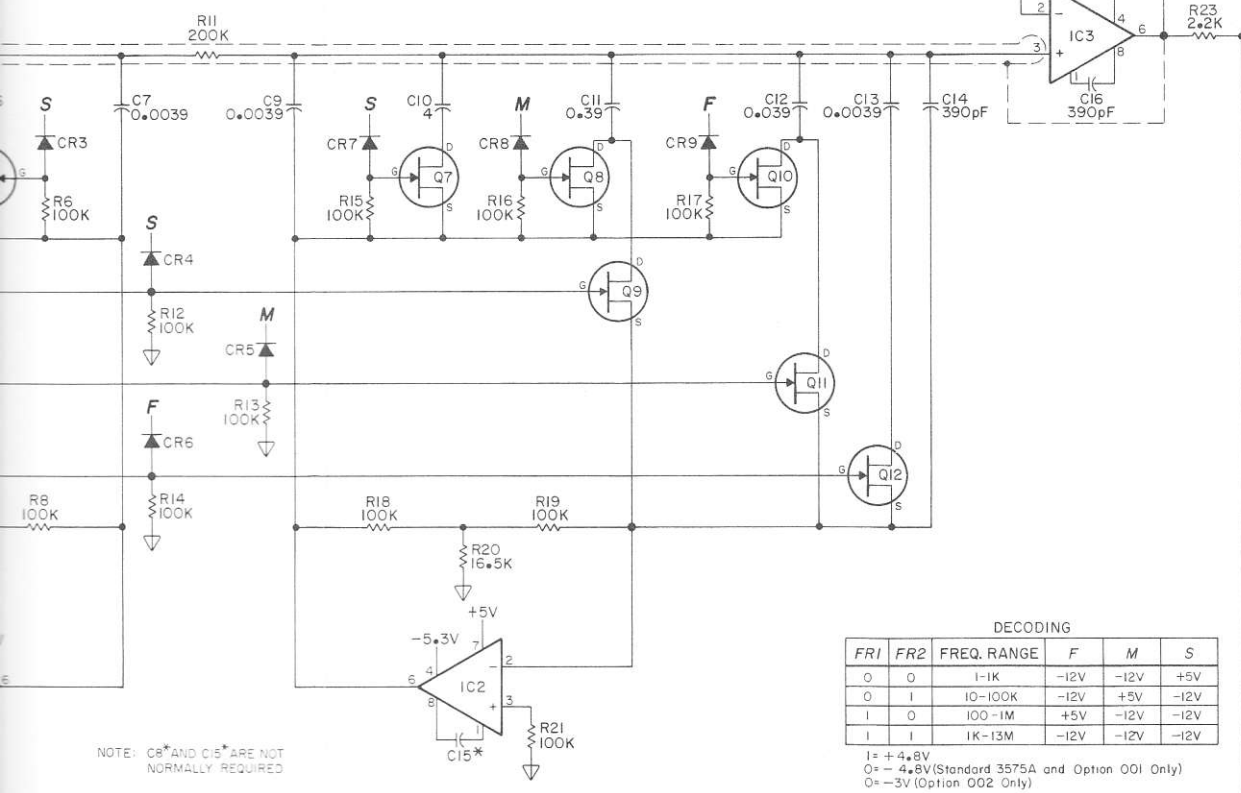




**A6**  
 hp Part No. 03575-66506  
 Rev. B



**A11**  
 hp Part No. 03575-66511  
 Rev A



XA7 Q PHASE DETECTOR  
OUTPUT (FILTERED)  
TO XA11 PIN 17  
**26 3**

- 3 9** FR1 TO XA6 PIN 19
- 1 7** FR1 TO XA3 PIN 19
- 1 7** FR1 TO XA4 PIN 19
- (9 7) OPTION 002 ONLY** - **5 7** FR1 FROM XA16 PIN 14
- 1 9** FR2 TO XA3 PIN 18
- 1 9** FR2 TO XA4 PIN 18
- (9 9) OPTION 002 ONLY** - **5 9** FR2 FROM XA16 PIN 5
- 3 9** FR2 TO XA6 PIN 18

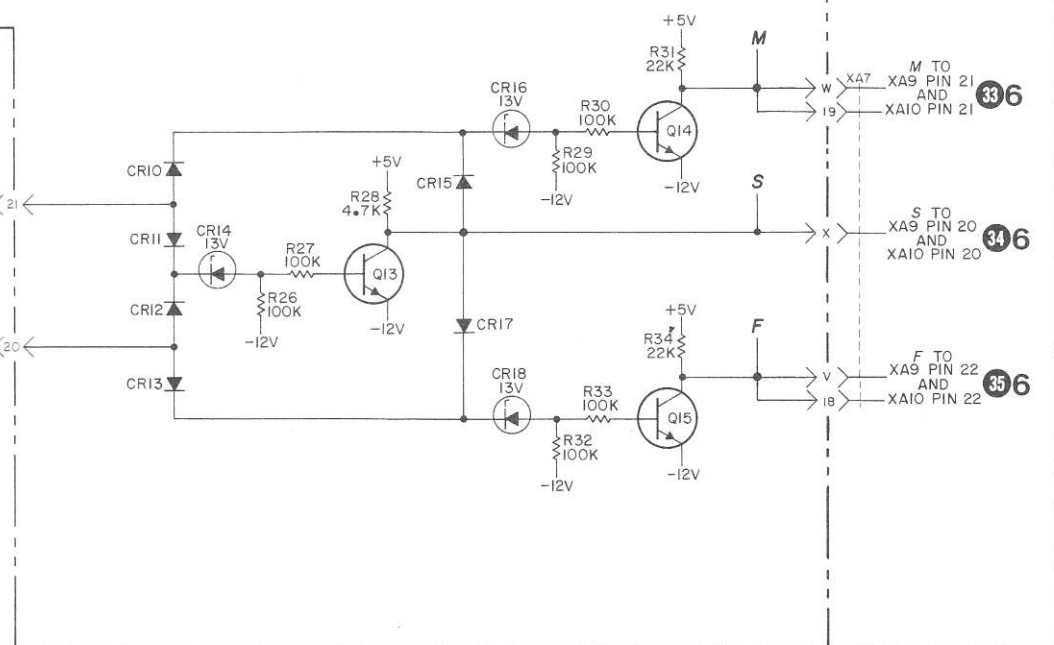
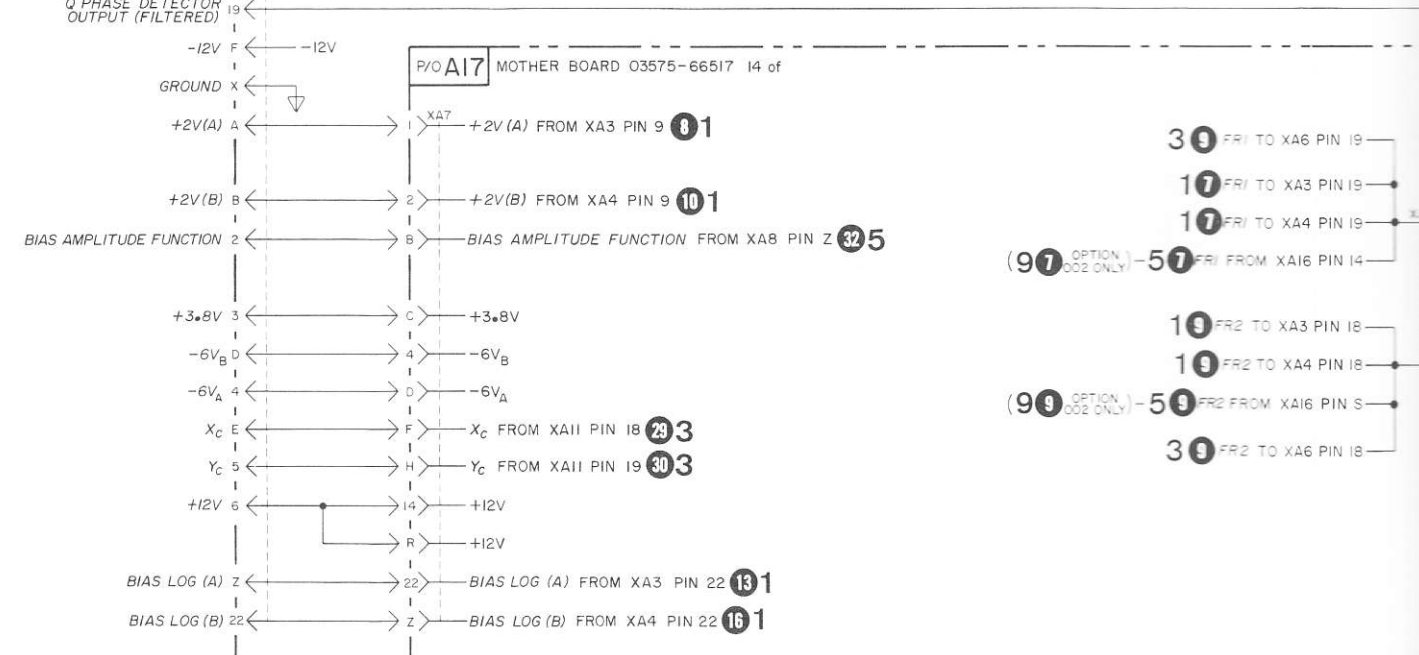
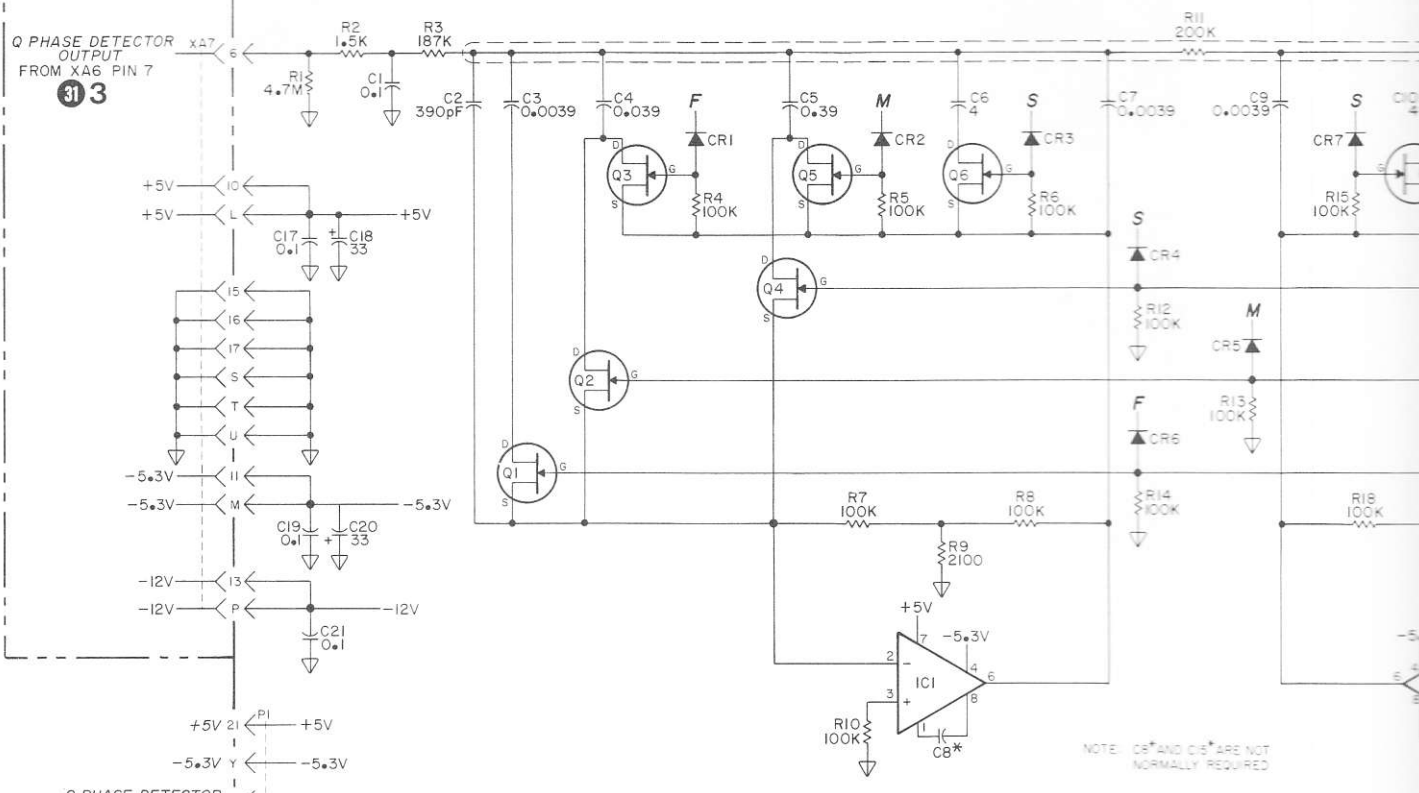
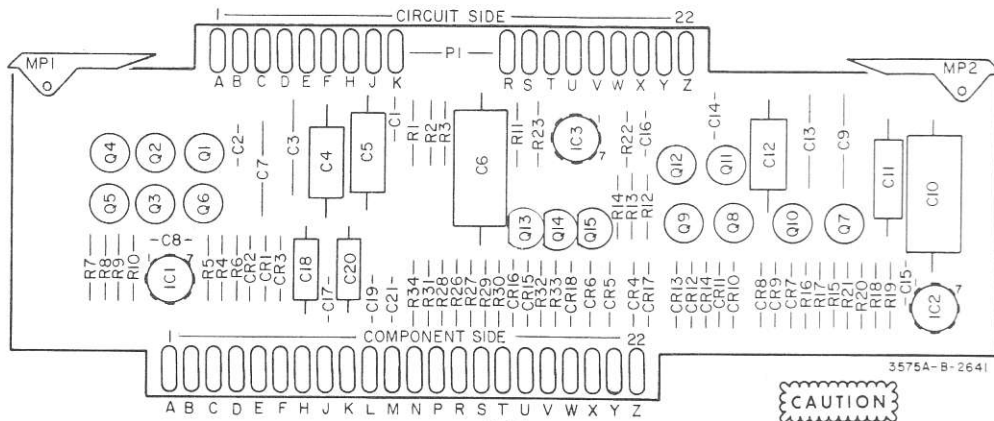


Figure 7-5. Phase Control Filter (A7) Schematic and Component Location Diagram.







**A7**  
 hp Part No. 03575-66507  
 Rev A

**CAUTION**  
 A7 Must be Clean Handled

NOTE	
STANDARD 3575A (ONE PANEL METER)	OPTION 001-003 (TWO PANEL METERS)
JUMPER BETWEEN P1 AND P4	JUMPER BETWEEN P1 AND P3
JUMPER BETWEEN P2 AND P3	JUMPER BETWEEN P2 AND P4
JUMPER BETWEEN P6 AND P7	JUMPER BETWEEN P5 AND P7
JUMPER BETWEEN P8 AND P9	JUMPER BETWEEN P9 AND P10

NOTE:  $\Delta = 2\text{ mV}$  to 20V Range

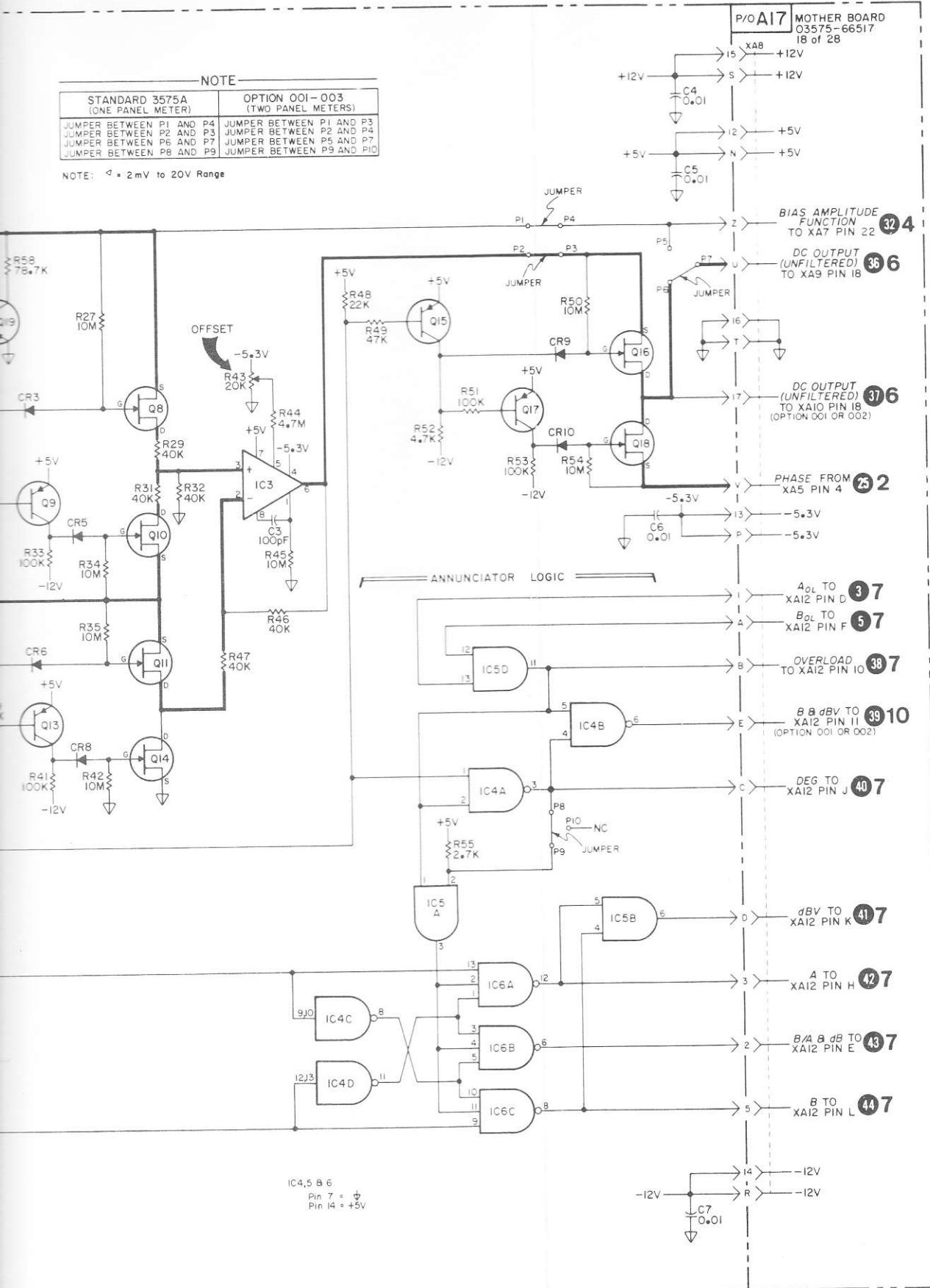
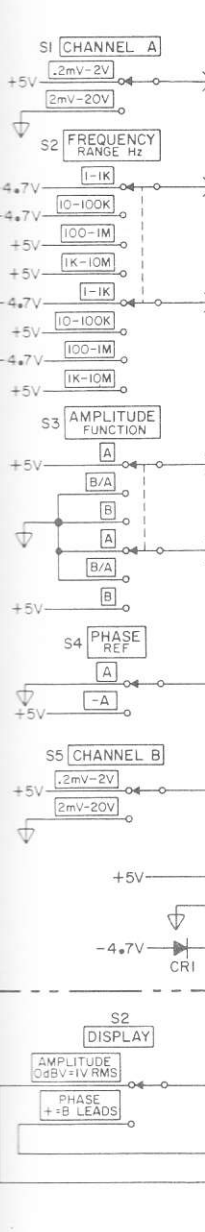
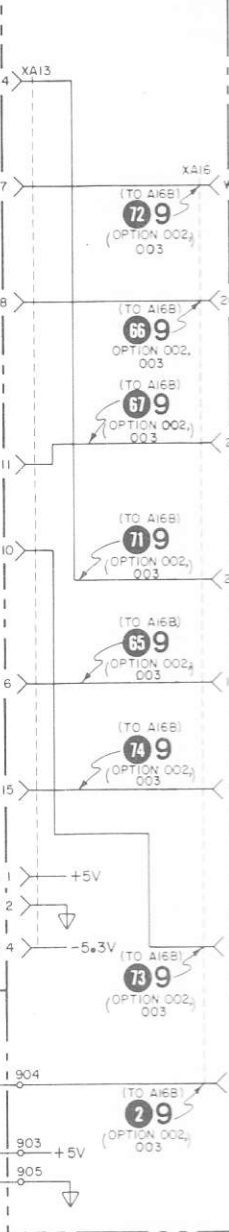


Figure 7-6. Function Switching (A8) and Front Panel Switching (A13) Schematics and Component Location Diagrams.

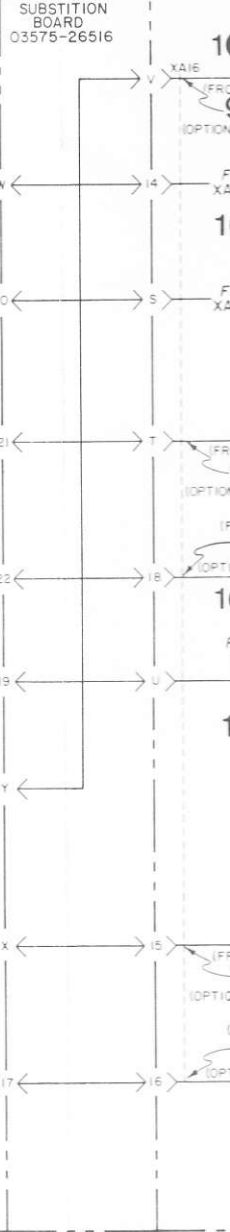
**A13 FRONT PANEL SWITCHING 03575-66513**



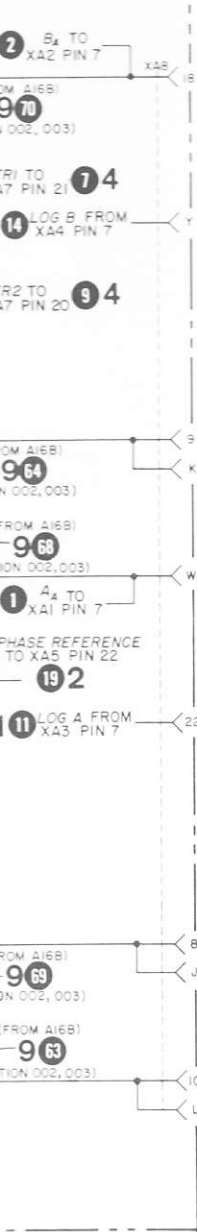
**P/O A17 MOTHER BOARD 03575-66517 16 of 28**



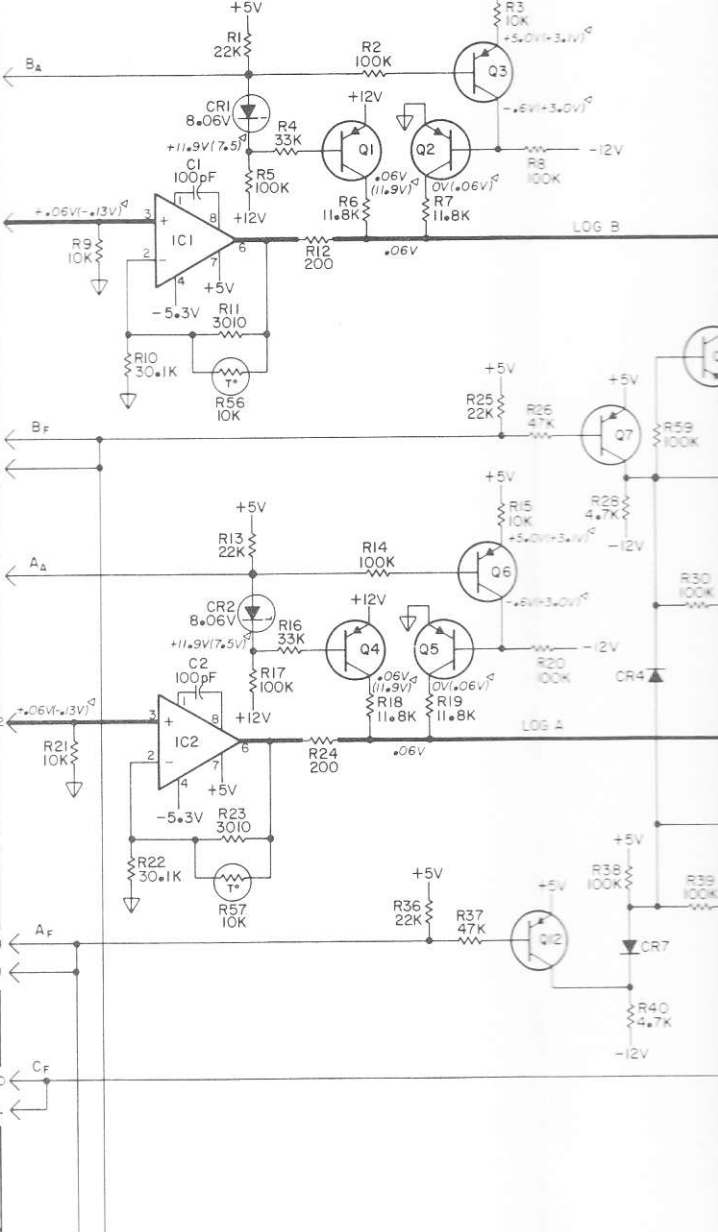
**A16A INTERFACE SUBSTITUTION BOARD 03575-26516**

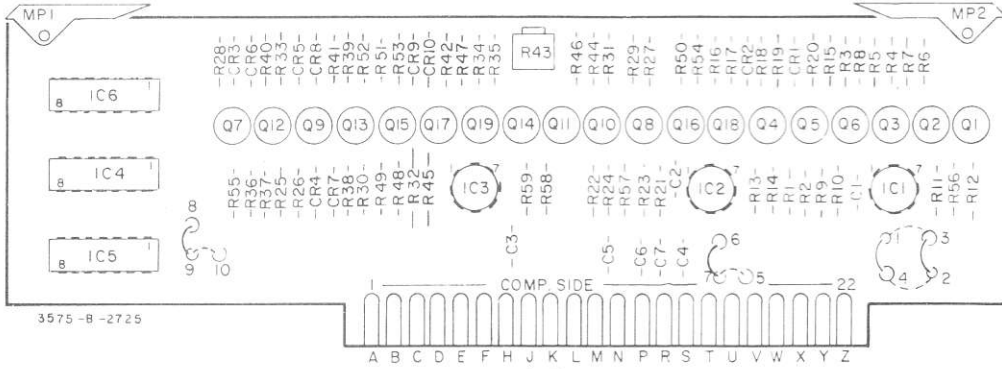


**P/O A17 MOTHER BOARD 03575-66517 17 of 28**



**A8 FUNCTION SWITCHING 03575-66508**



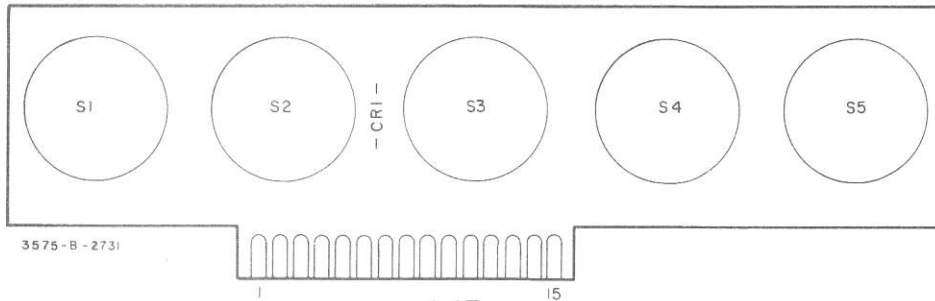


3575-B-2725

A B C D E F H J K L M N P R S T U V W X Y Z

**A8**

hp Part No. 03575-66508  
Rev. A

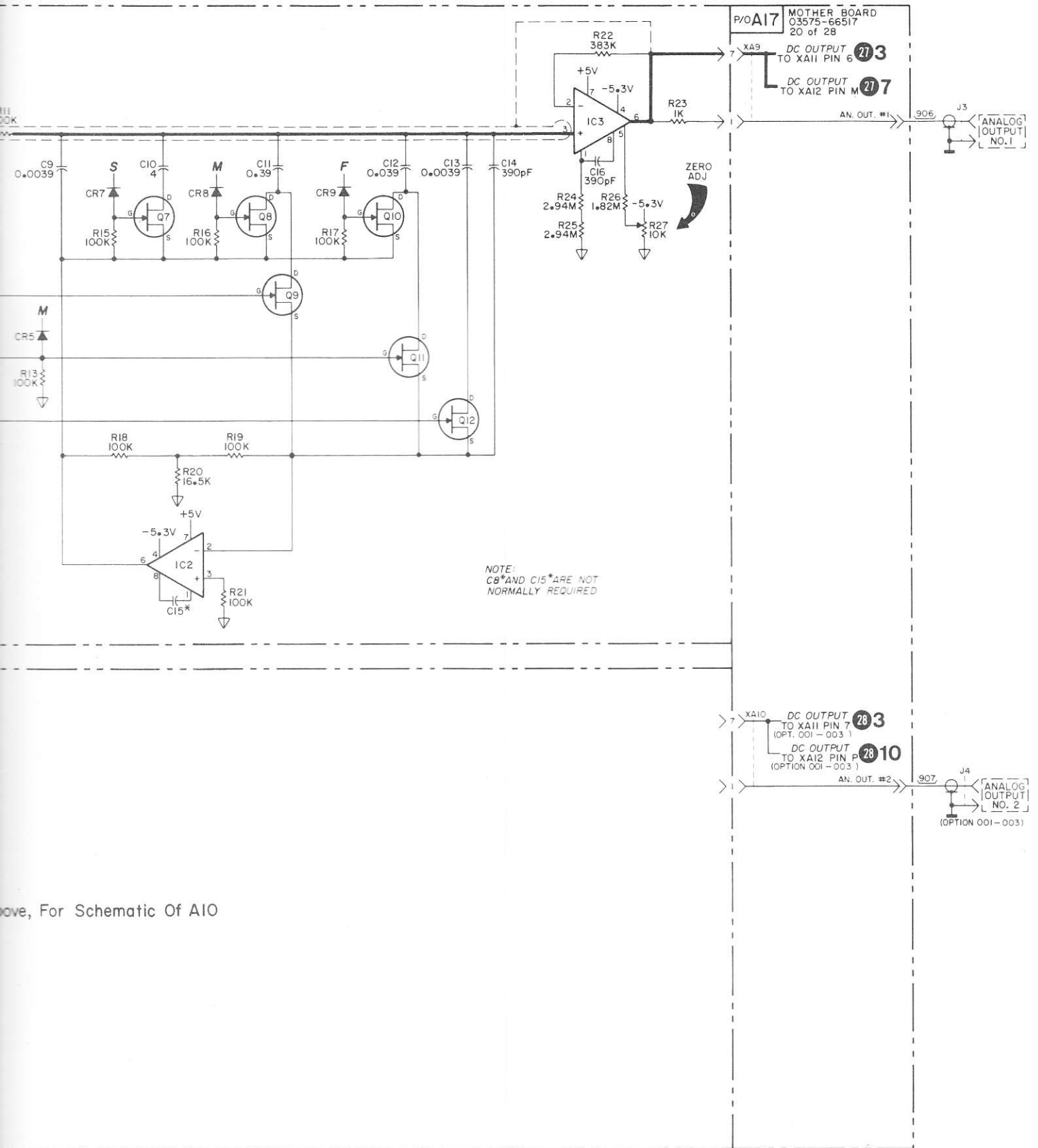


3575-B-2731

1 15

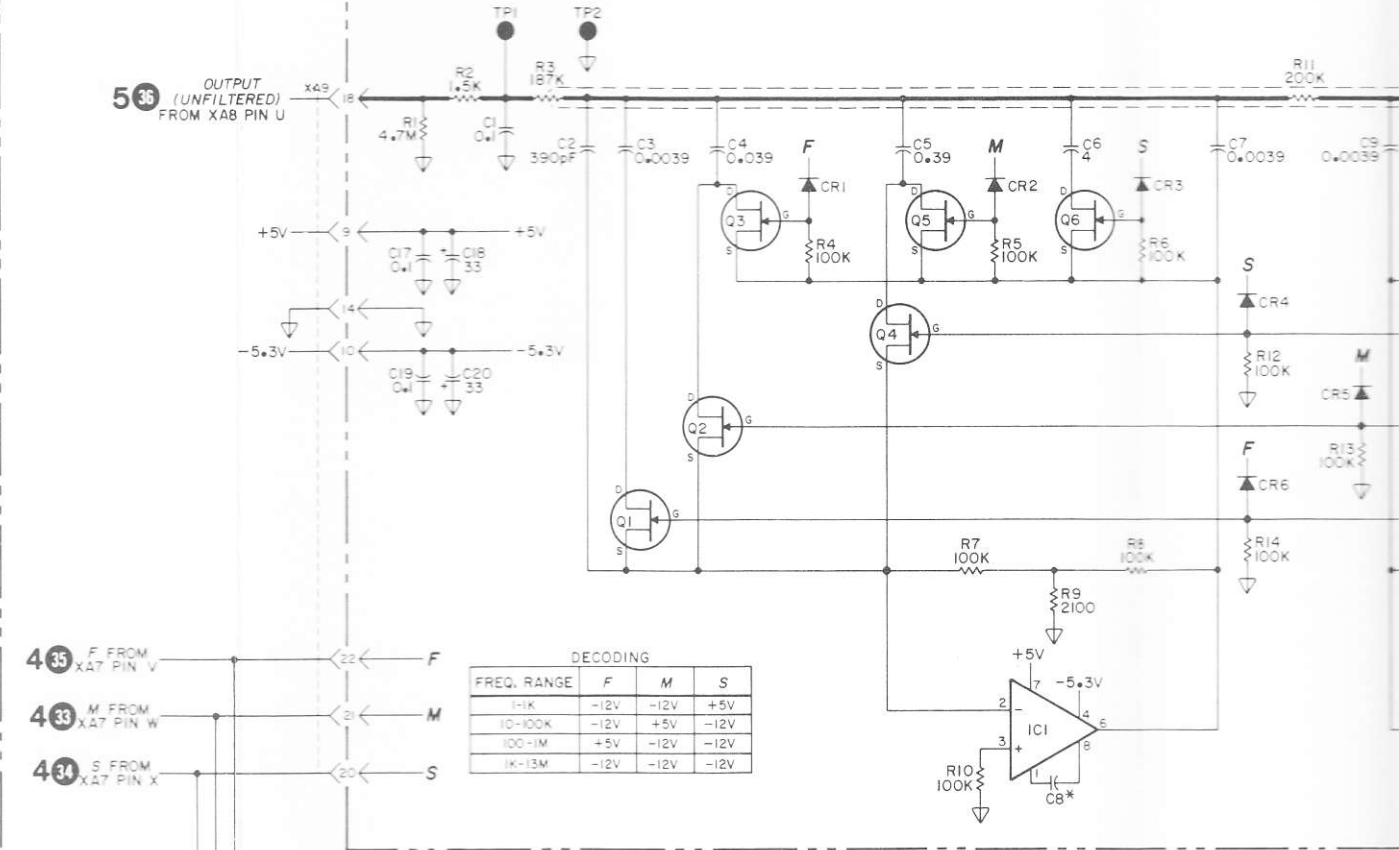
**A13**

hp Part No. 03575-66513  
Rev. A



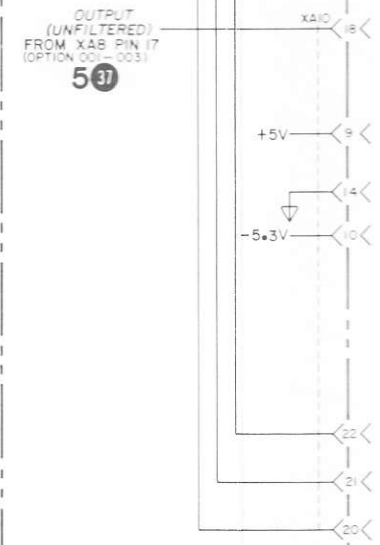
bove, For Schematic Of A10

Figure 7-7. Output Filter (A9/A10) Schematic and Component Location Diagram.

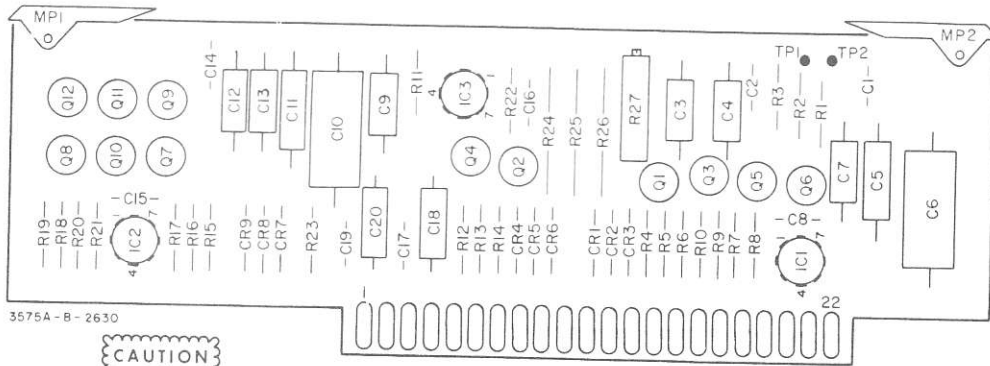


DECODING

FREQ. RANGE	F	M	S
1-K	-12V	-12V	+5V
10-100K	-12V	+5V	-12V
100-1M	+5V	-12V	-12V
1K-13M	-12V	-12V	-12V



Refer To A9, Above, For



3575A-B-2630

**CAUTION**

A9/A10 Must be Clean Handled

**A9 or A10**  
**hp** Part No. 03575-66509  
 Rev A

ACTUAL ARRANGEMENT OF PANEL METER DIGITS

DIGIT 4	DIGIT 3	DIGIT 2	DIGIT 1
---------	---------	---------	---------

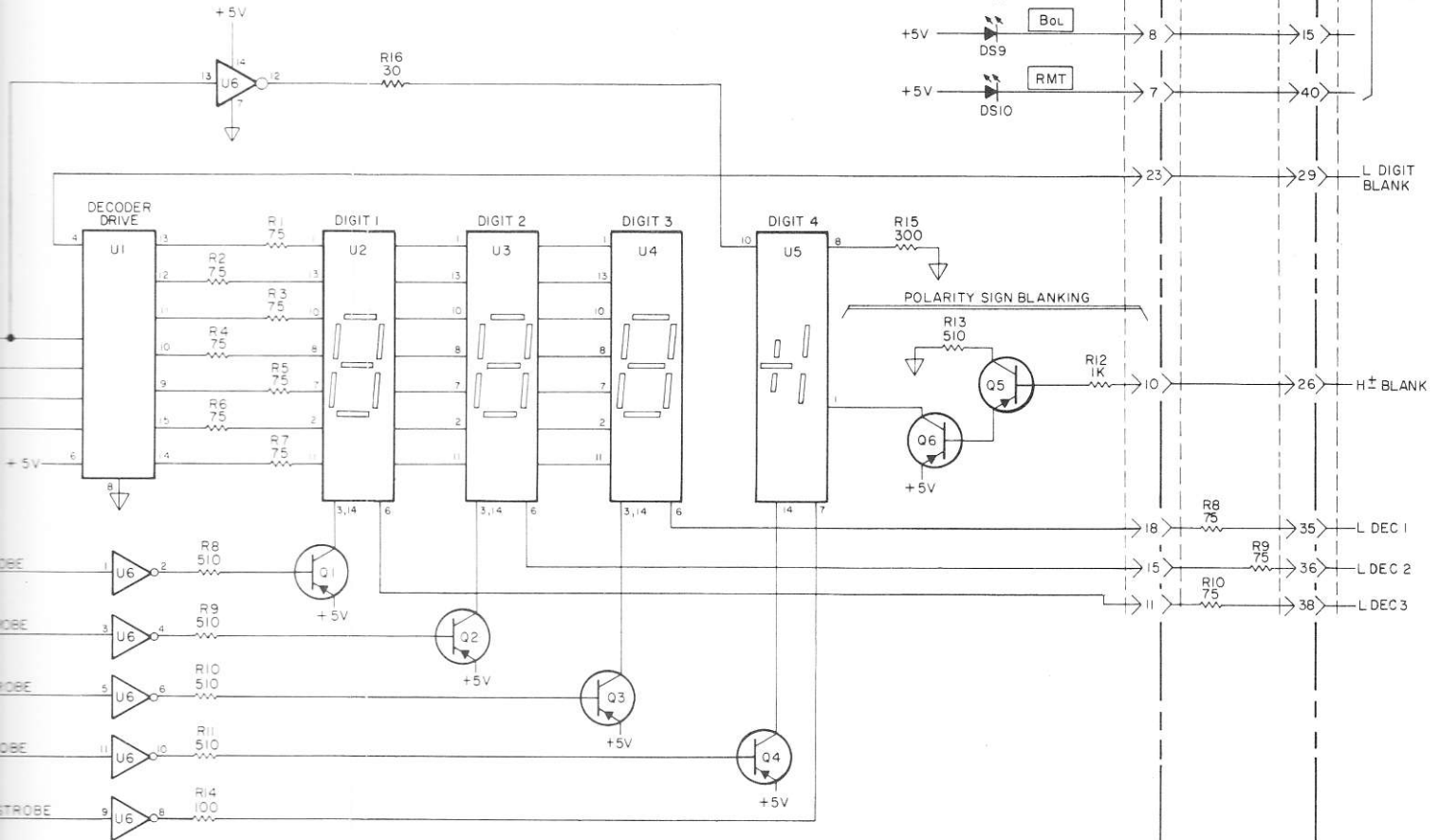
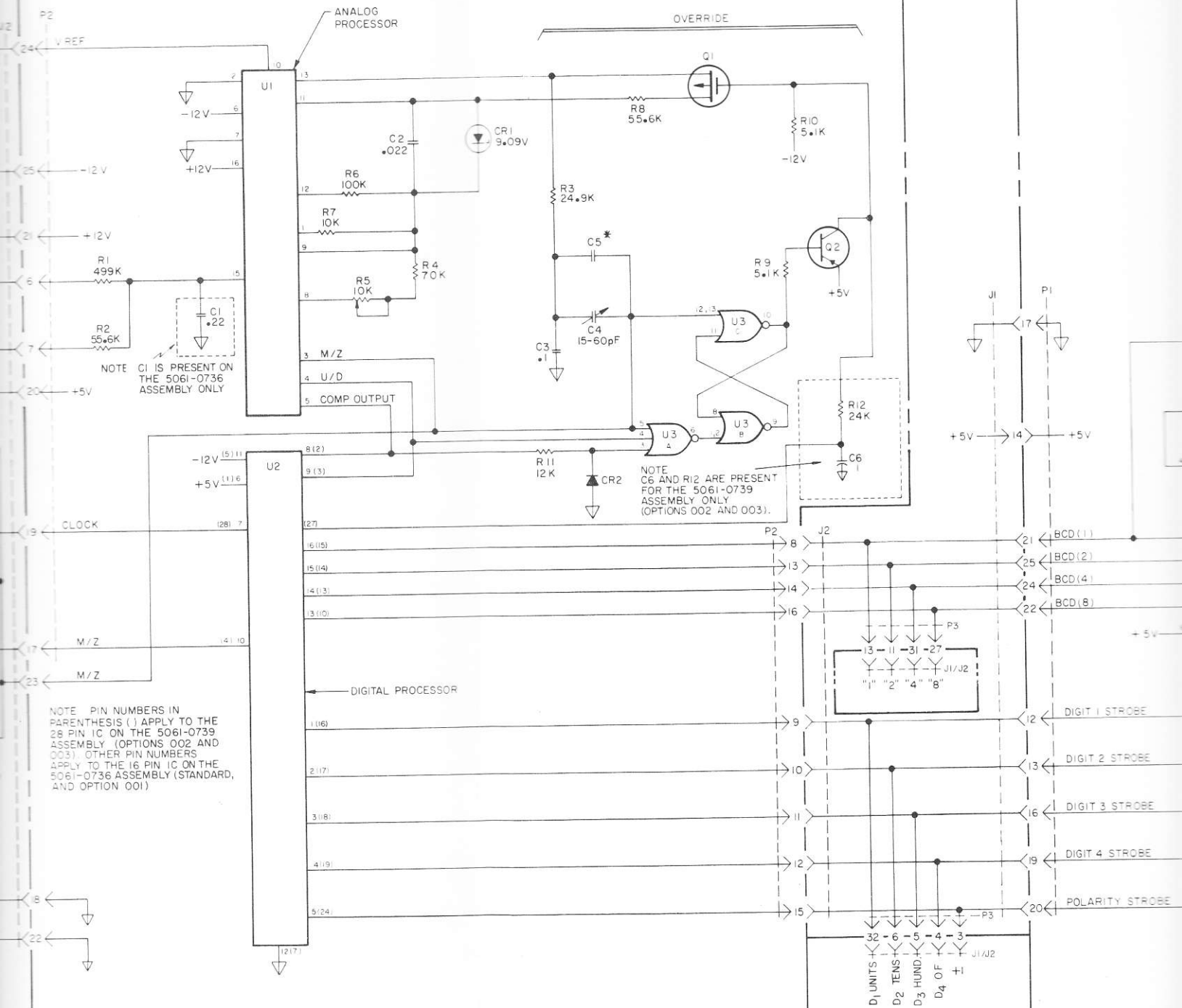


Figure 7-8. Panel Meter (A20, A21, A22) Schematics and Component Location Diagrams.



**A22** A/D BOARD  
 5061-0736 (3575A STD, OPTION 001)  
 5061-0739 (3575A OPTIONS 002 OR 003)

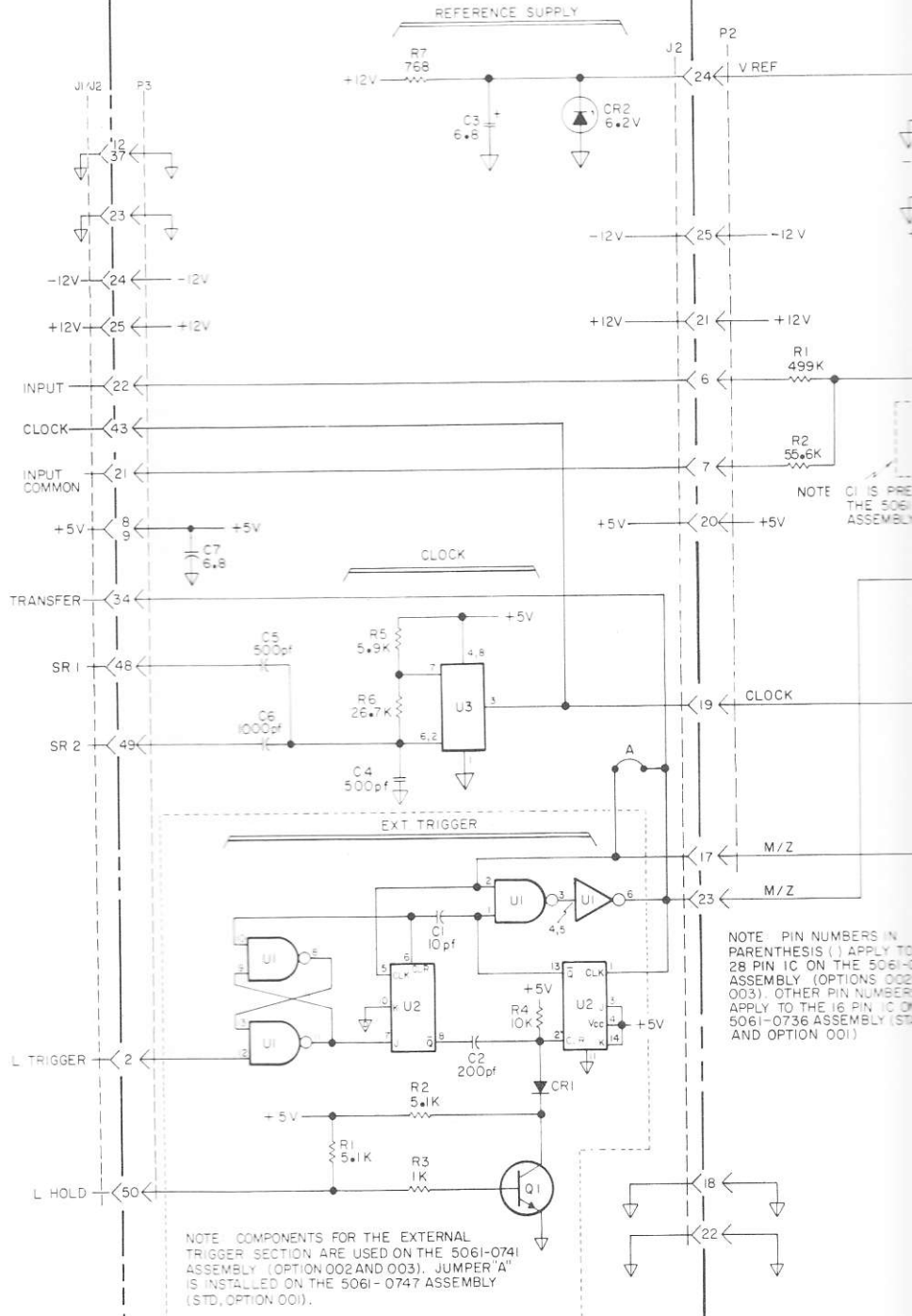
P/C **A20** MOTHER BOARD **A21** DISPLAY BOARD  
 5061-0740



DIGITAL PANEL METER ASSEMBLY  
 5060-9188 (3575 A STD, OPTION 001)  
 5060-9127 (3575 A OPTIONS 002 OR 003)

P/OA20 MOTHER BOARD  
 5061-0747 (3575A STD, OPTION 001)  
 5061-0741 (3575A OPTIONS 002 OR 003)

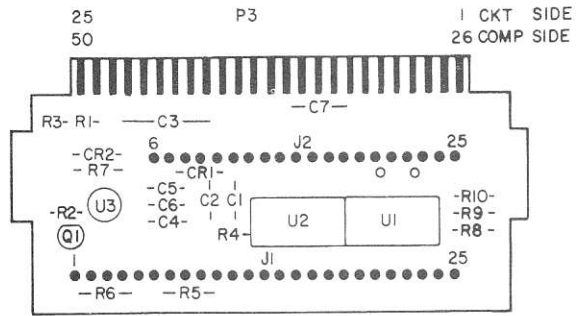
A22 A/D BOARD  
 5061-0736 (3575 A  
 5061-0739 (3575 A



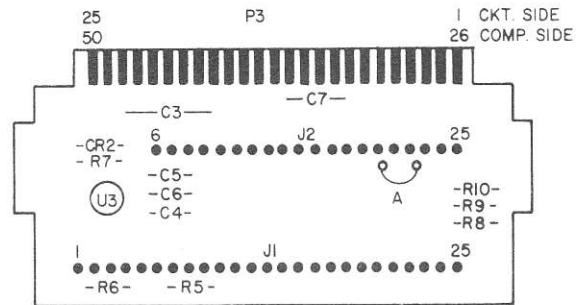
NOTE: C1 IS PRESENT ON THE 5061-0741 ASSEMBLY

NOTE: PIN NUMBERS IN PARENTHESIS ( ) APPLY TO 28 PIN IC ON THE 5061-0741 ASSEMBLY (OPTIONS 002 OR 003). OTHER PIN NUMBERS APPLY TO THE 16 PIN IC ON 5061-0736 ASSEMBLY (STD AND OPTION 001)

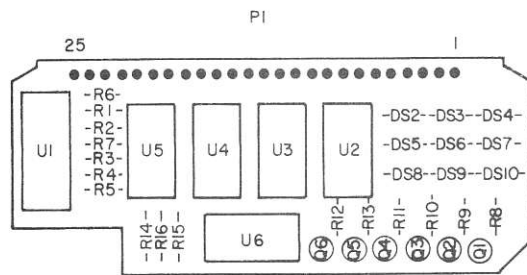
NOTE: COMPONENTS FOR THE EXTERNAL TRIGGER SECTION ARE USED ON THE 5061-0741 ASSEMBLY (OPTION 002 AND 003). JUMPER "A" IS INSTALLED ON THE 5061-0747 ASSEMBLY (STD, OPTION 001).



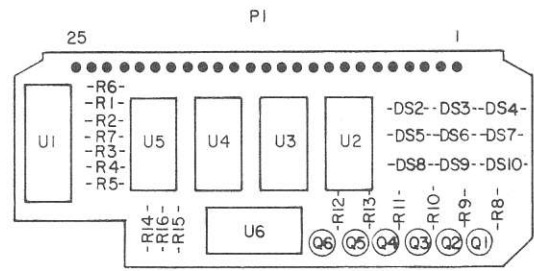
A20  
hp Part No. 5061-0741



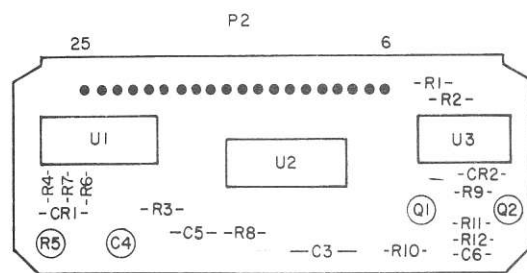
A20  
hp Part No. 5061-0747



A21  
hp Part No. 5061-0740

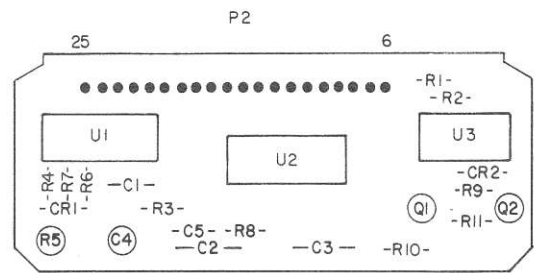


A21  
hp Part No. 5061-0740



3403 B 4041

A22  
hp Part No. 5061-0739



3403 B 4042

A22  
hp Part No. 5061-0736

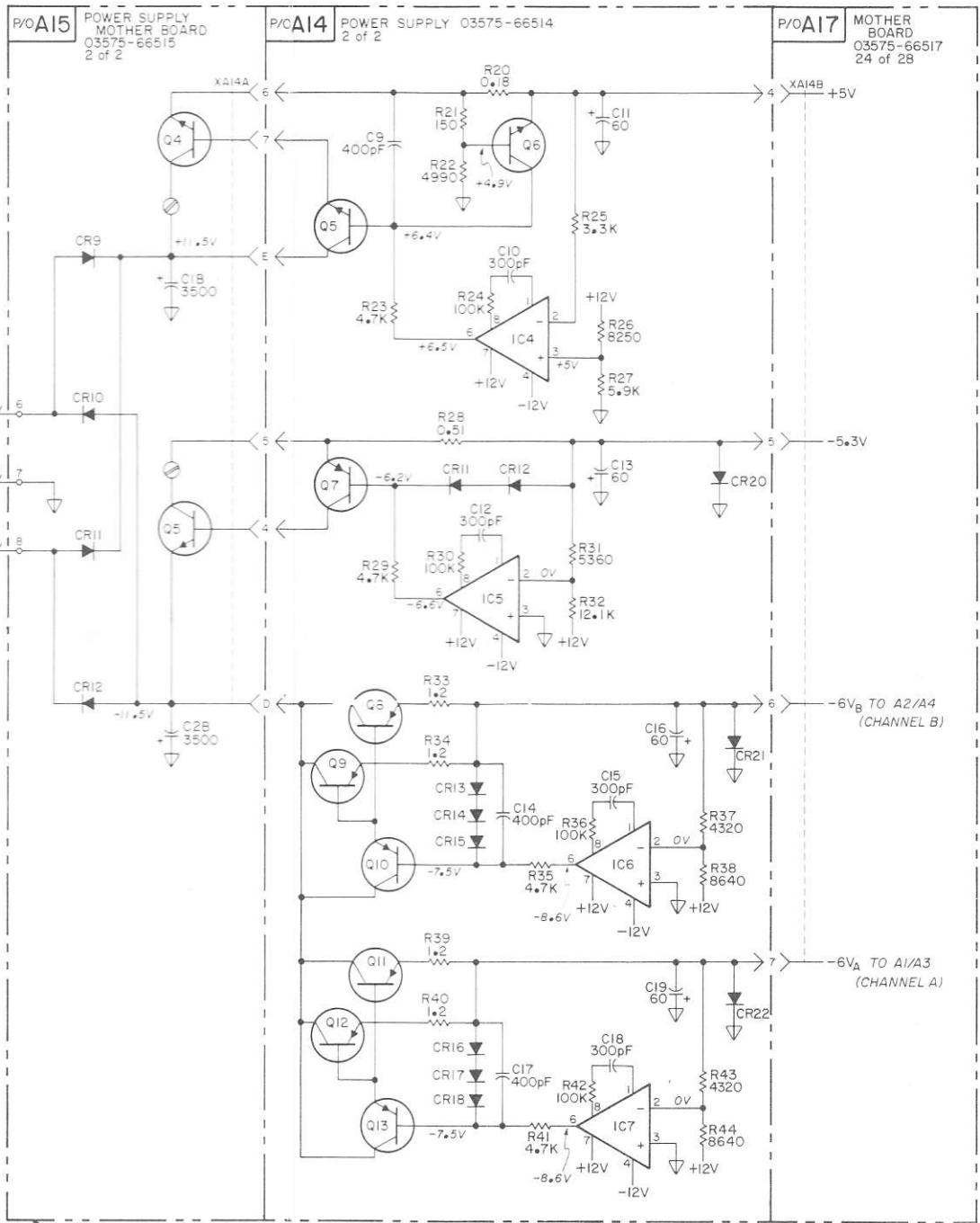
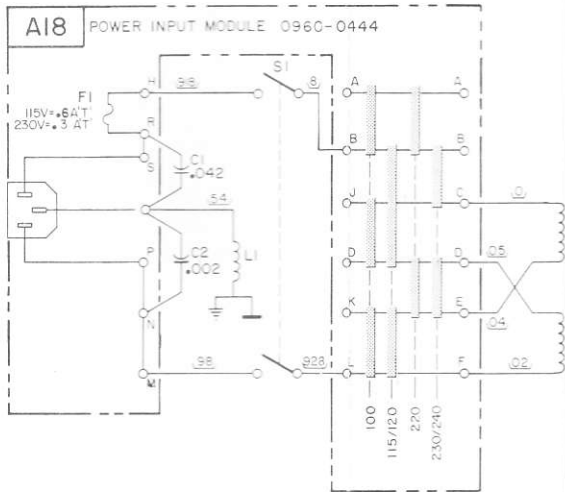
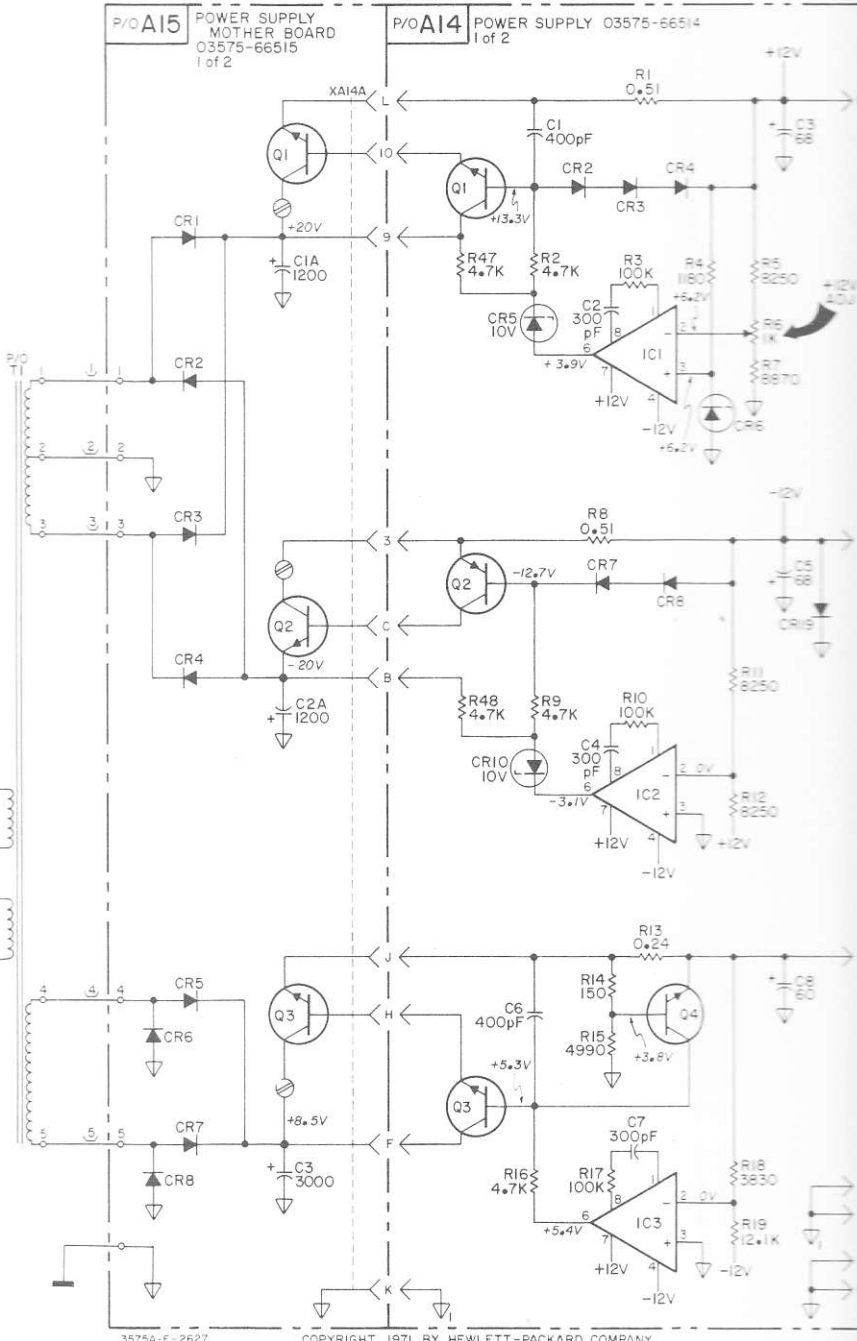
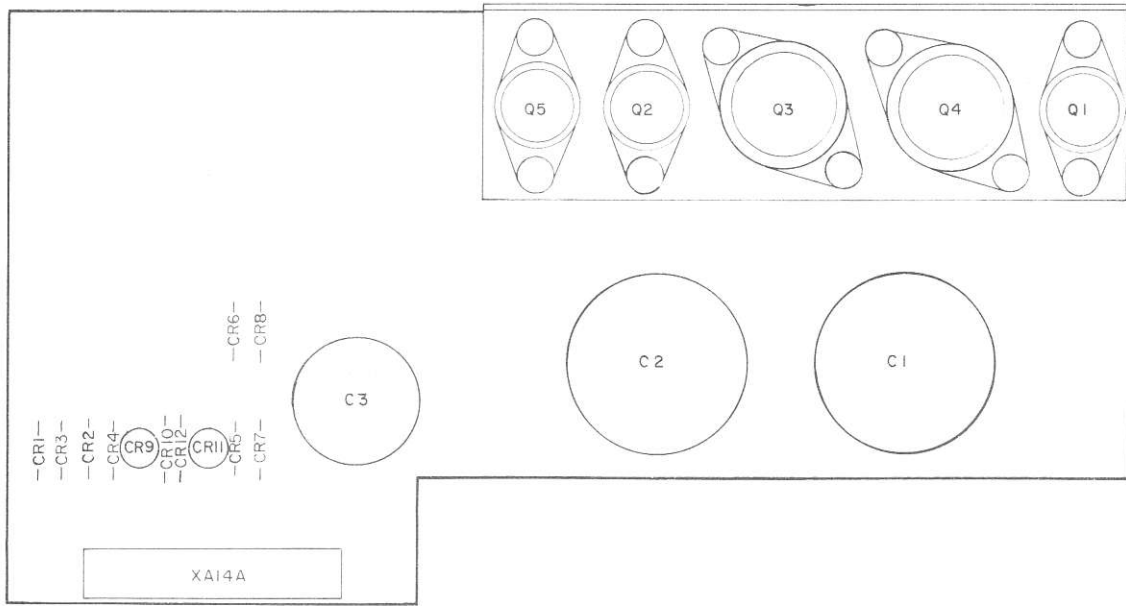
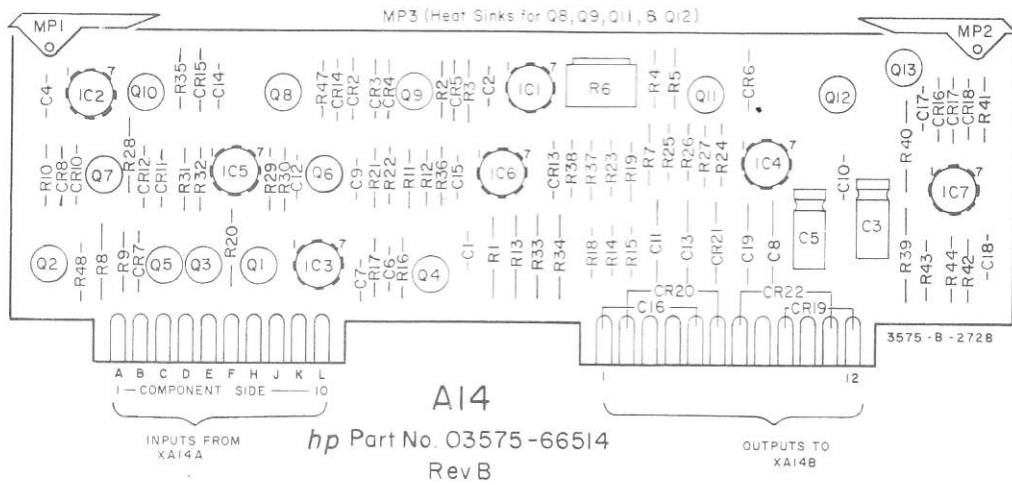


Figure 7-9. Power Supply (A14) and Power Supply Mother Board (A15) Schematics and Component Location Diagrams.



NOTE  
 "JUMPED" CONNECTIONS TO SELECT  
 LINE VOLTAGE ARE MADE BY INSERTION  
 OF PC CARD INTO POWER MODULE





A15

hp Part No. 03575-66515

Rev. A

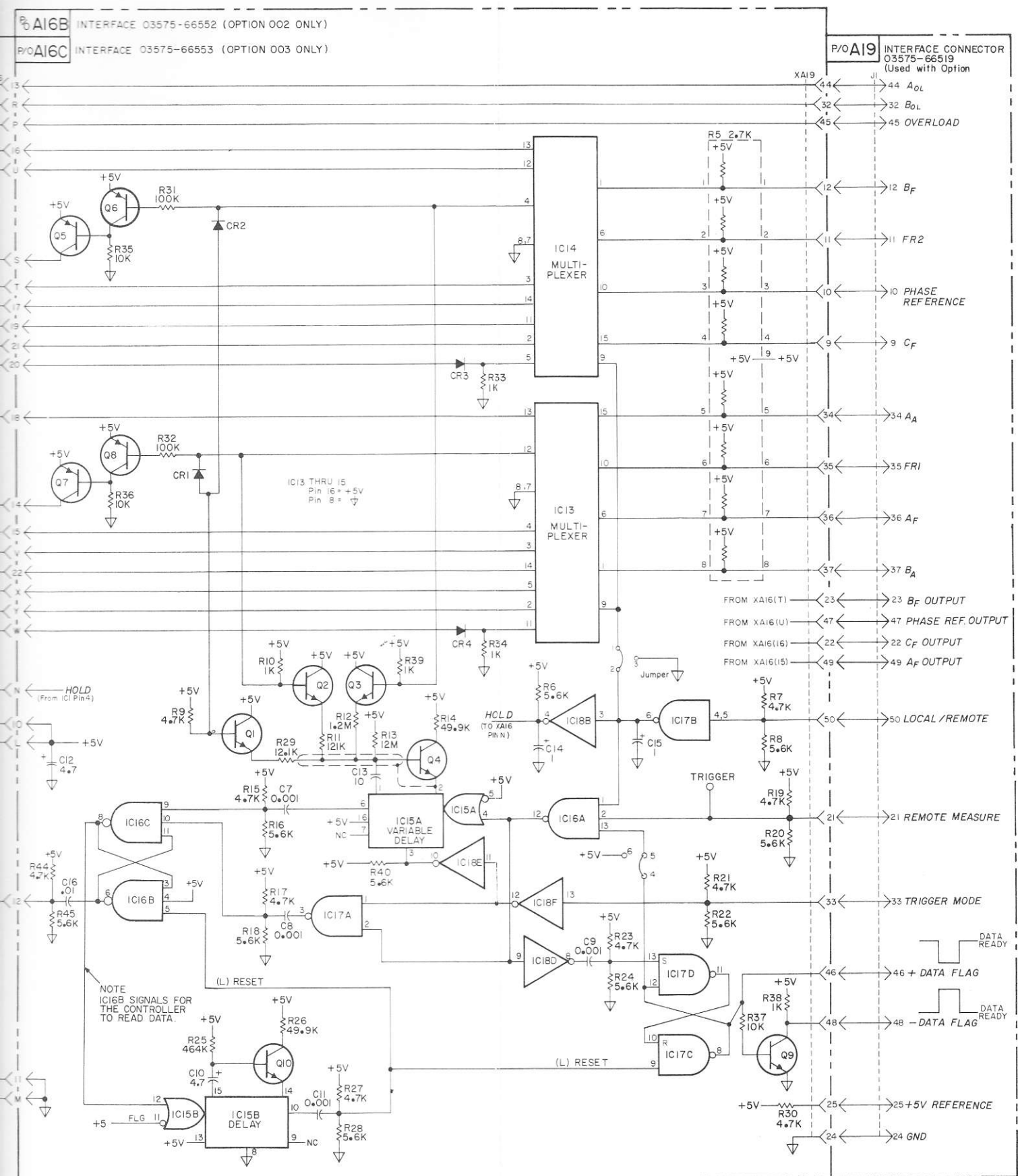
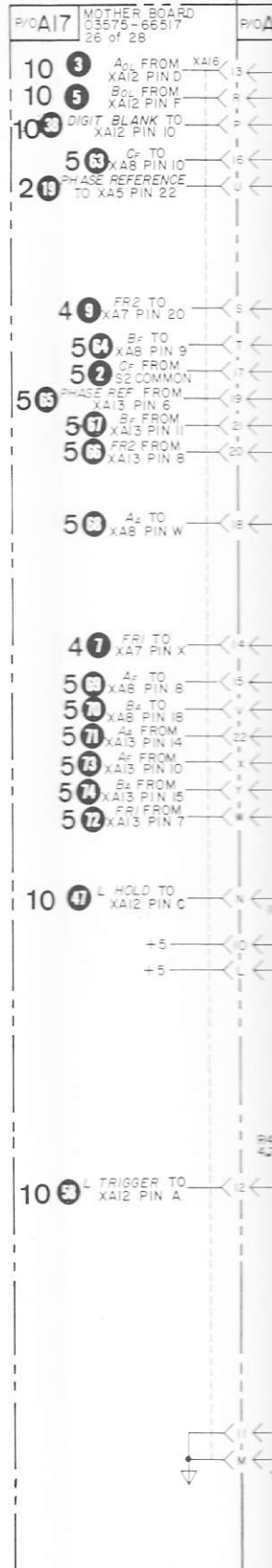
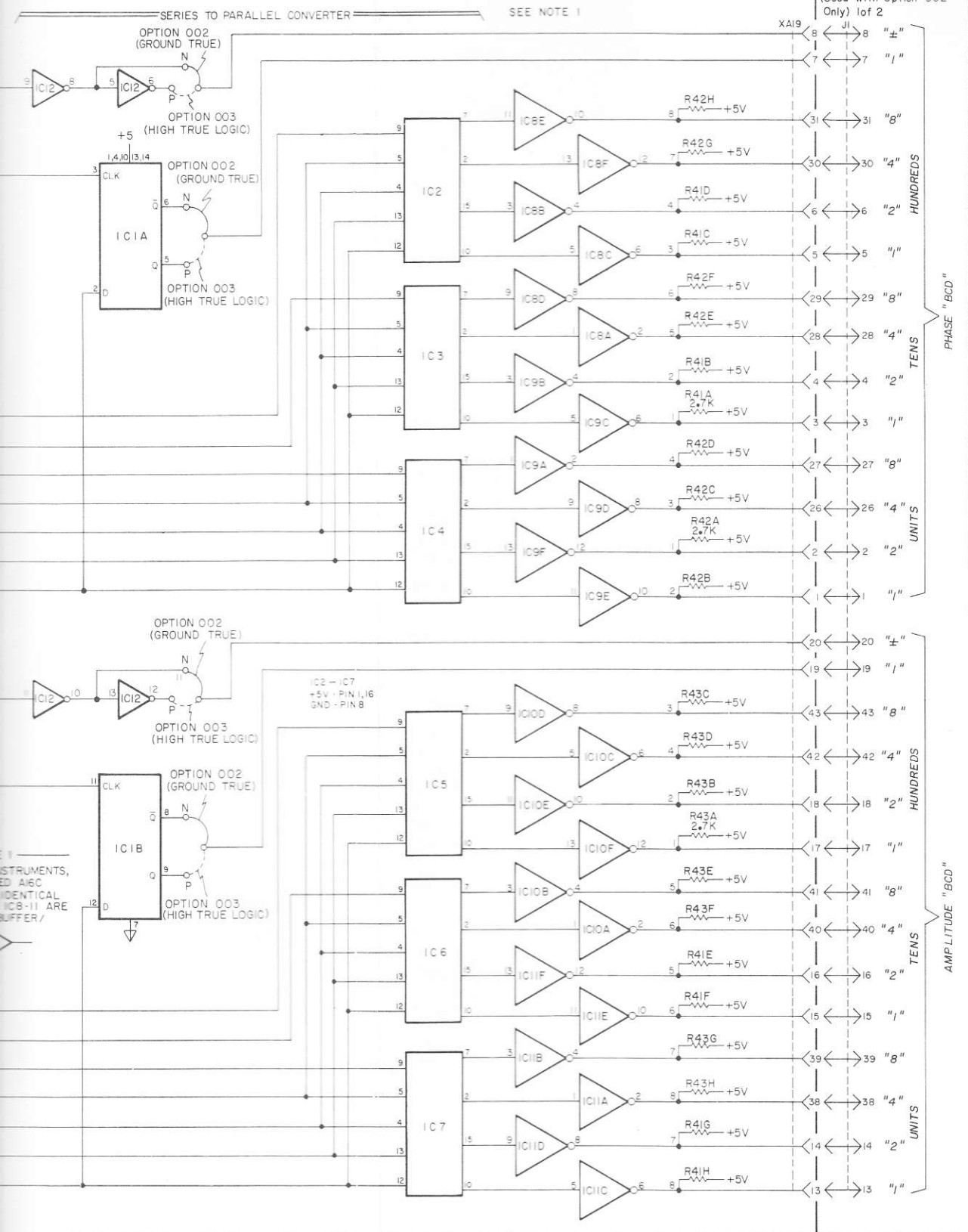


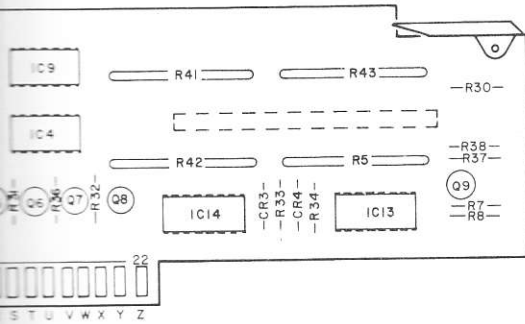
Figure 7-10. Interface Board A16B (Option 002) or A16C (Option 003) Schematic and Component Location Diagram.

ACE 03575 - 66552 (OPTION 002 ONLY)

ACE 03575 - 66553 (OPTION 003 ONLY - SEE NOTE 1)





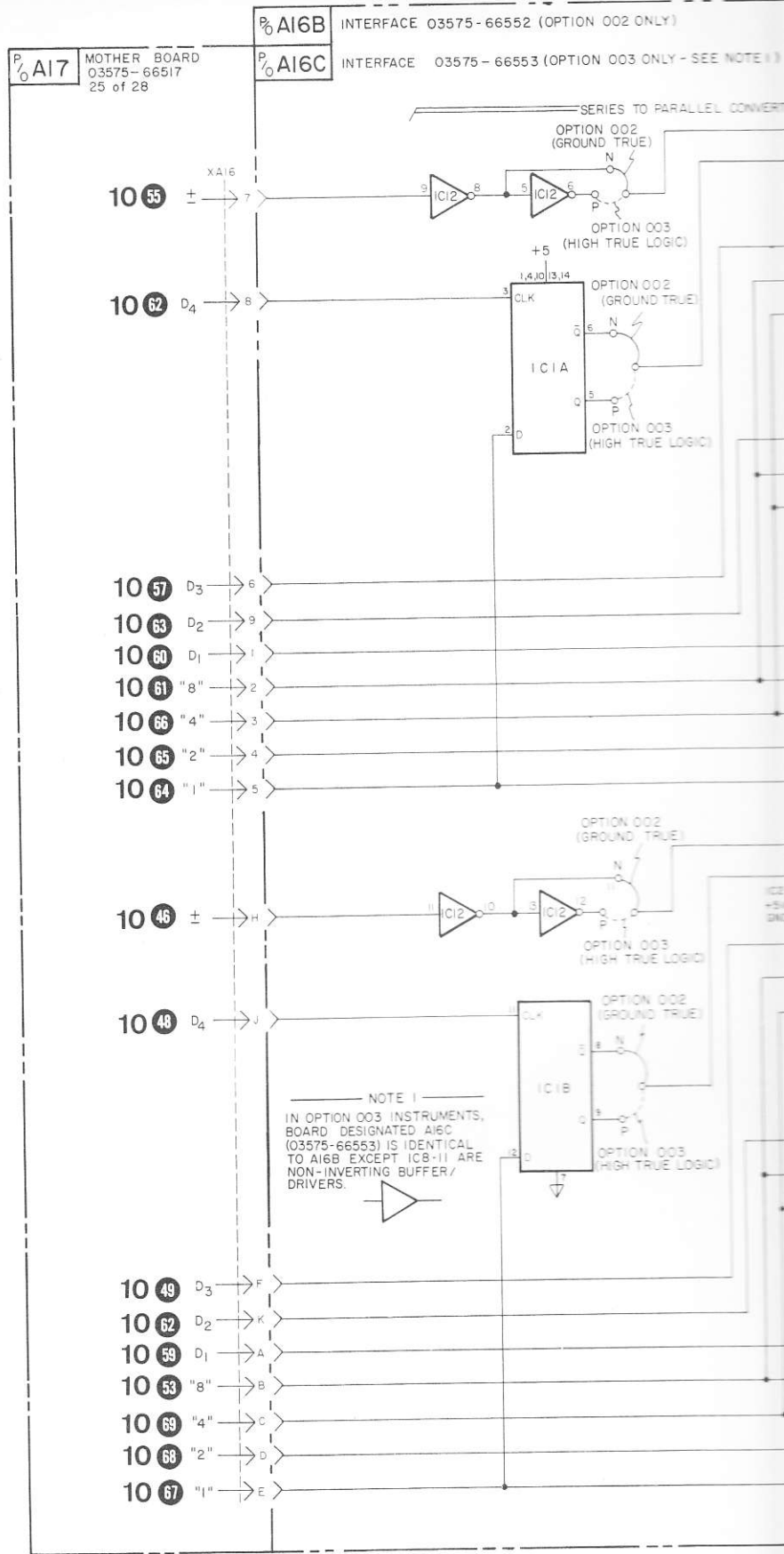


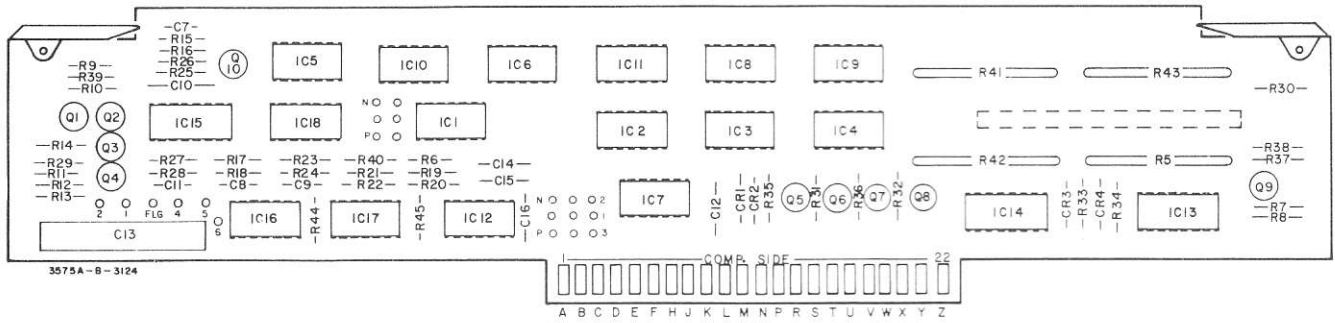
A16C

75-66552 (B) OPT 002  
66553 (C) OPT 003

XA16 Input Local	J1 Input Remote	XA16 Output
17	9	16
22	34	18
W	35	14
20	11	S
X	36	15
21	12	T
19	10	U
Y	37	V

ote.





AI6B or AI6C  
 hp Part No. 03575-66552 (B) OPT 002  
 66553 (C) OPT 003  
 Rev. A

Front Panel Switch	Signal Name	Position for an UP Level	XA16 Input Local	J1 Input Remote	XA16 Output
PHASE/AMP CHANNEL A FREQ. RANGE	CF	PHASE	17	9	16
	AA	.2 mV - 2 V	22	34	18
	FR1	100 - 1 MHz	W	35	14
AMP FUNCTION	FR2	1 kHz - 13 MHz	20	11	S
	AF	10 Hz - 100 kHz			
PHASE REF CHANNEL B	BF	B	X	36	15
	Q REF	A	21	12	T
	BA	- A	19	10	U
		.2 mV - 2 V	Y	37	V

Up Levels must be + 4.8 V.

Table 7-3. Truth Table for Remote.

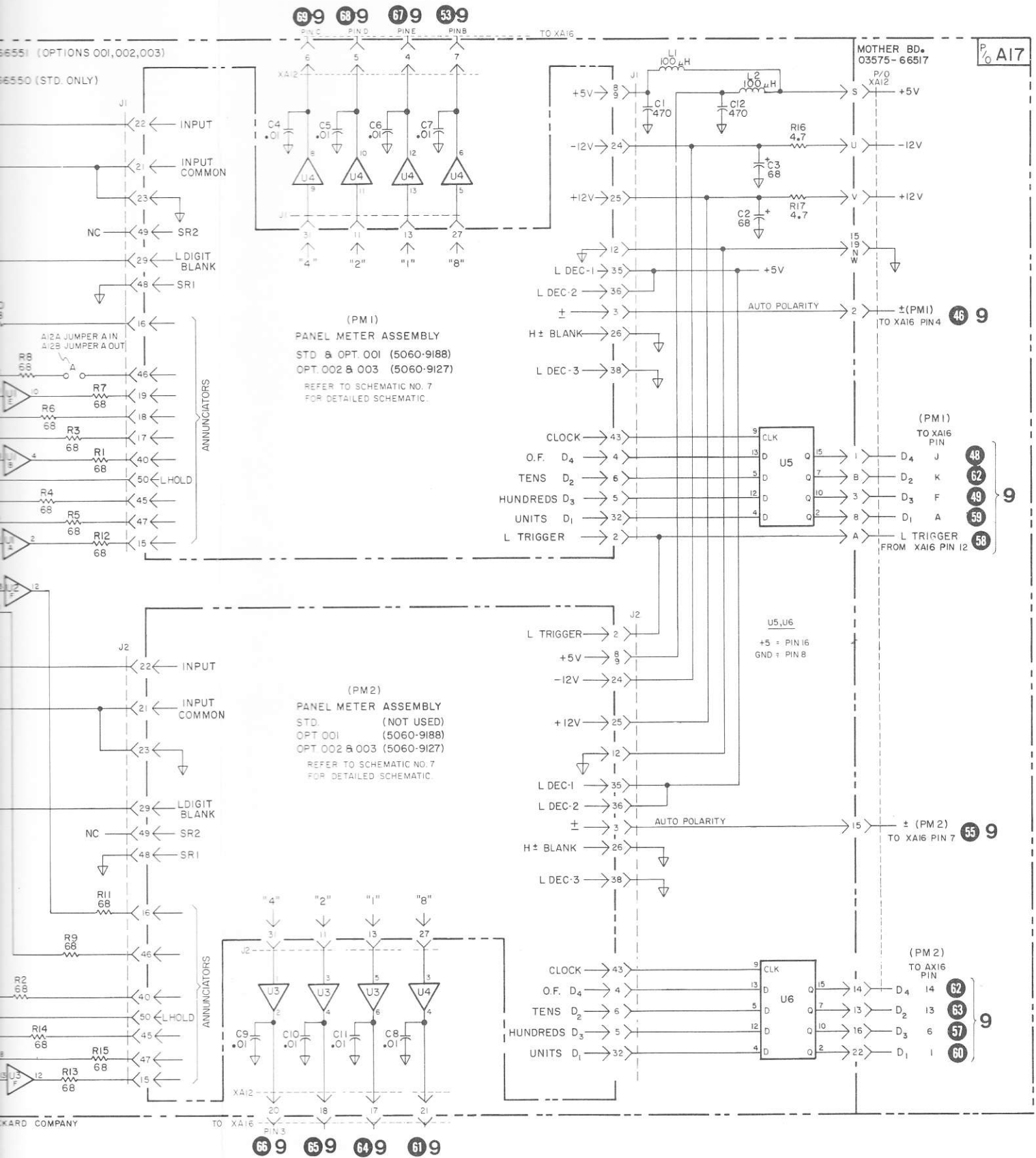
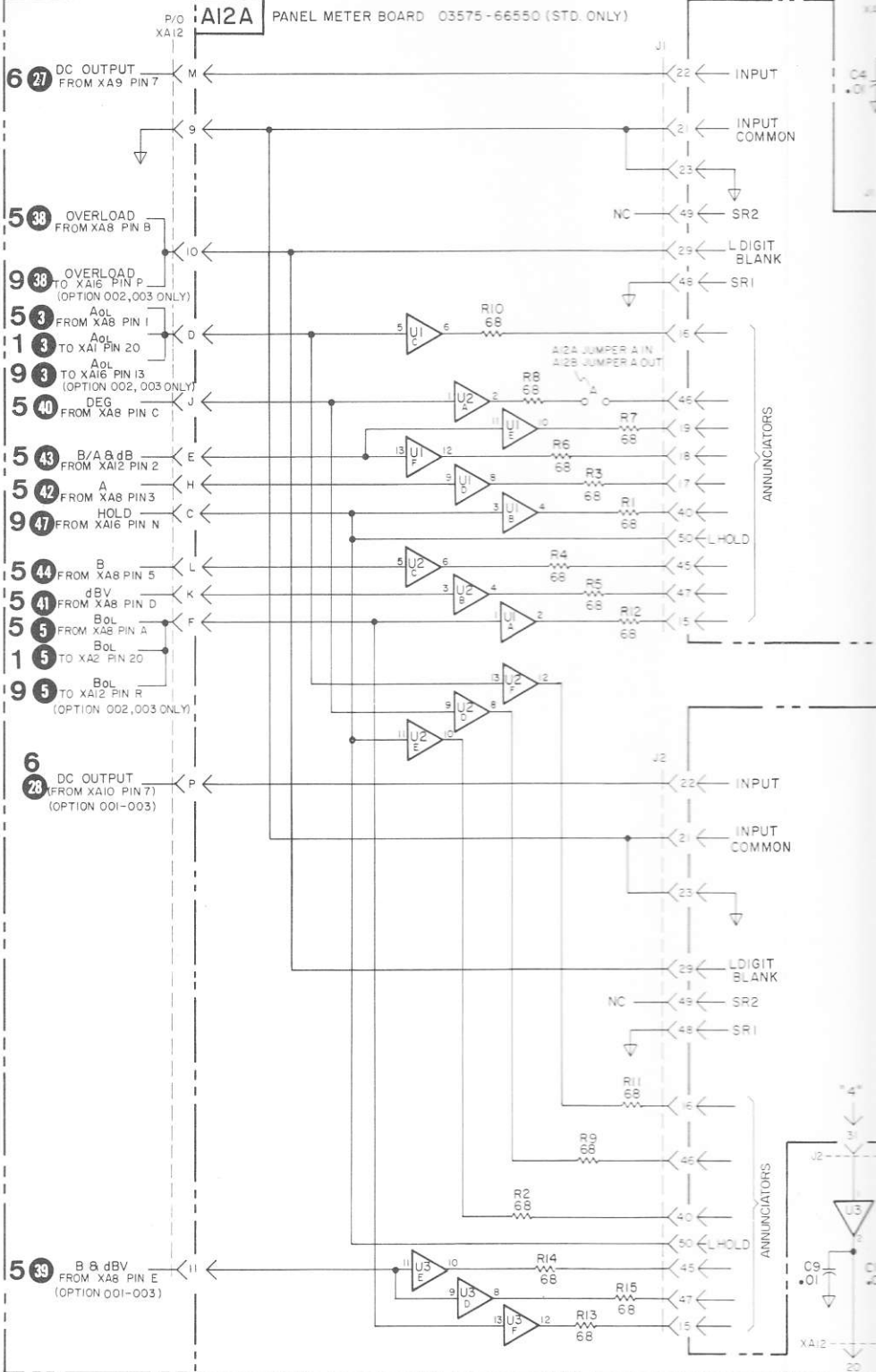


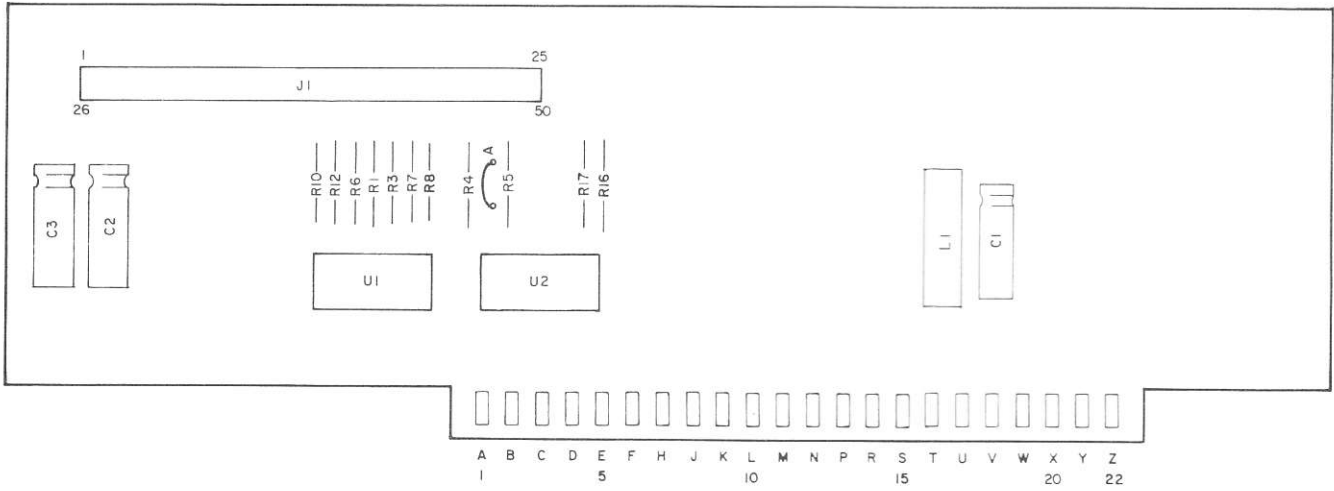
Figure 7-11. Panel Meter Connector (A12A and A12B) Schematics and Component Location Diagrams.

AI7 MOTHER BD 03575-66517

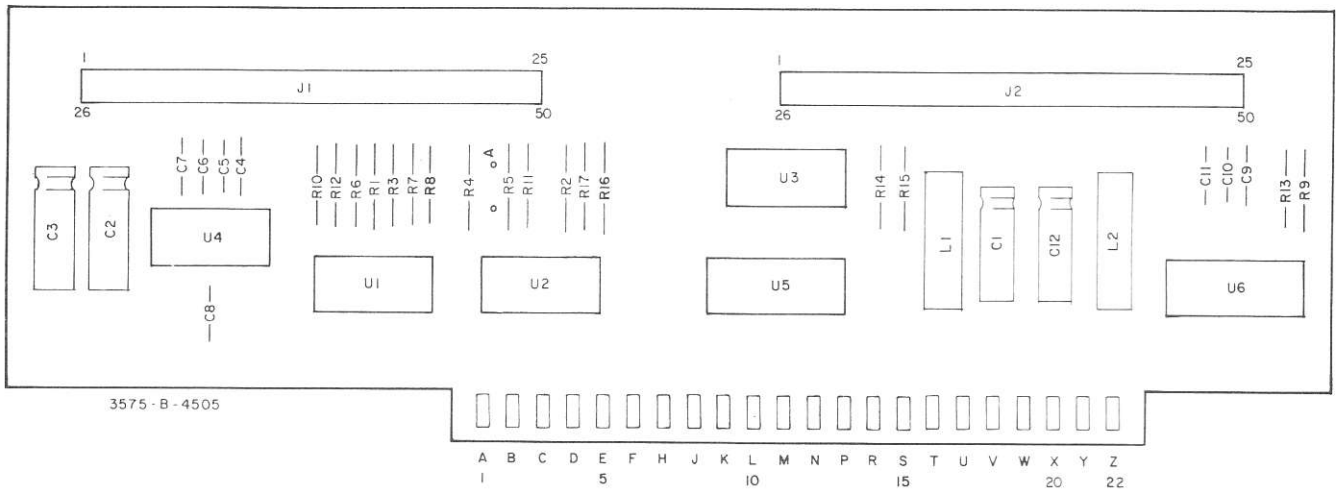
AI2B PANEL METER BOARD 03575-66551 (OPTIONS 001,002,003)

AI2A PANEL METER BOARD 03575-66550 (STD. ONLY)





**A12A**  
 hp Part No. 03575 - 66550



**A12B**  
 hp Part No. 03575 - 66551