

RELAY STATE TABLE

OFF = Relay coil de-energized, contacts are in the relaxed position shown on the schematic.
 ON = Relay coil energized, contacts are switched opposite the position shown on the schematic.

SWITCH	VDC	VAC	VAC +VDC	Ω2T	Ω4T	
RELAY K1						
200 mV	ON	OFF	ON	ON	ON	200 Ω
2 V	ON	OFF	ON	ON	ON	2 K Ω
20 V	OFF	OFF	OFF	ON	ON	20 K Ω
200 V	OFF	OFF	OFF	ON	ON	200 K Ω
1000 V	OFF	OFF	OFF	ON	ON	2 M Ω
				ON	ON	20 M Ω
RELAY K2						
200 mV	ON	ON	OFF	ON	ON	200 Ω
2 V	ON	ON	OFF	ON	ON	2 K Ω
20 V	OFF	OFF	OFF	ON	ON	20 K Ω
200 V	OFF	OFF	OFF	ON	ON	200 K Ω
1000 V	OFF	OFF	OFF	ON	ON	2 M Ω
				ON	ON	20 M Ω
RELAY K3						
200 mV	OFF	OFF	ON	OFF	OFF	200 Ω
2 V	OFF	OFF	ON	OFF	OFF	2 K Ω
20 V	ON	OFF	ON	OFF	OFF	20 K Ω
200 V	ON	OFF	ON	OFF	OFF	200 K Ω
1000 V	ON	OFF	ON	OFF	OFF	2 M Ω
				OFF	OFF	20 M Ω
RELAY K4						
All ranges	OFF	OFF	OFF	ON	ON	

JFET STATE TABLE

FET Q13 (ON = conducting, OFF = non-conducting)						
All ranges	OFF	ON	ON	OFF	OFF	

Figure 8-3. A1 Main PCB Assembly

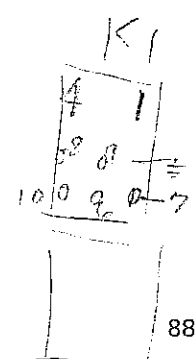
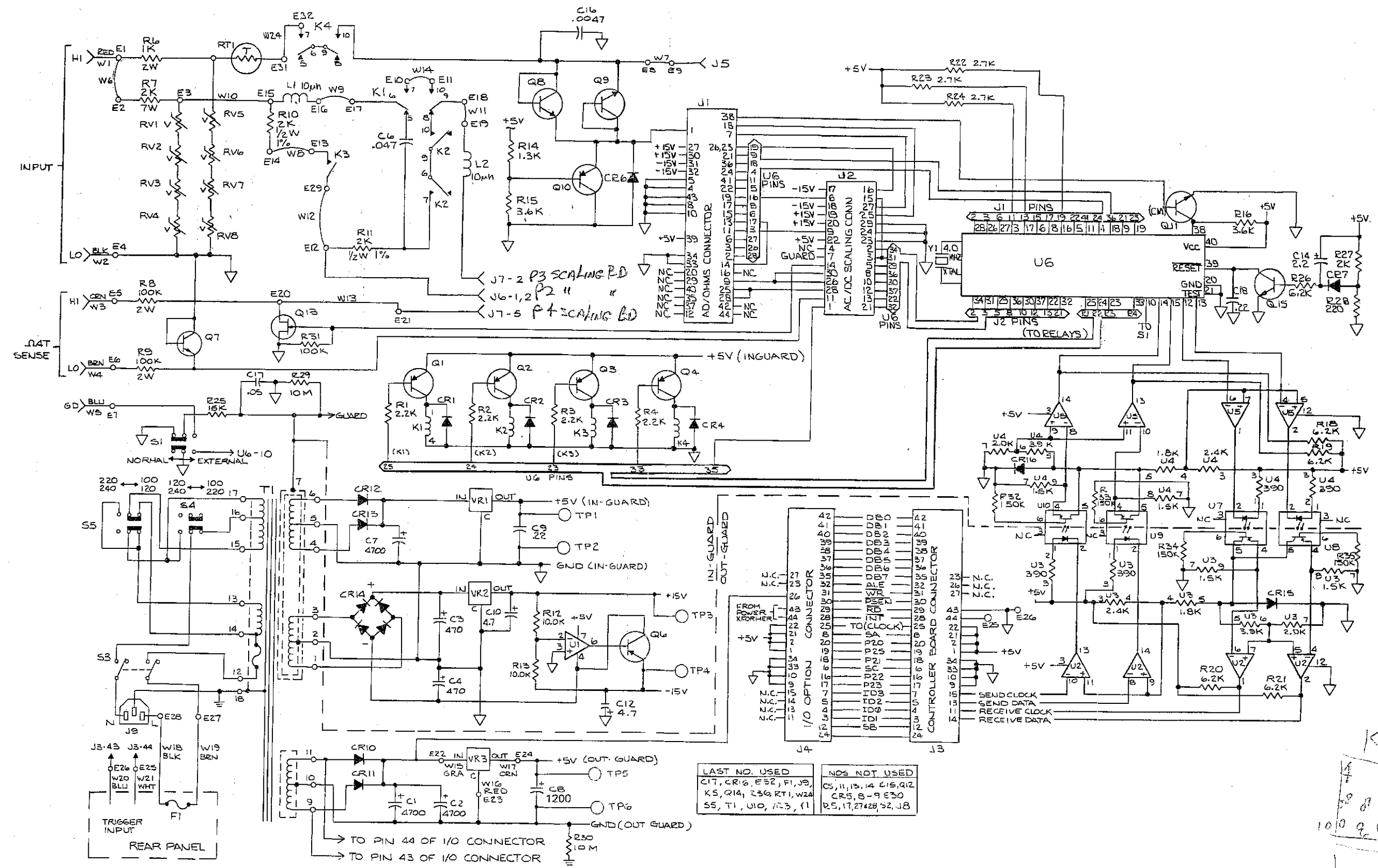


Figure 8-3. A1 Main PCB Assembly (cont)

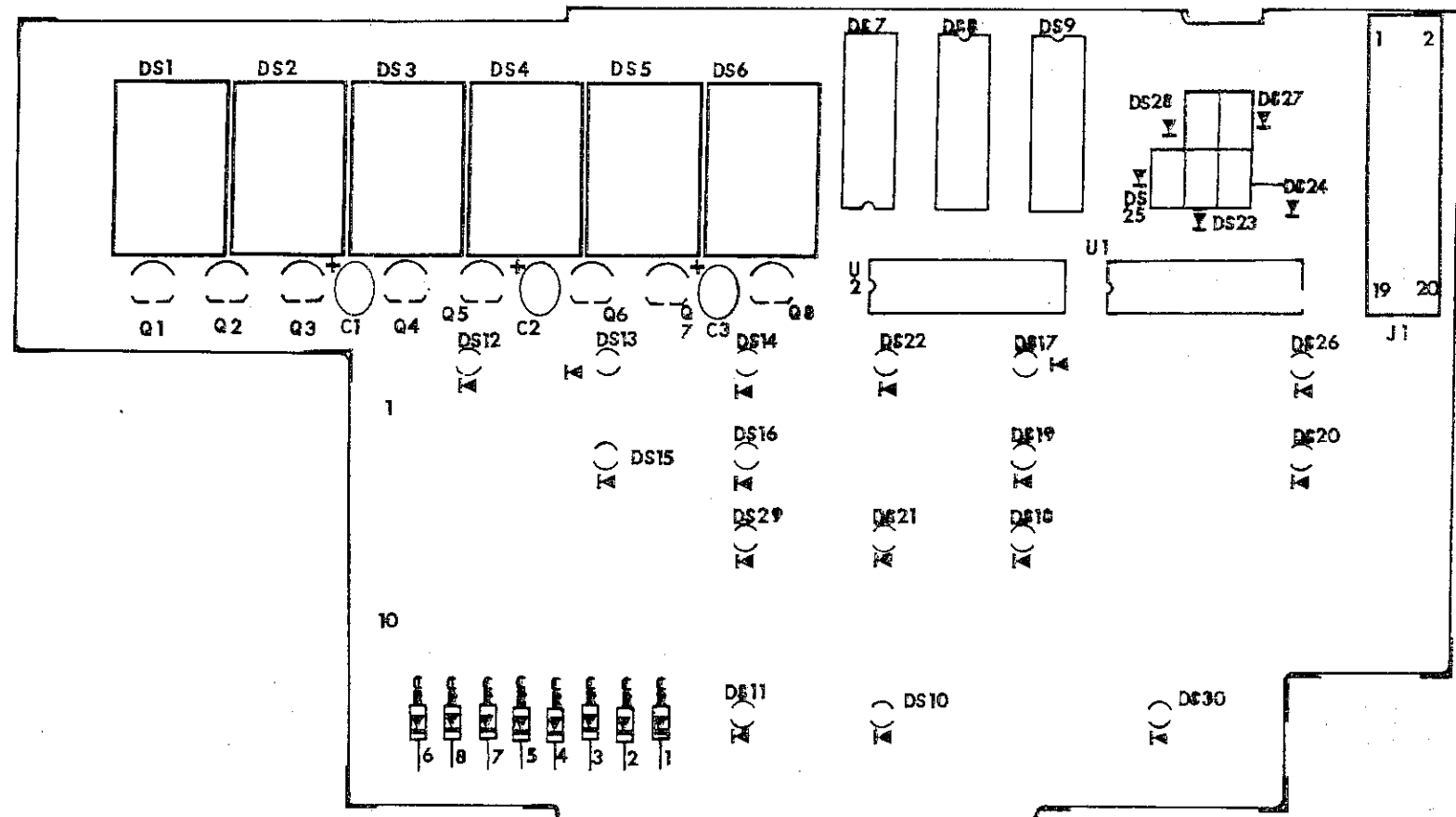
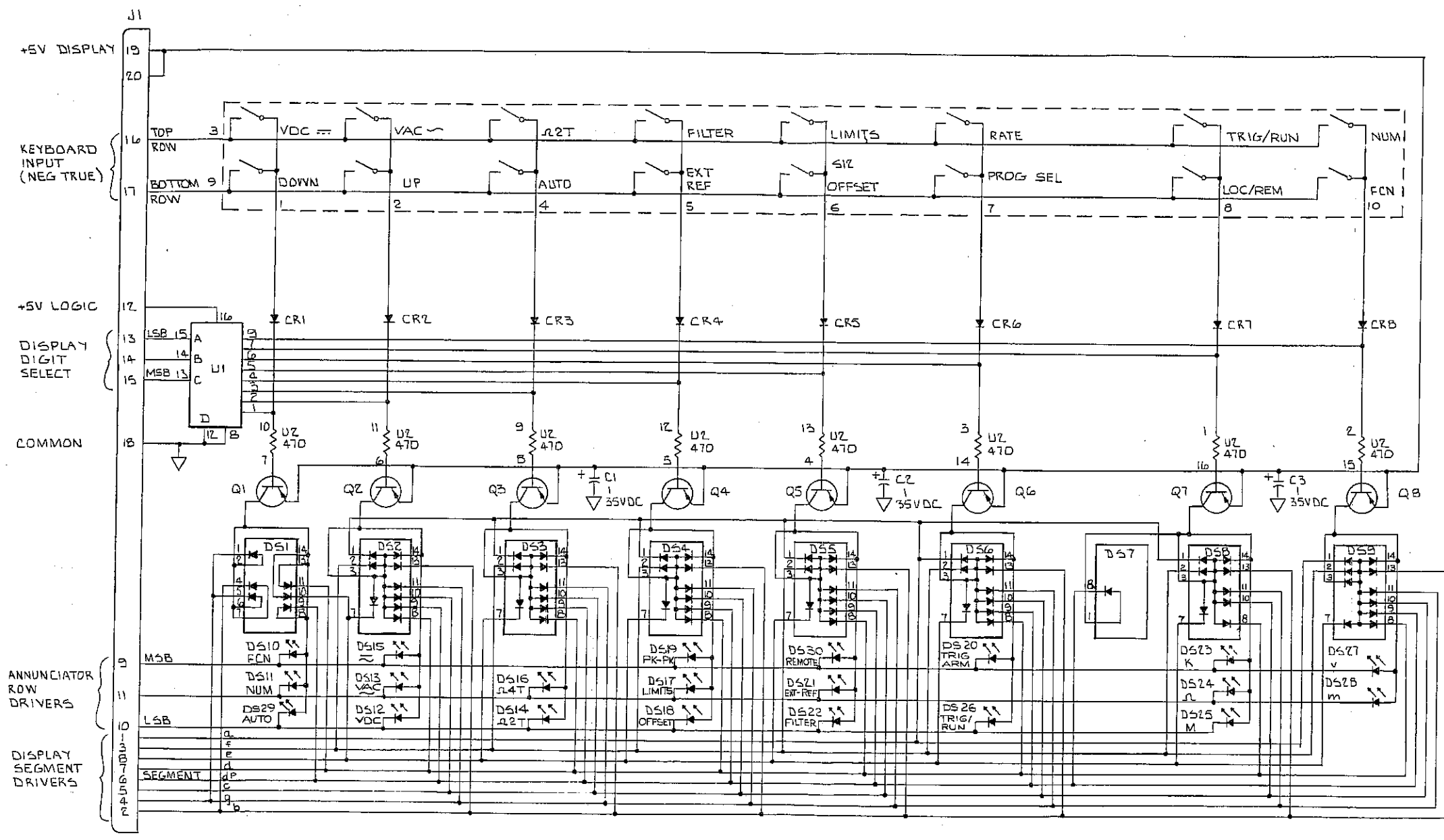


Figure 8-4. A2 Display PCB Assembly



NOTES: UNLESS OTHERWISE SPECIFIED:
ALL RESISTANCE VALUES ARE IN OHMS,
ALL CAPACITANCE VALUES ARE IN MICROFARADS.

LAST NO. USED	
C3	CRB
DS30	JZ
Q8	RZ
S16	UZ

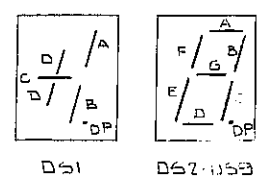


Figure 8-4. A2 Display PCB Assembly (cont)

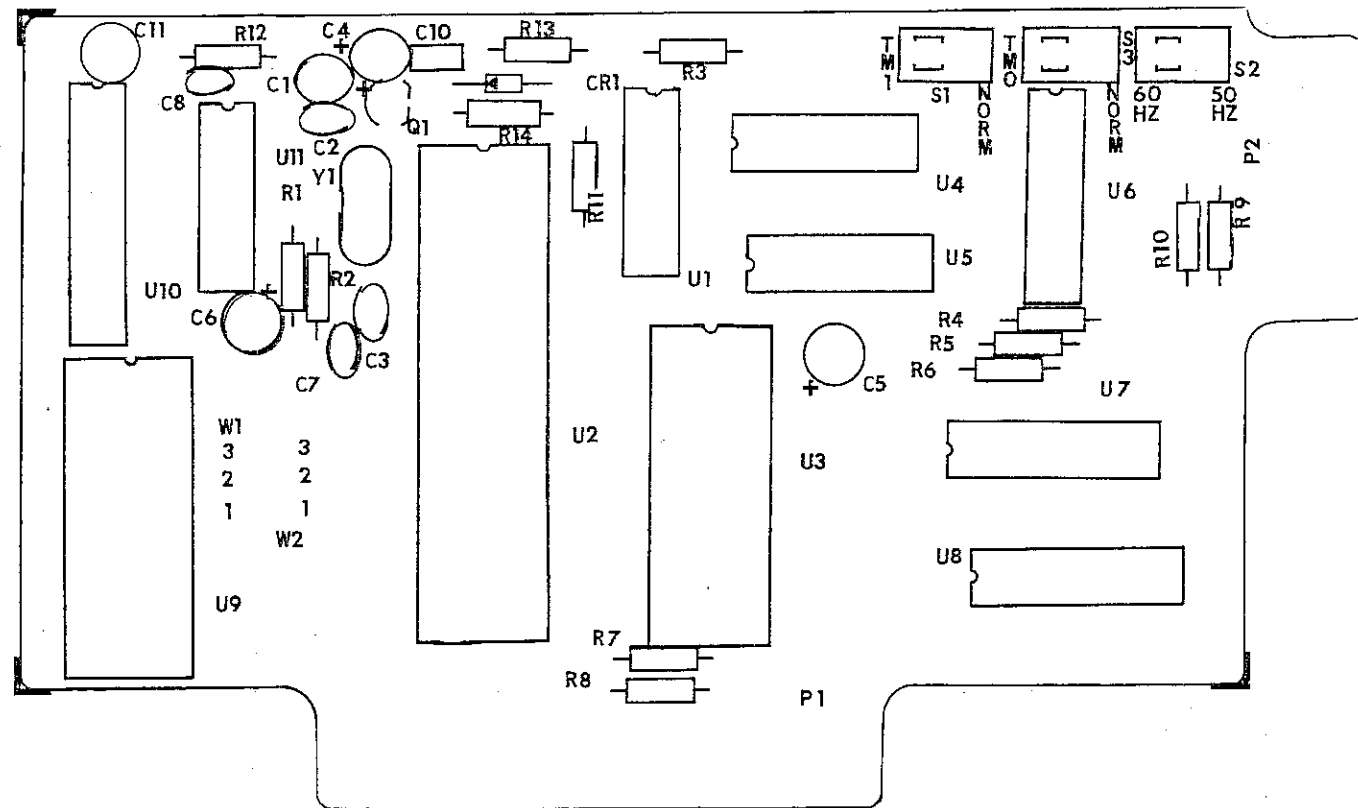


Figure 8-5. A3 Controller PCB Assembly

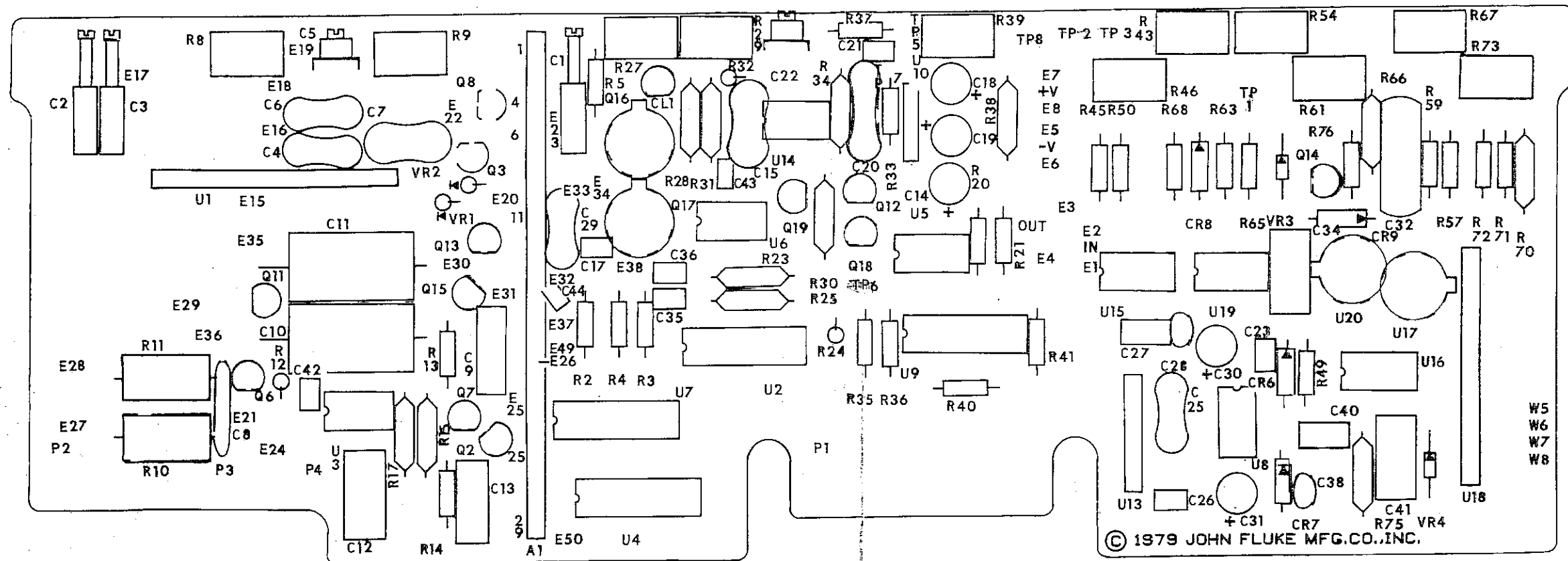


Figure 8-6. A4 AC/DC Scaling PCB Assembly

gate { ON - LO = 2.000
OFF - HI = +VCC (-15V)

JFET STATE TABLES

OFF = FET is not conducting.
ON = FET is conducting.

	VDC	VAC	VAC +VDC	Ω2T	Ω4T	
Q6						
200 mV, 2V	OFF	OFF	OFF	OFF	OFF	200 Ω, 2KΩ
20 V-1000 V	ON	ON	ON	OFF	OFF	20 KΩ - 20 MΩ
A1-A (gate pin 4)						
200 mV, 2V	ON	ON	ON	ON	OFF	200 Ω, 2KΩ
20 V-1000 V	OFF	OFF	OFF	ON	OFF	20 K - 20 MΩ
A1 - C (gate pin 22), A1 - E (gate pin 25)						
All ranges	OFF	OFF	OFF	OFF	ON	
A1 - D (gate pin 26)						
All ranges	ON	ON	ON	ON	OFF	
A1 - B (gate pin 3)						
200 mV, 2V	OFF	OFF	OFF	OFF	OFF	200 Ω, 2 KΩ
20 V, 200 V	ON	ON	ON	OFF	OFF	20 KΩ, 200 KΩ
1000 V	OFF	OFF	OFF	OFF	OFF	2 MΩ, 20 MΩ
Q13						
200 mV, 2V	OFF	OFF	OFF	OFF	OFF	200 Ω, 2KΩ
20 V, 200 V	OFF	OFF	OFF	OFF	OFF	20 KΩ, 200 KΩ
1000 V	ON	ON	ON	OFF	OFF	2 MΩ, 20 MΩ
A1 - F (gate pin 29)						
All ranges	INT	ON	ON	INT	INT	
A1 - G (gate pin 28)						
All ranges	INT	OFF	OFF	INT	INT	

	VDC	VAC	VDC +VAC	Ω2T	Ω4T	
Q19						
All ranges	ON	OFF	OFF	ON	ON	
Q12						
200 mV	OFF	OFF	OFF	OFF	OFF	200 Ω
2 V	ON	ON	ON	ON	ON	2 KΩ
20 V	OFF	OFF	OFF	ON	ON	20 KΩ
200 V, 1000 V	ON	ON	ON	ON	ON	200 KΩ - 20 MΩ
Q18						
200 mV	ON	ON	ON	ON	ON	200 Ω
2 V	OFF	OFF	OFF	OFF	OFF	2 KΩ
20 V	ON	ON	ON	OFF	OFF	20 KΩ
200 V, 1000 V	OFF	OFF	OFF	OFF	OFF	200 KΩ - 20 MΩ

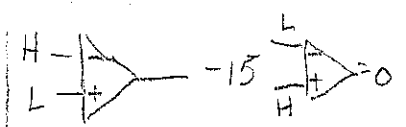
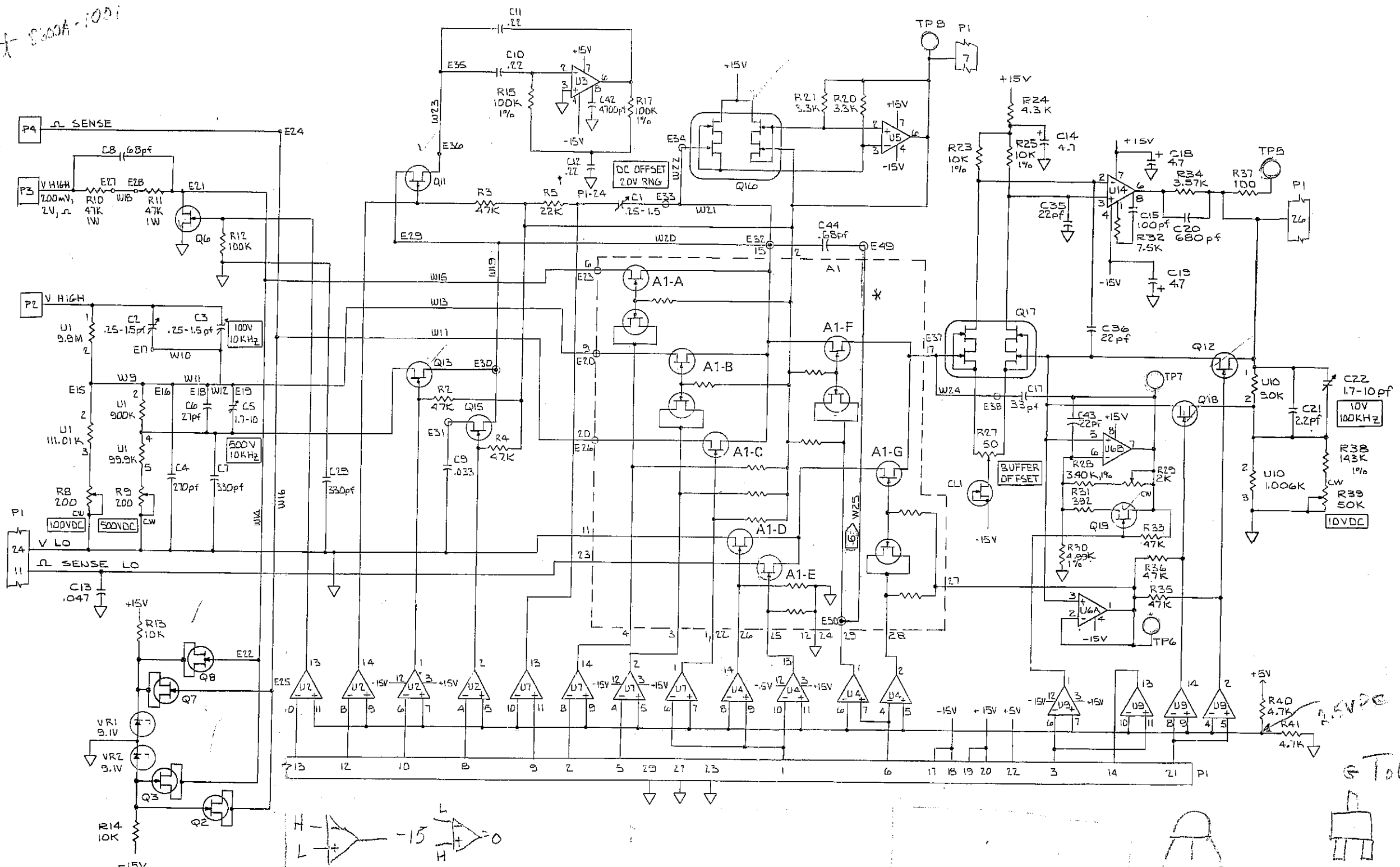
	VDC	VDC +FIL	VAC	VAC +VDC	Ω2T	Ω2T +FIL	Ω4T	Ω4T +FIL	
Q11 (3-Pole Active Filter)									
200 mV-1000 V	OFF	ON	OFF	OFF	OFF	ON	OFF	ON	200 Ω - 200 KΩ
	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	2 MΩ, 20 MΩ
Q15 (Passive Filter)									
200 mV-1000 V	*	ON	OFF	OFF	*	ON	*	ON	200 Ω - 200 KΩ
	*	ON	OFF	OFF	OFF	ON	OFF	ON	2 MΩ, 20 MΩ

INT
D S E

* = { ON when in 4½ or 5½ digit mode, or if autoranging in 3½ digit mode
OFF when in 3½ digit mode, and not autoranging.

Figure 8-6. A4 AC/DC Scaling PCB Assembly (cont)

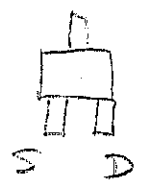
Form sheet 8860A-1001



⑥ W25 MAY BE REMOVED
 * removed on S/N 3665004

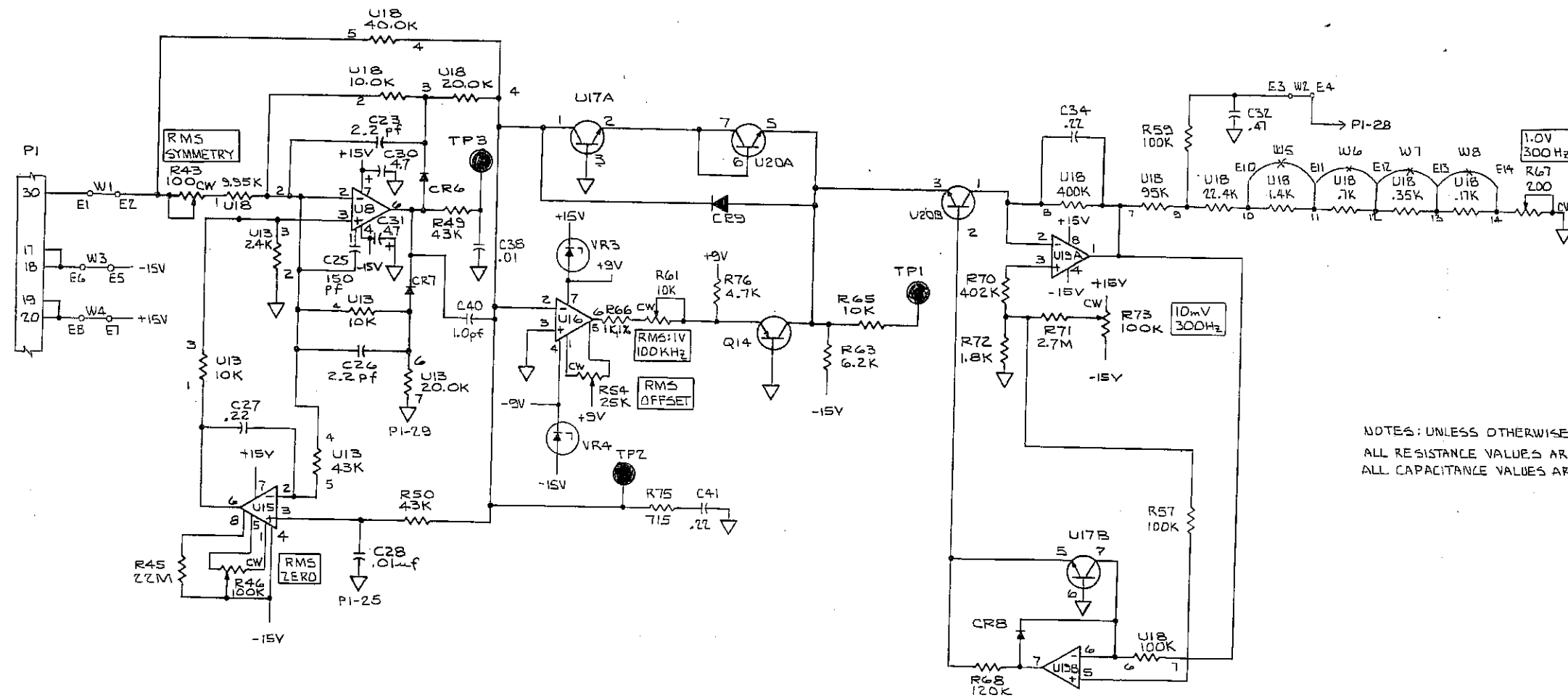


D S G



Top View

Figure 8-6. A4 AC/DC Scaling PCB Assembly (cont)



RMS CONVERTER

NOTES: UNLESS OTHERWISE SPECIFIED:
ALL RESISTANCE VALUES ARE IN OHMS,
ALL CAPACITANCE VALUES ARE IN MICROFARADS.

Figure 8-6. A4 AC/DC Scaling PCB Assembly (cont)

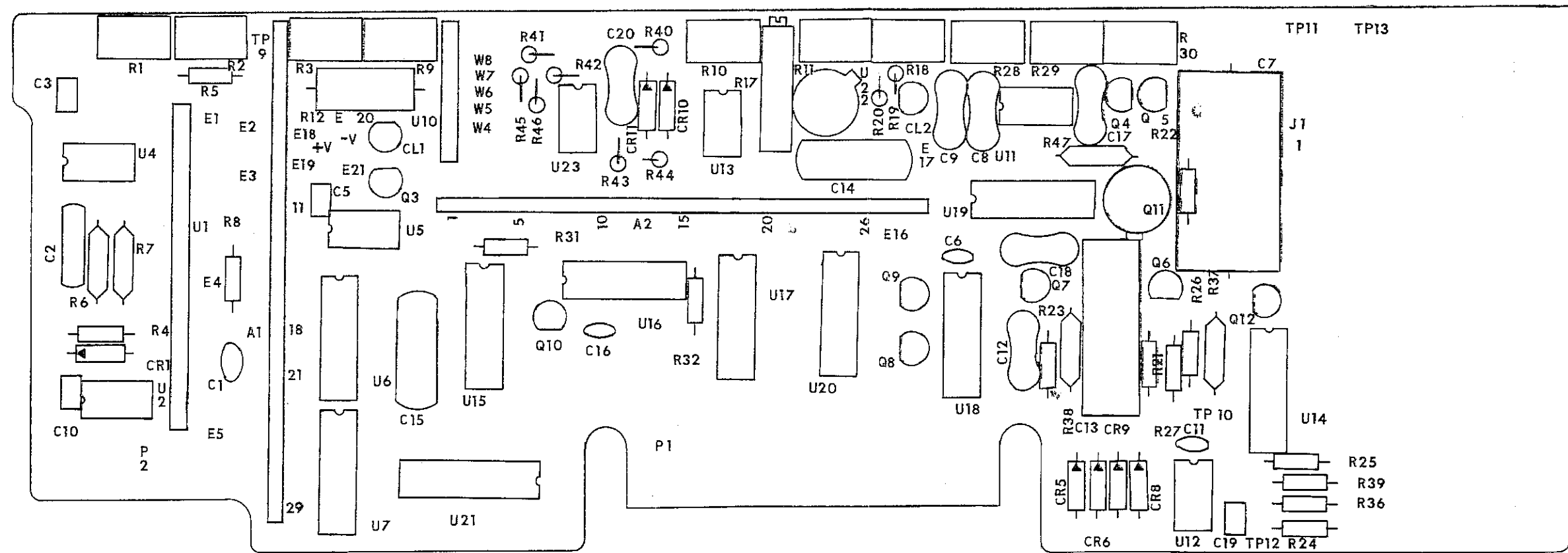


Figure 8-7. A5 A/D and Ohms Converter
PCB Assembly

JFET STATE TABLE

ON = JFET is conducting
 OFF = JFET is not conducting

OHMS CONVERTER						
For $\Omega 2T$ and $\Omega 4T$ functions, the JFETs on the A1 hybrid circuit are switched as follows:						
(gate-pin 12) A1 - E, F	(pin 13) A1 - G, H	(pin 11) A1 - I, J	(pin 18) A1 - D	(pin 21) A1 - A	(pin 24) A1 - B	
ON	OFF	OFF	OFF	OFF	ON	200 Ω
ON	OFF	OFF	OFF	OFF	ON	2 k Ω
OFF	ON	OFF	OFF	OFF	ON	20 k Ω
OFF	OFF	ON	OFF	OFF	ON	200 k Ω
OFF	OFF	OFF	ON	OFF	ON	2 M Ω
OFF	OFF	OFF	ON	ON	OFF	20 M Ω

(When a function other than $\Omega 2T$ or $\Omega 4T$ is selected, these FETs default to the 2 M Ω position.)

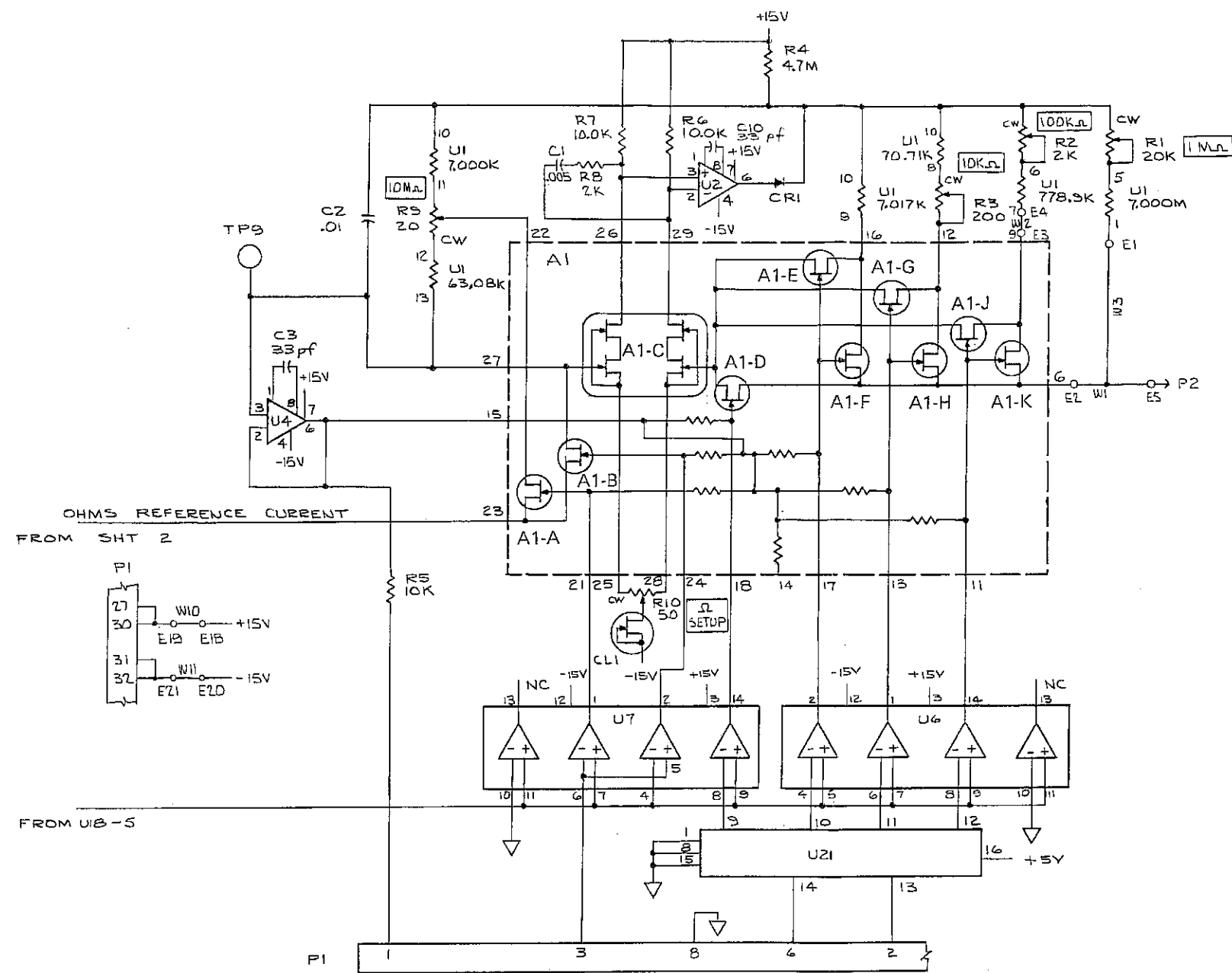
U21 BINARY TO 1 - OF - 4 DECODER

TRUTH TABLE

PIN #	INPUTS		OUTPUTS			
	13	14	9	10	11	12
	0	0	1	1	1	0
	0	1	1	1	0	1
	1	0	1	0	1	1
	1	1	0	1	1	1

0 = 0V
 1 = +5V

Figure 8-7. A5 A/D and Ohms Converter
 PCB Assembly (cont)

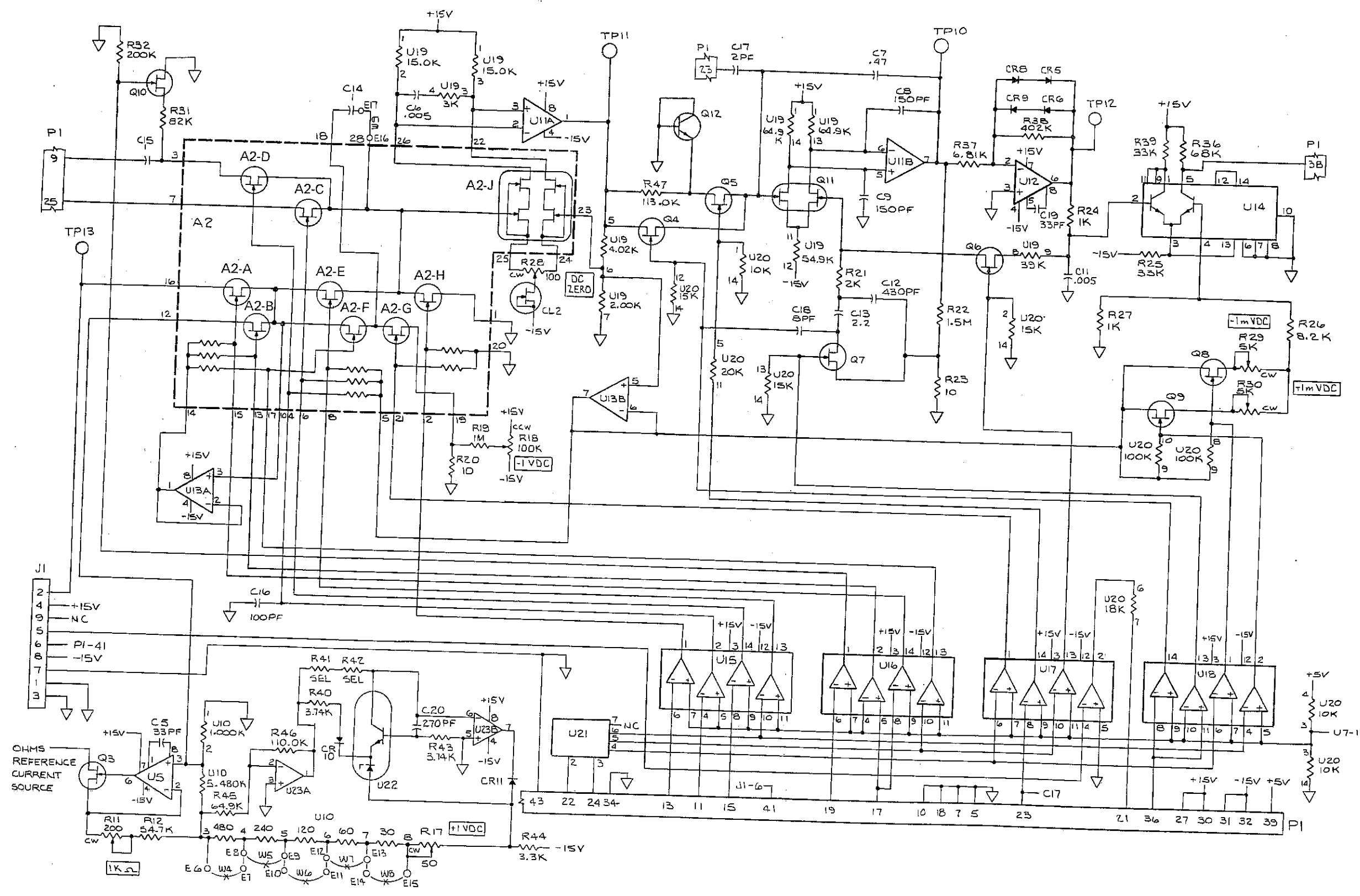


NOTES:-
 ALL RESISTANCE VALUES ARE IN OHMS,
 ALL CAPACITANCE VALUES ARE IN MICROFARADS.

LAST NO. USED	NOS NOT USED
A2, C20, CL2, CR11, E21, J1, P1, Q12, R41, U23, W11, TPS	C4 CR 2,3,7 Q1,2 R13-16, 33-35 U3, 8, 9

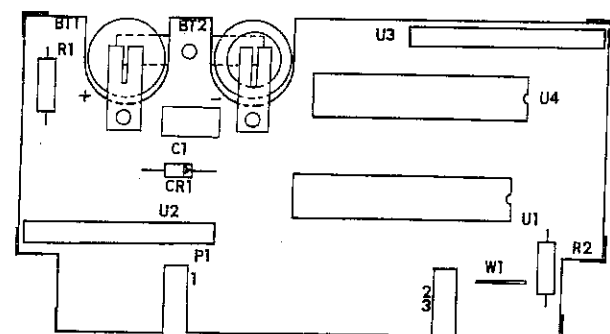
OHMS CONVERTER

Figure 8-7. A5 A/D and Ohms Converter
 PCB Assembly (cont)

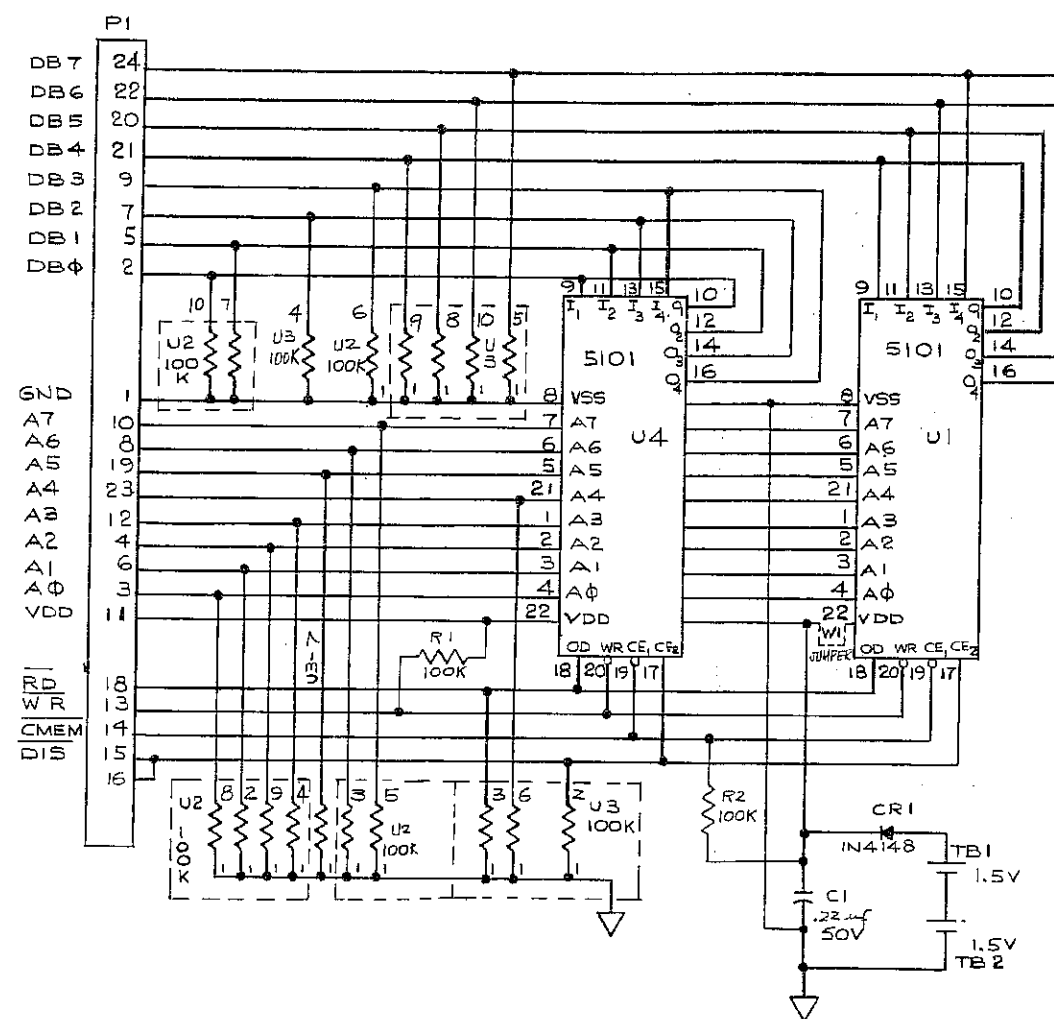


8860A-1005
(2 of 2)

Figure 8-7. A5 A/D and Ohms Converter
PCB Assembly (cont)



8860A-1613



8860A-1013

Figure 8-10. Memory Cartridge PCB Assembly

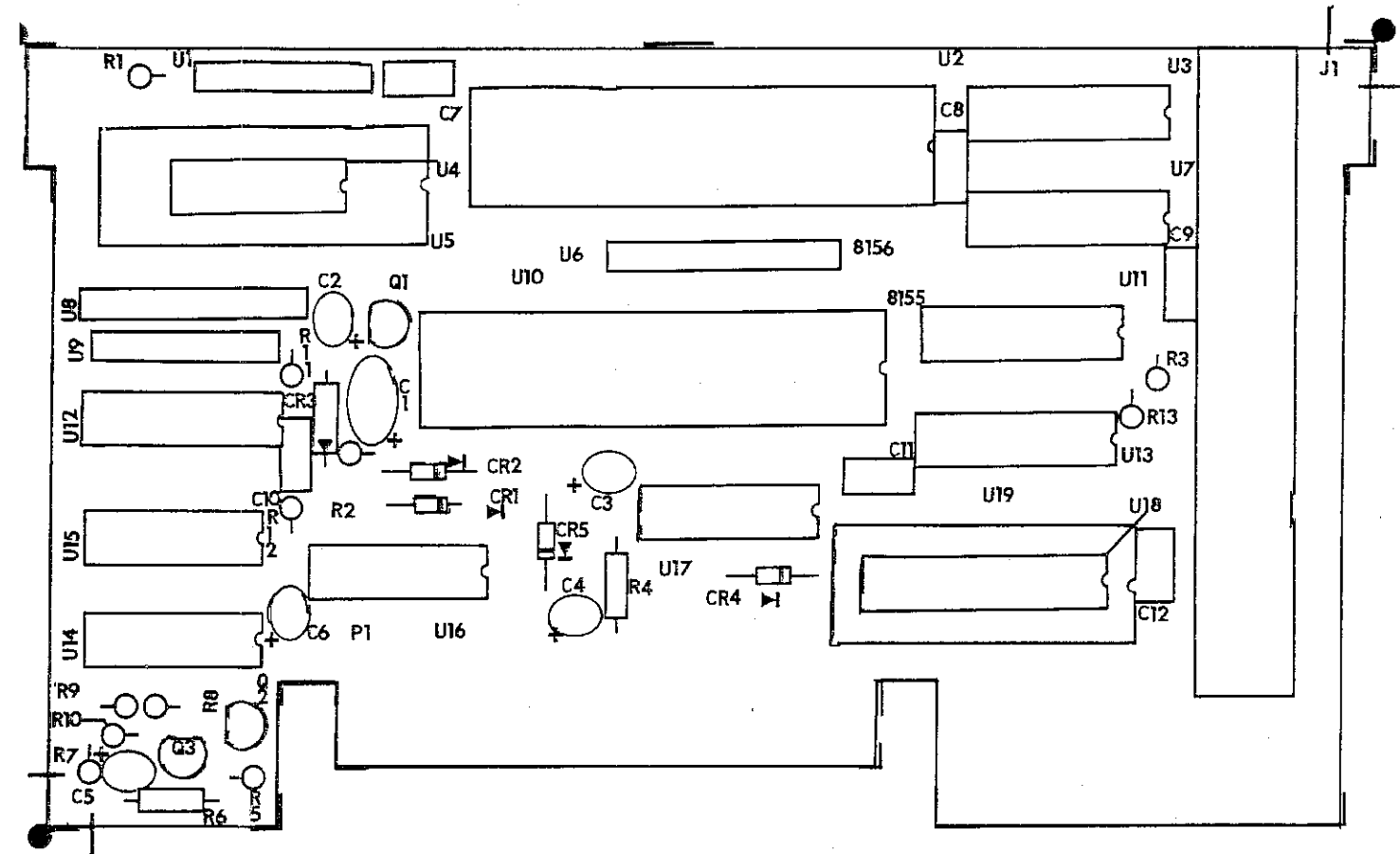
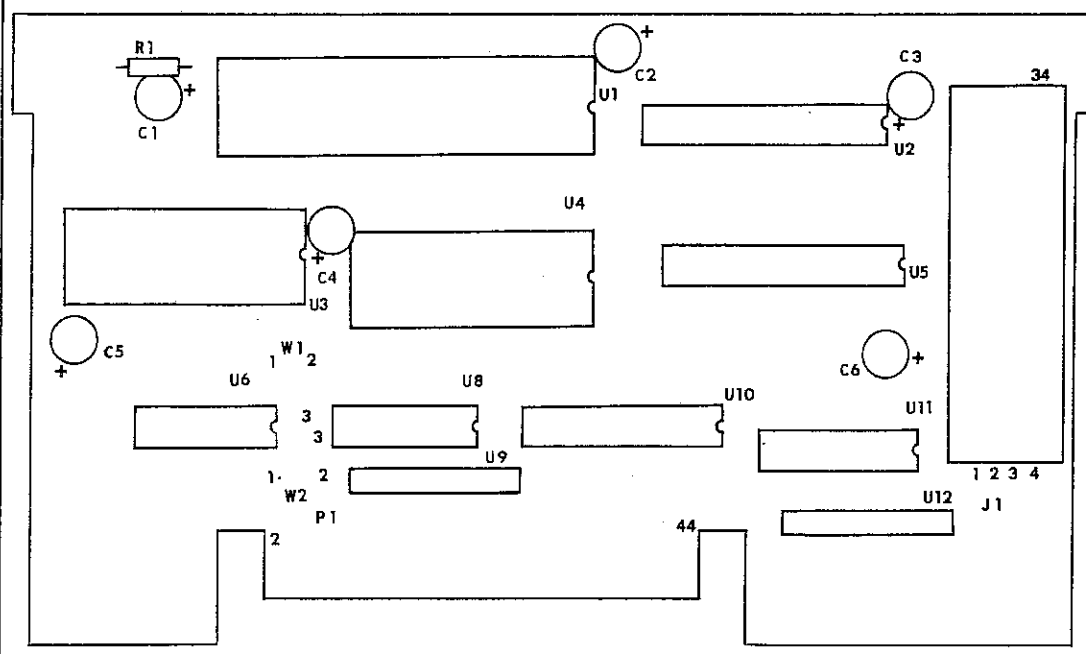
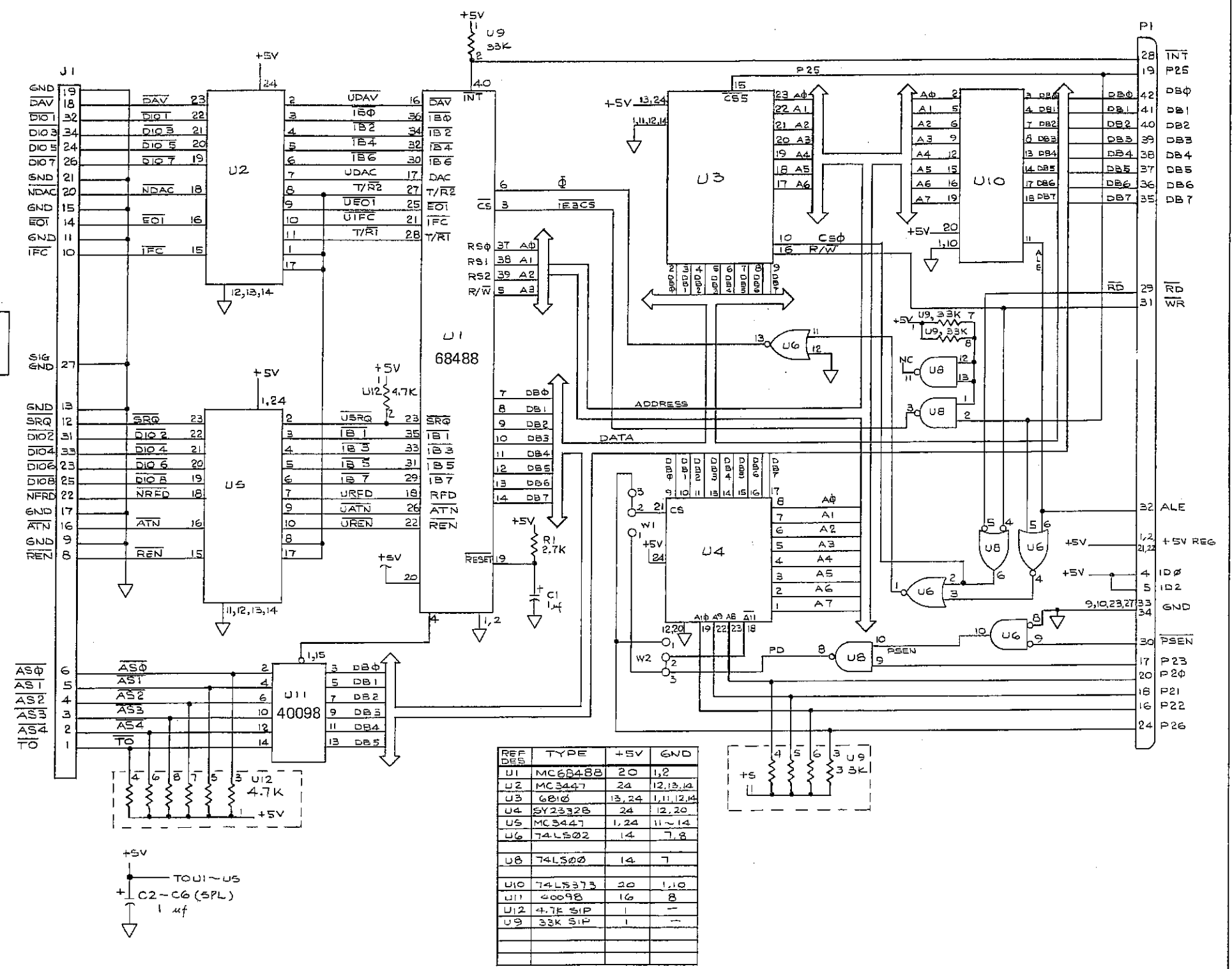


Figure 8-8. Calculator/Printer PCB Assembly



8860A-1615

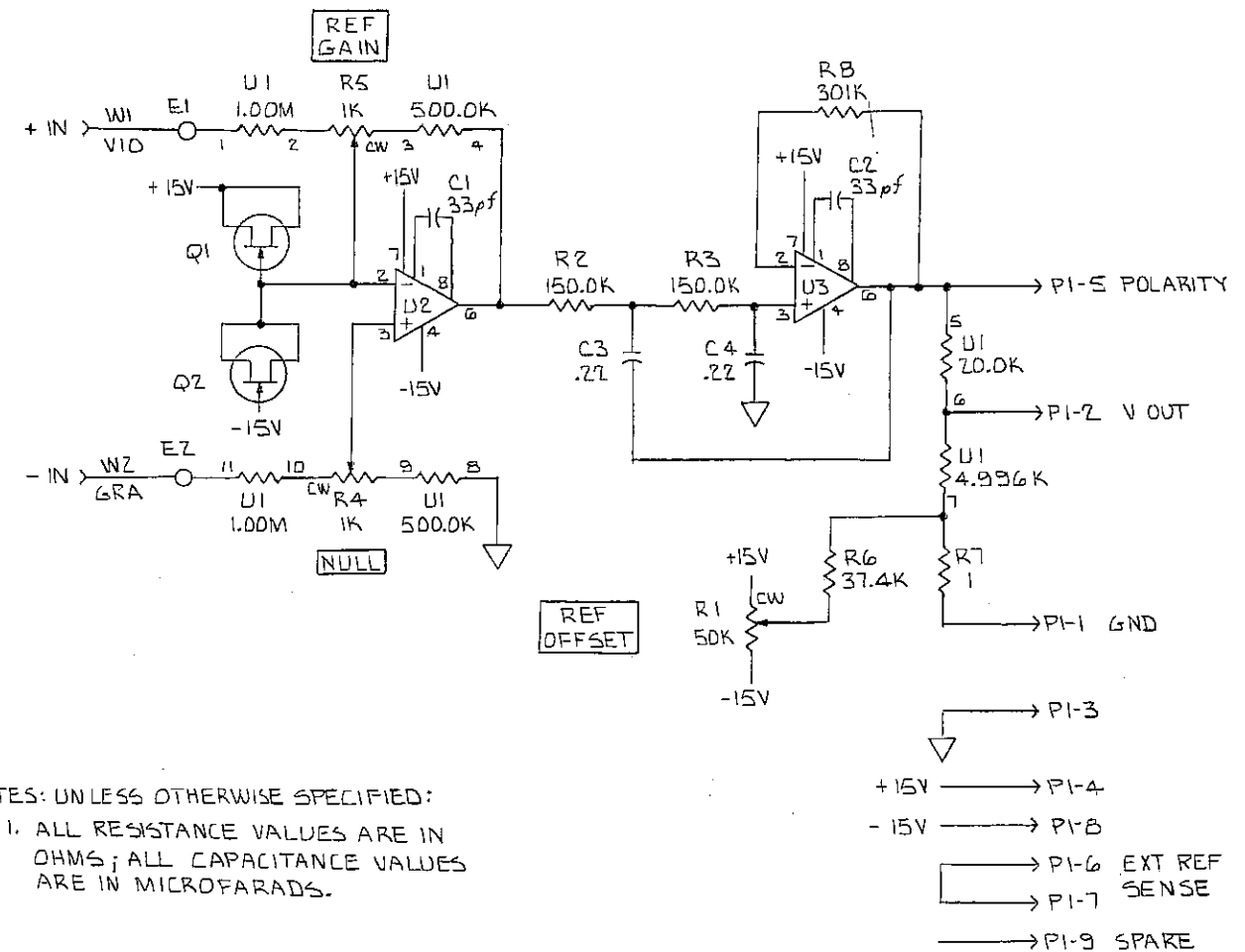
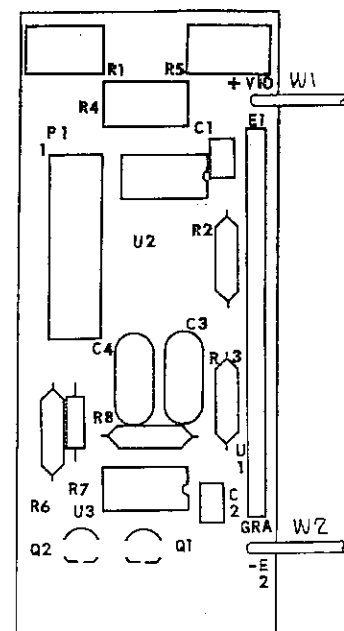


REF DES	TYPE	+5V	GND
U1	MC68488	20	1,2
U2	MC3447	24	12,13,14
U3	6816	13,24	1,11,12,14
U4	5Y2332B	24	12,20
U5	MC3447	1,24	11~14
U6	74LS02	14	7,8
U8	74LS00	14	7
U10	74LS373	20	1,10
U11	40098	16	8
U12	4.7K SIP	1	-
U9	33K SIP	1	-

NOTES:
 UNLESS OTHERWISE SPECIFIED:
 1. ALL RESISTORS ARE IN OHMS,
 ALL CAPACITORS ARE IN MICROFARADS.

8860A-1015

Figure 8-12. IEEE-488 Interface PCB Assembly



NOTES: UNLESS OTHERWISE SPECIFIED:
 1. ALL RESISTANCE VALUES ARE IN OHMS; ALL CAPACITANCE VALUES ARE IN MICROFARADS.

- PI-3
- PI-4 +15V
- PI-8 -15V
- PI-6 EXT REF SENSE
- PI-7
- PI-9 SPARE

LAST NO. USED
C4 P1 Q2 U3
E2 R8 W2

Figure 8-15. External Reference PCB Assembly, Option -007

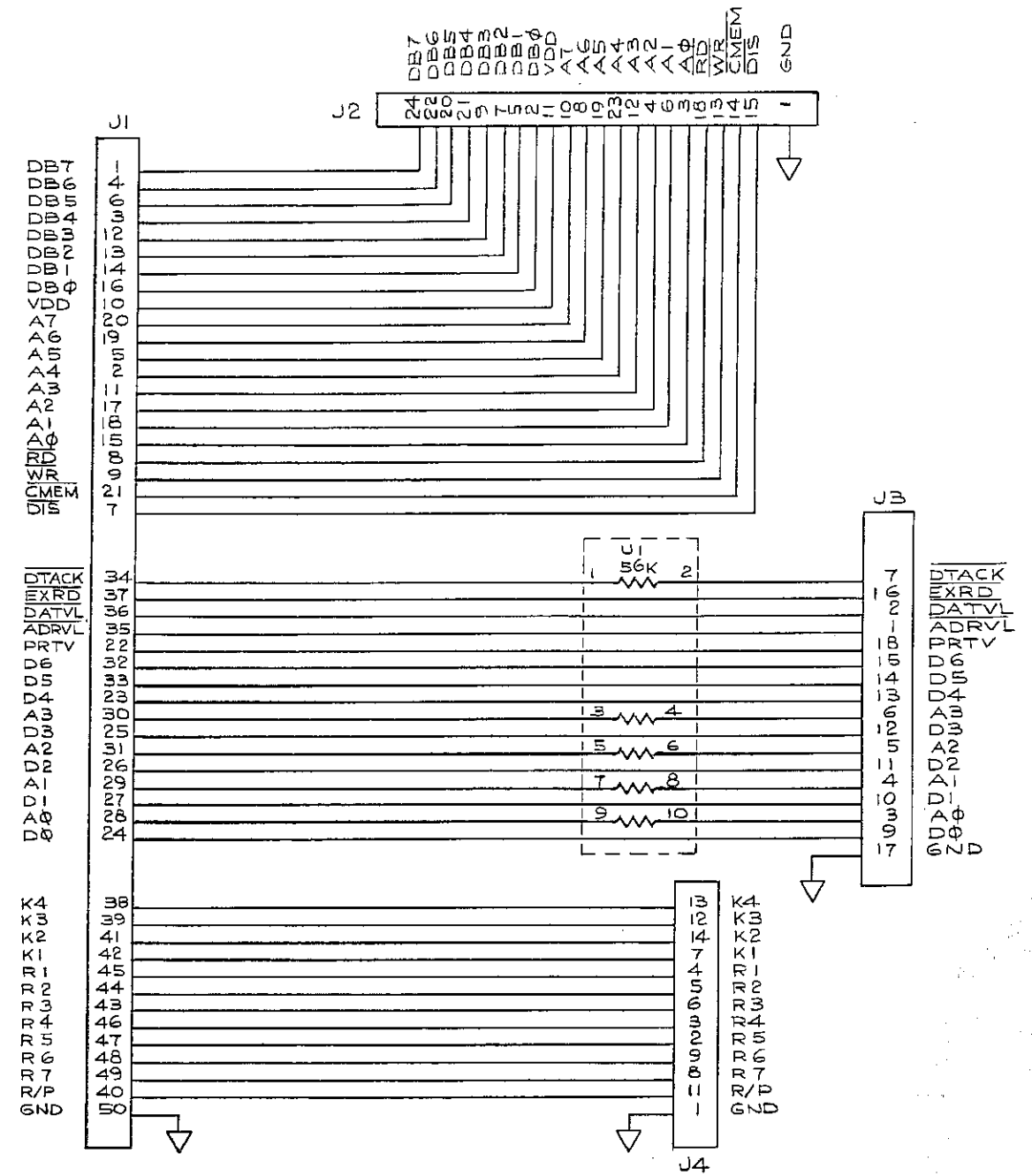
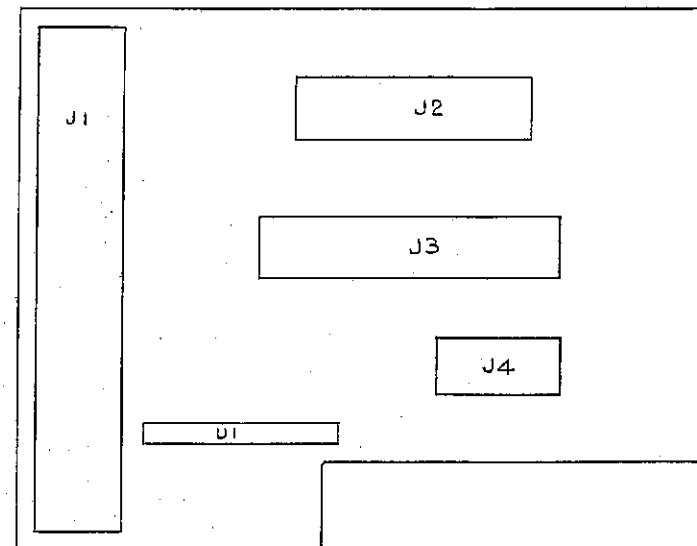


Figure 8-9. Rear Interface PCB Assembly

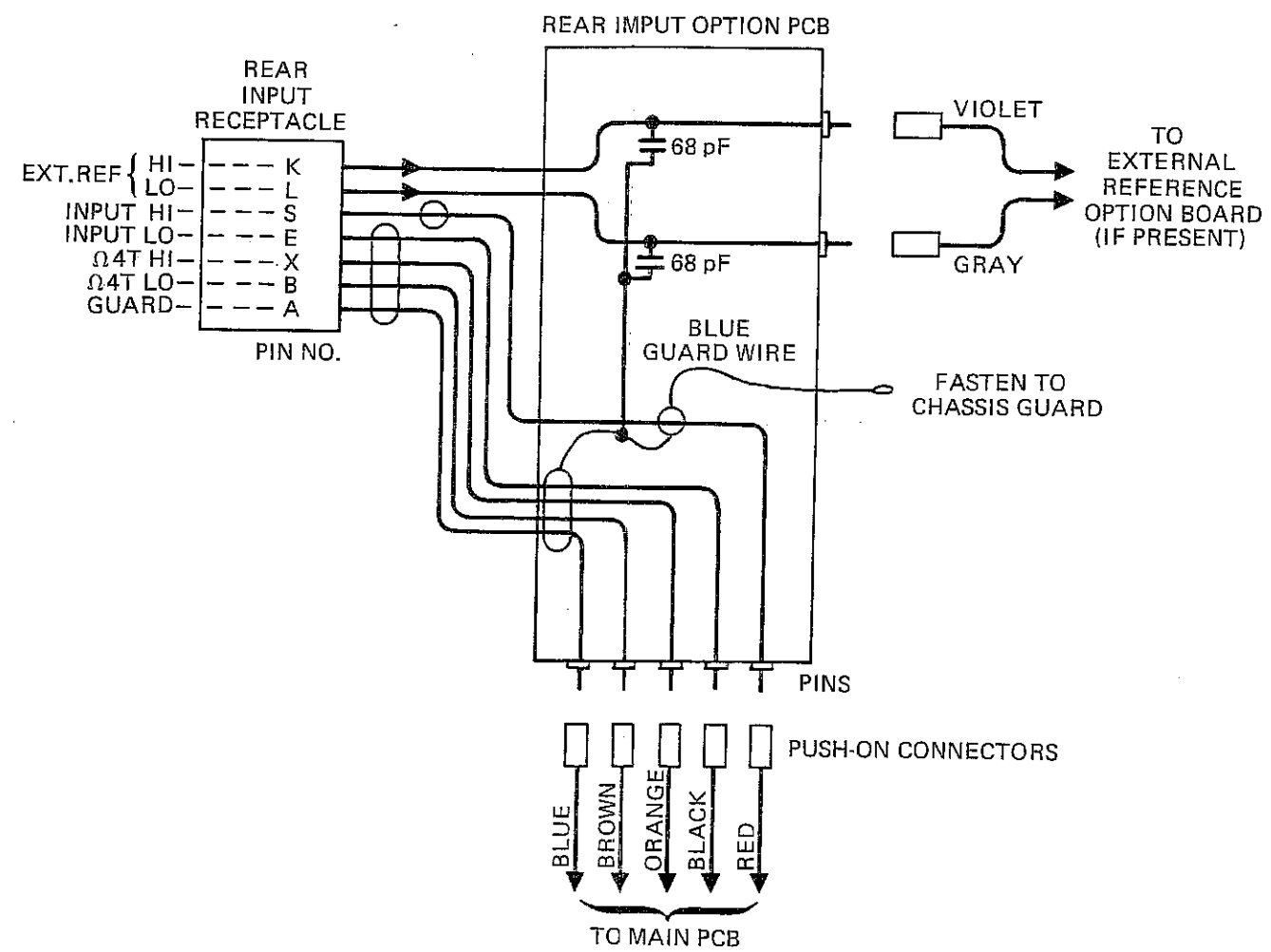


Figure 8-14. Rear Input PCB Assembly,
Option -006

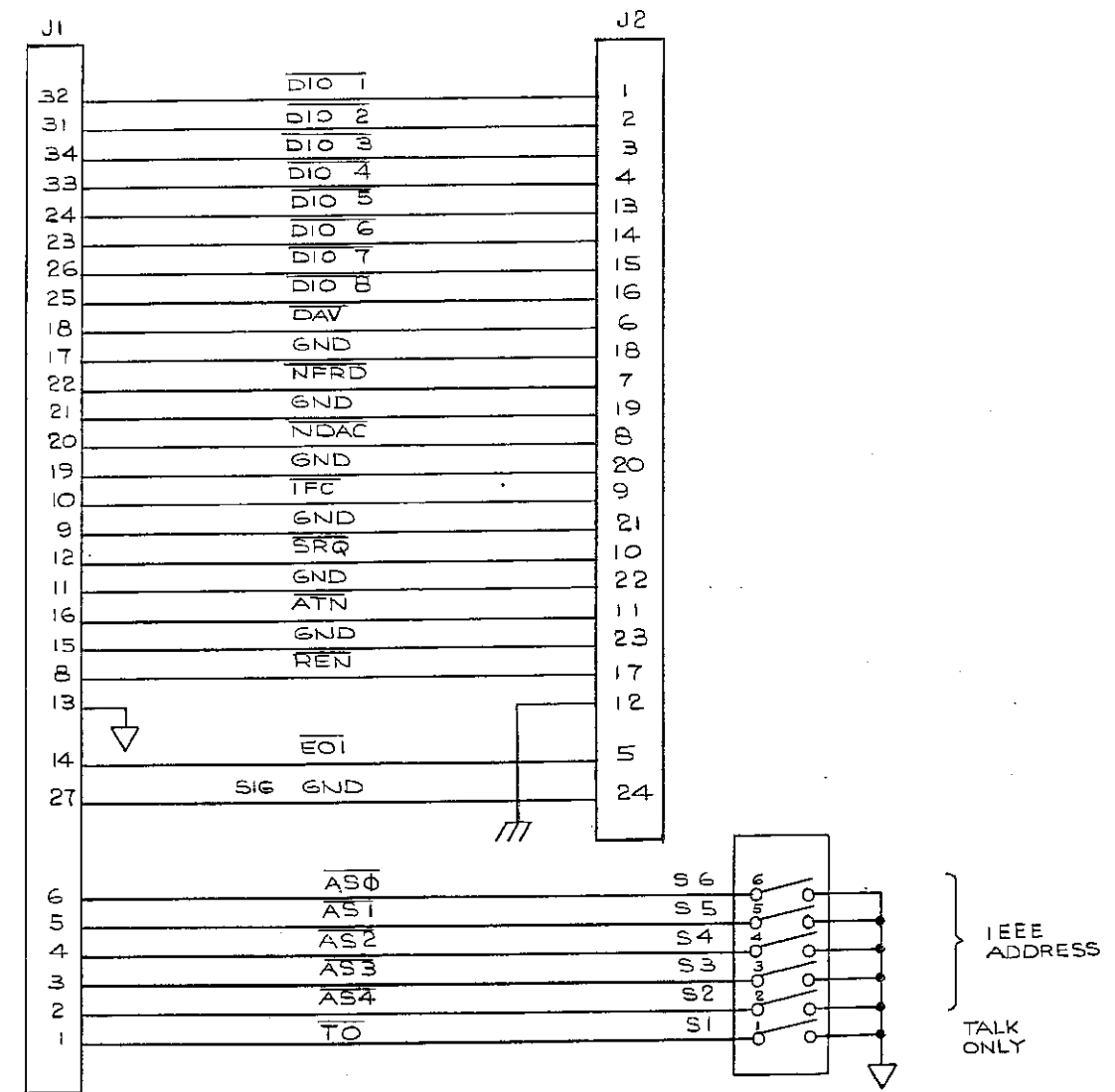
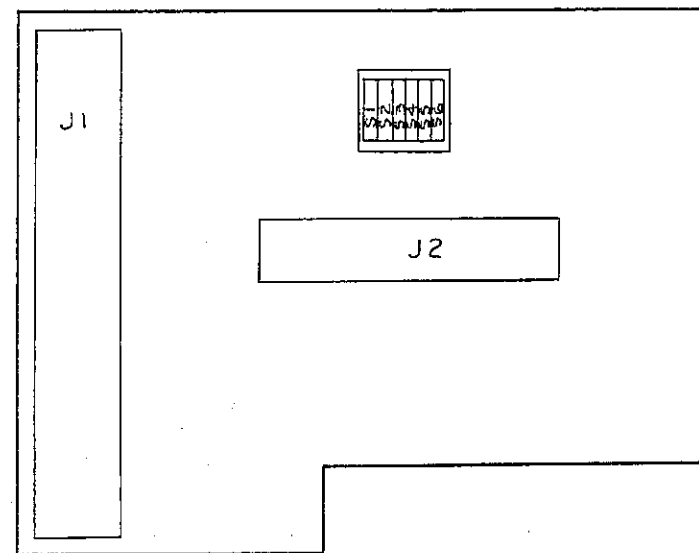


Figure 8-13. Rear Interconnect PCB Assembly

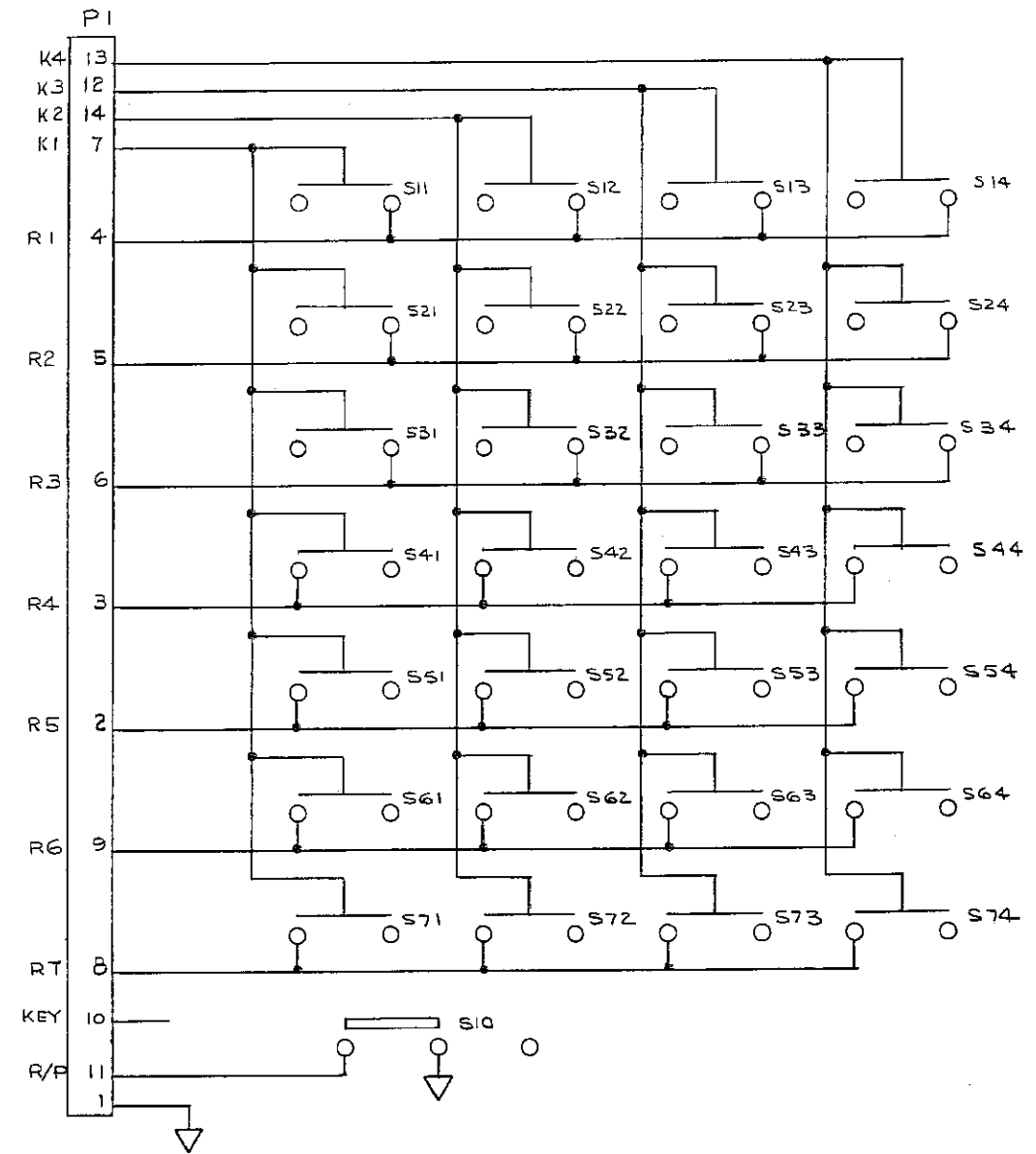
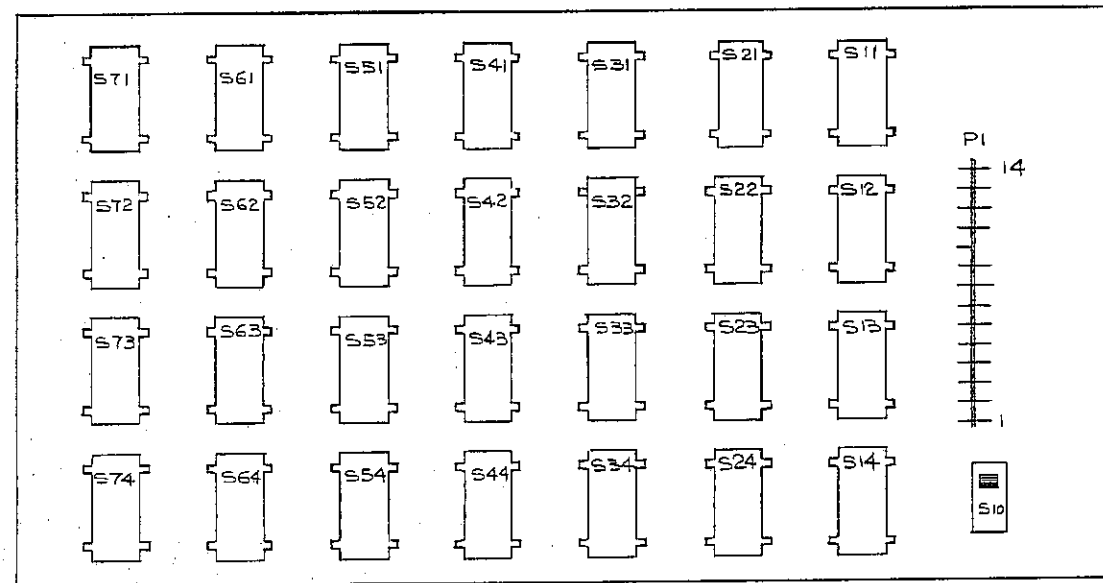


Figure 8-11. Control Keyboard PCB Assembly