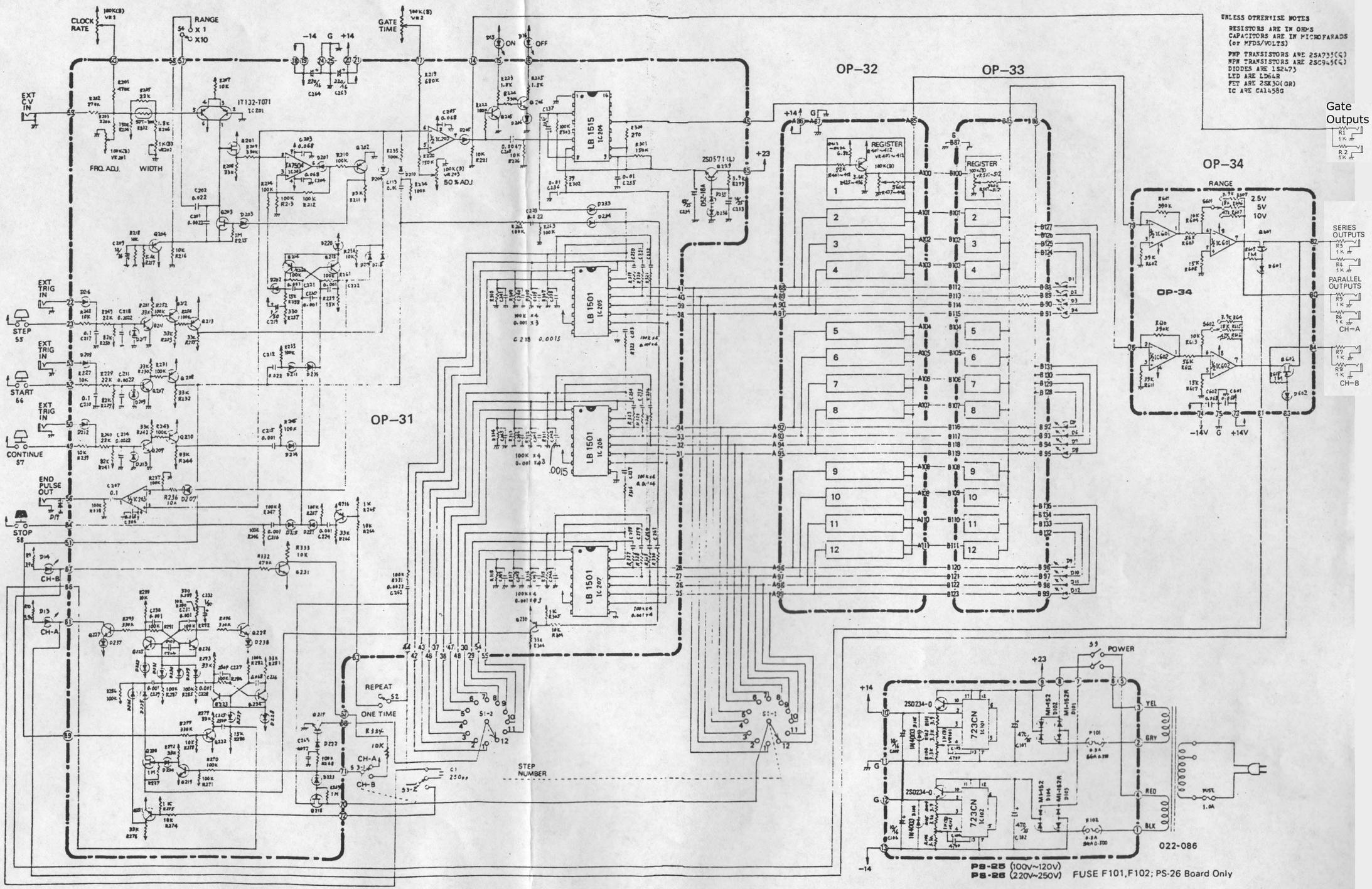
GENERAL CIRCUIT DIAGRAM



UNLESS OTHERWISE NOTES

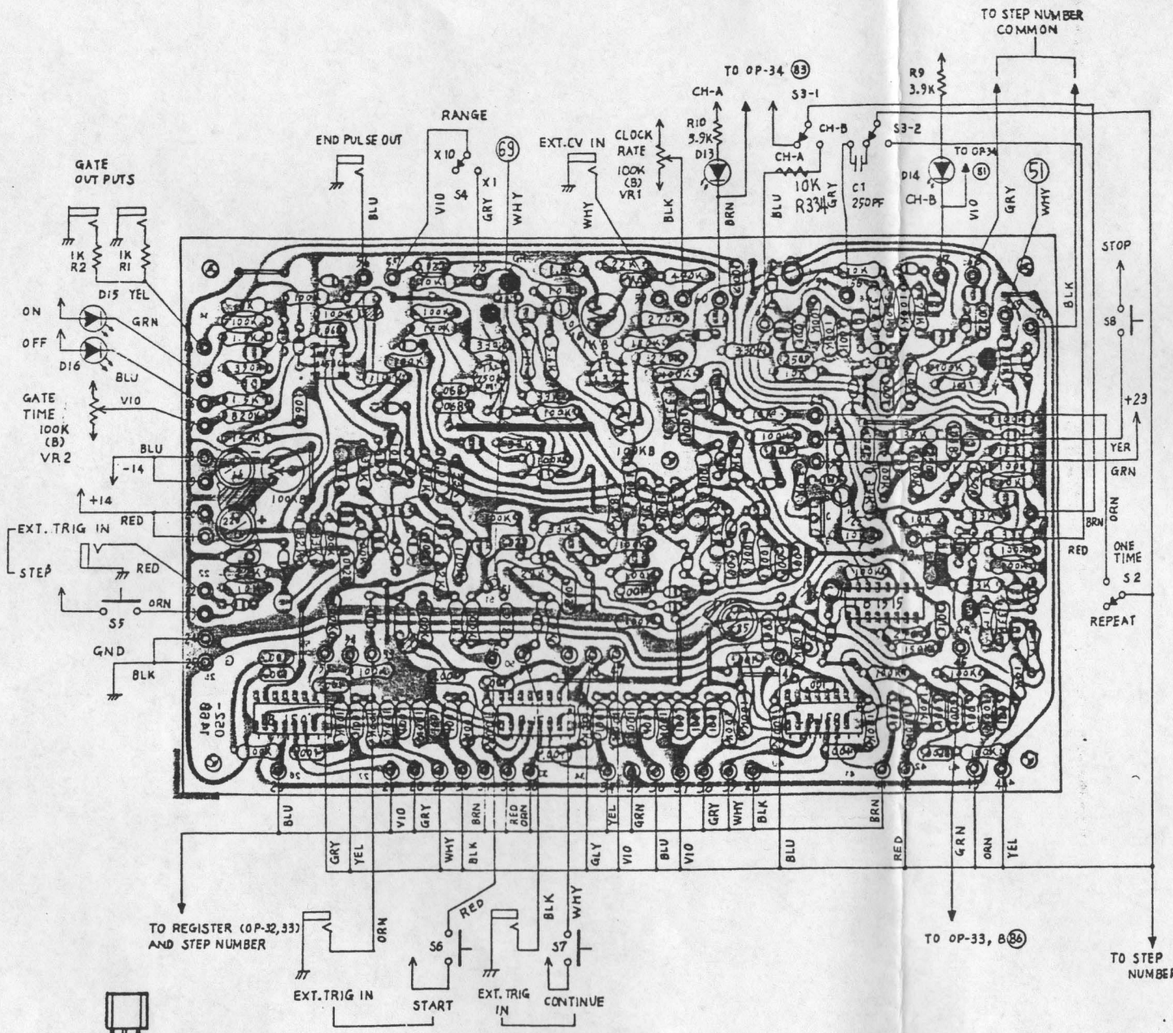
RESISTORS ARE IN OHMS
CAPACITORS ARE IN MICROFARADS
(or MFDS/VOLTS)

PNP TRANSISTORS ARE 2SA733(C)
NPN TRANSISTORS ARE 2SC945(C)
DIODES ARE 1S2473
LED ARE LD56R
FET ARE 2SK30(GR)
IC ARE CA1458G

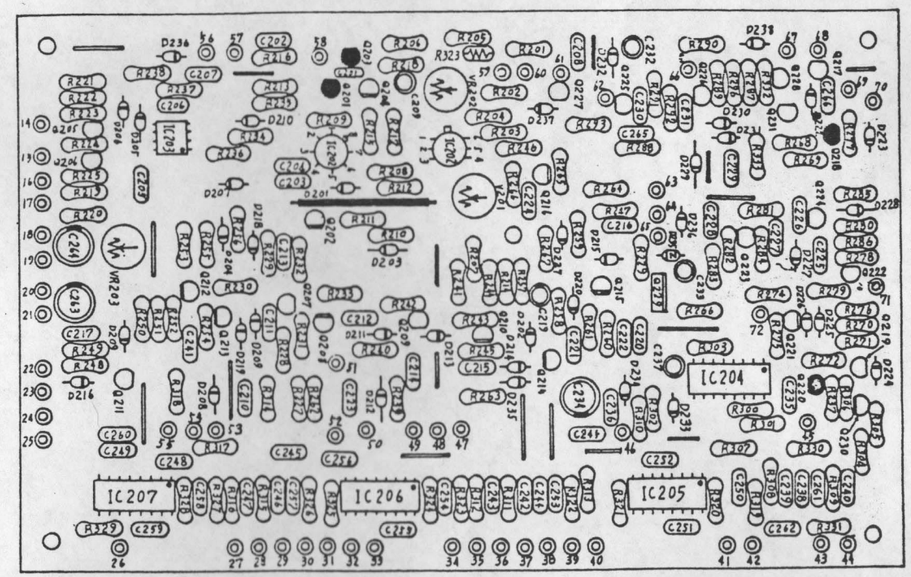
PS-25 (100V~120V)
PS-26 (220V~250V) FUSE F101,F102; PS-26 Board Only

SEQUENCE BOARD ASSEMBLY OP-31 (149-031)

(Serieal No.560950 and higher)

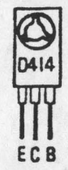


Front view





2SK30A (GR, Y)

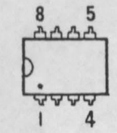


2SD414 (Q)
2SD571 (L)

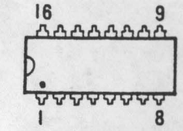


2SC945 (Q)
2SA733 (Q)

2SA733(Q)
2SC945(Q)
2SK30A(GR, Y)
IS-2473
05Z-16A
2SD571(L)

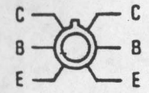


μPC1458C

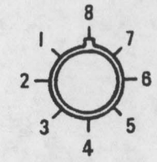


LB1515
LB1501

Top view

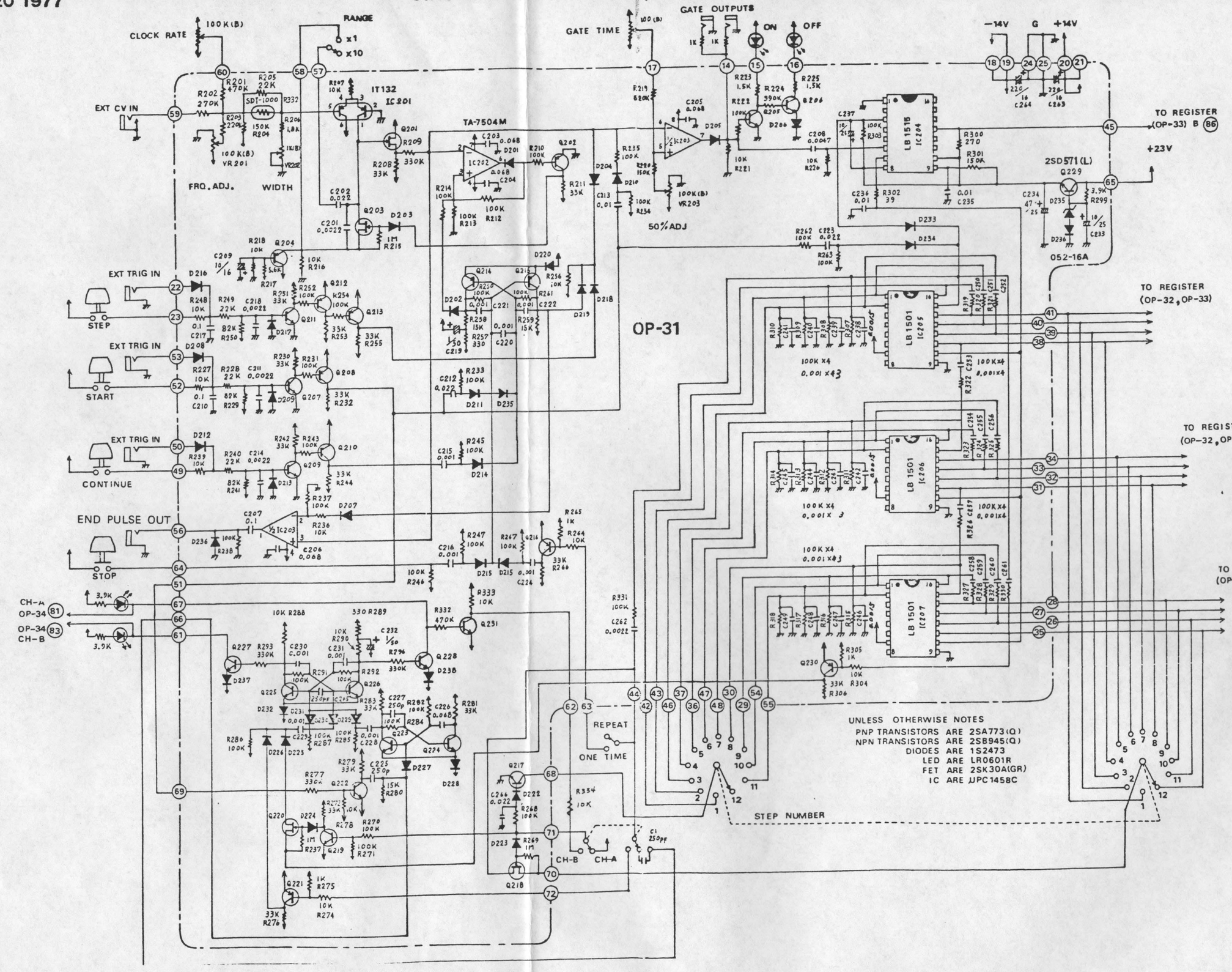


IT132



TA7504M

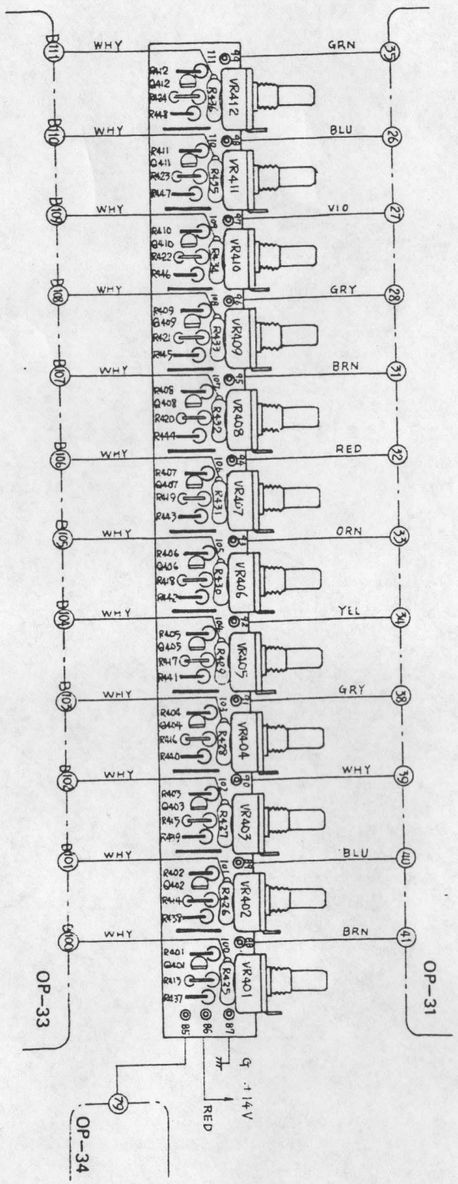
CIRCUIT DIAGRAM OP-31 (Serial No.000000 and higher)

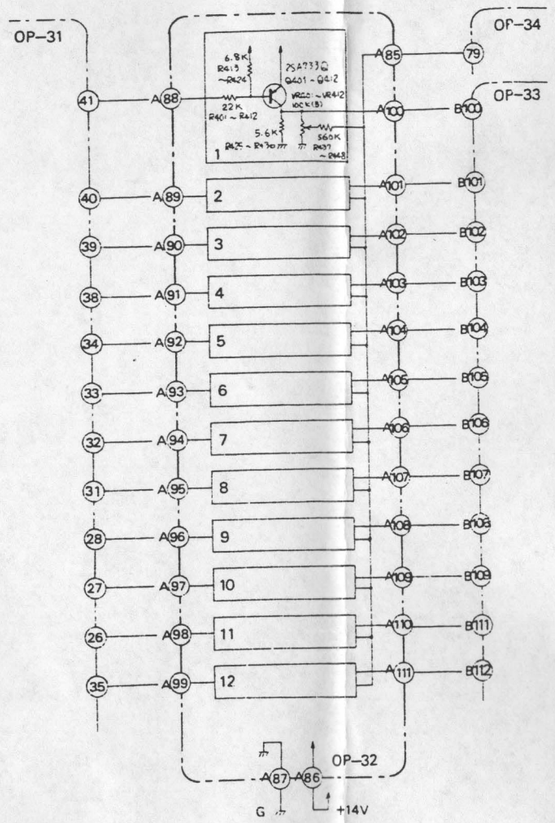


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REGISTER BOARD ASSEMBLY

OP-32 (149-032)



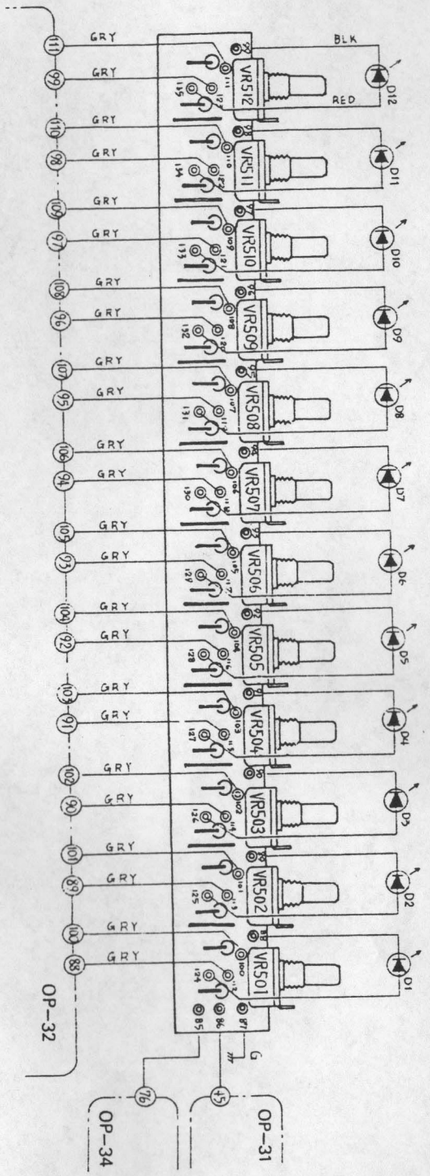


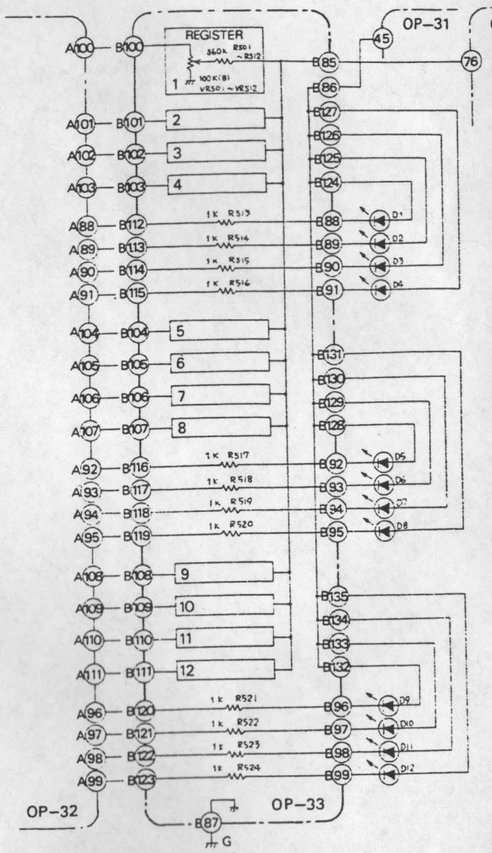


Front view

2SA733(Q)

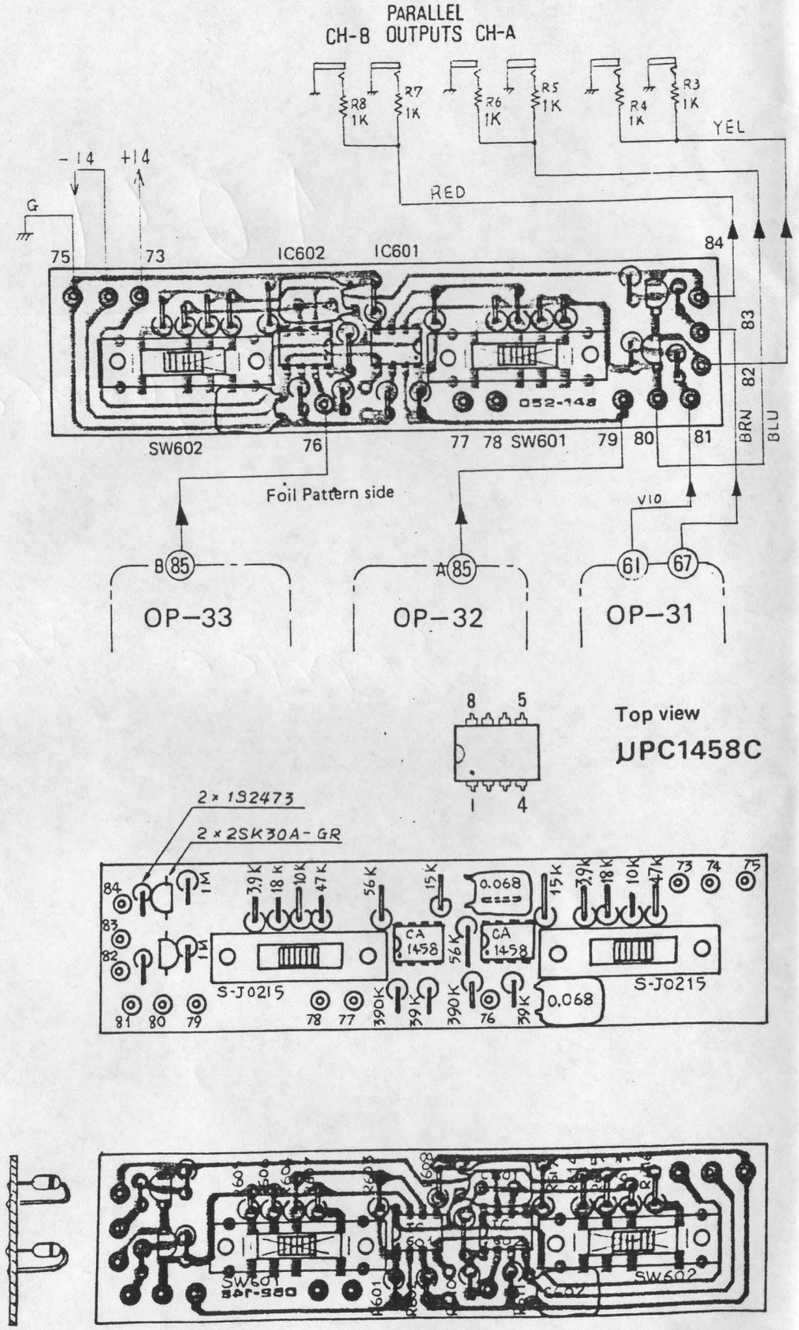
OP-33 (149-033)

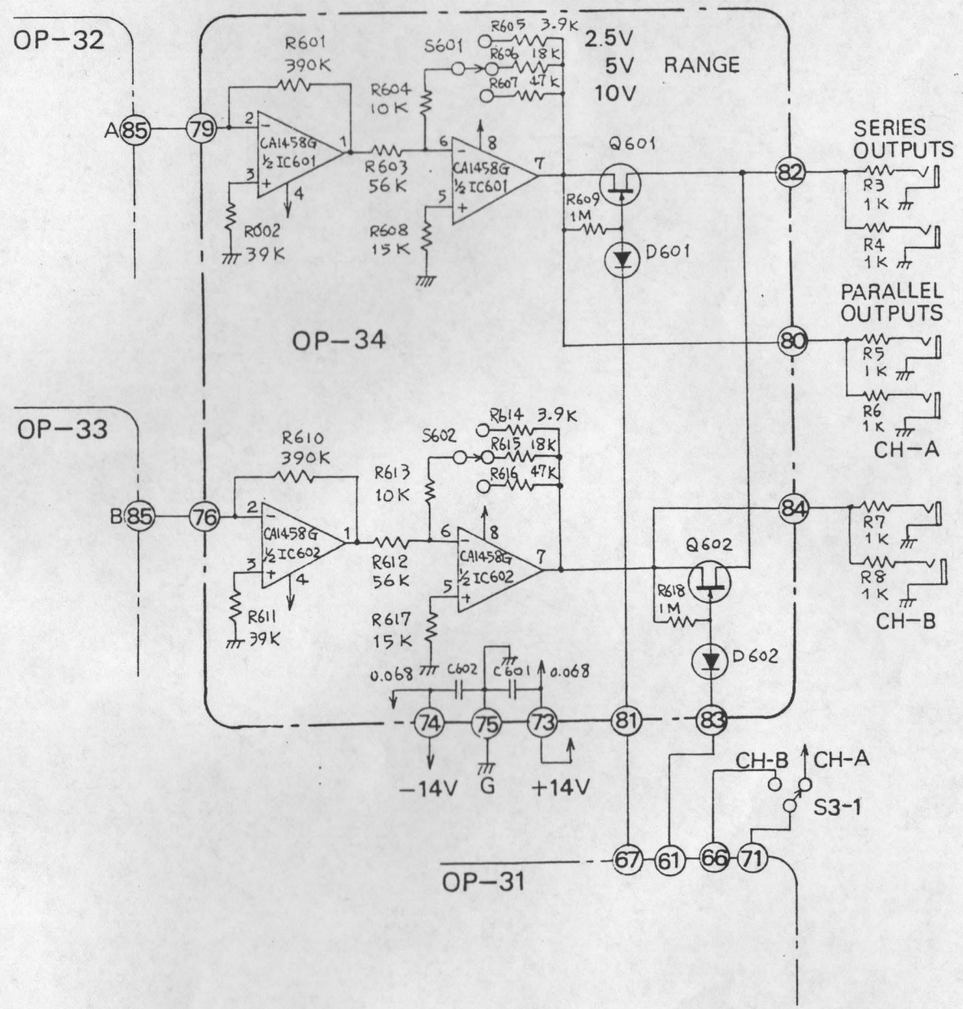




OUTPUT RANGE and CHANNEL SELECT BOARD

OP-34 (149-034)





PARTS LIST

Sequence Board Assembly OP-31 (149-031)

052-1468	PCB	(less Parts)	
020-010	IC	TA7504M	(741C)
020-062	IC	μPC1458C	
020-049	IC	LB-1501	
020-050	IC	LB-1515	
020-055	IC	IT-132	(μPA41C)
017-013	Transistor	2SC945(Q)	(2SC828, 2SC372)
017-012	Transistor	2SA733(Q)	(2SA495(Y))
017-072	Transistor	2SD571(L)	(2SD414(Q))
017-016	FET	2SK30A (GR)	
017-014	FET	2SK30A (Y)	
018-014	Diode	IS2473 (IS1555)	
018-026	Diode	05Z16A	
018-015	Thermistor	SDT-1000	

Trimmer Potentiometers

028-002	1K (B)	EVT (L) – R4XA00 13B	
028-007	100K (B)	EVT (L) – R4XA00 15B	

Capacitors

037-007	250pF	50V±10%	Ceramic
032-033	1μF	50V	Electrolytic
032-038	10μF	16V	Electrolytic
032-050	10μF	25V	Electrolytic
032-015	47μF	25V	Electrolytic
032-047	220μF	16V	Electrolytic

Register Board Assembly
OP-32 (149-032)
OP-33 (149-033)

052-147	PCB (less parts)	
017-012	Transistor 2SC945(Q)	(2SC828, 2SC372(Y))
030-133	Potentiometer 100K (B) V16L4N 15S-B100K (EVH-BOAS15B15)	

Output Range and Channel Select Board Assembly OP-34 (149-034)

052-148	PCB (less parts)	
020-062	IC	μPC1458C
017-016	FET	2SK30A (GR)
001-092	Slide switch S-J0215	

Power Supply Board Assembly
PS-25 (100V–120V) (146-025)
PS-26 (220V–250V) (146-026)

052-133B	PCB (less parts)	
048-001	Heatsink	No.1
020-031	IC	723CN
017-010	Transistor	2SD234(O)

Diodes

018-028	ESA-B01-03C
(018-062)	(MI-152)
018-029	ESA-B01-03N
(018-063)	(MI-152R)
018-022	IN4003

Trimmer Potentiometer

028-002	1K (B) EVL (T) R4XA00B13

Capacitors

037-008	470pF	50V±10%	Ceramic
032-033	10μF	16V±10%	Electrolytic
032-068	470μF	35V	Electrolytic
010-038	Wafer Terminal A-2461-8C		

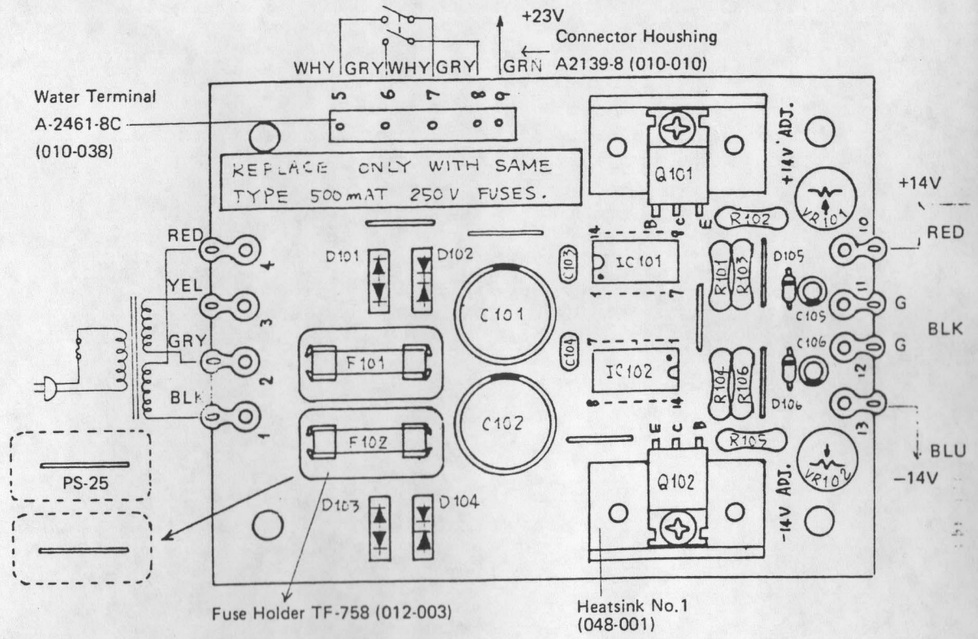
PS-26 only

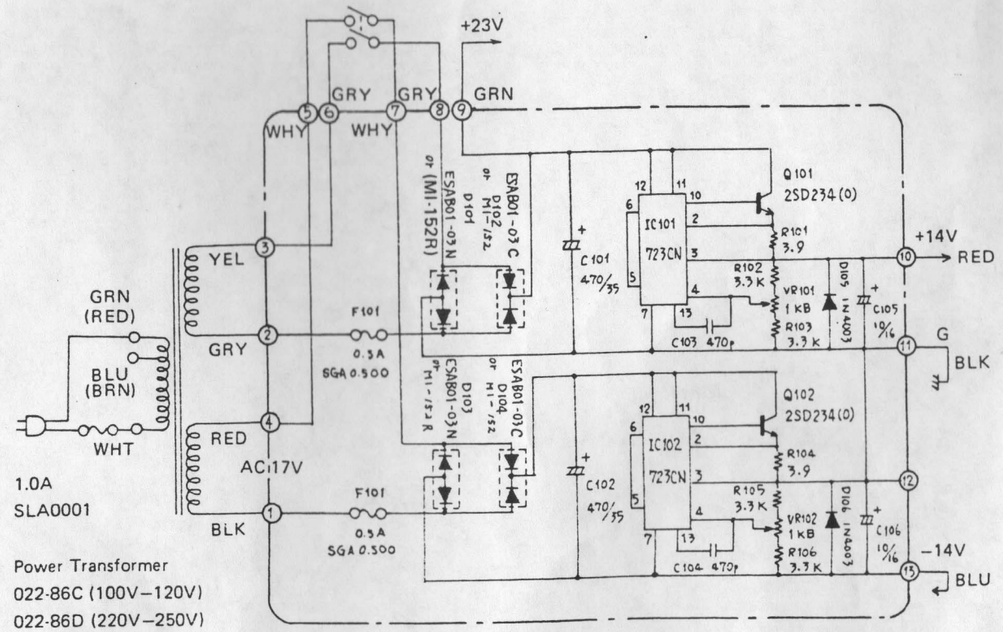
012-003	Fuse Holder TF-758
008-024	Fuse (Midget) 0.5A SGA0.500

* For parts not listed above.
Refer to 2. DISASSEMBLY or 9. PARTS PICTORIAL.
* Carbon film resistors of 1/4W, and mylars are omitted.

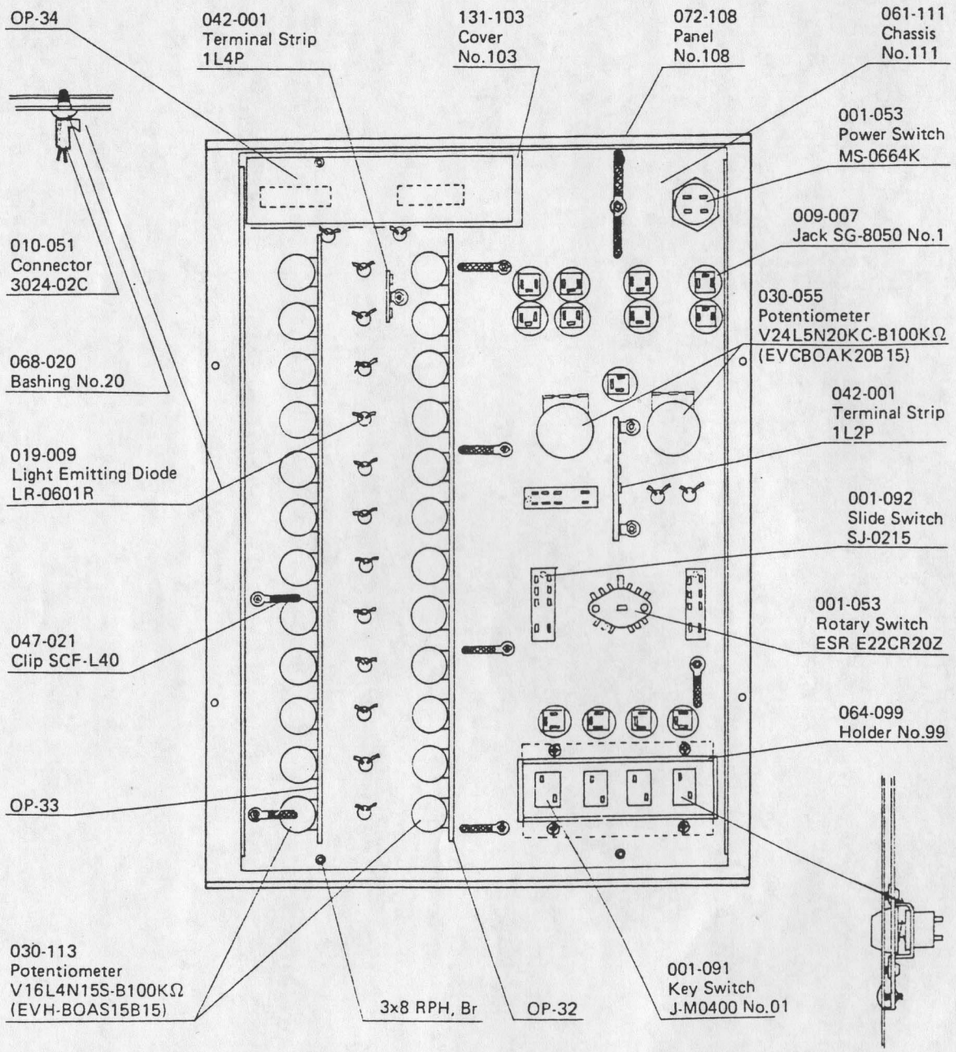
POWER SUPPLY BOARD

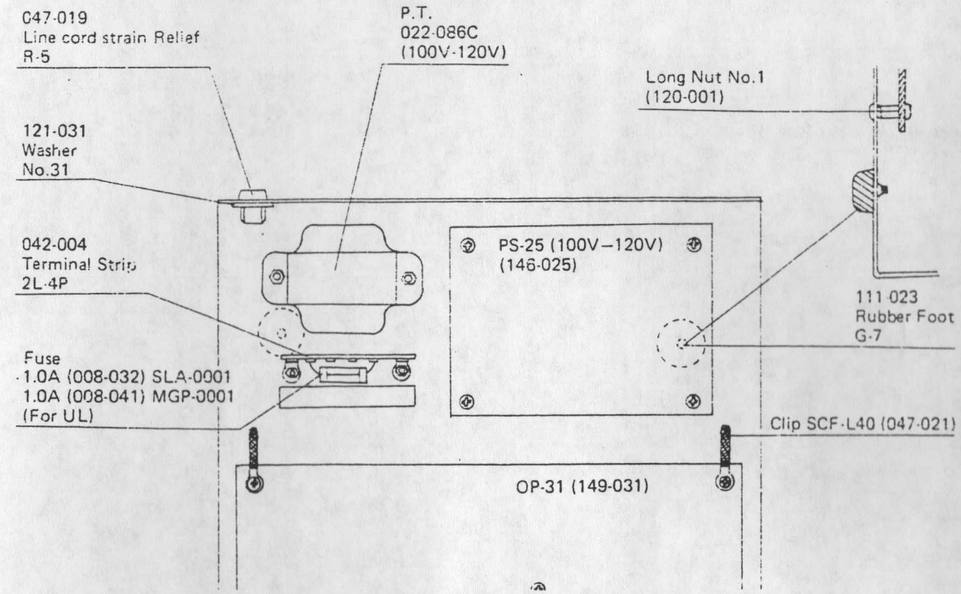
PS-25 (146-025) (100V–120V)
PS-26 (146-026) (220V–250V)

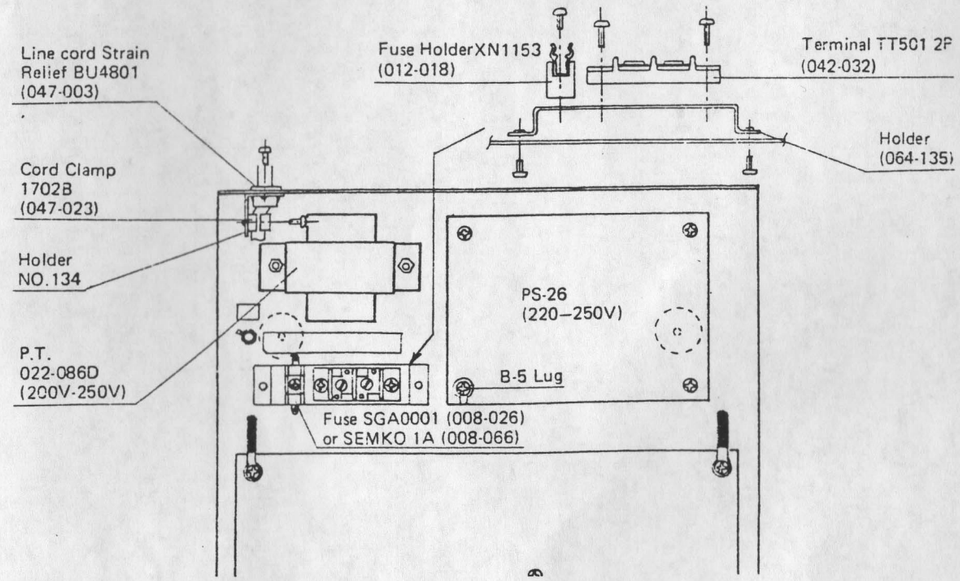




PARTS PICTORIAL







ADJUSTMENT PROCEDURE

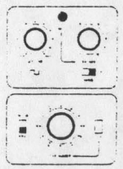
1. Power Supply Voltage adjustment

a. Connect the Digital Voltmeter to terminal "10" of the PCB (PS-25 or PS-26), and adjust VR101 for reading +14V±100mV.

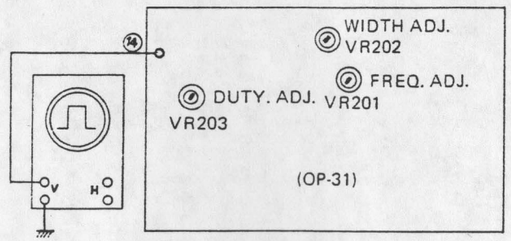
b. In the same manner with connection to terminal "13", adjust VR102 for reading −14V±100mV.

2. CLOCK RATE adjustment

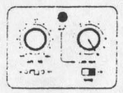
Set the controls as illustrated bellow



(RANGE: X10. REPEAT)

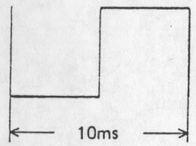


a



(CLOCK RATE: 10)

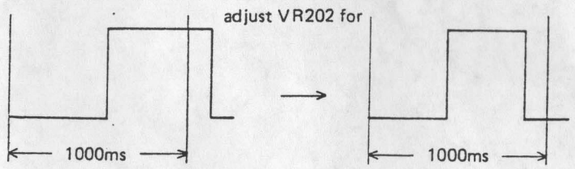
adjust VR201 for

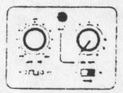


b

a little longer than 1000ms — a little shorter than 1000ms

adjust VR202 for

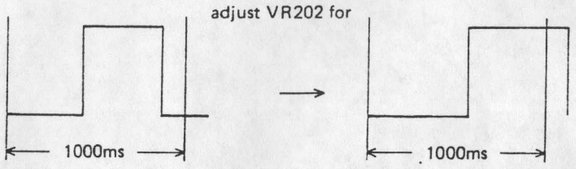




(CLOCK RATE: 0)

a little shorter than 1000ms — a little longer than 1000ms

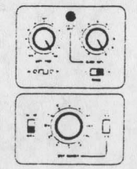
adjust VR202 for



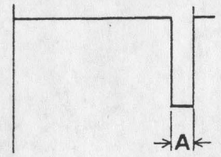
c Step (b) may cause variation on the 10ms width on (a).
Repeat, then, the steps (a) and (b) until waveforms are within 10ms±10% and 1000ms±10%.

3. GATE TIME adjustment

a



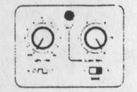
(CLOCK RATE: 10. GATE TIME: MAX)



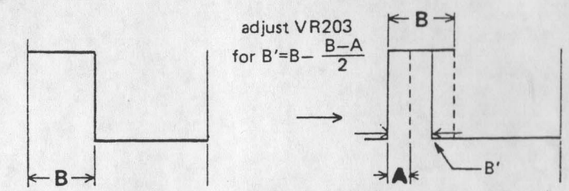
Note width of space (A)

b

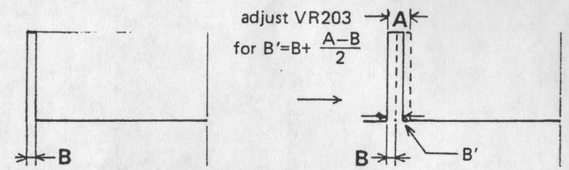
wider than A



(GATE TIME. MIN)



narrower than A



c Repeat the above steps (a) and (b) until A=B

