

# SERVICE MANUAL NAD MODEL 2140 STEREO AMPLIFIER



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# SPECIFICATIONS

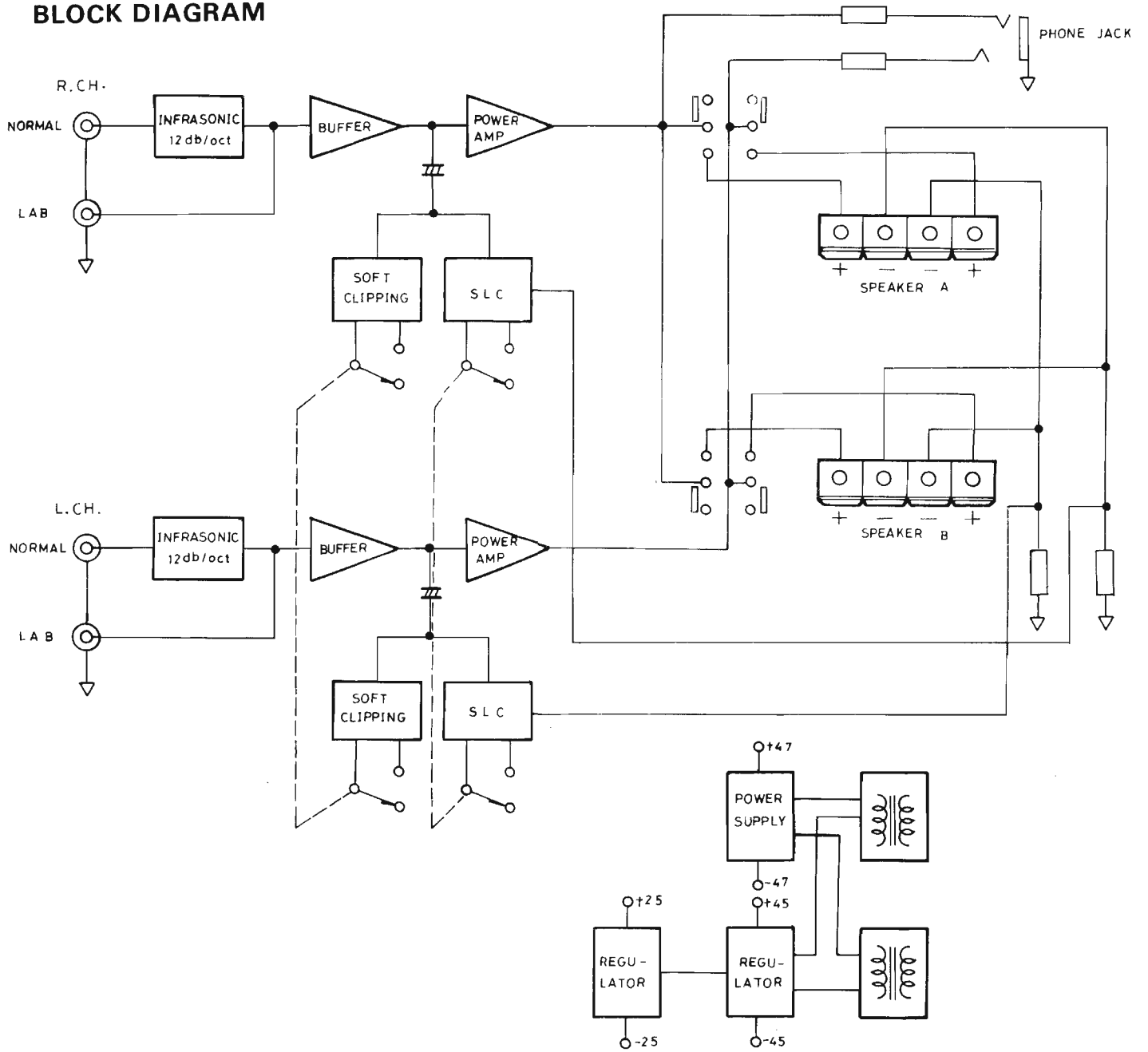
All specifications are measured in accordance with IHF Standard A-202

Continuous Average Power Output at 8 ohm 20-20K Hz both Channels Driven	50 W
Rated Distortion, 20-20K Hz	< 0.03%
Clipping Headroom at 8 ohm	+0.5 dB
Clipping Power at 8 ohm	57 W
at 4 ohm	80 W
at 2 ohm	90 W
Dynamic Headroom at 8 ohm	+ 1.8 dB
Dynamic Power at 8 ohm	80 W
at 4 ohm	130 W
at 2 ohm	150 W
Transient Overload Recovery Time	1 usec
Slew Factory	50
Slew Rate	30 V/usec
Damping Factor at 50 Hz (Ref. 8 ohm)	150
THD 20-20K Hz from 250 mW to 50 W	< 0.03 %
SMPTE IMD (60 Hz + 7K Hz, 4 : 1) from 250 mW to 50 W	< 0.03 %
IHF IMD (19K Hz + 20K Hz) at 50 W	< 0.03 %
TIM (15K Hz Sinewave + 3.18K Hz Square Wave) at 50 W	< 0.03 %
Frequency Response, 20-20K Hz	± 0.05 dB
Frequency Response Range -3 dB	10-30K Hz

## PHYSICAL SPECIFICATION

Dimensions	W x H x D	16.5 x 3.8 x 11 (inch)
		420 x 96 x 280 (mm)
Net Weight		8.3 Kg/18.3 Lbs
Shipping Weight		9.4 Kg/20.7 Lbs

# BLOCK DIAGRAM



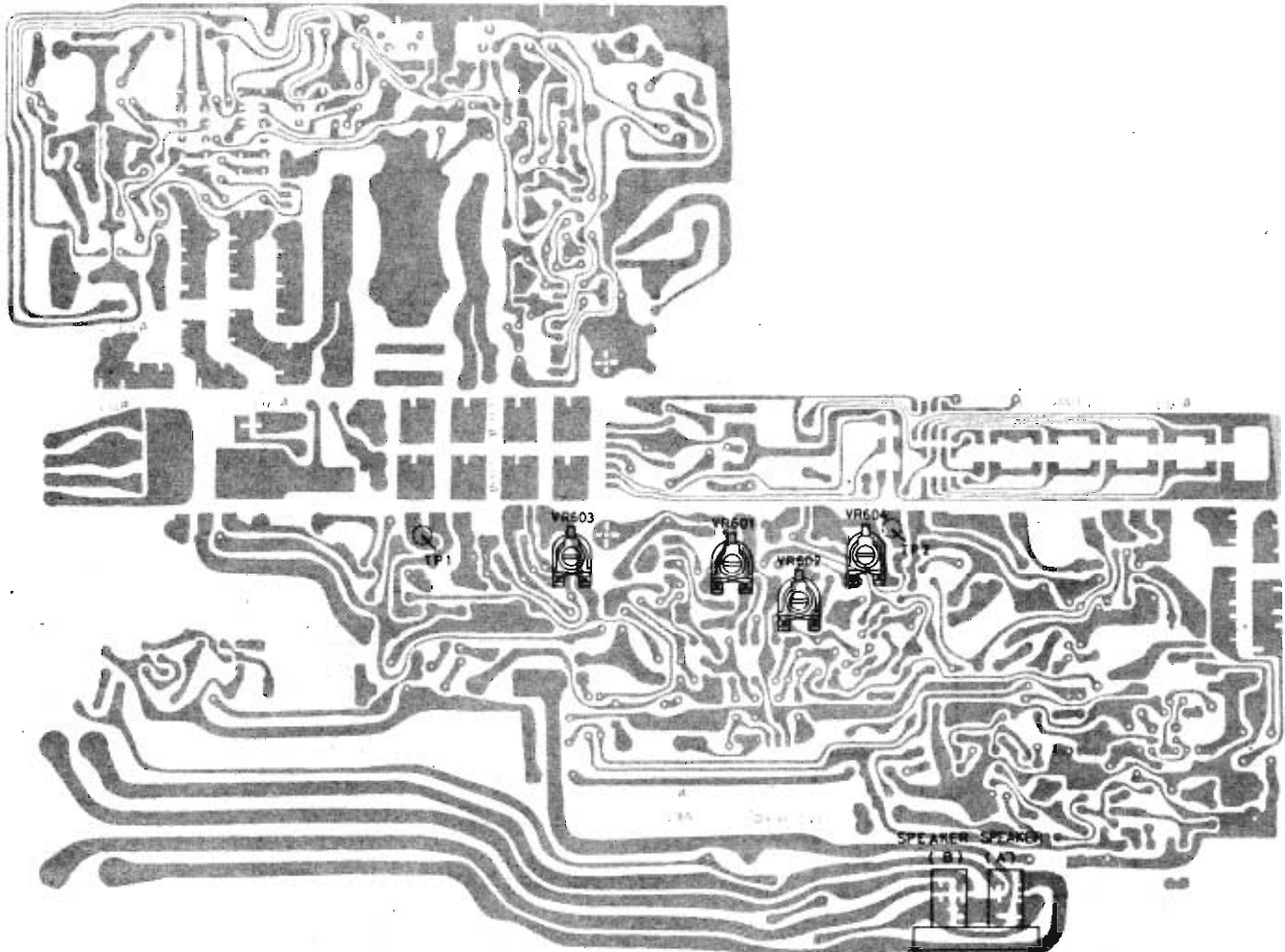
# ALIGNMENT & INSIDE VIEW

## IDLE CURRENT ALIGNMENT

1. Disconnect all sources input to the power amplifier.
2. Turn VR-603 and VR-604 to fully clock wise position.
3. Set on the power for 1 minute pre-heating.
4. Remove the cord on speaker terminals.
5. Connect one probe of DC millivolt-meter to L channel speaker terminals "+" the other to point TP1 on main PCB, adjust VR-603 until 6 mV reading is reached, and this figure will keep on increasing, then wait for 1 minute later turn down the current until 6 mV is re-obtained.
6. Connect one probe of DC millivolt-meter to R channel speaker terminals "+" the other to point TP2 on main PCB, adjust VR-604 until 6 mV reading is reached, and this figure will keep on increasing, then wait for 1 minute later turn down the current until 6 mV is re-obtained.

## DC OFF-SET ALIGNMENT

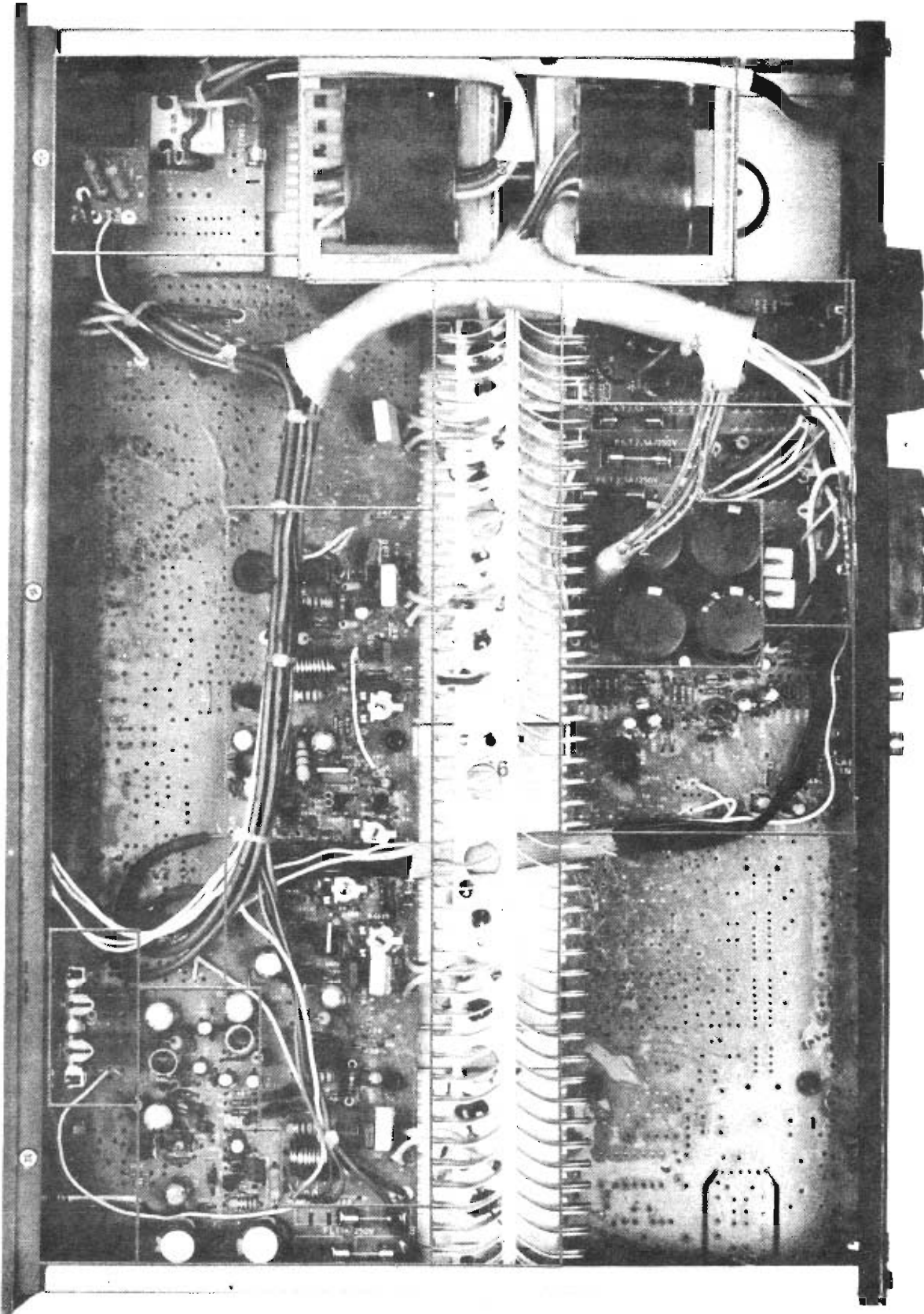
1. Disconnect all sources input to the power amplifier.
2. Set on the power for 5 minutes pre-heating.
3. For L channel alignment: connect probe of DC millivolt-meter to L channel speaker terminals, then adjust VR-601 until zero voltage reading is reached.
4. For R channel alignment: connect probe of DC millivolt-meter to R channel speaker terminals, then adjust VR-602 until zero voltage reading is reached.



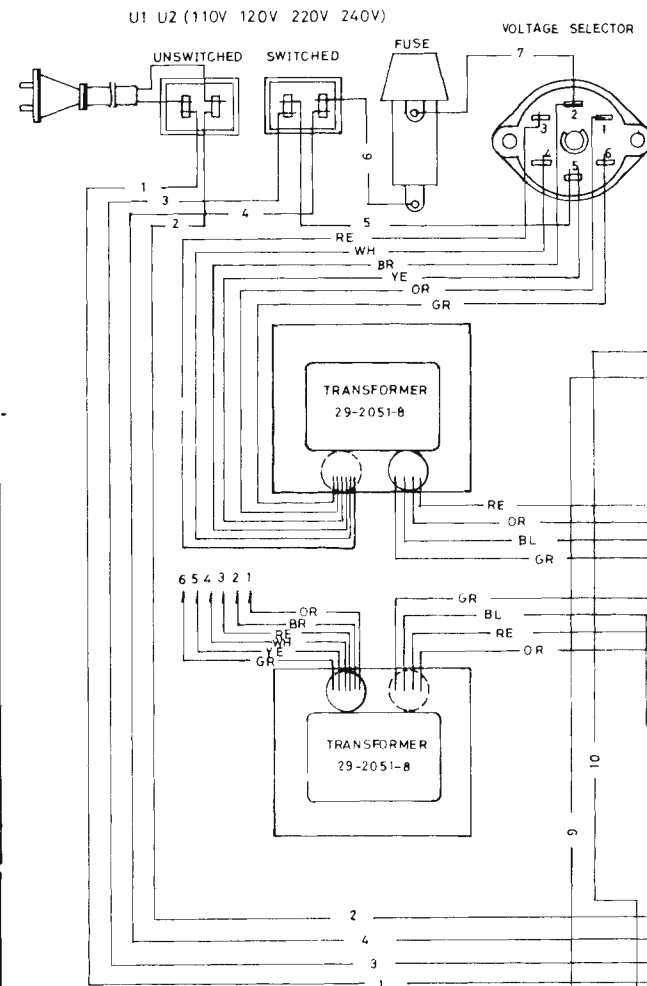
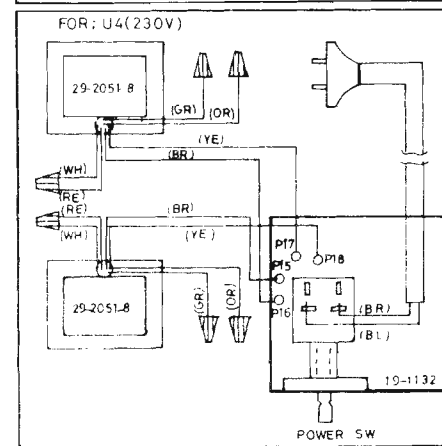
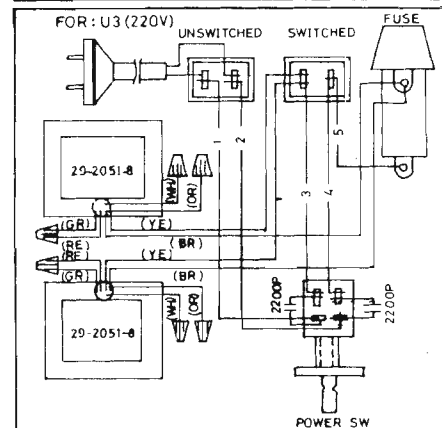
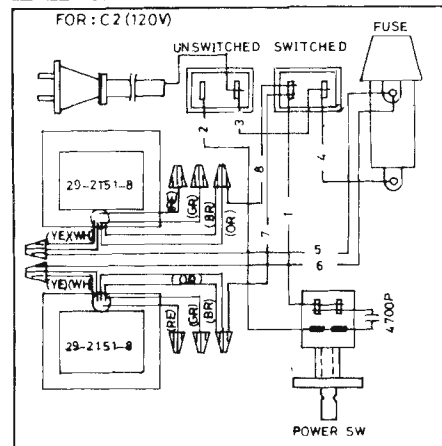
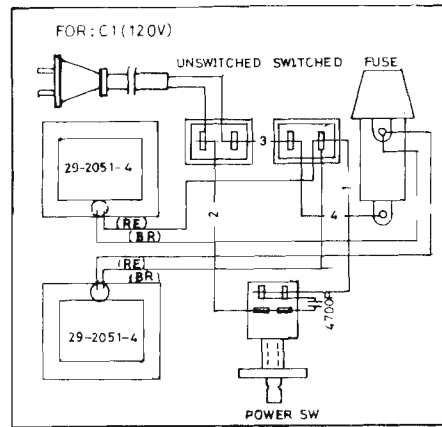
1. Power I/P Buffer.
2. Main Supply.
3. SLC Circuit.
4. Soft Clipping.

5. Power Transformer.
6. Heat Sink.
7. Regulator.

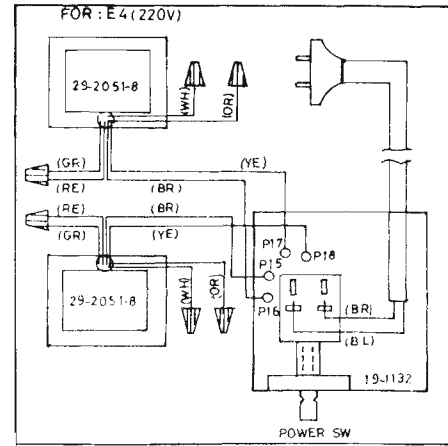
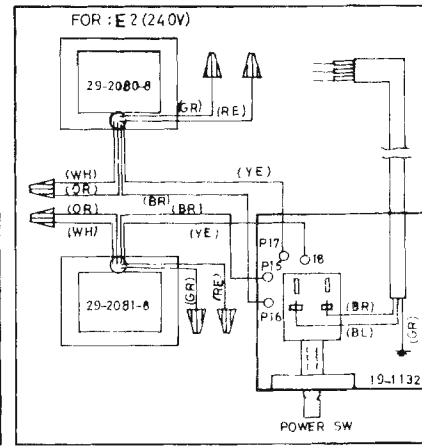
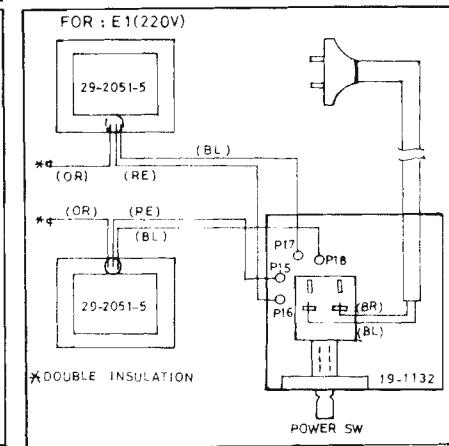
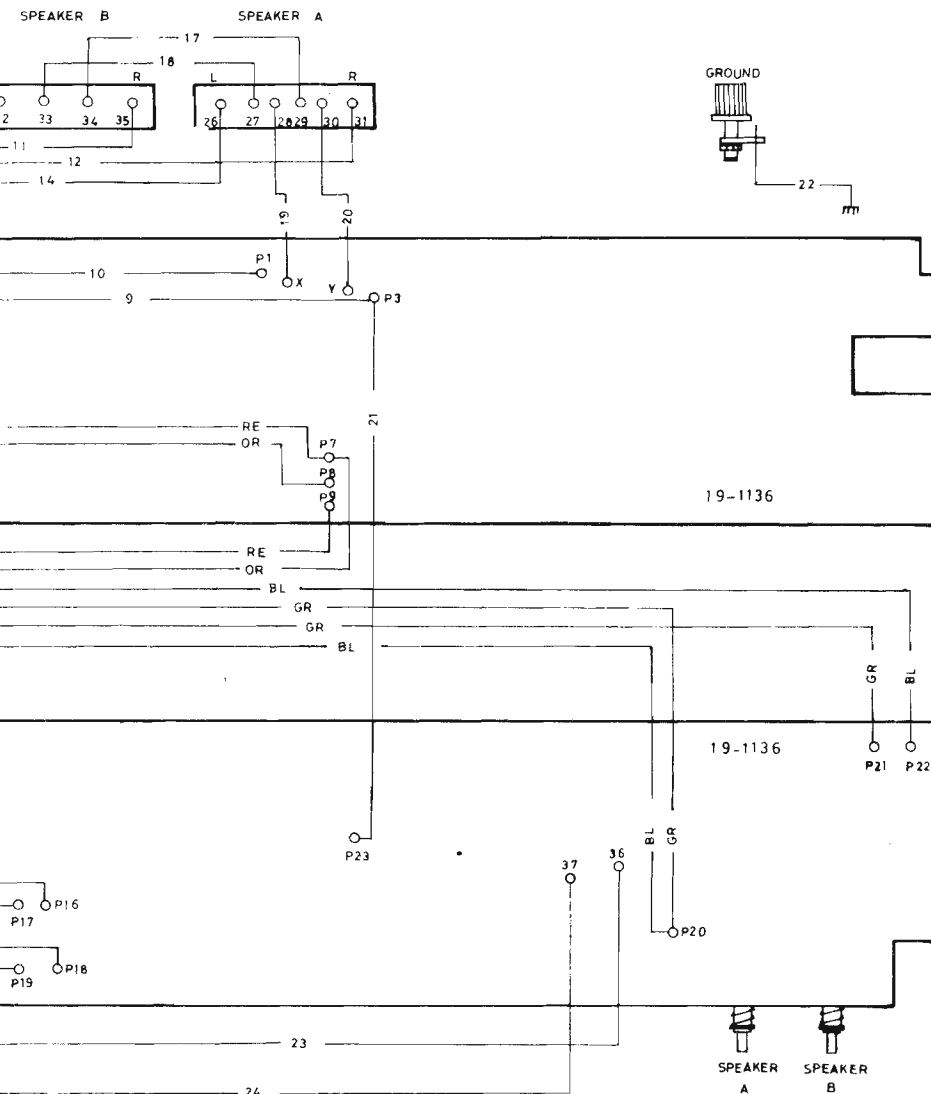
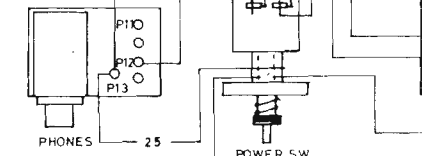
8. Power Amplifier.
9. Speaker SW.
10. Power SW.



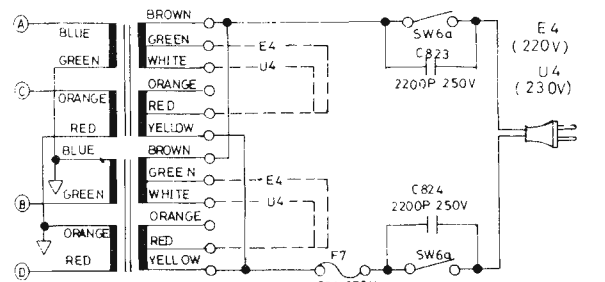
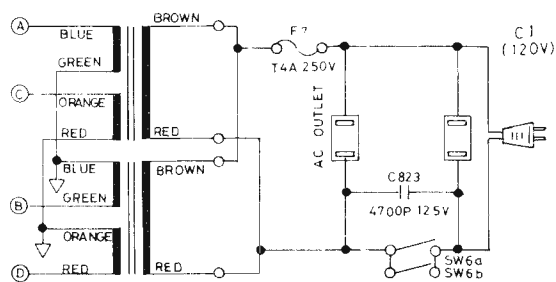
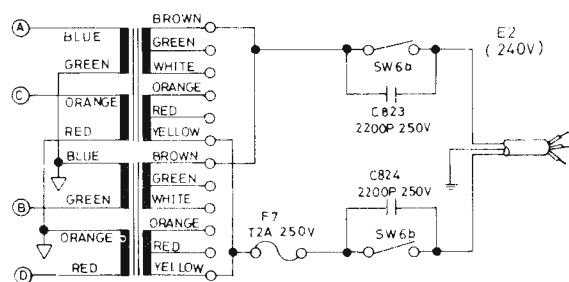
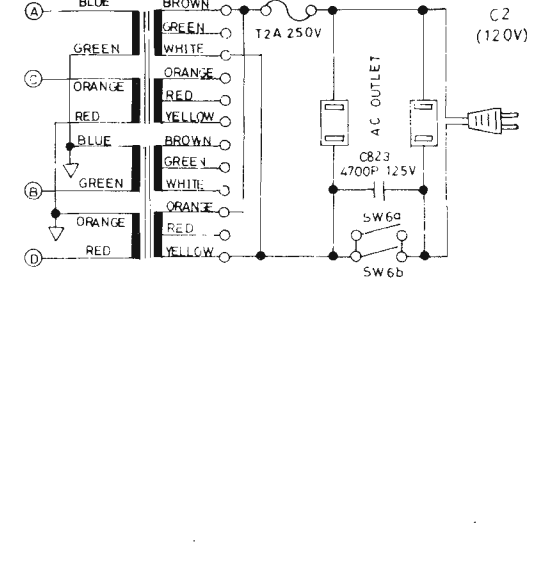
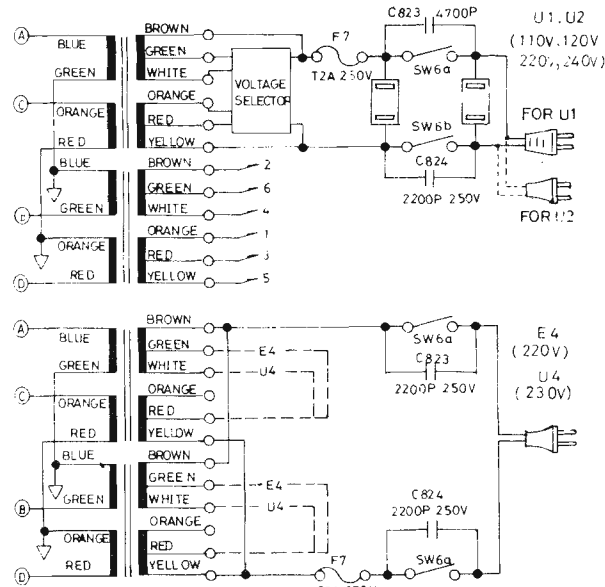
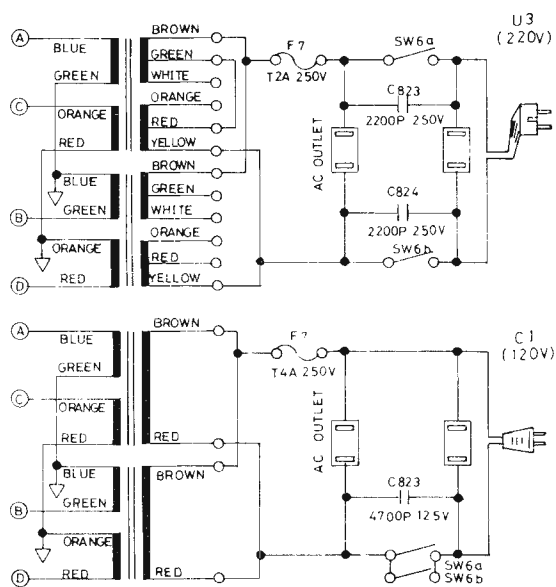
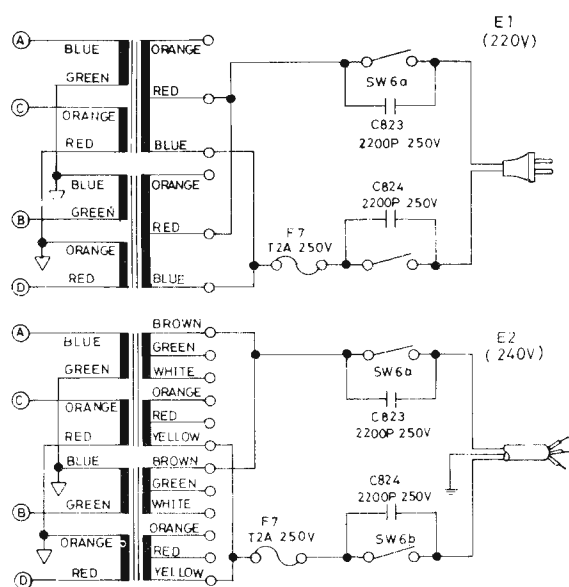
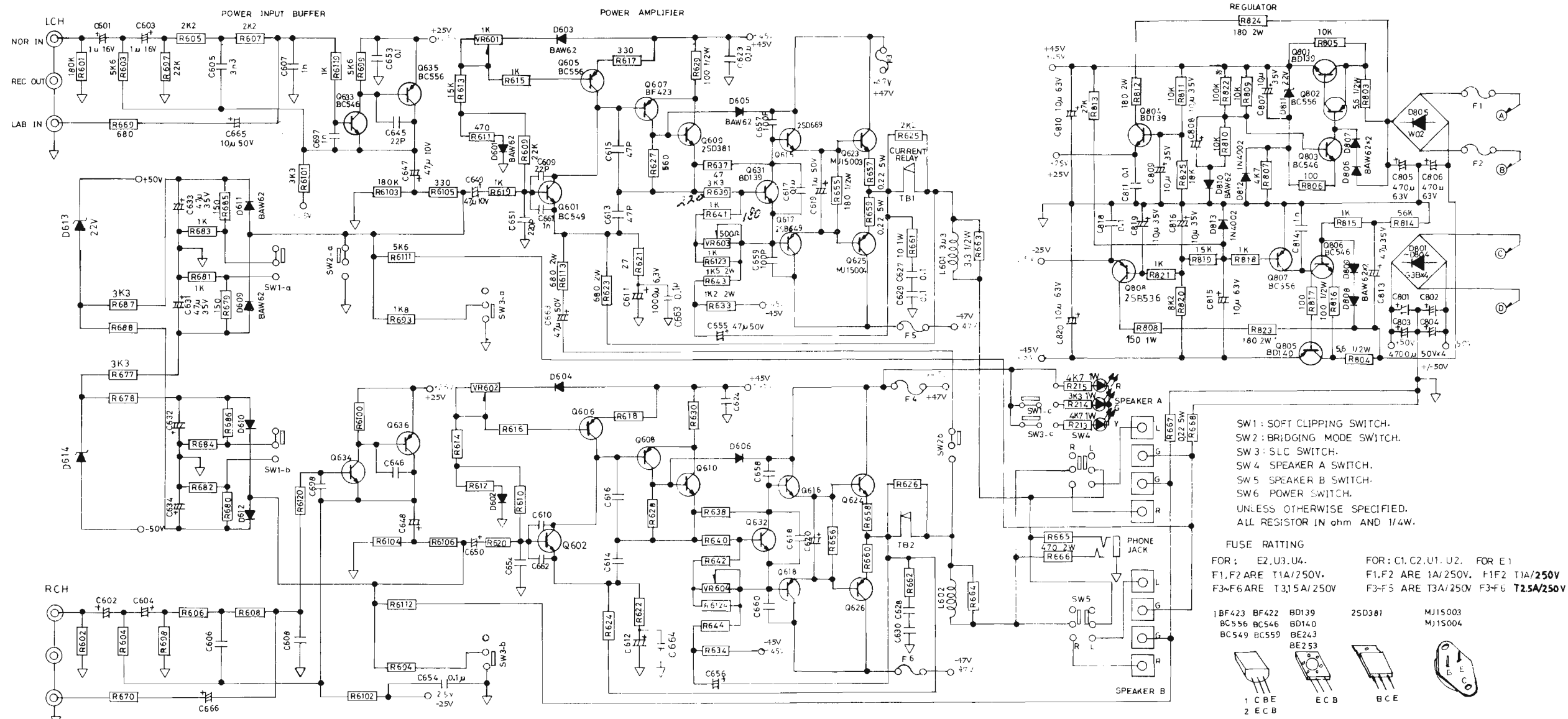
# WIRING DIAGRAM



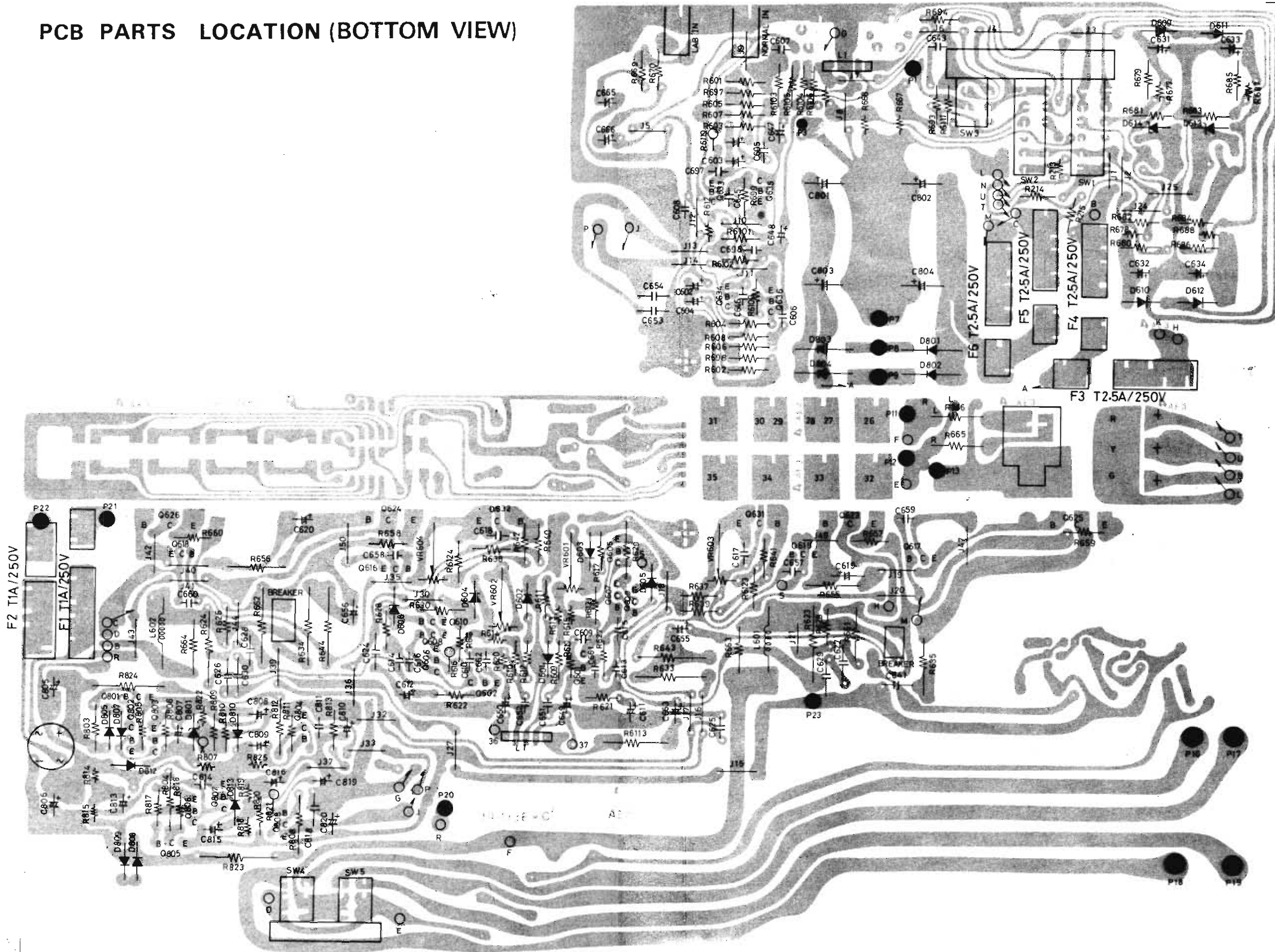
WIRE COLOR ABBREVIATIONS  
 BK - BLACK  
 RE - RED  
 OR - ORANGE  
 YE - YELLOW  
 GR - GREEN  
 BL - BLUE  
 GY - GARY  
 WH - WHITE



# CIRCUIT DIAGRAM

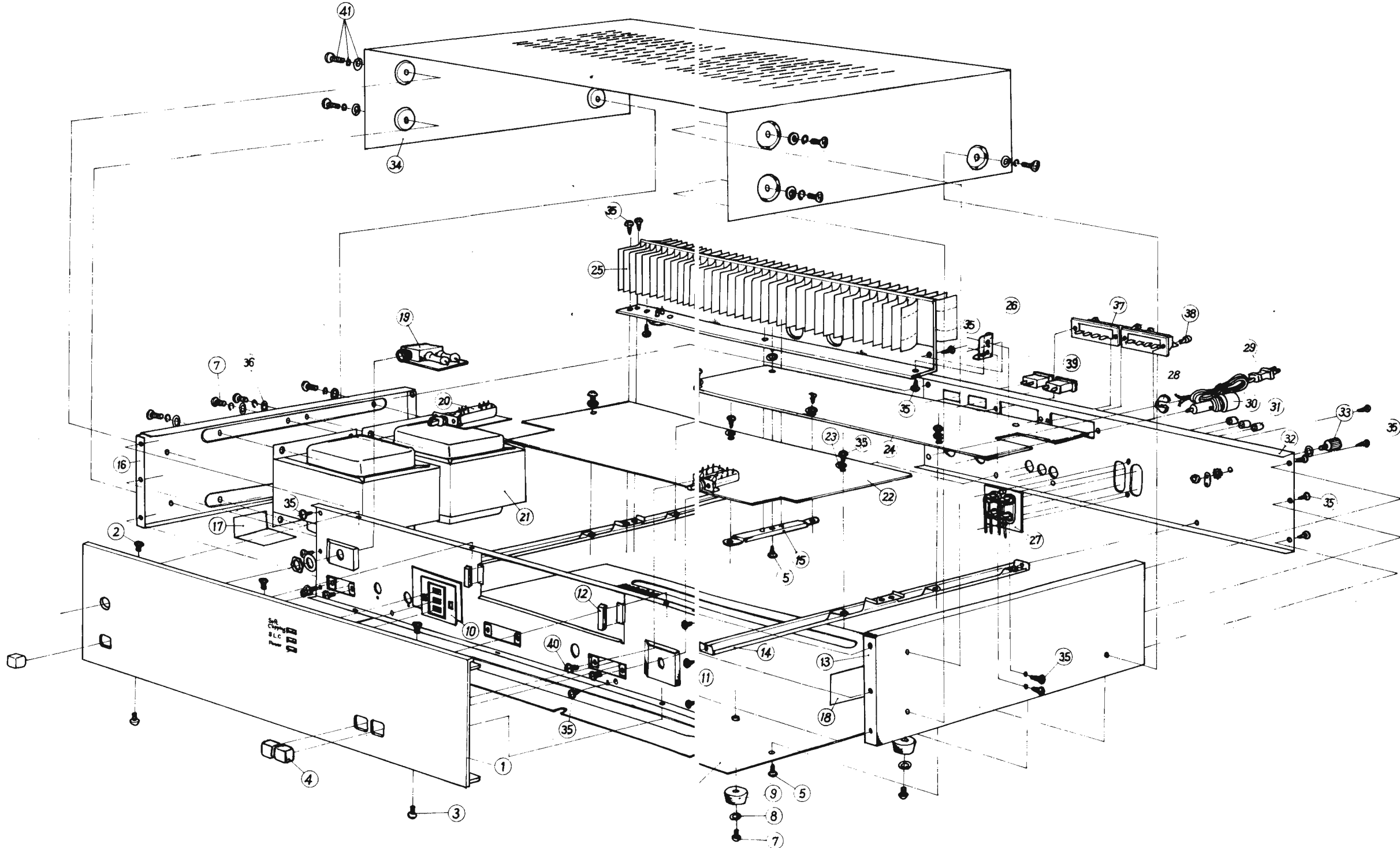


PCB PARTS LOCATION (BOTTOM VIEW)





ASSEMBLY DIAGRAM



## ASSEMBLY PARTS

ITEM	DESCRIPTION	PART NO.	Q'TY
1	Front Panel	11-8179	1
2	Flat MA Screw 3x6	S1E03+I06SZ-2	3
3	TRI Screw 3x8	S5B03+I0810SL-2	3
4	Push Knob	12-3090	3
5	Tap Screw 3x6	S2B03+I06SL-2	11
6	Bottom Chassis	11-6060	1
7	MA Screw 4x10	S1B04+I10SL-2	12
8	Washer 4x8	A04A08SL 0.8	4
9	Rubber Feet	28-1029	4
10	LED Holder	13-4056	1
11	Chassis Front	11-6067-1	1
12	Retainer	28-2086	2
13	Chassis R	11-6091	1
14	Chassis Center	11-6074	2
15	PCB Holder	11-2208	1
16	Chassis L	11-6073	1
17	Insulation Plate A	13-4051	1
18	Insulation Plate B	13-4052	1
19	Headphone Jack	12-2078	1
20	Power SW.	31-1129	1
21	Transformer	29-2051	2
22	PCB	19-1132	1
23	Fiber Washer 3x8	A03A08F 0.5	8
24	PCB	19-1136	1
25	Heat Sink	11-5053	1
26	Bracket for Heat Sink	11-2188	1
27	Socket 4P	12-2092	1
28	Cord Bushing 4N4	14-5003	1



# PARTS LIST

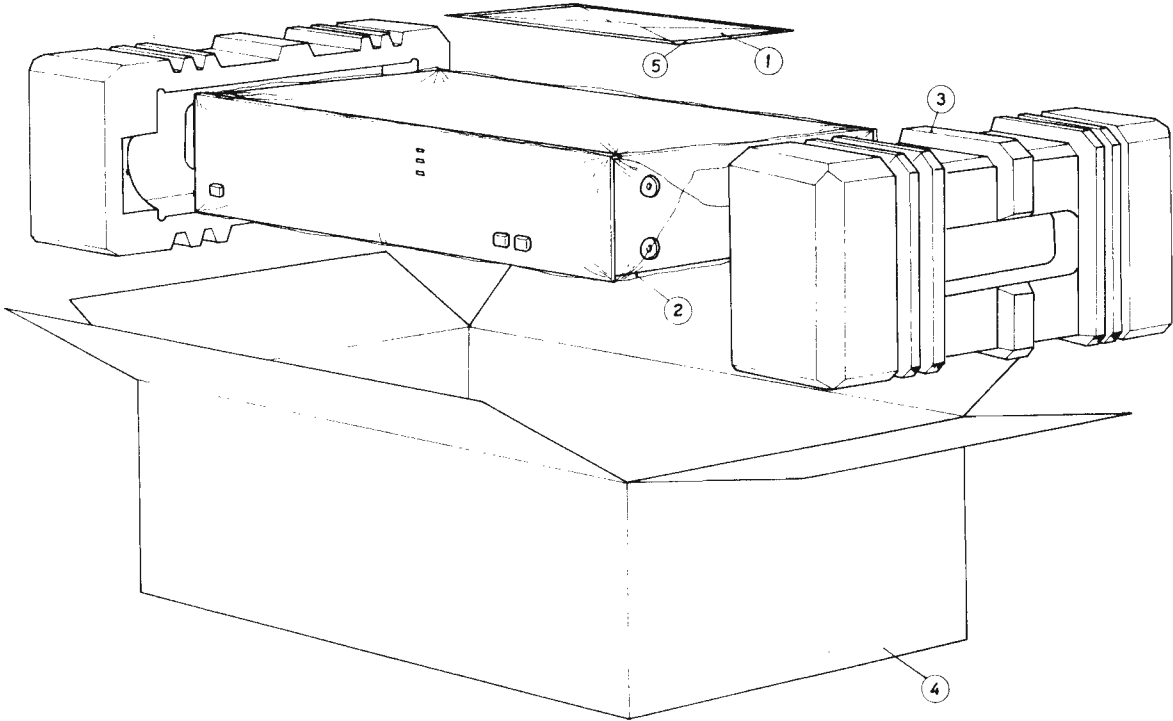
REF. NO.	PART NO.	DESCRIPTION	NOTE
<b>CAPACITORS</b>			
C601-C604	17-1.6R105K	Electrolytic Solid	1uF+-10% 16V
C605 C606	17-5FR332J	Mylar	3300PF+-5% 50V
C607 C608	17-5FR102J	Mylar	1000PF+-5% 50V
C609 C610	17-5DR220M	Ceramic	22PF+-20% 50V
C611 C612	17-0.63E108Y	Electrolytic	1000uF+50-10% 6.3V
C613-C616	17-5DR470M	Ceramic	47PF+-20% 50V
C617 C618	17-5DR104M	Ceramic	0.1uF+-20% 50V
C619 C620	17-5ER105Y	Electrolytic	1uF+50-10% 50V
C623 C624	17-5DR104M	Ceramic	0.1uF+-20% 50V
C627-C630	17-5DR104M	Ceramic	0.1uF+-20% 50V
C631-C634	17-3.5ER476Y	Electrolytic	47uF+50-10% 35V
C645 C646	17-5DR220M	Ceramic	22PF+-20% 50V
C647- C650	17-1ER476Y	Electrolytic	47uF+50-10% 10V
C651 C652	17-5DR221M	Ceramic	220pF+-20% 50V
C653 C654	17-5DR104M	Ceramic	0.1uF+-20% 50V
C655 C656	17-5ER476Y	Electrolytic	47uF+50-10% 50V
C657 C660	17-5DR101M	Ceramic	100PF+-20% 50V
C661 C662	17-5DR102M	Ceramic	1000PF+-20% 50V
C663	17-5ER476Y	Electrolytic	47uF+50-10% 50V
C665 C666	17-5FR102J	Mylar	1000pF+-5% 50V
C801-C804	17-5P478Y	Electrolytic	4700uF+50-10% 50V
C805 C806	17-6.3E477Y	Electrolytic	470uF+50-10% 63V
C807-C809	17-3.5ER106Y	Electrolytic	10uF+50-10% 35V
C810	17-6.3ER106Y	Electrolytic	10uF+50-10% 63V
C811 C812	17-5DR104M	Ceramic	0.1uF+-20% 50V
C813	17-3.5ER476Y	Electrolytic	47uF+50-10% 35V
C814	17-5FR102J	Mylar	1000PF+-5% 50V
C815	17-6.3ER106Y	Electrolytic	10uF+50-10% 63V
C816 C819	17-3.5ER106Y	Electrolytic	10uF+50-10% 35V
C820	17-6.3ER106Y	Electrolytic	10uF+50-10% 63V
C697 C698	17-5ER106Y	Electrolytic	10uF+50-10% 50V
C823 C824	17-2008	Capacitor	2200PF 250VAC
<b>DIODES</b>			
D601-D606	30-1019	Diode BAW62/BAW76	
D609-D612	30-1019	Diode BAW62/BAW76	
D613 D614	30-1041	Diode Zener 22V 0.5W	
D801-D804	30-1017-1	Diode G3B	
D805	30-1040	Diode Rectifier 200V 1.5A W02	
D806-D810	30-1019	Diode BAW62/BAW76	
D811	30-1041	Diode Zener 22V 0.5W	
D812 D813	30-1002	Diode Rectifier 100V 1A 1N4002/10D1	

REF. NO.	PART NO.	DESCRIPTION	NOTE
LD211 LD212 LD213	30-1075 30-1085 30-1076	LED Red LT3211R LED Green LT3231G LED Yellow LT3251Y	
<b>TRANSISTORS</b>			
Q601 Q602 Q605 Q606 Q607 Q608 Q609 Q610 Q615 Q616 Q617 Q618 Q623 Q624 Q625 Q626 Q633 Q634 Q635 Q636	30-2084-3 30-2096 30-2238 30-2087 30-2259 30-2260 30-2251 30-2252 30-2090-2 30-2096	BC549C BC556A BF423 2SD381 2SB649 2SB669 MJ15003 MJ15004 BC546B BC556A	
<b>RESISTORS</b>			
R601 R602 R603 R604 R605-R608 R609 R610 R611 R612 R613 R614 R615 R616 R617 R618 R619 R620 R621 R622 R623 R624 R625 R626 R627 R628 R629 R630 R633 R634 R635 R637 R638 R639 R640 R641 R642 R643 R644 R655 R656	16-1/4CA184J 16-1/4CA562J 16-1/4CA222 16-1/4CA223J 16-1/4CA471J 16-1/4CR153J 16-1/4CR102J 16-1/4CA331J 16-1/4CA102J 16-1/4CA270J 16-2A681J 16-1/4CA222J 16-1/4CA561J 16-1/2A101J 16-2A122J 16-1/2A3R3J 16-1/4CA470J 16-1/4CA332J 16-1/4CA102J 16-2A152J 16-1/2CP181J	Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Metal Oxide Carbon Carbon Metal Oxide Metal Oxide Metal Oxide Carbon Carbon Carbon Carbon Metal Oxide Metal Oxide Carbon Carbon Metal Oxide Carbon	1/4W 180K Ohm +-5% 1/4W 5K6 Ohm +-5% 1/4W 2K2 Ohm +-5% 1/4W 22K Ohm +-5% 1/4W 470 Ohm +-5% 1/4W 15K Ohm +-5% 1/4W 1K Ohm +-5% 1/4W 330 Ohm +-5% 1/4W 1K Ohm +-5% 1/4W 27 Ohm +-5% 2W 680 Ohm +-5% 1/4W 2K2 Ohm +-5% 1/4W 560 Ohm +-5% 1/2W 100 Ohm +-5% 2W 1K2 Ohm +-5% 1/2W 3.3 Ohm +-5% 1/4W 47 Ohm +-5% 1/4W 3K3 Ohm +-5% 1/4W 1K Ohm +-5% 2W 1K5 Ohm +-5% 1/2W 180 Ohm +-5%

REF. NO.	PART NO.	DESCRIPTION	NOTE
R657—R660	16-1003	Metal Plate 5W 0.22 Ohm	+—5%
R661 R662	16-1A100J	Metal Oxide 1W 10 Ohm	+—5%
R663 R664	16-1/2A3R3J	Metal Oxide 1/2W 3.3 Ohm	+—5%
R665 R666	16-2A471J	Metal Oxide 2W 470 Ohm	+—5%
R667 R668	16-1017	Metal Plate 5W 0.22 Ohm	+—5%
R669 R670	16-1/4CA681J	Carbon 1/4W 680 Ohm	+—5%
R677 R678	16-1/4CR332J	Carbon 1/4W 3K3 Ohm	+—5%
R679 R680	16-1/4CA151J	Carbon 1/4W 150 Ohm	+—5%
R681—R684	16-1/4CA102J	Carbon 1/4W 1K Ohm	+—5%
R685 R686	16-1/4CA151J	Carbon 1/4W 150 Ohm	+—5%
R687 R688	16-1/4CR332J	Carbon 1/4W 3K3 Ohm	+—5%
RC93 R694	16-1/4CA182J	Carbon 1/4W 1K8 Ohm	+—5%
R697 R698	16-1/4CA223J	Carbon 1/4W 22K Ohm	+—5%
R699 R6100	16-1/4CA562J	Carbon 1/4W 5K6 Ohm	+—5%
R6101	16-1/4CA332J	Carbon 1/4W 3K3 Ohm	+—5%
R6102	16-1/4CA332J	Carbon 1/4W 3K3 Ohm	+—5%
R6103	16-1/4CA184J	Carbon 1/4W 180K Ohm	+—5%
R6104	16-1/4CA184J	Carbon 1/4W 180K Ohm	+—5%
R6105	16-1/4CA331J	Carbon 1/4W 330 Ohm	+—5%
R6106	16-1/4CA331J	Carbon 1/4W 330 Ohm	+—5%
R6111	16-1/4CA562J	Carbon 1/4W 5K6 Ohm	+—5%
R6112	16-1/4CR562J	Carbon 1/4W 5K6 Ohm	+—5%
R6113	16-2A681J	Metal Oxide 2W 680 Ohm	+—5%
R6119	16-1/4CA102J	Carbon 1/4W 1K Ohm	+—5%
R6120	16-1/4CA102J	Carbon 1/4W 1K Ohm	+—5%
R803 R804	16-1/2A5R6J	Metal Oxide 1/2W 5.6 Ohm	+—5%
R805	16-1/4CA103J	Carbon 1/4W 10K Ohm	+—5%
R806	16-1/4CA101J	Carbon 1/4W 100 Ohm	+—5%
R807	16-1/4CR472J	Carbon 1/4W 4K7 Ohm	+—5%
R808	16-1A151J	Metal Oxide 1W 150 Ohm	+—5%
R809—R811	16-1/4CA103J	Carbon 1/4W 10K Ohm	+—5%
R812	16-2A181J	Metal Oxide 2W 180 Ohm	+—5%
R813	16-1/4CA273J	Carbon 1/4W 27K Ohm	+—5%
R814	16-1/4CR563J	Carbon 1/4W 56K Ohm	+—5%
R815	16-1/4CA102J	Carbon 1/4W 1K Ohm	+—5%
R816	16-1/2A101J	Metal Oxide 1/2W 100 Ohm	+—5%
R817	16-1/4CA101J	Carbon 1/4W 100 Ohm	+—5%
R818	16-1/4CR102J	Carbon 1/4W 1K Ohm	+—5%
R819	16-1/4CR153J	Carbon 1/4W 15K Ohm	+—5%

REF. NO.	PART NO.	DESCRIPTION	NOTE
R820	16-1/4CA822J	Carbon 1/4W 8K2 Ohm +-5%	
R821	16-1/4CR102J	Carbon 1/4W 1K Ohm +-5%	
R822	16-1/4CR104J	Carbon 1/4W 100K Ohm +-5%	
R823 R824	16-2A181J	Metal Oxide 2W 180 Ohm +-5%	
R825	16-1/4CR183J	Carbon 1/4W 18K Ohm +-5%	
R6123	16-1/4CA102J	Carbon 1/4W 1K Ohm +-5%	
R6124	16-1/4CA102J	Carbon 1/4W 1K Ohm +-5%	
L601 L602	29-1036-1	Coil 3.3uF	
VR603	29-4055	VR Semi TR14RA01-500ΩB	
VR604	29-4055	VR Semi TR14RA01-500ΩB	

# PACKING DIAGRAM



ITEM	PART NO.	DESCRIPTION	Q'TY
1.	21-4028	Instruction Manual	1
2.	26-0005	Polypaper	1
3.	34-1027	Polylone	2
4.	CT-5131	Inner Carton	1
5.	26-2434	Poly Bag	1