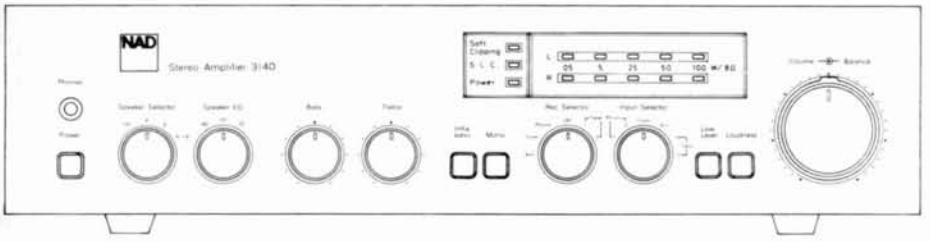
SERVICE MANUAL
NAD MODEL 3140
STEREO AMPLIFER



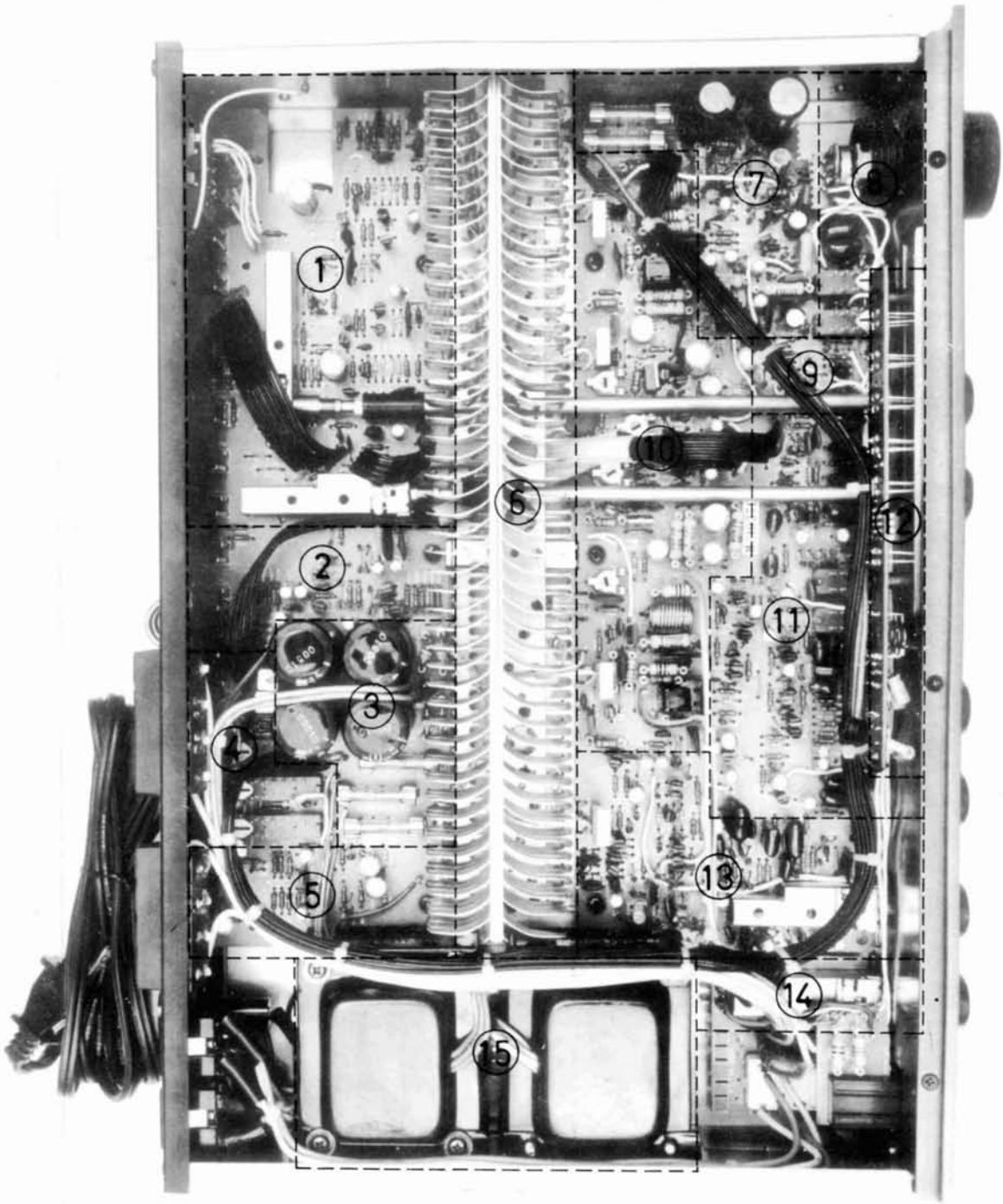
CONTENTS

SPECIFICATION

* Measurements identified by an asterisk are taken in accordance with the new IHF A-202 amplifier measurement standard.

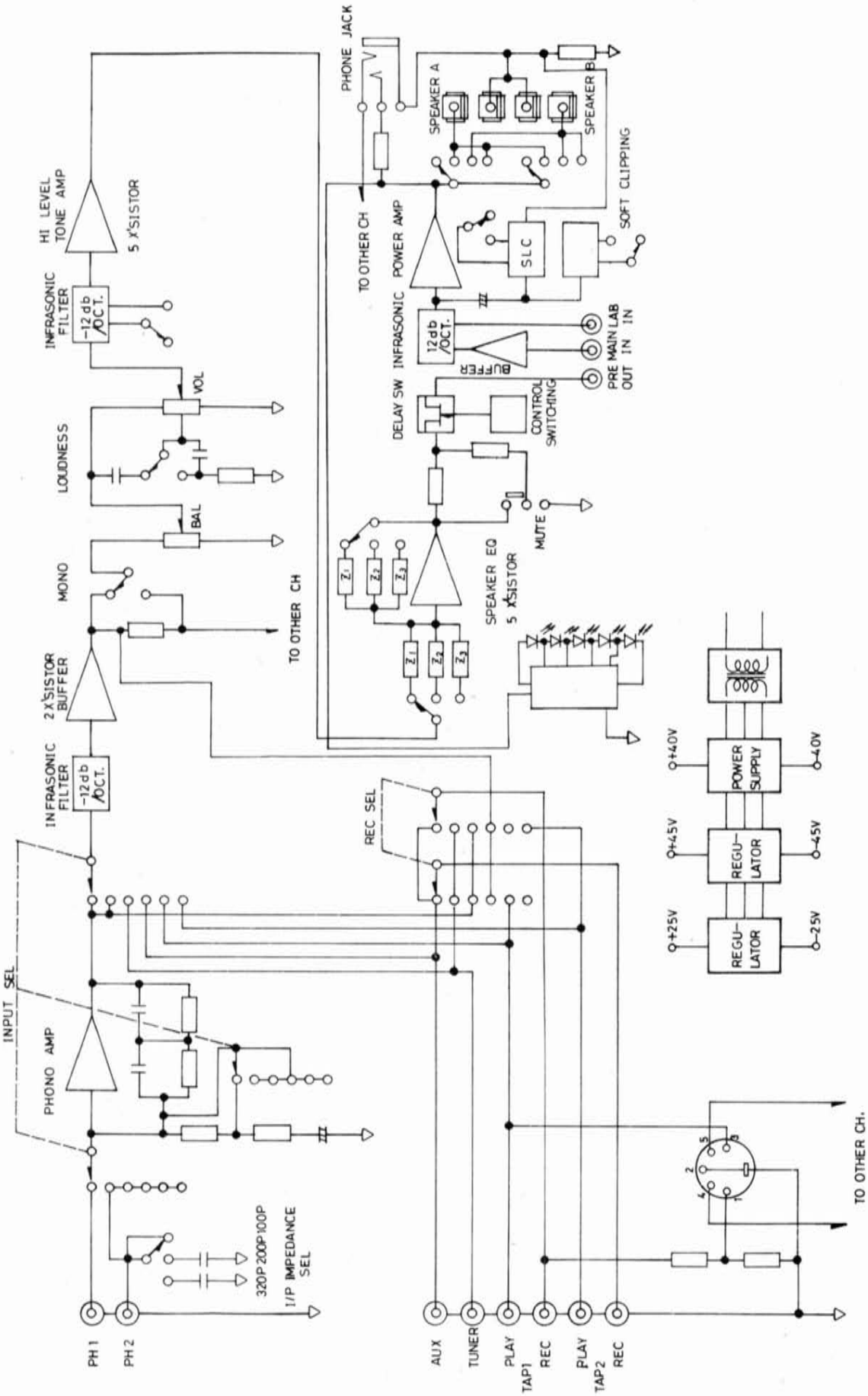
Power Amplifier Section			
* Continuous average power output at 8 ohm 20-20K Hz both channel driven			40W
Rated distortion, 20-20K Hz			0.03%
* Clipping headroom	at 8 ohms		+1.7dB
Clipping power	at 8 ohms		60W
	at 4 ohms		80W
	at 2 ohms		90W
Dynamic headroom	at 8 ohms		+3dB
Dynamic power	at 8 ohms		80W
	at 4 ohms		130W
	at 2 ohms		160W
* Transient Overload Recovery Time			1 usec
* Slew Factor			50
Slew Rate			30V/usec
Damping factor at 50 Hz (Ref. 8 ohms)			100
T.H.D. 20-20K Hz From 250mW to 60W			0.02%
S.M.P.T.E. I.M.D. (60Hz+7KHz, 4:1) From 250mW to 60W			0.02%
I.H.F. I.M.D. (19KHz+20KHz) at 60W			0.02%
T.I.M. (15KHz Sine+3.18KHz Square Wave) at 60W			0.02%
Frequency Response, 20-20K Hz			±0.5db
Frequency Response Range ±3dB			15-35KHz
Preamplifier Section			
PHONO 1 Input Impedance			47K /100PF
PHONE 2 Input capacitance (SELECTABLE)			100P/200P/320
Input Sensitivity(1KHz)	*For 1 watt out		0.45mV
	40 watt out		2.8mV
Input Overload at 1KHz			200mV
20Hz			20mV
20KHz			2V
THD(20-20K Hz)and IMD at+30dB input level			0.01%
RIAA Response Accuracy			±0.2dB
Signal to Noise Ratio A-weighted			
(a) with phono cartridge connected	*Ref 5mV		76dB
(b) with short-circuit input	Ref 5mV		79dB
High level input			
* Input impedance Resistance/Capacitance			R=50K /220pF
Input sensitivity	*For 1 watt out		25mV
	For 40 watt out		160mV
Signal to Noise Ration, A-Weighted			
(a) with mute off	*Ref 1 watt out		80dB
	Ref 40 watt out		95dB
(b) with mute on	Ref 1 watt out		93dB
* Maximum input signal			12V
Frequency Response, 20-20K Hz			±0.5db
Controls			
Bass control, range at 100 Hz			±8db
Treble control, range at 10 KHz			±7db
Infrasonic filter	Turn over frequency		15Hz
	Slope(dB/octave)		12db
SEPAKER EQ	Turn over frequency		45Hz and 70Hz
	Slope(dB/ocatave)		12
Mute			-20db

INSIDE VIEW OF UNIT

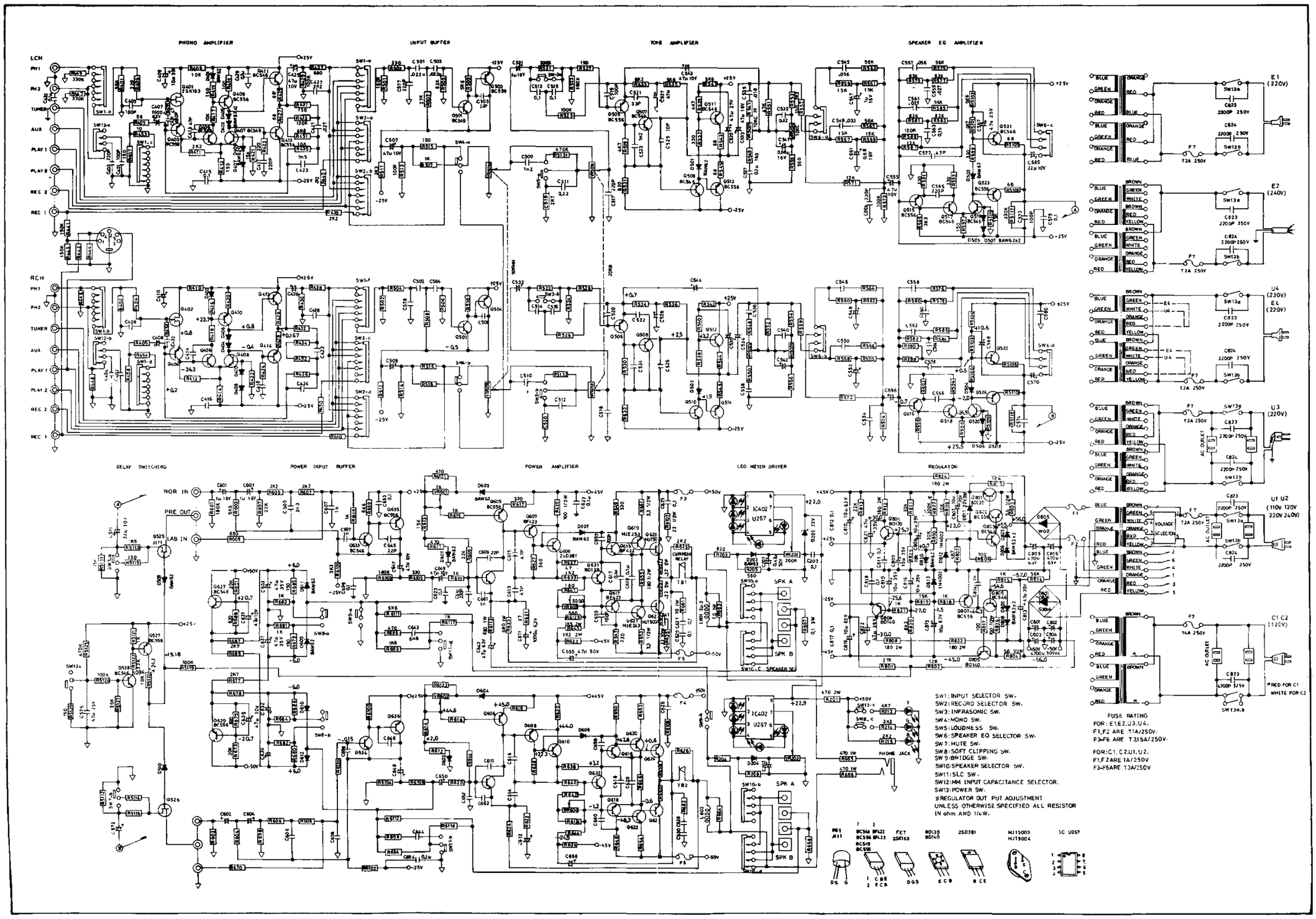


1. Phono AmP
2. Power I / P Buffer
3. Main Supply
4. SLC Circuit
5. Soft Clipping
6. Heat Sink
7. Regulator
8. Loudness Circuit
9. Delay Circuit
10. Power Amplifier
11. Tone Amplifier
12. LED Drive circuit
13. Speaker EQ. circuit
14. Speaker SW.
15. Power Transformer

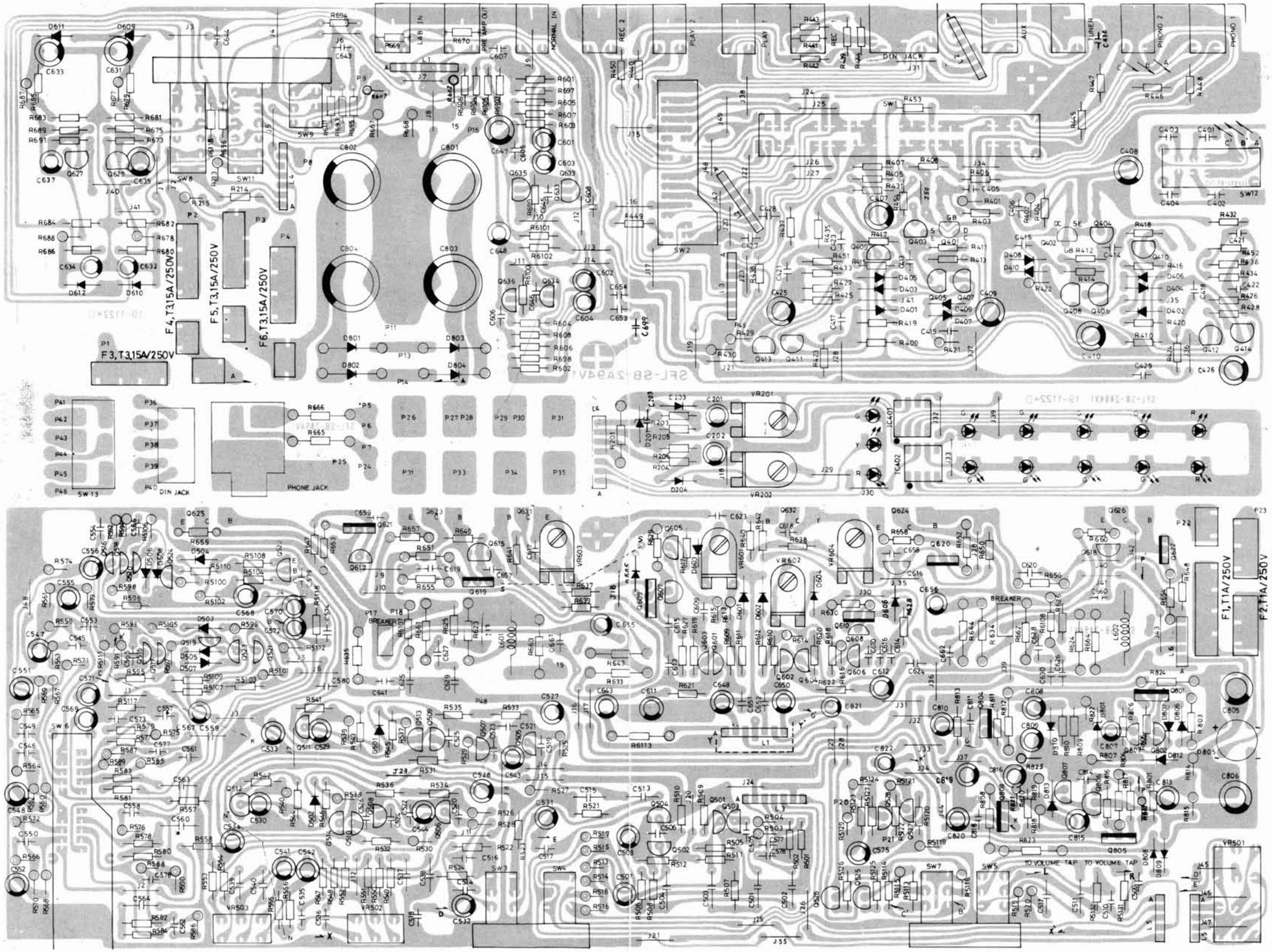
BLOCK DIAGRAM



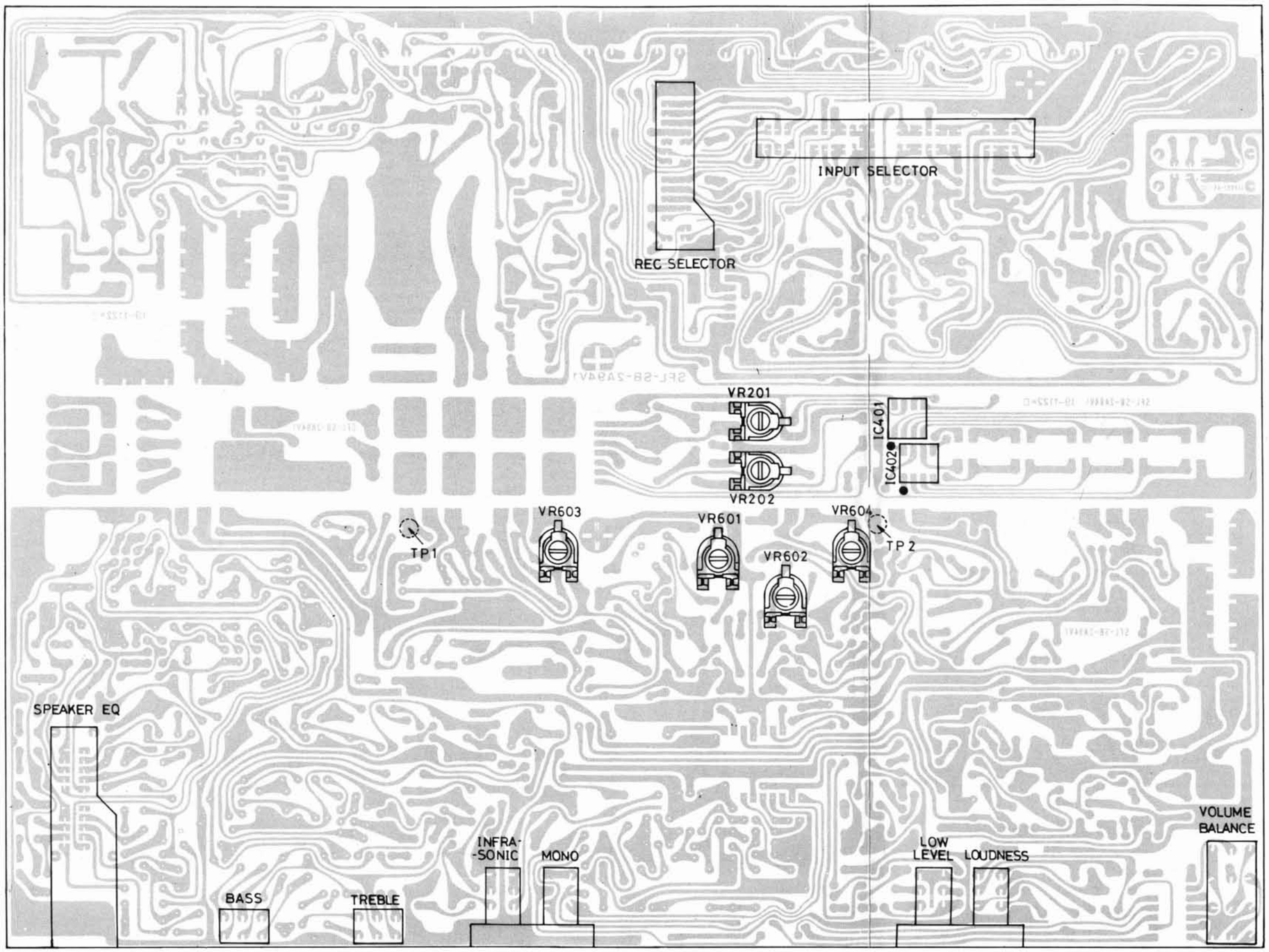
CIRCUIT DIAGRAM



PCB PARTS LOCATION



ALIGNMENT



DC OFF-SET ALIGNMENT

1. Set on the power for 5 minutes pre-heating.
2. Set volume control to minimum position and speaker sclector switch to A+B position.
3. For L channel alignment: connect probe of DC milivoltmeter to L channel speaker terminals , then adjust VR601 untill zero voltage reading is reach.
4. For R channel alignment: connect probe of DC milivoltmeter to R channel speaker terminals, then adjust VR602 untill zero voltage reading is reach.

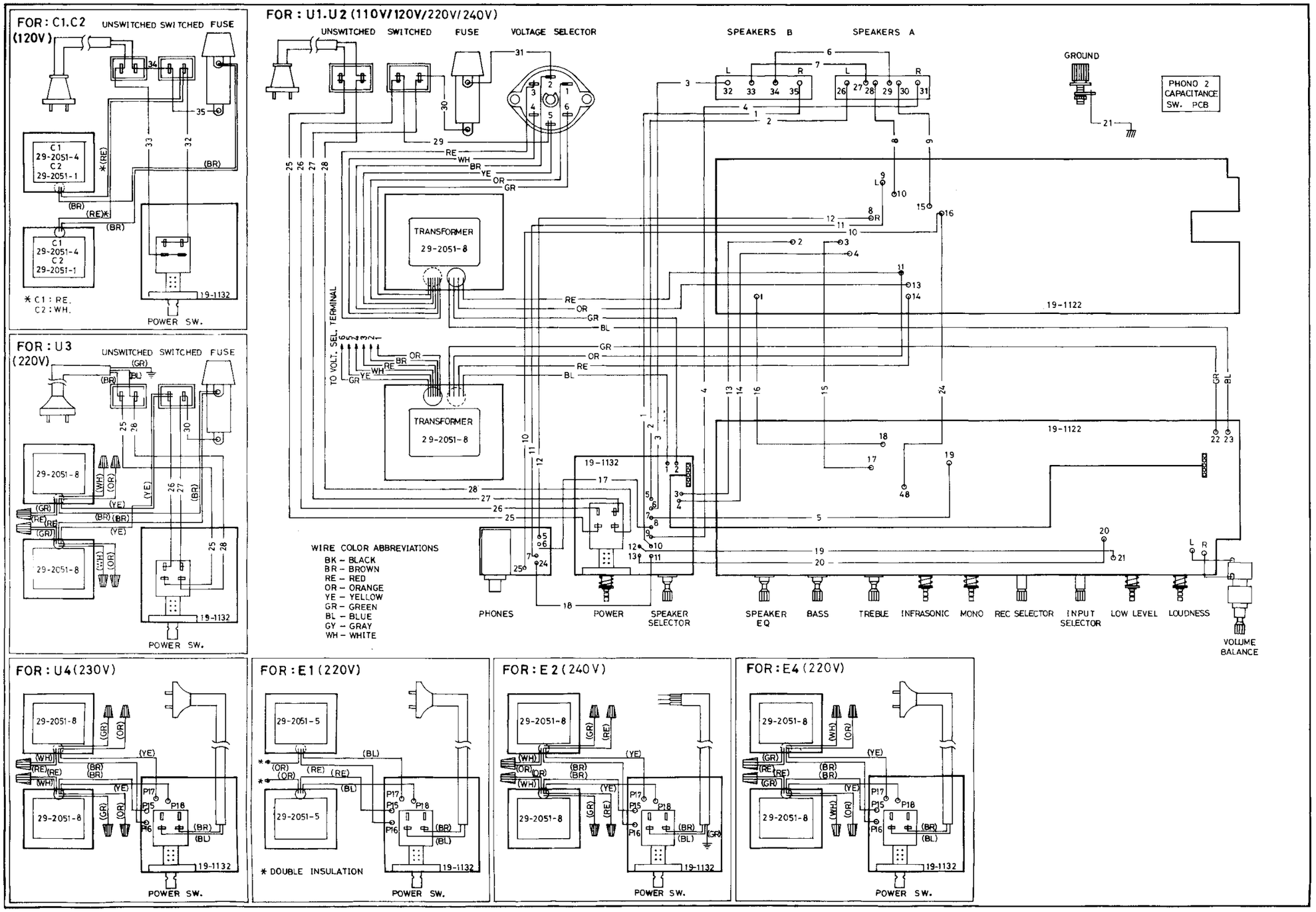
IDLE CURRENT ALIGNMENT

1. Turn VR603 and VR604 to fully clockwise position.
2. Set on the power for 5 minutes pre-heating.
3. Set volume control to minimum position and speaker selector switch to A + B position.
4. Remove the load on speaker terminals.
5. Connect one probe of DC mili-voltmeter to L channel speaker terminal "+ ", the other to point TPI on main PCB, adjust VR603 untill 6 mV reading is reach.
6. Connect one probe of DC mi il-voltmeter to R channel speaker terminal " +", the other to point TP2 on main PCB adjust VR604 untill 6 mV reading is reach.

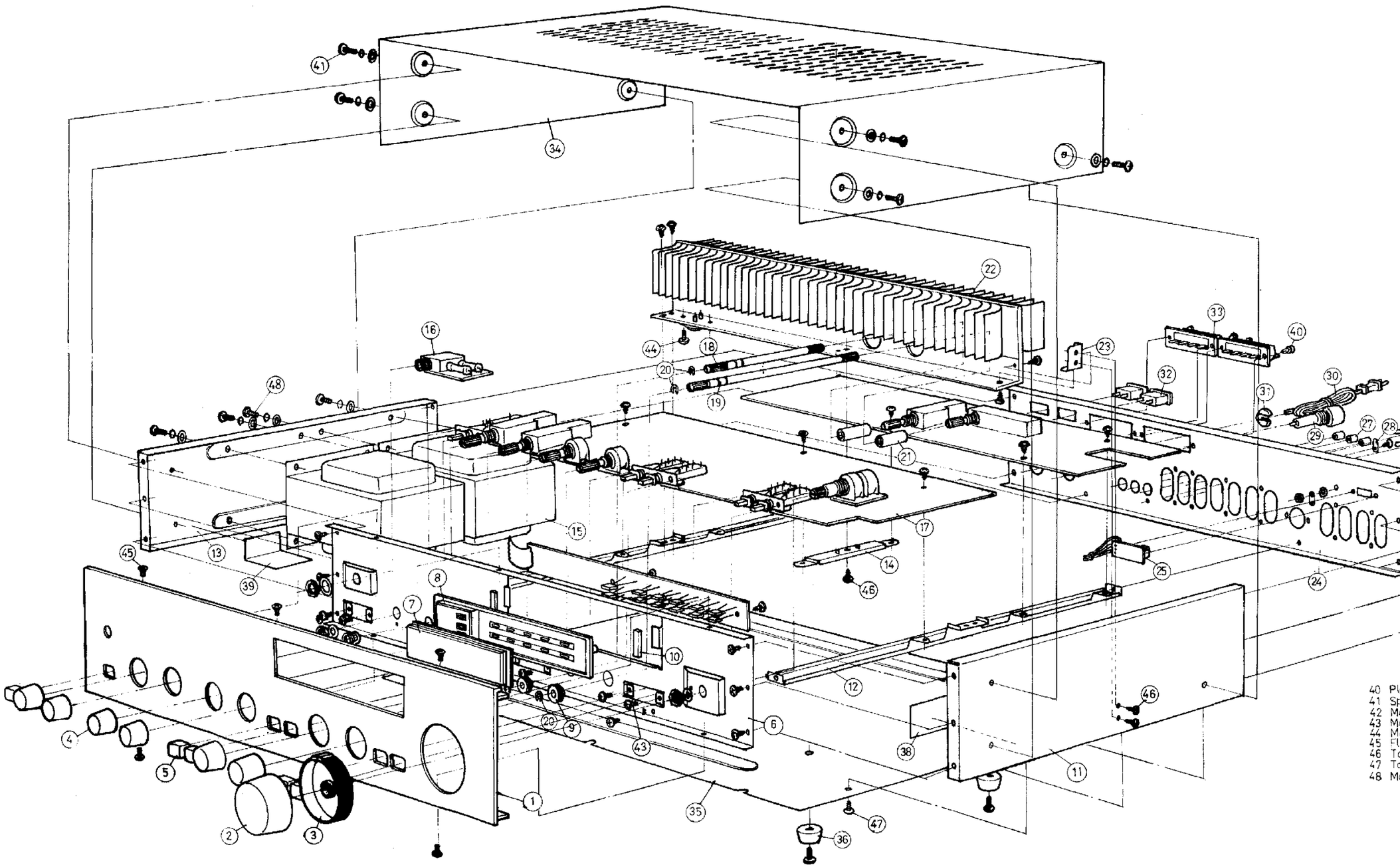
POWER INDICATOR ALIGNMENT

1. Set all controls at flat position and volume control to maximum
2. Set fuction selector switch to AUX position and sepeaker selector switch to A + B position
3. Connect probes of VTVM to speaker output terminals.
4. Feed from sine wave generator 1KHz signal to AUX input for both channels.
5. Vary generator output level untill VTVM reading is 20V AC.
6. Adjust VR201, VR202 to the position just lighting the 50W LED for L channel and R channel respectively.

WIRING DIAGRAM



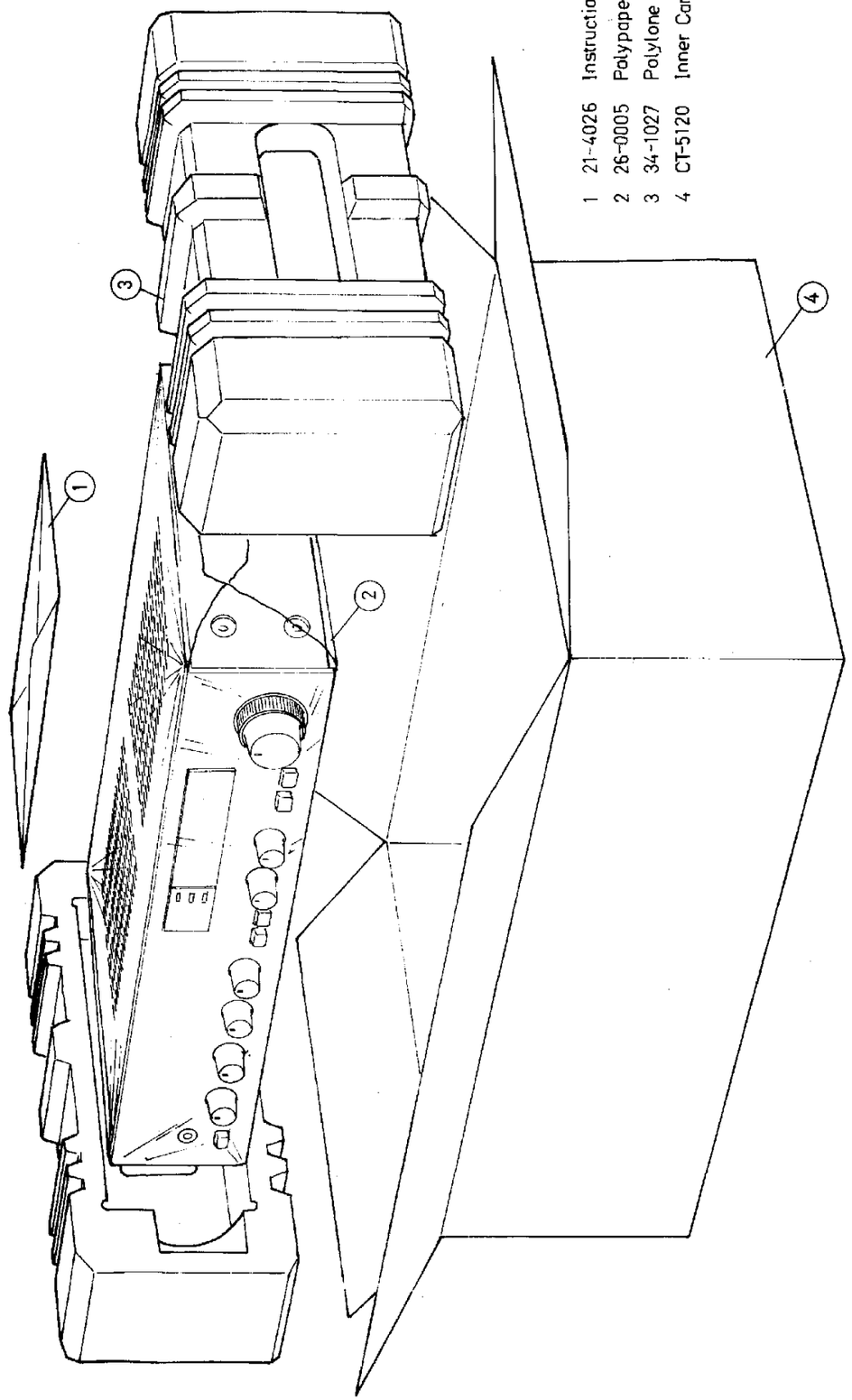
ASSEMBLY DIAGRAM



Item	PartsNo.	Description
1	11-8121	Front Panel
2	12-3036	Volume Knob
3	12-3091	Balance Knob
4	12-3038	Control Knob
5	12-3090	Push Knob
6	11-6067	Front Chassis
7	11-8140	Perspex Cover
8	11-8141	Auxiliary Panel
9	13-4027	Tube for Shaft
10	28-2063	Retainer
11	11-6091	Chassis Right
12	11-6074	Center Chassis
13	11-6073	Chassis Left
14	11-2208	PCB Holder
15	29-2051	Transformer
16	12-2078	Phone Jack
17	90-1122	Main PC B
18	11-7020-1	Shaft
19	11-7020-2	Shaft
20	15-5014	E-Ring
21	12-7003	Tube
22	11-5053	Heat Sink
23	11-2188	Bracket for Heat sink
24	11-8125	Back Panel
25	31-1079F	Slide Switch
26	15-2037	Ground Screw
27	12-3095	Push Knob
28	11-9048	Switch Locker
29	32-2005	Fuse Holder
30	14-5037	Power Cord (CSA)
31	14-5003	Cord Bush (4N4)
32	12-2006	AC Outlet
33	12-2095	Speaker Terminal
34	50-1023	Cabinet
35	11-6066	Bottom Chassis
36	28-1029	Rubber Foot
37	11-4009	Jumper for In/Out
38	13-4052	Insulated Plate
39	13-4051	Insulated Plate

		Qty
40	Plastic Rivet for DinJack & Speaker Terminal	6
41	Special Screw 4×8 for Cabinet	6
42	Machine Screw 2.6×4 for Slide Switch	2
43	Machine Screw 3×6 for Push Switch	6
44	Machine Screw 3×8 for Transistors	10
45	Flate Machine Screw 3×6 for Front Panel	3
46	Tapping Screw 3×8 for Chassis	44
47	Tapping Screw 3×6 for Bottom Chassis	8
48	Machine Screw 4×10 for Transformer	8

PACKING DIAGRAM



PARTS LIST

SYMBOL NO	PARTS NO	DESCRIPTION	REF
R201	16—2 A 471J	Metal oxide res. 470 ohm ±5% 2 W	10.00
R203, R204	16—¼CA821J	Carbon res. 820 ohm ±5% ¼W	1.70
R205, R206	16—¼CA561J	Carbon res. 560 ohm ±5% ¼W	1.70
R213	16—¼CR472J	Carbon res. 4K7 ohm ±5% ¼W	1.70
R214	16—¼CA332J	Carbon res. 3K3 ohm ±5% ¼W	1.70
R215	16 ¼CR272J	Carbon res. 2K7 ohm ±5% ¼W	1.70
R401, R402	16—¼CR563J	Carbon res. 56K ohm ±5% ¼W	1.70
R403, R404	16—¼CA221J	Carbon res. 220 ohm ±5% ¼W	1.70
R405, R406	16—¼CA560J	Carbon res. 56 ohm ±5% ¼W	1.70
R407, R408	16—¼CA151J	Carbon res. 150 ohm ±5% ¼W	1.70
R409, R410	16—¼CA103J	Carbon res. 10K ohm ±5% ¼W	1.70
R411, R412	16—¼CA222J	Carbon res. 2K2 ohm ±5% ¼W	1.70
R413—R416	16—¼CA151J	Carbon res. 150 ohm ±5% ¼W	1.70
R417, R418	16—¼CA103J	Carbon res. 10K ohm ±5% ¼W	1.70
R419, R420	16—¼CA101J	Carbon res. 100 ohm ±5% ¼W	1.70
R421, R422	16—¼CR153J	Carbon res. 15K ohm ±5% ¼W	1.70
R423, R424	16—¼CA221J	Carbon res. 220 ohm ±5% ¼W	1.70
R425—R428	16—¼CA680J	Carbon res. 68 ohm ±5% ¼W	1.70
R429, R430	16—¼CR104J	Carbon res. 100K ohm ±5% ¼W	1.70
R431, R432	16—¼CA151J	Carbon res. 150 ohm ±5% ¼W	1.70
R433, R434	16 ¼CA124J	Carbon res. 120K ohm ±5% ¼W	1.70
R435, R436	16—¼CA103J	Carbon res. 10K ohm ±5% ¼W	1.70
R437, R438	16—¼CA681J	Carbon res. 680 ohm ±5% ¼W	1.70
R439, R440	16—¼CA222J	Carbon res. 2K2 ohm ±5% ¼W	1.70
R441—R444	16—¼CA154J	Carbon res. 150K ohm ±5% ¼W	1.70
R445—R448	16—¼CA334J	Carbon res. 330K ohm ±5% ¼W	1.70
R449, R450	16 ¼CA222J	Carbon res. 2K2 ohm ±5% ¼W	1.70
R451, R452	16—¼CA682J	Carbon res. 6K8 ohm ±5% ¼W	1.70
R453, R454	16—¼CA100J	Carbon res. 10 ohm ±5% ¼W	1.70
R501, R502	16—¼CA184J	Carbon res. 180K ohm ±5% ¼W	1.70
R503, R504	16—¼CR331J	Carbon res. 330 ohm ±5% ¼W	1.70
R505, R506	16—¼CA823J	Carbon res. 82K ohm ±5% ¼W	1.70
R507, R508	16—¼CA273J	Carbon res. 27K ohm ±5% ¼W	1.70
R509, R510	16—¼CA562J	Carbon res. 5K6 ohm ±5% ¼W	1.70
R511, R512	16—¼CA332J	Carbon res. 3K3 ohm ±5% ¼W	1.70
R513, R514	16—¼CR104J	Carbon res. 100K ohm ±5% ¼W	1.70
R515, R516	16—¼CR151J	Carbon res. 150 ohm ±5% ¼W	1.70
R517, R518	16—¼CR102J	Carbon res. 1K ohm ±5% ¼W	1.70
R519, R520	16 ¼CR272J	Carbon res. 2K7 ohm ±5% ¼W	1.70
R521, R522	16—¼CA334J	Carbon res. 330K ohm ±5% ¼W	1.70
R523, R524	16—¼CA184J	Carbon res. 180K ohm ±5% ¼W	1.70
R525, R526	16—¼CR104J	Carbon res. 100K ohm ±5% ¼W	1.70
R527, R528	16—¼CR151J	Carbon res. 150 ohm ±5% ¼W	1.70
R529, R530	16—¼CR472J	Carbon res. 4K7 ohm ±5% ¼W	1.70
R531, R532	16—¼CA821J	Carbon res. 820 ohm ±5% ¼W	1.70
R533, R534	16—¼CA822J	Carbon res. 8K2 ohm ±5% ¼W	1.70
R535, R536	16—¼CA562J	Carbon res. 5K6 ohm ±5% ¼W	1.70
R537, R538	16—¼CR331J	Carbon res. 330 ohm ±5% ¼W	1.70
R539, R540	16—¼CR472J	Carbon res. 4K7 ohm ±5% ¼W	1.70
R541, R542	16—¼CA562J	Carbon res. 5K6 ohm ±5% ¼W	1.70

PARTS LIST

SYMBOL NO	PARTS NO	DESCRIPTION						REF
R543 —R546	16—¼CA680J	Carbon	res.	68	ohm	±5%	¼W	1.70
R547 , R548	16—¼CA102J	Carbon	res.	1K	ohm	±5%	¼W	1.70
R549 , R550	16—¼CA181J	Carbon	res.	180	ohm	±5%	¼W	1.70
R551 , R552	16—¼CA473J	Carbon	res.	47K	ohm	±5%	¼W	1.70
R553 R554	16—¼CA332J	Carbon	res.	3K3	ohm	±5%	¼W	1.70
R555 , R556	16—¼CA561J	Carbon	res.	560	ohm	±5%	¼W	1.70
R557 , R558	16—¼CA101J	Carbon	res.	100	ohm	±5%	¼W	1.70
R559 —R562	16—¼CR153J	Carbon	res.	15K	ohm	±5%	¼W	1.70
R563 —R566	16—¼CR563J	Carbon	res.	56K	ohm	±5%	¼W	1.70
R567 —R570	16—¼CR153J	Carbon	res.	15K	ohm	±5%	¼W	1.70
R571 , R572	16—¼CR123J	Carbon	res.	12K	ohm	±5%	¼W	1.70
R573 , R574	16—¼CR104J	Carbon	res.	100K	ohm	±5%	¼W	1.70
R575 , R576	16—¼CR563J	Carbon	res.	56K	ohm	±5%	¼W	1.70
R577 —R584	16—¼CA823J	Carbon	res.	82K	ohm	±5%	¼W	1.70
R585 , R586	16—¼CR563J	Carbon	res.	56K	ohm	±5%	¼W	1.70
R587 , R588	16—¼CR123J	Carbon	res.	12K	ohm	±5%	¼W	1.70
R589 , R590	16—¼CR104J	Carbon	res.	100K	ohm	±5%	¼W	1.70
R591 —R594	16—¼CR331J	Carbon	res.	330	ohm	±5%	¼W	1.70
R595 , R596	16—¼CA332J	Carbon	res.	3K3	ohm	±5%	¼W	1.70
R597 , R598	16—¼CR151J	Carbon	res.	150	ohm	±5%	¼W	1.70
R599 , R5100	16—¼CR331J	Carbon	res.	330	ohm	±5%	¼W	1.70
R5101, R5102	16—¼CR472J	Carbon	res.	4K7	ohm	±5%	¼W	1.70
R5103, R5104	16—¼CA562J	Carbon	res.	5K6	ohm	±5%	¼W	1.70
R5105, R5106	16—¼CR153J	Carbon	res.	15K	ohm	±5%	¼W	1.70
R5107—R5110	16—¼CA680J	Carbon	res.	68	ohm	±5%	¼W	1.70
R5111, R5112	16—¼CR153J	Carbon	res.	15K	ohm	±5%	¼W	1.70
R5113, R5114	16—¼CA152J	Carbon	res.	1K5	ohm	±5%	¼W	1.70
R5115, R5116	16—¼CR151J	Carbon	res.	150	ohm	±5%	¼	1.70
R5117, R5118	16—¼CA334J	Carbon	res.	330K	oh	±5%	¼W	1.70
R5119	16—¼CR104J	Carbon	res.	100K	ohm	±5%	¼W	1.70
R5120	16—¼CA103J	Carbon	res.	10K	ohm	±5%	¼W	1.70
R5121	16—¼CR102J	Carbon	res.	1K	ohm	±5%	¼W	1.70
R5122	16—¼CA223J	Carbon	res.	22K	ohm	±5%	¼W	1.70
R5123	16—¼CA474J	Carbon	res.	470K	ohm	±5%	¼W	1.70
R5124	16—¼CR104J	Carbon	res.	100K	ohm	±5%	¼W	1.70
R5125, R5126	16—¼CA106J	Carbon	res.	10M	ohm	±5%	¼W	1.70
R5127	16—¼CA393J	Carbon	res.	39K	ohm	±5%	¼W	1.70
R5129	16—¼CR151J	Carbon	res.	150	ohm	±5%	¼W	1.70
R5131, R5132	16—¼CA474J	Carbon	res.	470K	ohm	±5%	¼W	1.70
R601 , R602	16—¼CA184J	Carbon	res.	180K	ohm	±5%	¼W	1.70
R603 , R604	16—¼CA562J	Carbon	res.	5K6	ohm	±5%	¼W	1.70
R605 —R608	16—¼CA222J	Carbon	res.	2K2	ohm	±5%	¼W	1.70
R609 , R610	16—¼CA223J	Carbon	res.	22K	ohm	±5%	¼W	1.70
R611 , R612	16—¼CA471J	Carbon	res.	470	ohm	±5%	¼W	1.70
R613 , R614	16—¼CR153J	Carbon	res.	15K	ohm	±5%	¼W	1.70
R615 , R616	16—¼CR102J	Carbon	res.	1K	ohm	±5%	¼W	1.70
R617 , R618	16—¼CA331J	Carbon	res.	330	ohm	±5%	¼W	1.70
R619 , R620	16—¼CA332J	Carbon	res.	3K3	ohm	±5%	¼W	1.70
R621 , R622	16—¼CA270J	Carbon	res.	27	ohm	±5%	¼W	1.70
R623 , R624	16—¼2A681J	Metal Oxide	res.	680	ohm	±5%	2W	10.00

PARTS LIST

SYMBOL NO	PARTS LIST	DESCRIPTION				REF
R625 , R626	16—¼CA222 J	Carbon	res.	2K2 ohm	±5% ¼W	1.70
R627 , R628	16—¼CA561 J	Carbon	res.	560 ohm	±5% ¼W	1.70
R629 , R630	16—½ A101 J	Metal Oxide	res.	100 ohm	±5% ½W	7.00
R633 , R634	16—2 A122 J	Metal Oxide	res.	1K2 ohm	±5% 2 W	10.00
R635	16—½ A3R3J	Metal Oxide	res.	3.3 ohm	±5% ½W	7.00
R637 , R638	16—¼CA470J	Carbon	res.	47 ohm	±5% ¼W	1.70
R639 , R640	16—¼CA122 J	Carbon	res.	1K2 ohm	±5% ¼W	1.70
R641 , R642	16—¼CA181 J	Carbon	res.	180 ohm	±5% ¼W	1.70
R643 , R644	16—2 A152 J	Metal Oxide	res.	1K5 ohm	±5% 2 W	10.00
R647 —R650	16—½ A331 J	Metal Oxide	res.	330 ohm	±5% ½W	7.00
R651 —R654	16—½ A3R3J	Metal Oxide	res.	3.3 ohm	±5% ½W	7.00
R655 , R656	16—½CP181 J	Carbon	res.	180 ohm	±5% ½W	2.40
R657 —R660	16— 1003	MPC	res.	0.22 ohm	±5% 5 W	30.80
R661 —R664	16— 1A100 J	Metal Oxide	res.	10 ohm	±5% 1 W	8.00
R665 , R666	16— 1A471 J	Metal Oxide	res.	470 ohm	±5% 1 W	8.00
R667 , R668	16— 1017	MPC70	res	0.1 ohm	±5% 3 W	19.00
R669 , R670	16—¼CA681 J	Carbon	res.	680 ohm	±5% ¼W	1.70
R673	16—¼CA393J	Carbon	res.	39K ohm	±5% ¼W	1.70
R675	16—¼CA821 J	Carbon	res.	820 ohm	±5% ¼W	1.70
R677 , R678	16—¼CR272 J	Carbon	res.	2K7 ohm	±5% ¼W	1.70
R679 , R680	16—¼CA151 J	Carbon	res.	150 ohm	±5% ¼W	1.70
R681 —R684	16—¼CA102 J	Carbon	res.	1K ohm	±5% ¼W	1.70
R6 5 , R686	16—¼CA151 J	Carbon	res.	150 ohm	±5% ¼W	1.70
R687 , R688	16—¼CR272 J	Carbon	res.	2K7 ohm	±5% ¼W	1.70
R689	16—¼CA821 J	Carbon	res.	820 ohm	±5% ¼W	1.70
R691 ,	16—¼CA393J	Carbon	res.	39K ohm	±5% ¼W	1.70
R693 , R694	16—¼CA182 J	Carbon	res.	1K8 ohm	±5% ¼W	1.70
R695 , R696	16—¼CA391 J	Carbon	res.	390 ohm	±5% ¼W	1.70
R697 , R698	16—¼CA223 J	Carbon	res.	22K ohm	±5% ¼W	1.70
R699 , R6100	16—¼CA562J	Carbon	res.	5K6 ohm	±5% ¼W	1.70
R6101, R6102	16—¼CA332 J	Carbon	res.	3K3 ohm	±5% ¼W	1.70
R6103, R6104	16—¼CA184 J	Carbon	res.	180K ohm	±5% ¼W	1.70
R6105, R6106	16—¼CA331 J	Carbon	res.	330 ohm	±5% ¼W	1.70
R6107 R6108	16—½CP220 J	Carbon	res.	22 ohm	±5% ½W	2.40
R6111,	16—¼CA562J	Carbon	res.	5K6 ohm	±5% ¼W	1.70
R6112	16—¼CR562J	Carbon	res.	5K6 ohm	±5% ¼W	1.70
R6113	16—2 A681 J	Metal Oxide	res.	680 ohm	±5% 2 W	10.00
R6117, R6118	16—¼CA102J	Carbon	res.	1K ohm	±5% ¼W	1.70
R801	16—¼CA273 J	Carbon	res.	27K ohm	±5% ¼W	1.70
R802	16—¼CR123 J	Carbon	res.	12K ohm	±5% ¼W	1.70
R803 , R804	16—½ A5R6J	Metal Oxide	res.	5.6 ohm	±5% ½W	7.00
R805	16—¼CA103 J	Carbon	res.	10K ohm	±5% ¼W	1.70
R806	16—¼CA101 J	Carbon	res.	100 ohm	±5% ¼W	1 70
R807	16—¼CR472J	Carbon	res.	4K7 ohm	±5% ¼W	1.70
R808	16—2 A181 J	Metal Oxide	res.	180 ohm	±5% 2 W	10.00
R809 — R811	16—¼CA103 J	Carbon	res.	10K ohm	±5% ¼W	1.70
R812	16—2 A181 J	Metal Oxide	res.	180 ohm	±5% 2 W	10.00
R813	16—¼CA273 J	Carbon	res.	27K ohm	±5% ¼W	1.70
R814	16—¼CR563J	Carbon	res.	56K ohm	±5% ¼W	1.70
R815	16—¼CR102 J	Carbon	res.	1K ohm	±5% ¼W	1.70

PARTS LIST

SYMBOL NO	PARTS NO	DESCRIPTION					REF
R816	16—½ A101 J	Metal Oxide	res	100	ohm ±5%	½W	7.00
R817	16—¼CA101 J	Carbon	res.	100	ohm ±5%	¼W	1.70
R818	16—¼CR102 J	Carbon	res.	1K	ohm ±5%	¼W	1.70
R819	16—¼CR153J	Carbon	res.	15K	ohm ±5%	¼W	1.70
R820	16—¼CA822J	Carbon	res.	8K2	ohm ±5%	¼W	1.70
R821	16—¼CR102J	Carbon	res	1K	ohm ±5%	¼W	1.70
R822	16—¼CR104J	Carbon	res.	100K	ohm ±5%	¼W	1.70
R823, R824	16—2A181J	Metal Oxide	res	180	ohm ±5%	2 W	10.00
R825	16—¼CR183J	Carbon	res.	18K	ohm ±5%	¼W	1.70
C201, C202	17—5ER474Y	Elec.	Capa.	0.47μF	±50—10%	50 V	8.40
C203	17—5DR104M	CER.	Capa.	0.1μF	±20%	50 V	13.00
C401, C402	17—5DR101M	CER.	Capa.	100PF	±20%	50 V	3.80
C403, C404	17—5DR221M	CER.	Capa.	220PF	±20%	50 V	4.40
C405, C406	17—5DR101M	CER.	Capa.	100PF	±20%	50 V	3.80
C407, C408	17—0.63E108Y	Elec.	Capa.	1000μF	±50—10%	6.3V	33.80
C409—C412	17—3.5ER106Y	Elec.	Capa.	10μF	±50—10%	35 V	9.20
C413, C414	17—5DR220M	CER.	Capa.	22PF	±20%	50 V	3.50
C415, C416	17—5DR104M	CER.	Capa.	0.1μF	±20%	50 V	13.00
C417, C418	17—5DR221M	CER.	Capa.	220PF	±20%	50 V	4.40
C421, C422	17—5FR273J	Mylar	Capa.	0.027μF	±5%	50 V	8 40
C423, C424	17—5FR752J	Mylar	Capa.	7500PF	±5%	50 V	6.70
C425, C426	17—1ER476Y	Elec.	Capa.	47μF	±50—10%	10 V	9.20
C427, C428	17—5FR222J	Mylar	Capa.	2200PF	±5%	50 V	6.30
C429	17—5DR104M	CER.	Capa.	0.1μF	±20%	50 V	13.00
C501—C504	17—5F224J	Mylar	Capa.	0.22μF	±5%	50 V	22.60
C505, C506	17—5DR220M	CER.	Capa.	22PF	±20%	50 V	3.50
C507, C508	17—1ER476Y	Elec.	Capa.	47μF	±50—10%	10 V	9.20
C509, C510	17—5FR122J	Mylar	Capa.	1200PF	±5%	50 V	6.30
C511, C512	17—5F224J	Mylar	Capa.	0.22μF	±5%	50 V	22.60
C513—C516	17—5F104J	Mylar	Capa.	0.1μF	±5%	50 V	14.10
C517, C518	17—5DR221M	CER.	Capa.	220PF	±20%	50 V	4.40
C519, C520	17—5DR101M	CER.	Capa.	100PF	±20%	50 V	3.80
C521, C522	17—5DR330M	CER.	Capa.	33PF	±20%	50 V	3.80
C523, C524	17—5FR122J	Mylar	Capa.	1200PF	±5%	50 V	6.30
C525, C526	17—5DR100M	CER.	Capa.	10PF	±20%	50 V	3.50
C527, C528	17—1ER476Y	Elec.	Capa.	47μF	±50—10%	10 V	9.20
C529, C530	17—2.5ER476Y	Elec.	Capa.	47μF	±50—10%	25 V	14.60
C531, C522	17—1.6R105K	Dryal	Capa.	1μF	±10%	16 V	24.00
C533, C534	17—1ER476Y	Elec.	Capa.	47μF	±50—10%	10 V	9.20
C535, C536	17—5FR183J	Mylar	Capa.	0.018μF	±5%	50 V	7.70
C537, C538	17—5F104J	Mylar	Capa.	0.1μF	±5%	50 V	14.10
C539, C540	17—5F124J	Mylar	Capa.	0.12μF	±5%	50 V	14.70
C541, C542	17—1.6R684K	Dryal	Capa.	0.68μF	±10%	16 V	24.00
C543, C544	17—1ER476Y	Elec.	Capa.	47μF	±50—10%	10 V	9.20
C545, C546	17—5F563J	Mylar	Capa.	0.056μF	±5%	50 V	10.70
C547, C548	17—1.6R105K	Dryal	Capa.	1μF	±10%	16 V	24.00
C549, C550	17—5FR333J	Mylar	Capa.	0.033μF	±5%	50 V	9.00
C551, C552	17—1.6R684K	Dryal	Capa.	0.68μF	±10%	16 V	24.00
C553, C554	17—5DR221M	CER.	Capa.	220PF	±20%	50 V	4.40
C555, C556	17—1ER476Y	Elec.	Capa.	47μF	±50—10%	10 V	9.20

PARTS LIST

SYMBOL NO	PARTS NO	DESCRIPTION	REF
C557, C558	17—5F563J	Mylar Capa. 0.056μF ±5% 50 V	10.70
C559, C560	17—5F274J	Mylar Capa. 0.27μF ±5% 50 V	25.60
C561, C562	17—5FR273J	Mylar Capa. 0.027μF ±5% 50 V	8.40
C563, C564	17—5F154J	Mylar Capa. 0.15μF ±5% 50V	17.50
C565, C566	17—5DR221M	CER. Capa. 220PF ±20% 50V	4.40
C567, C568	17—2.5ER476Y	Elec. Capa. 47 μF ±50—10% 25V	14.60
C569—C572	17—1ER226Y	Elec. Capa. 22 μF ±50—10% 10V	8.40
C573, C574	17—5DR101M	CER. Capa. 100P F ±20% 50V	3.80
C575	17—2.5ER476Y	Elec. Capa. 47 μF ±50—10% 25V	14.60
C577, C578	17—5DR470M	CER. Capa. 47P F ±20% 50V	3.80
C579, C580	17—5DR104M	CER. Capa. 0.1 μF ±20% 50V	13.00
C581, C582	17—5DR221M	CER. Capa. 220P F ±20% 50V	4.40
C601—C604	17—1.6R105K	Dryal Capa. 1 μF ±10% 16V	24.00
C605, C606	17—5FR332J	Mylar Capa. 3300P F ±5% 50V	6.30
C607, C608	17—5FR102J	Mylar Capa. 1000P F ±5% 50V	6.30
C609, C610	17—5DR221M	CER. Capa. 220P F ±20% 50V	4.40
C611, C612	17—0.63E108Y	Elec. Capa. 1000 μF ±50—10% 6.3V	33.80
C613—C616	17—5DR470M	CER. Capa. 47P F ±20% 50V	3.80
C617—C620	17—5DR104M	CER. Capa. 0.1 μF ±20% 50V	13.00
C623	17—5DR104M	CER. Capa. 0.1 μF ±20% 50V	13.00
C625—C630	17—5DR104M	CER. Capa. 0.1 μF ±20% 50V	13.00
C631—C634	17—3.5ER476Y	Elec. Capa. 47 μF ±50—10% 35V	14.60
C635	17—1ER476Y	Elec. Capa. 47 μF ±50—10% 10V	9.20
C637	17—1ER476Y	Elec. Capa. 47 μF ±50—10% 10V	9.20
C643, C644	17—5FR332J	Mylar Capa. 3300P F ±5% 50V	6.30
C645, C646	17—5DR220M	CER. Capa. 22P F ±20% 50V	3.50
C647—C650	17—1ER476Y	Elec. Capa. 47 μF ±50—10% 10V	9.20
C651, C652	17—5DR221M	CER. Capa. 220P F ±20% 50V	4.40
C653, C654	17—5DR104M	CER. Capa. 0.1 μF ±20% 50V	13.00
C655, C656	17—5ER476Y	Elec. Capa. 47 μF ±50—10% 50V	18.80
C657—C662	17—5DR101M	CER. Capa. 100P F ±20% 50V	3.80
C699	17—5D104M	CER. Capa. 0.1 μF ±20% 50V	13.00
C801—C804	17—5P478Y	Elec. Capa. 4700 μF ±50—10% 50V	385.00
C805, C806	17—6.3E477Y	Elec. Capa. 470 μF ±50—10% 63V	85.00
C807—C809	17—3.5ER106Y	Elec. Capa. 10 μF ±50—10% 35V	9.20
C810	17—6.3ER106Y	Elec. Capa. 10 μF ±50—10% 63V	10.70
C811, C812	17—5DR104M	CER. Capa. 0.1 μF ±20% 50V	13.00
C813	17—3.5ER476Y	Elec. Capa. 47 μF ±50—10% 35V	14.60
C814	17—5FR102J	Mylar Capa. 1000 P F ±5% 50V	6.30
C815	17—6.3ER106Y	Elec. Capa. 10 μF ±50—10% 63V	10.70
C816	17—3.5ER106Y	Elec. Capa. 10 μF ±50—10% 35V	9.20
C819	17—3.5ER106Y	Elec. Capa. 10 μF ±50—10% 35V	9.20
C820	17—6.3ER106Y	Elec. Capa. 10 μF ±50—10% 63V	10.70
C821, C822	17—3.5ER476Y	Elec. Capa. 47 μF ±50—10% 35V	14.60
C823, C824	17—2008	Capa. AC 2200PF ECK—DDS222ME	102.00
L601,, L602	29—1036—1	Air Coil 3.3 μH	48.00
VR201, VR202	29—4056	Semifixed res. 200KB	17.50
VR501	29—4103A	Volume & Balance 20KB & 50KW	516.00
VR502, VR503	29—4075F	VR 10KC×2	130.00
VR601, VR602	29—4064	Semifixed res. 1KB	17.50

PARTS LIST

SYMBOL NO	PARTS NO	DESCRIPTION		REF
VR603, VR604	29—4055	Semifixed res. 500B		17.50
D201	30—1041	Zener Diode W2—22D		14.80
D203, D204	30—1019	Diode BAW62		8.00
D401—D410	30—1019	Diode BAW62		8.00
D501—D508	30—1019	Diode BAW62		8.00
D601—D606	30—1019	Diode BAW62		8.00
D609—D612	30—1019	Diode BAW62		8.00
D801—D804	30—1017—1	Diode GI3B		28.00
D805	30—1040	Bridge Diode	WL-02M	88.00
D806—D810	30—1019	Diode BAW62		8.00
D811	30—1041	Zener Diode	W2—22D	14.80
D812, D813	30—1002	Diode 1A 100V	IN4002/10DI	12.40
LD201—LD208	30—1085	LED Green	2×5MMS LT3231G	35.60
LD209—LD211	30—1075	LED Red	2×5MMS LT3211R	27.80
LD212	30—1085	LED Green	2×5MMS LT3231G	35.60
LD213	30—1076	LED Yellow	2×5MMS LT3251	35.60
Q401, Q402	30—2264	FET 2SK163		64.00
Q403, Q404	30—2085—2	TRANSISTOR	BC559B	26.00
Q405, Q406	30—2084—3	TRANSISTOR	BC549C	26.00
Q407, Q408	30—2090—2	TRANSISTOR	BC546B	24.00
Q409, Q410	30—2096	TRANSISTOR	BC556A	26.00
Q411, Q412	30—2090—2	TRANSISTOR	BC546B	24.00
Q413, Q414	30—2096	TRANSISTOR	BC556A	26.00
Q501, Q502	30—2084—3	TRANSISTOR	BC549C	26.00
Q503, Q504	30—2085—2	TRANSISTOR	BC559B	26.00
Q505, Q506	30—2096	TRANSISTOR	BC556A	26.00
Q507, Q508	30—2090—2	TRANSISTOR	BC546B	24.00
Q509—Q512	30—2090—2	TRANSISTOR	BC546B	24.00
Q513—Q516	30—2096	TRANSISTOR	BC556A	26.00
Q517—Q522	30—2090—2	TRANSISTOR	BC546B	24.00
Q523, Q524	30—2096	TRANSISTOR	BC556A	26.00
Q525, Q526	30—2232	FET	E111	104.00
Q527	30—2096	TRANSISTOR	BC556A	26.00
Q528	30—2090—2	TRANSISTOR	BC546B	24.00
Q601, Q602	30—2084—3	TRANSISTOR	BC549C	26.00
Q605, Q606	30—2096	TRANSISTOR	BC556A	26.00
Q607, Q608	30—2238	TRANSISTOR	BF423	58.00
Q609, Q610	30—2087	TRANSISTOR	2SD381	92.00
Q615, Q616	30—2237	TRANSISTOR	BF422	54.00
Q617, Q618	30—2238	TRANSISTOR	BF423	58.00
Q619, Q620	30—2250	TRANSISTOR	MJE253	128.00
Q621, Q622	30—2249	TRANSISTOR	MJE243	112.00
Q623, Q624	30—2251	TRANSISTOR	MJ15003	440.00
Q625, Q626	30—2252	TRANSISTOR	MJ15004	460.00
Q627	30—2090—2	TRANSISTOR	BC546B	24.00
Q629	30—2096	TRANSISTOR	BC556A	26.00
Q631, Q632	30—2083	TRANSISTOR	BD139	68.00
Q633, Q634	30—2090—2	TRANSISTOR	BC546B	24.00
Q635, Q636	30—2096	TRANSISTOR	BC556A	26.00

PARTS LIST

SYMBOL NO	PARTS NO	DESCRIPTION		REF
Q801	30—2083	TRANSISTOR	BD139	68.00
Q802	30—2096	TRANSISTOR	BC556A	26.00
Q803	30—2090—2	TRANSISTOR	BC546B	24.00
Q804	30—2083	TRANSISTOR	BD139	68.00
Q805	30—2082	TRANSISTOR	BD140	84.00
Q806	30—2090—2	TRANSISTOR	BC546B	24.00
Q807	30—2096	TRANSISTOR	BC556A	26.00
Q808	30—2082	TRANSISTOR	BD140	84.00
IC401, IC402	30—3112	IC	U267	520.00
SW1	31—1143F	Rotary SW.	RZL66FLA02	264.00
SW2	31—1142F＊A	Rotary SW.	RZV46FL006	218.00
SW3, SW4	31—1137F＊A	Push SW.	SUE22FL001	97.00
SW5, SW7	31—1137F＊A	Push SW.	SUE22FL001	97.00
SW6	31—1162F	Rotary SW.		214.00
SW8,SW9,SW11	31—1164F	Push SW.		194.00
SW10	31—1024F	Rotary SW.	RZV44FL016	229.00
SW12	31—1079F	Slide SW.	SSB23FL025	53.00
SW13	31—1129A＊A	Power SW.	SDU3PE16	340.00
TB1, TB2	35—3018	Breaker A—40		88.00

NAD (USA), INC.

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5/27/81

SERVICE BULLETIN

SB USA 025 3140 RFI, POWER LINE TRANSIENT INTERFERENCE

We have received complaints of RF interference (CB radio, nearby transmitter, etc).

This can be cured as follows: (Please Note: Instructions are given for left channel; right channel is done identically)

1) Connect series network of 470 PF cap and 47 ohm res. from gate, Q401 to base, Q403.

2) Connect 22 PF cap from base to collector, Q405 (or, change C413 to 47 PF)

3) Cut foil, install 1K res. in series with base, Q501

4) Connect 100 PF cap from base to emitter, Q501

5) Cut foil, install 1K res. in series with base, Q633

6) Connect 1000 PF (.001uF) cap from base to emitter, Q633

7) Cut foil, install 1K res. in series with C649

8) Connect 1000 PF cap from base to emitter, Q601

This completes RFI mod. You should also install stability mod, service bulletin #026.

Paul Ceurvels

National Service Manager

PS: Please note that this mod is factory installed on bottom of PCB, later runs of PCB parts #19-1122E, and on the top of revised PCB, part #19-1122F; These sets will have no RFI trouble. (Number is on bottom, under fuses)

A

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NAD

SERVICE BULLETIN

SB USA 026 3140 FUSE BLOWING, PARASITICS

We have received complaints of fuses blowing for no apparent reason, parasitic oscillation, and distorted sound; which is aggravated by long cabling with high inter-cable capacitance.

To cure, simply remove bottom cover, and connect the ground foil of the "Tape 2 Rec" jack to the gound foil of the "Normal In" jack. These foils are located under the rear panel; connection is most easily made by scraping away the green paint, and shorting the foils together with a drop of solder.

NOTES:

1) This mod applies to units with metal-case output transistors only.

2) Output transistor mounting screws should also be checked for looseness, and tightened, if necessary.

3) Check part no. of rear PCB (on bottom, under fuses). If 19-1122D, please change chassis ground point as follows (as seen from bottom, knobs facing you): Cut ground foil immediately to left of chassis ground point near input jacks. Scrape off paint, short chassis ground foil to "Tuner" ground foil. This will also improve hum level on phono.

Paul Ceurvels

National Service Manager

PS: Also see service bulletin 025

B

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5/27/81

SERVICE BULLETIN

SB USA 027 3140 SPEAKER CIRCUIT BREAKER

Due to error at the factory, a few sets were produced with incorrect size speaker circuit breaker, which may trip prematurely under heavy loading.

The correct size is 4.0 amp, marked "A - 40" (P/N 35-3018). The wrong size is 2.2 amp, marked "A - 22" (P/N 35-3011).

Paul Ceurvels

National Service Manager

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NAD

SERVICE BULLETIN

SB USA 031 3140, PHONO 1 W/ADCOM M.C. CARTRIDGE 7/24/81

When using Adcom high output M.C. cartridge, please load cartridge with 1000 ohms; failure to do so may result in instability.

This can be most easily done using 2 "Y" adapters, 2 1000 ohm resistors, and 2 phono plugs. Solder the resistors into the plugs; connect phono cables to one leg of each "Y" adapter, 1K resistor plugs to the other legs, and plug adapters into "Phono 1".

Adcom tells us of no measurable performance degradation, except that cartridge output level will decrease 1/4 DB, which is not significant.

Paul Ceurvals

National Service Manager

D

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SB USA 033 VOLTAGE CONVERSION INSTRUCTIONS 9/1/81

Attached Diagrams:

Fig. 1, 2	Power Transformer Primary Wiring
Fig. 3	3140 Transformer Interwiring
Fig. 4	U.S. Type Power Switch & Grounding
Fig. 5	Overseas Type (220V) Power Switch & Grounding

NOTES:

1) Check primary wires for presence of blue or green wire, and proceed accordingly. Some early amps, tuners, & receivers are not voltage convertible, and must be used with an external step-up or step-down transformer; these units have power transformer part numbers ending in "-1", "-2", "-3", and "-4".

2) Power is usually taken from the rear panel switched outlet.

3) Sometimes there is a thin, black wire which is connected to the chassis. This is the electrostatic ground, do not disturb it.

4) Unused wires must be insulated. Please use electrical tape or wire nuts (preferably).

5) Some overseas units have a chassis ground wire (green or green/yellow) in the power cord, which is not used in the U.S.. Instead, in the U.S., a resistor (2.7m, ½w) is connected from the switched ("HOT") side of the AC line to the chassis.

6) For 220/240 volt use ,both sides of AC line should be switched. Bypass both switches with 2200pf, 250VAC (400VDC) capa, for arc suppression. For 110/120 volt use ,only one side of AC line requires switching (bypass with 4700pf, 125VAC (250VDC) capa).

7) Don't forget to check the FM de-emphasis switch, on the rear panel, for correct setting (tuners & receivers only).

8) Tuners, amplifiers, receivers, and tape decks require no frequency conversion.

9) Turntables bought in the U.S. are <u>not</u> voltage convertible; an external transformer is required; use 15 watt size or larger. Motor pulleys for cycle change of models 5020 and 5020A are available from our parts department. Models 5040, 5080, and 5080A require no frequency conversion.

10) Tape decks are not voltage convertible, and require an external transformer; (minimum size as stated on label next to power cord; usually 15 to 75 watts). No frequency conversion is needed.

11) 3140 has twin transformer. Please wire each transformer individually for the correct voltage; then connect both transformers in parallel, at the switched outlet.

E

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NAD

12) Don't forget to change the main fuse. At 220 volts, a set requires half the current which it requires for 110 volts; and vice versa. The wrong size fuse will either blow prematurely, or may not provide sufficient safety margin, in event of overload.

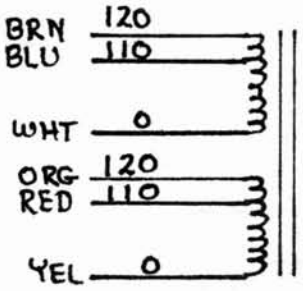
Paul J. Ceurvels

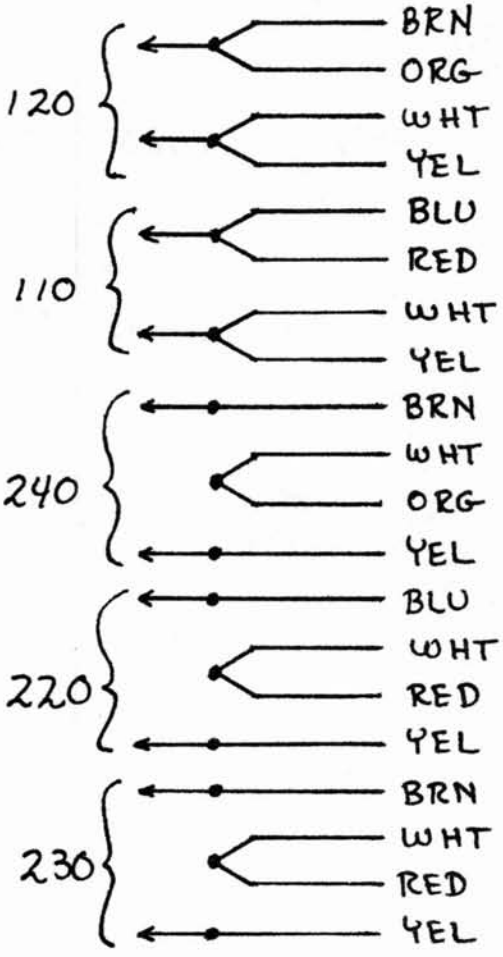
National Service Manager

F

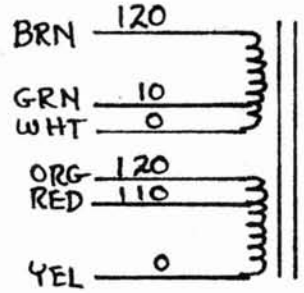
NAD SBUSA 033; VOLTAGE CONVERSION

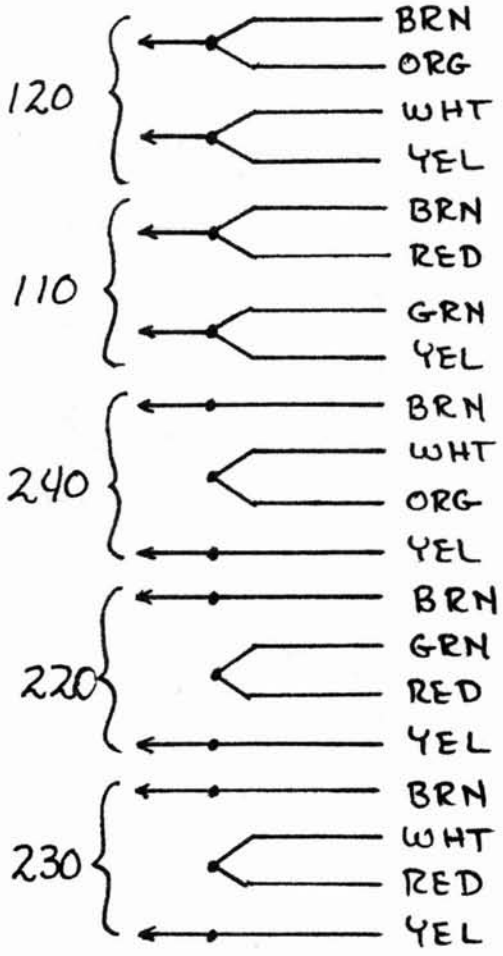
1) W/ BLUE TAP WIRE



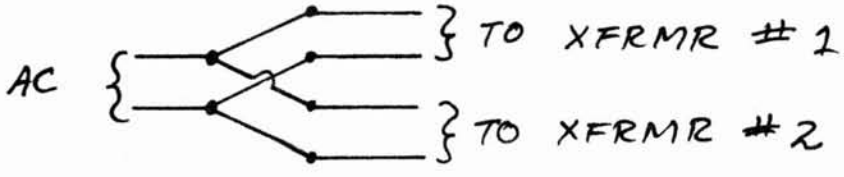


2) W/ GREEN TAP WIRE





3) 3140; TWIN TRANSFORMERS



NOTE: WIRE EACH XFRMR AS IN #2 ABOVE; THEN IN PARALLEL, AS SHOWN

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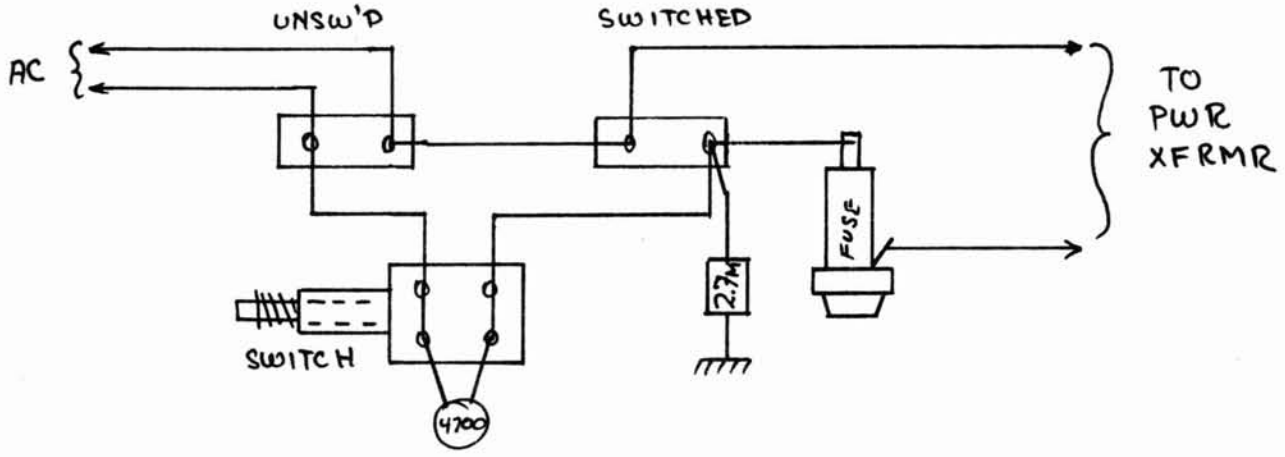
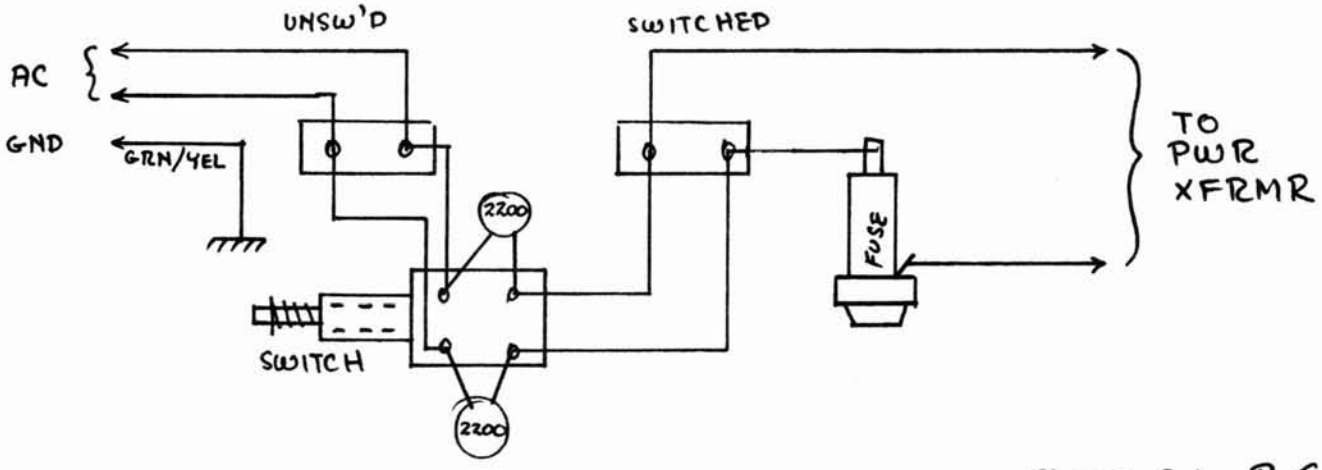
SB USA 033

4) US TYPE, ONE SIDE OF LINE SWITCHED



5) OVERSEAS TYPE, BOTH SIDES OF LINE SW'D



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NAD

SERVICE BULLETIN

SB USA 034 2140, 3140 IDLE CURRENT, OVERHEATING 9/3/81

Occasionally, you may find a unit which idles hot. This can be caused by misadjustment of the idle current trimpots VR603, 604, as a result of vibration in shipping.

To cure, reset the Trimpots, after performing the following modification, which makes the trimpots less "Touchy":

1) Change R639, 640 from 1K2 to 3K3, ¼w

2) Change R641, 642 from 180 to 1K, ¼w

3) Change R6123, 6124 from 560 to 1K ¼w (missing on some early sets)

To reset Idle Current:

1) Turn set upside down, using a block of wood or a book, as a spacer, to allow air to flow.

2) Set bias pots VR603, 604 fully counterclockwise.

3) Connect meter from Emitter to Emitter, of output transistors.

4) Slowly "Turn Up" idle current to approx. 80% of desired value.

5) Allow to thermally stabilize, and reset.

Note:

Set idle current according to emitter resistors R657, 658, 659, 660, as follows:

A) If .1 ohm, adjust for 6mV (5 - 7mV limit)

B) If .22 ohm, adjust for 14mV (12 - 15mV limit)

This will result in an idle current of 30mA.

Paul J. Ceurvels

National Service Manager

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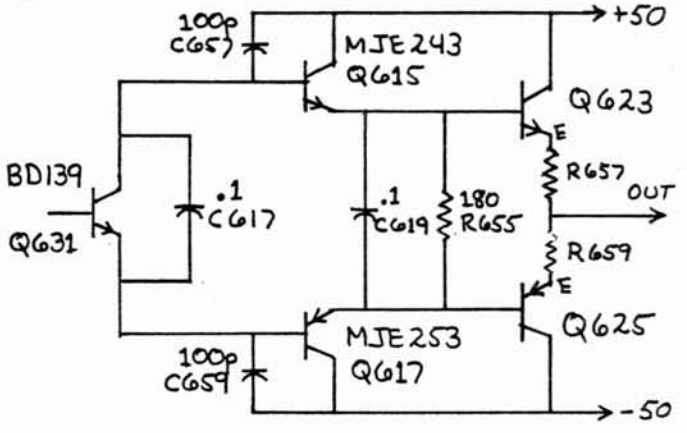
SERVICE BULLETIN

SB USA 035 2140, 3140 POWER AMP 9/3/81

Later 2140, 3140's have simplified power amp driver stage, left channel shown:



Q623: MJ15003 OR 2SC2565

Q625: MJ15004 OR 2SA1095

R657, 659: .1Ω OR .22Ω, 5W

The changes are:

1) Q615, 616; BF 422; Change to MJE 243

2) Q617, 618; BF 423; Change to MJE 253

3) Q619, 620; MJE 253; Removed (used as Q617, 618)

4) Q621, 622; MJE 243; Removed (used as Q615, 616)

5) R647, 648, 649, 650; 330 ohm; Change to jumper wire

6) R651, 652, 653, 654; 3.3 ohm; Removed, not used

NOTE:

Set idle current (approx. 30mA) according to emitter resistors (R657, 658, 659, 660); measure from Emitter to Emitter, as follows:

A) If .1 ohm, set for 6mV (5 – 7mV, limit)

B) If .22 ohm, set for 14mV (12 – 15mV, limit)

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SERVICE BULLETIN

SB USA 039 3140, POP OF LOW LEVEL SWITCH 10/22/81

It is normal for Low Level Switch to "pop" slightly when pushed. However, if the "pop" appears only when the Speaker EQ Switch is "OFF", it could be that the Speaker EQ Circuit is oscillating supersonically.

This can be checked by monitoring the preamp output jacks with an oscilloscope while pressing the Low Level Switch, with Speaker EQ off.

Should this be the problem, correct as follows:

1) Remove bottom cover
2) Install (2) 22pf capacitors from base Q523, Q524 to circuit ground at R5105.

Please note that this problem is limited to sets using Siemens small signal transistors, which are marked on the side of their bodies. Units having Philips transistors, marked on their tops, DO NOT exhibit this phenomenon.

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PS: An alternate cure is to change C553, C554 from 220pf to 330pf; this is now done in production.

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SERVICE BULLETIN

SB USA 040 3140, 2140 BRIDGED STABILITY 10/22/81

3140, 2140 can be made more stable in the bridged mode by relocating the bridging signal pickoff point, as follows:

1) Turn unit over, knobs facing you, remove bottom cover
2) Locate wiper (middle terminal) of left half of bridge switch, cut foil just to left of wiper
3) Connect one end of a 10½" piece of insulated wire to the bridge switch wiper
4) Connect other end of wire to rearward terminal of choke coil L602 (2" forward of left-most output transistor), immediately behind lettering "SFL - SB - 2A94V1" or "AE3" (depends on production run).

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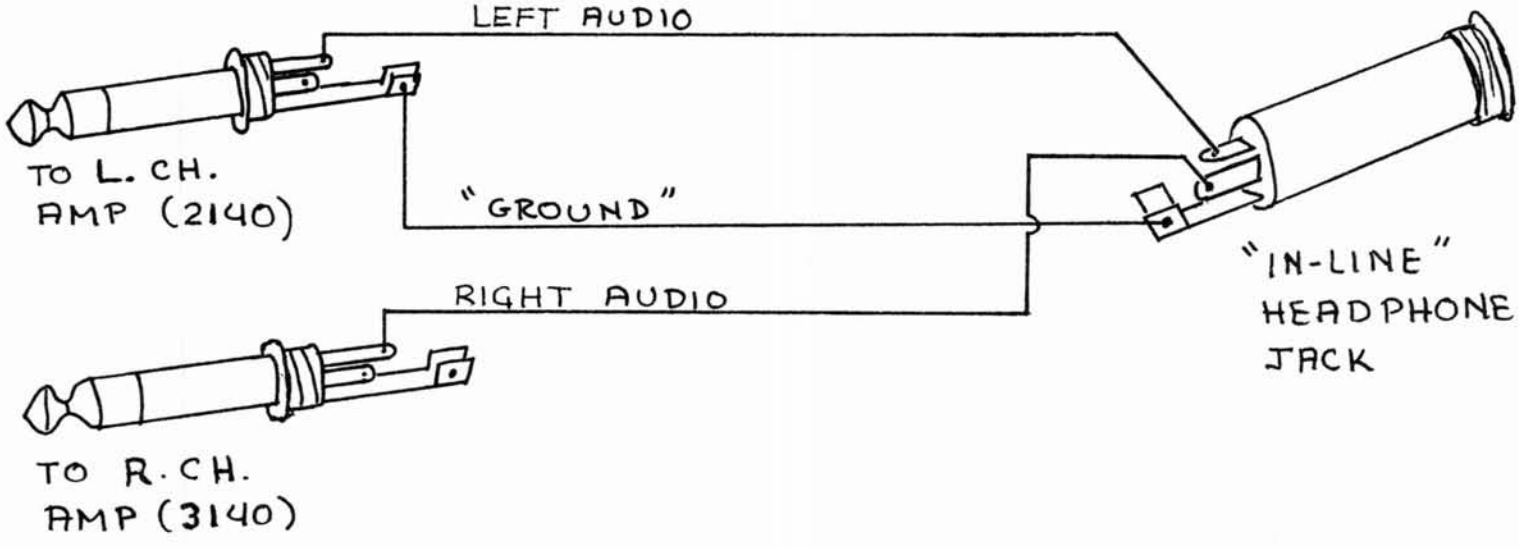
SERVICE BULLETIN

SB USA 041 3140, 2140 BRIDGED HEADPHONES 10/22/81

To use headphones with bridged 3140, 2140, please make up an adaptor as follows:



NOTES:

1) Connect jack ground to only ONE plug, as shown. This avoids ground loops.
2) Headphone plug - Radio Shack 274-139 or equivalent
3) Inline jack - Radio Shack 274-141 or equivalent.

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SERVICE BULLETIN

SB USA 042 3140 PHONO PREAMP STABILITY 10/27/81

When operated under extremely adverse conditions (Low Line Voltage; using highly inductive cartridge, such as Adcom; bridged operation at high volume and heavy, reactive loading), phono preamp may show signs of instability.

To cure this, proceed as follows:

1) Change R403, R404 from 220 ohm to 2K2 1/4 watt, carbon film
2) Change R417, R418 from 10K to 2K2 1/4 watt, carbon film
3) Cut foil, add solder shorts so that R411, R412 are connected to -25V supply, not to emitters of differential amp transistors Q405, 407 and Q406, 408
4) Remove C413, C414 if present

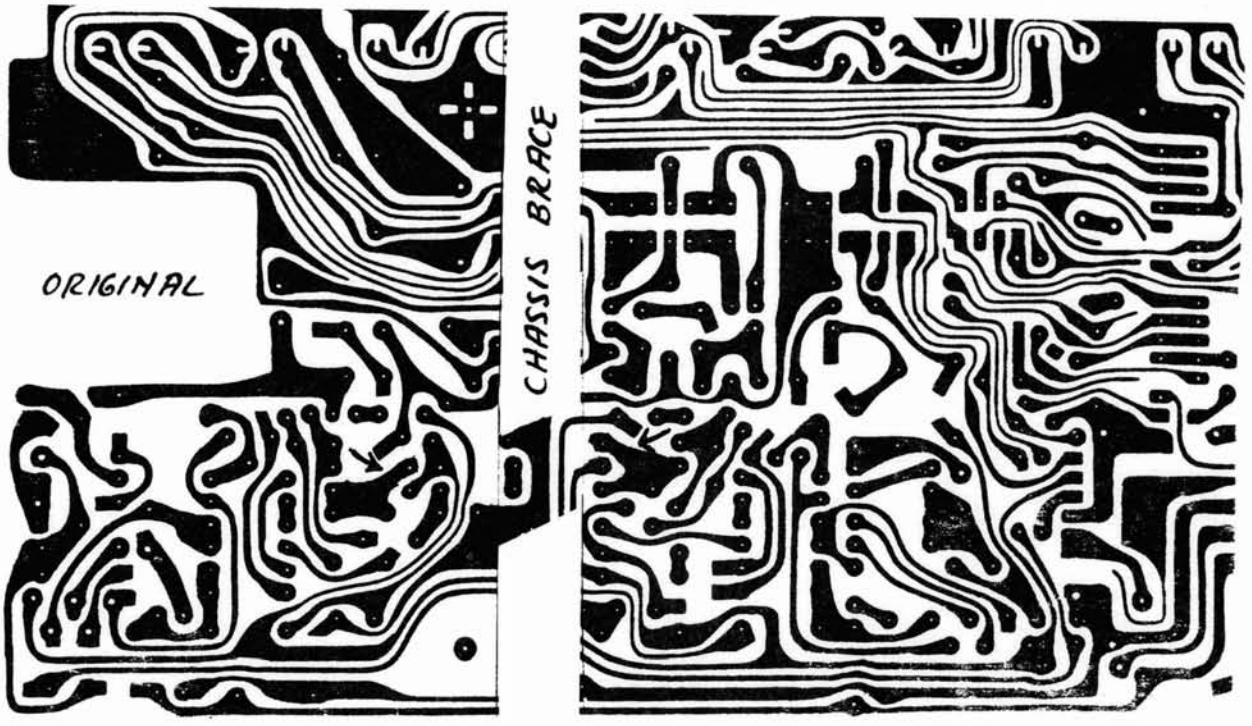
Please note that a unit modified in this fashion does not require external, additional loading of the cartridge (as described in bulletin SB USA 031), although doing so will have no adverse effects.

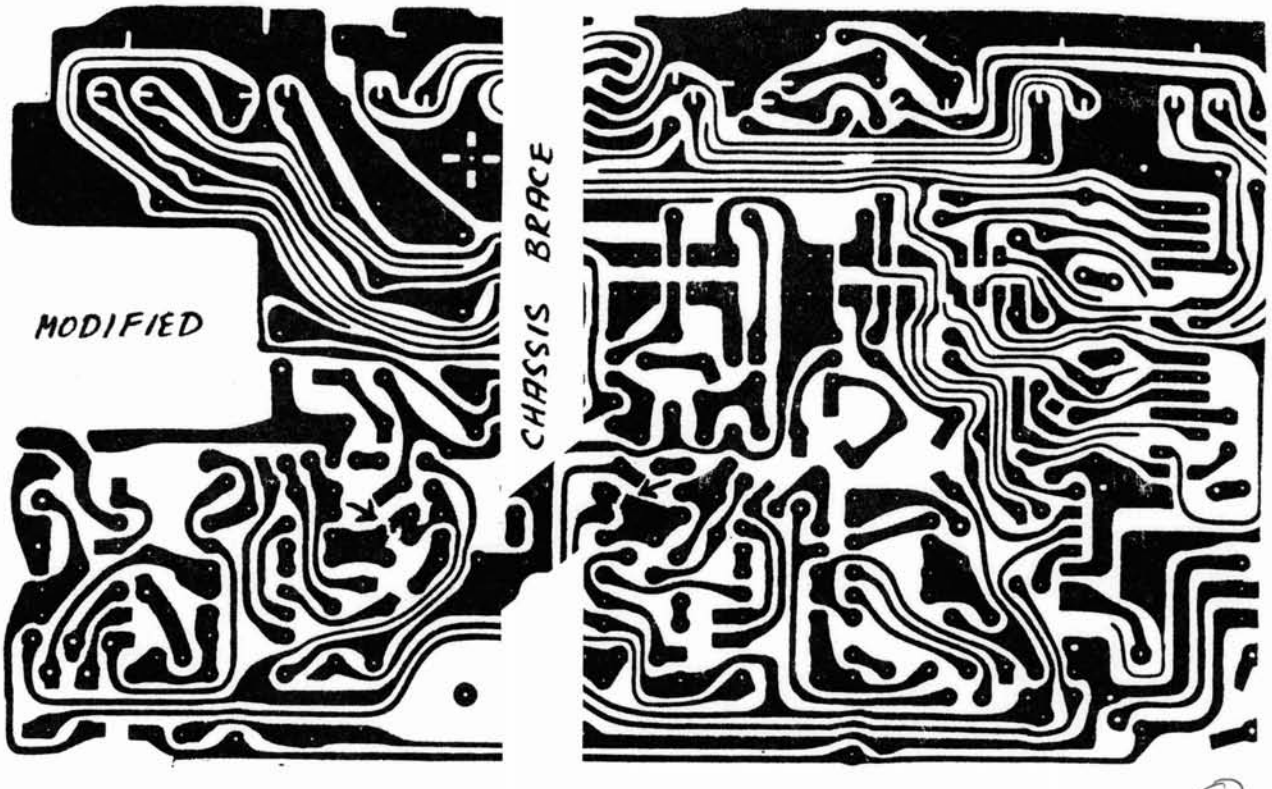
Paul J. Ceurvels
National Service Manager

SB USA 042, STEP 3

NOTE: AFFECTED AREA IS ON BOTH SIDES OF "BREAK" IN CHASSIS BRACE, SEE ARROWS

P.C.





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SERVICE BULLETIN

SB USA 054 *2140/3140 FILTER CAPACITORS* *5/26/82*

Be aware that a small number of 2140/3140's were manufactured with incorrect main power supply filter capacitors, C801, 802, 803, and 804.

They are located in a group near the back of the unit.

Incorrect: 6800 uf 35v

Correct: 4700 uf 50v, p/n 17-5P478Y

Please check these 4 capacitors at time of servicing.

Regards,

Paul J. Ceurvels
National Service Manager

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SERVICE BULLETIN

SB USA 065 5/24/83

2140, 3140 STATUS LED FAILURE, BURNT RESISTORS

You may receive complaints of dead status LED's (power on, soft clip, SLC on) or burnt resistors R213, R214, R215.

These resistors are in series with the LED's, and are located just forward of the soft clip and SLC switches. In early units, they are not quite large enough for the power dissipated. This can lead to early failure, especially under conditions of high AC line voltage.

Should this happen, replace these resistors as follows:

R213: 6K8 ½w (for SLC on, yellow)

R214: 5K6 ½w (for soft clip, green)

R215: 4K7 ½w (for power on, red)

For best heat dissipation, please mount them upright (not "Lying Down").

Later units are made with larger resistors, eliminating this problem.

Regards,

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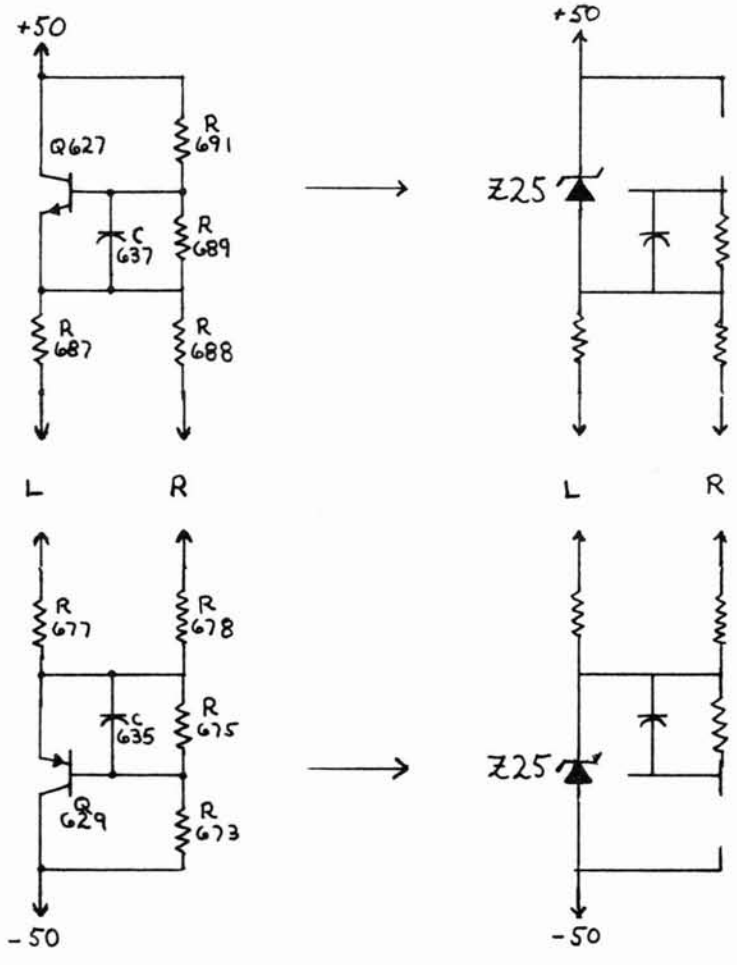
SERVICE BULLETIN

SB USA 066 2140, 3140 SOFT CLIP IMPROVEMENT 5/24/83

As the circuit is originally designed, the soft clip threshold is dependent upon the beta (gain) of transistors Q627, Q629. If these transistors are out of spec, or defective, soft clip operation will be adversely affected (usually resulting in distortion).

Should this be the case, please modify as follows:

1) Remove Q627, Q629, R673, R691.
2) Install 25V ½w zener from emitter to collector, Q627, Q629.



ORIGINAL MODIFIED

2140, 3140 SOFT CLIP

R

NOTE:

Install zeners with cathode (stripe) to the right, as seen from front of unit.

Regards,

Paul J. Ceurvels
National Service Manager

P.S.

Please note that later production units are manufactured with a similar circuit:

1) Transistors Q627, Q629 are replaced with 22V ½w zeners.
2) Resistors R677, R678, R687, R688 are changed from 2.7K to 3.3K, ¼w.