Quality. Uncompromised.

ROTEL®

Technical Manual

STEREO INTEGRATED AMPLIFIER

RA-400

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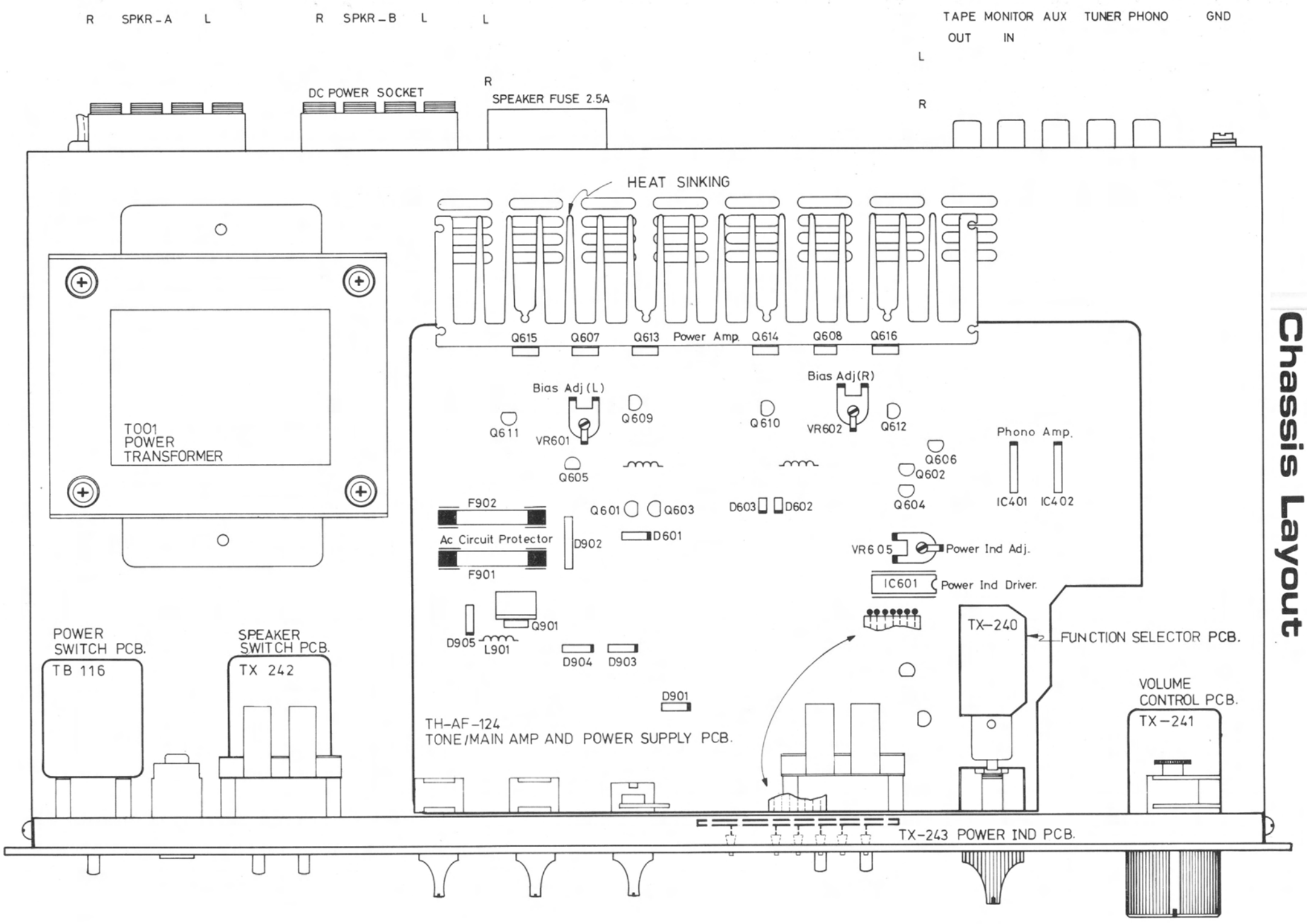
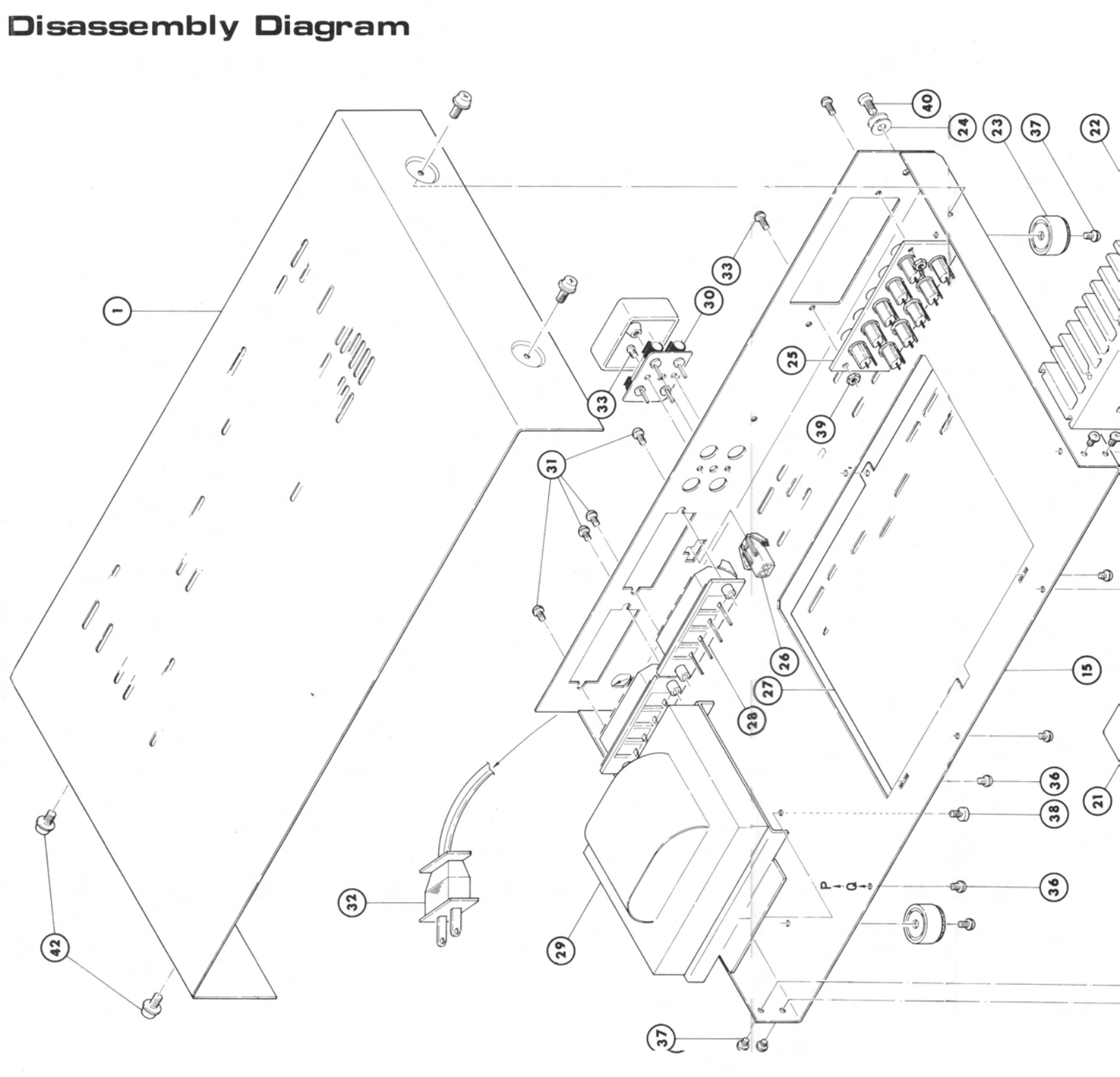
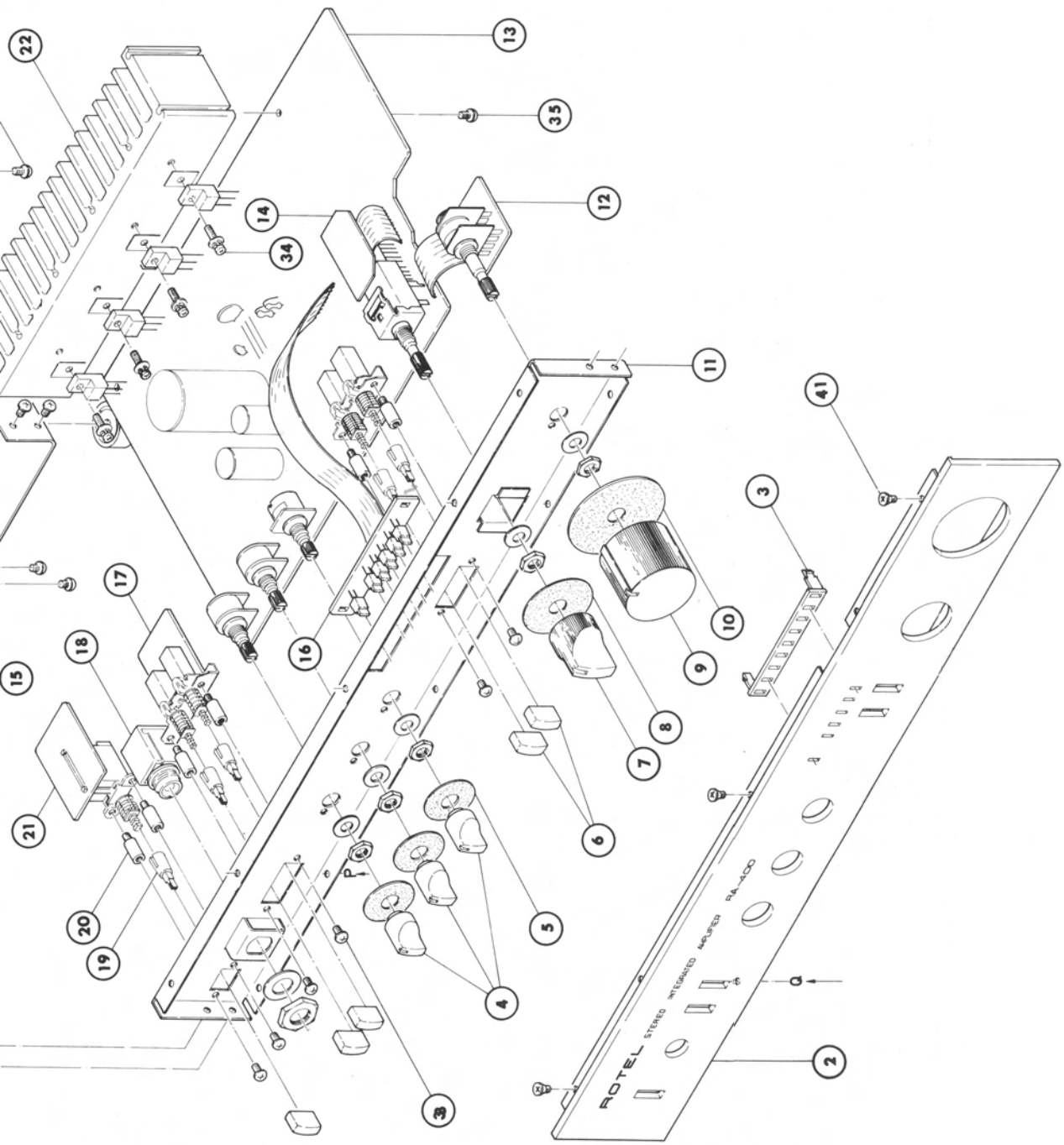


Chassis Layout

Disassembly Diagram





Key No.	Parts No.	Description
1.	138011321	Upper Cover
2.	111911555	Front Panel Ass'y
3.	114902322	Holder, Power Ind.
4.	116310304	Knob, 13¢, Bass Treble and Balance
5.	990201328	Flet, Knob (13¢)
6.	116210073	Push Button, Speaker A and B
7.	116310335	Knob, 20¢, Func.
8.	990201329	Felt, Knob (20¢)
9.	116310306	Knob, 33¢, Volume
10.	990201330	Felt, Knob (33¢)
11.	122011429	Front Chassis Ass'y
12.	141811154	Volume Control PCB Ass'y
13.	141010194	Tone/Main Amp. PCB Ass'y (for UL, CSA)
	141010196	Tone/Main Amp. PCB Ass'y (for Europe)
	141010197	Tone/Main Amp. PCB Ass'y (for BEAB)
14.	141811153	Func. Selector PCB Ass'y
15.	992001112	Spacer, Insulation
16.	141811156	Power Ind. PCB Ass'y
17.	141811155	Speaker Switch PCB Ass'y
18.	626110035	Jack, Headphones
19.	114902356	Connector, Push Button
20.	770911263	Cylinder Bush, Inner Screw
21.	141811067	Power Switch PCB Ass'y (for BEAB) ⚠
	141811068	Power Switch PCB Ass'y (for UL, CSA)
22.	127012259	Heat Sinking
23.	673402055	Plastic Foot
24.	770500004	Washer, 4.2¢x10¢x1t
25.	614200210	Jack, RCA, 10P (PCB Type)
26.	648211269	Recepter, DC Supply
27.	121011362	Chassis Body
28.	642400114	Terminal, Push, 4P, Speaker A and B
29.	201001522	Transformer, Power Supply (for UL, CSA)
	206001521	Transformer, Power Supply (for BEAB...) ⚠
30.	648211157	Holder, 2P, Fuse (for UL, CSA)
	648211162	Holder, 2P, Fuse (for BEAB...)
31.	726203010	Screw, +M3x10, JT2V BK
32.	796301115	Line Cord
	796301149	Line Cord (for Europe)
	796301125	Line Cord (for Austria)
	796301138	Line Cord (for BEAB) ⚠
33.	766223006	Screw, +M3x6 STV BK
34.	770911287	Screw, +M2.6x12 W/SP
35.	766223008	Screw, +M3x8 STV BK
36.	726203006	Screw, +M3x6 BTV MC
37.	726203006	Screw, +M3x6 BTV MC
38.	726203008	Screw, +M3x8 BTV MC
39.	770402201	Nut, M3
40.	770911126	Screw, GND –M4x8
41.	701203006	Screw, +M3x6 SMF
42.	756224008	Screw, +M4x8 W/W

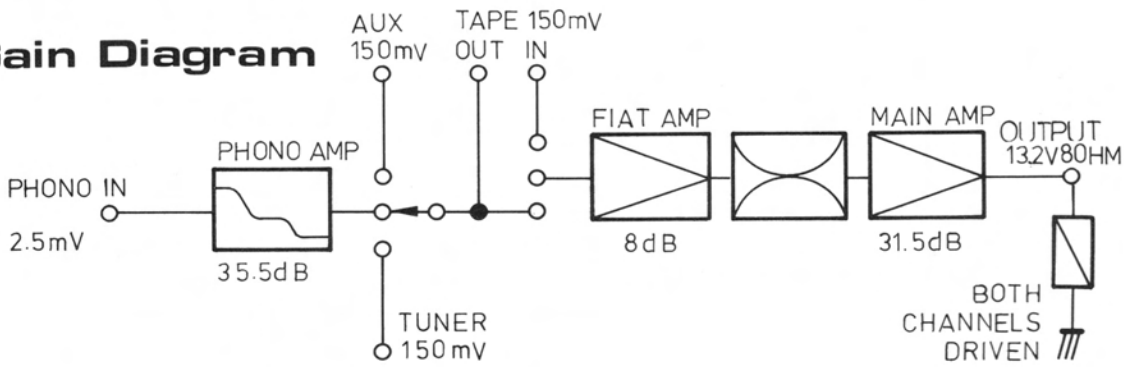
Power Amplifier Bias Adjustment

Instruments: DC milli-voltmeter

Notes: Prior to Bias Adjustment, run about 5 minutes with rated output (8 ohm) and warm up Power Transistor and Heat Sink.
Set Volume Control to Minimum.

Step	Coupling		Adjust	Adjust for
	Plus Lead	Minus Lead		
1	TP1	TP2	VR701	DC milli-voltmeter reads 4.4mV
2	TP4	TP3	VR702	

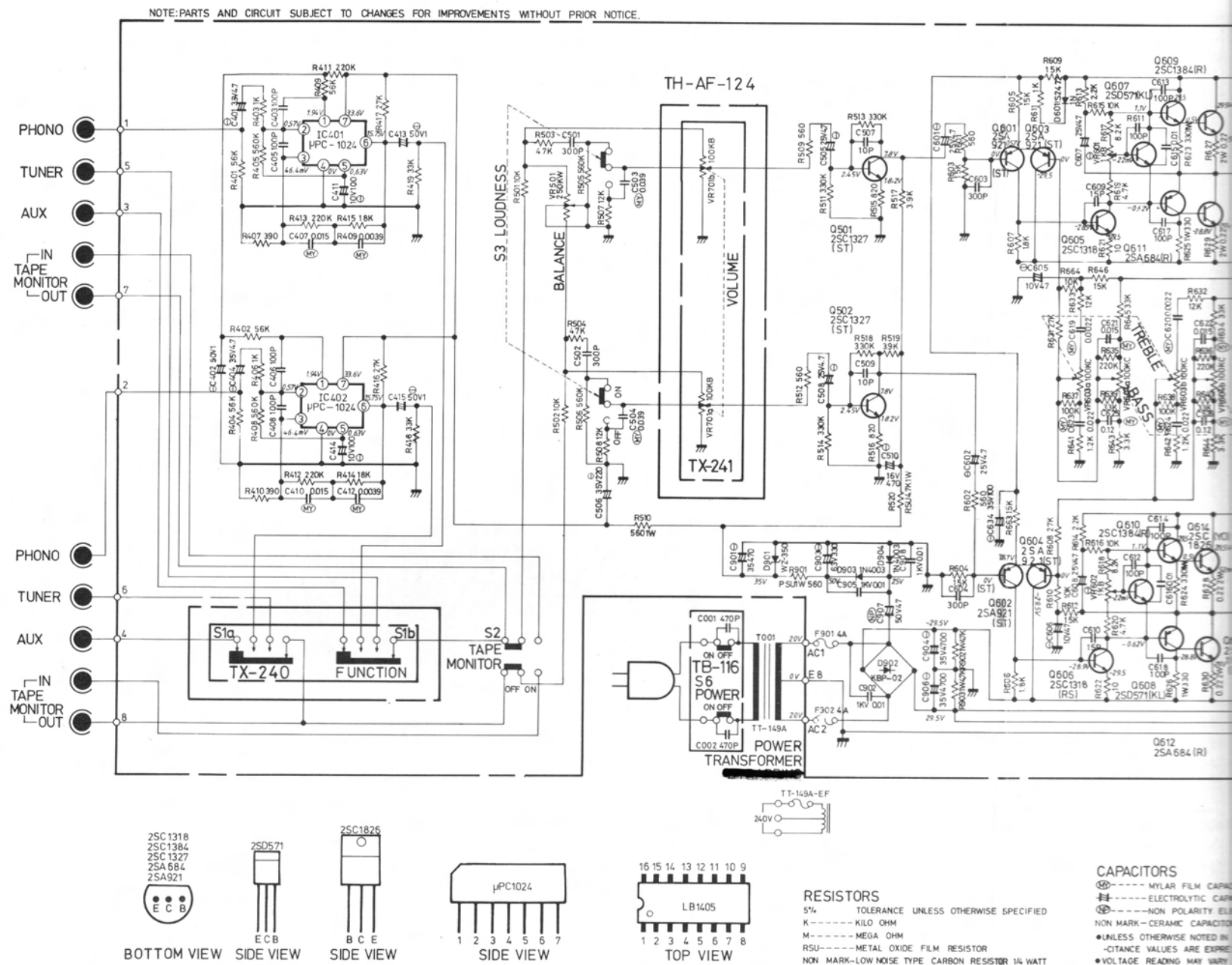
Gain Diagram



Repair Parts List

Schematic Location	Parts No.	Description
TRANSISTORS, DIODES AND IC'S		
Q501,502	301201134	2SC1327 (S,T), Flat Amp.
	301201222	2SC2634 (S,T), Flat Amp.
Q601-604	301001145	2SA921 (S), Differential Amp.
Q605,606	301201155	2SC1318 (R,S), Pre-Driver
Q607,608	301301134	2SD571(K,L), Idling
Q609,610	301201132	2SC1384 (R,S), Driver
Q611,612	301001140	2SA684 (R), Driver
Q613-616	301201169	2SC1826 (O,Y), Power Amp.
D301-306	300414042	LN224RP, Power Ind.
D601	300111018	1S2472, DC Balance Regulator
D602,603	300111008	1K188, Rectifier
D901	300313019	WZ-350, Zener Regulator 35V ½W
D902	300919027	KBP-02, Rectifier
D903,904	300919026	1N4003, Regulator
D905	300313017	WZ-162, Zener Regulator 16V ½W
IC401,402	303452164	μPC1024H, Phono Amp.
IC601	303452188	LB1405, Power Ind. Driver
VARIABLE RESISTORS, SWITCHES AND OTHERS		
VR501	515121131	250KW, Balance Control
VR601,602	510502198	1KB, Bias Adj.
VR603,604	525101173	100KCx2, Bass, Treble Control
VR605	510502195	10KB, Power Inc. Adj.
VR601	525121146	100KBx2, Volume Control
S1	601011304	Switch, Function Selector
S2,3(1 Set)	614020450	SWitch, Push 2-Key, Tape Monitor/ Loudness
S4,5(1 Set)	614020449	Switch, Push 2-Key, Speaker A/B
S6	614010139	Switch, Power Supply (for UL, CSA)
	614010138	Switch, Power Supply (for BEAB...) ⚠
T001	201001522	Transformer, Power Supply (120V only)
	206001521	Transformer, Power Supply (220 240V) ⚠
C904,906	422470435	Smoothing Capacitor
F901,902	341221400	Fuse, 4A, AC Circuit Protector (Long Size)
	345222400	Fuse, 4A, AC Circuit Protector (Mini Size)
	345252400	Fuse, 4A, AC Circuit Protector (Mini Size with "S"D" mark) ⚠
F001,002	341221250	Fuse, 2.5A, Speaker Protector (Long Size)
	345222250	Fuse, 2.5A, Speaker Protector (Mini Size)
	345252250	Fuse, 2.5A, Speaker Protector (Mini Size with "S"D" mark) ⚠
F003,004	341221300	Fuse, 3A, Inside, Speaker Protector (CSA only)

Schematic Diagram

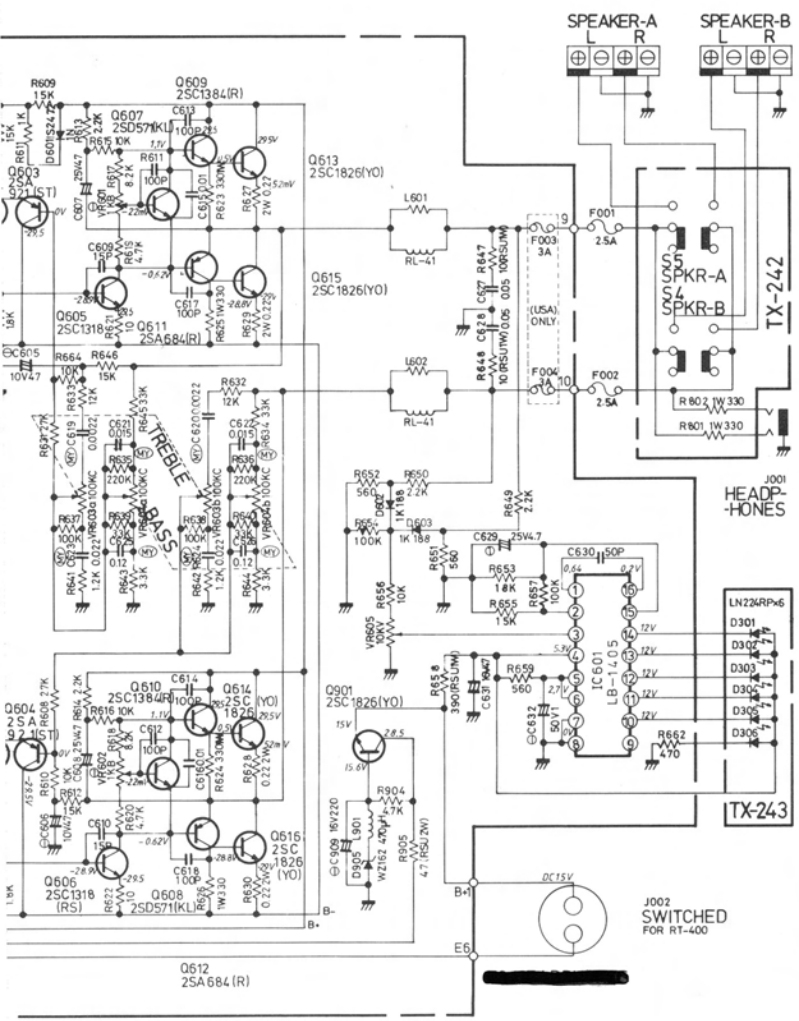


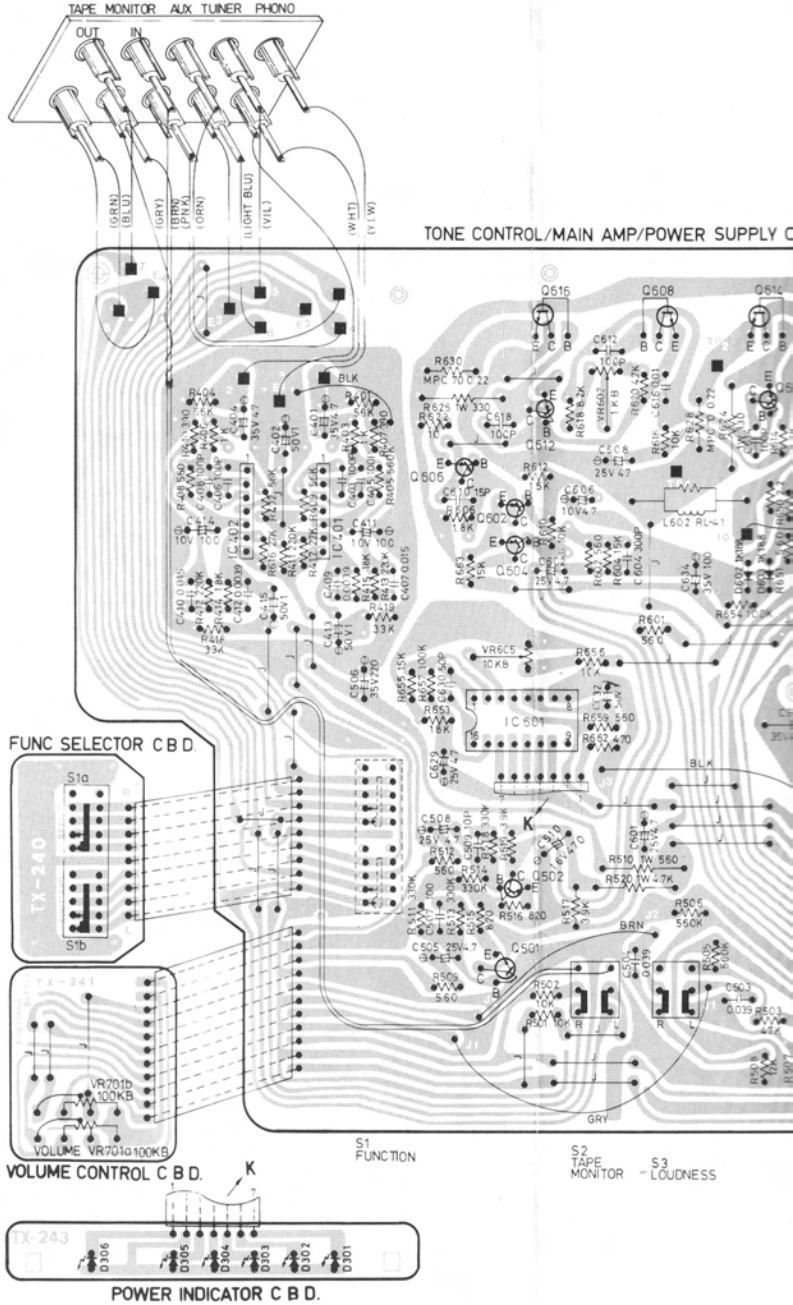
Power Indicator Calibration

Instruments: Audio Generator and AC VTVM

- Set AUX Switch to "ON" position.
- Set VOLUME Control to Max. position.
- Set Tone Control Switch to Defeat position.

1. Connect 8 ohm 50W resistor to R-ch and L-ch at Speaker-A terminals.
2. Connect AC VTVM in paratlel with this 8 ohm load of L-ch or R-ch.
3. Connect Audio Generator to Input terminal of L-ch. or R-ch, and apply 1KHz (sine wav signals. Adjust input level so that reading on AC VTVM is 11.3V 16W/8 ohm).
4. Adjust Potentiometer VR605 so that Power Indicator must be light up until fifth LED (16W)





ITEM	SCHEMATIC LOCATION (LAST)	
EQUALIZER	R419	C415
TONE CONTROL	R520	C510
T.C MAIN AMP	R664	C634
SPEAKER TERMINAL	R802	
POWER SUPPLY	R905	C909
CHASSIS		C002

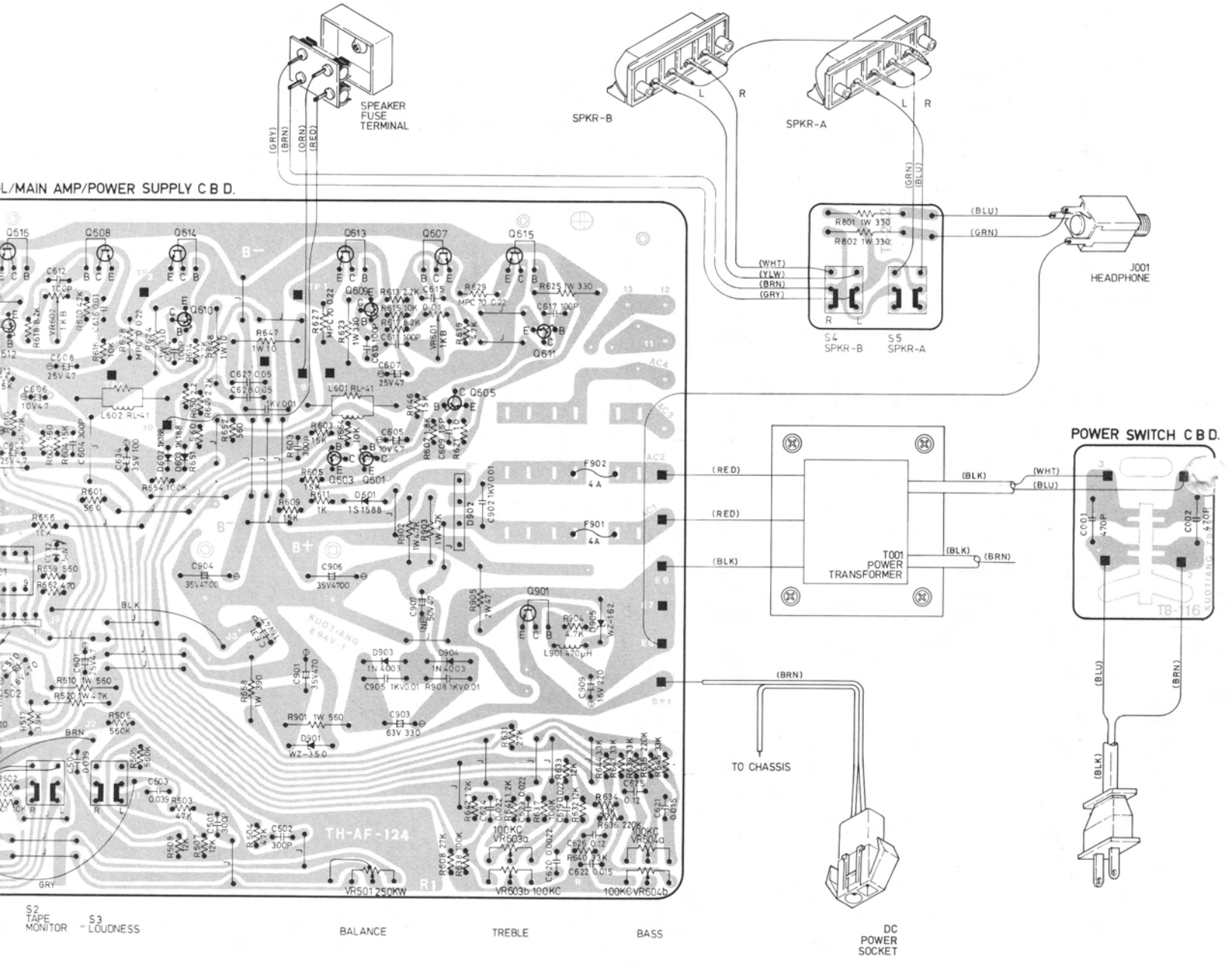
CAPACITORS

- (M) ----- MYLAR FILM CAPACITORS
- ----- ELECTROLYTIC CAPACITORS
- (NP) -----NON POLARITY ELECTROYTIC CAPACITORS
- NON MARK — CERAMIC CAPACITORS

- •UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPA--CITANCE VALUES ARE EXPRESSED IN MFD
- •VOLTAGE READING MAY VARY ±20%

CIFIED

WATT



SPEAKER FUSE TERMINAL
SPKR-B
SPKR-A
L/MAIN AMP/POWER SUPPLY C B D.
J001 HEADPHONE
S4 SPKR-B
S5 SPKR-A
POWER SWITCH C B D.
T001 POWER TRANSFORMER
TO CHASSIS
DC POWER SOCKET
S2 TAPE MONITOR
S3 LOUDNESS
BALANCE
TREBLE
BASS
TH-AF-124
TB-116