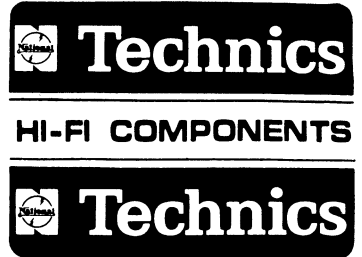


Service Manual



Stereo Integrated Amplifier



MODEL SU-3500

TECHNICAL SPECIFICATION (IHF)

MAIN AMPLIFIER SECTION

Music Power:	190W (4Ω) 125W (8Ω)
1kHz continuous power:	
each channel driven	65W/65W (4Ω) 50W/50W (8Ω)
both channels driven	55W+55W (4Ω) 43W+43W (8Ω)
20Hz~20kHz continuous power:	
both channels driven	47W+47W (4Ω) 41W+41W (8Ω)
Total harmonic distortion:	0.08%
Intermodulation distortion:	0.08%
Power bandwidth:	
(both channels driven at 8Ω)	5Hz~70kHz -3dB 5Hz~200kHz +0dB -3dB
Frequency response:	
Residual hum and noise:	0.5mV
S/N:	110dB
Damping factor:	50 (4Ω) 100 (8Ω)
Input sensitivity and impedance:	1V/50kΩ
Load impedance:	4~16Ω 8~16Ω
	MAIN or REMOTE MAIN + REMOTE

PRE AMPLIFIER SECTION

Input sensitivity and impedance:	PHONO 1, 2 2mV/25kΩ 50kΩ 100kΩ
	TUNER, AUX 1, 2 100mV/50kΩ
	TAPE DECK 1, 2 (PLAYBACK) 100mV/50kΩ
	TAPE DECK 1, REC/PLAY (Input) 100mV/50kΩ

PHONO 1, 2 maximum input voltage:	510mV
Total harmonic distortion:	0.05%
S/N:	PHONO 1, 2 70dB TUNER, AUX 1, 2 90dB
Frequency response:	
PHONO 1, 2	RIAA standard curve ±0.5dB
TUNER, AUX 1, 2	5Hz~100kHz +0dB -3dB
BASS	50Hz +12dB~-12dB
TREBLE	20kHz +12dB~-12dB
LOW	30Hz -12dB/oct
HIGH	8kHz -12dB/oct
Loudness control (volume at -30dB):	100Hz +8dB
Output voltage and impedance:	PRE OUT rated 1V/100Ω max. 11V/100Ω
	TAPE DECK 1, 2 (REC OUT) 100mV/500Ω
	TAPE DECK 1 REC/PLAY (output) 30mV/80kΩ

GENERAL

Power Supply:	50Hz/60Hz 110/120/220/240V
Power consumption:	380W
Dimensions (W×H×D):	16-1/8"×5-1/2"×13-3/8" (410×140×340) mm
Weight:	22.5 lbs. (10.2kg)

TECHNISCHE DATEN (DIN 45 500)

VERSTÄRKERTEIL

Musikleistung:	2×95W (4Ω) 2×62.5W (8Ω)
RMS-Dauerleistung bei 1kHz:	
beide Kanäle zusammen angesteuert	2×55W (4Ω) 2×43W (8Ω)
20Hz~20kHz RMS-Dauerleistung:	
beide Kanäle zusammen angesteuert	2×47W (4Ω) 2×41W (8Ω)
Harmonische Verzerrungen:	
Nennleistung bei 1kHz 4Ω	0.08%
Nennleistung bei 40Hz~16000Hz 4Ω	0.08%
Intermodulationsverzerrung:	
Nennleistung bei 250Hz: 8000Hz = 4:1 4Ω	0.08%
Leistungsbandbreite:	
(beide Kanäle zusammen angesteuert bei 4Ω)	5Hz~70kHz -3dB 5Hz~100kHz +0dB -3dB
Frequenzgang:	
Fremdspannungsabstand:	Nennleistung PHONO 60dB AUX 80dB 50mV Ausgangsleistung PHONO 53dB AUX 54dB
Dämpfungsfaktor:	50 (4Ω) 100 (8Ω)
Endimpedanz:	MAIN oder REMOTE 4~16Ω MAIN + REMOTE 8~16Ω

Eingangsempfindlichkeit & Impedanz:	MAIN IN 1V/50kΩ
	PHONO 1, 2 2mV/25kΩ 50kΩ 100kΩ
	TUNER, AUX 1, 2 100mV/50kΩ
	TAPE DECK 1, 2 (PLAYBACK) 100mV/50kΩ
	TAPE DECK 1 REC/PLAY (Wiedergabe) 100mV/50kΩ
PHONO 1, 2 Maximal Eingangsspannungen:	510mV
Klangregler:	Bässe 50Hz +12dB~-12dB Höhen 20kHz +12dB~-12dB
Filter:	Rumpel 30Hz -12dB/oct Rausch 8kHz -12dB/oct
Gehörliche Lautstärkekontur: (Lautstärke -30dB)	100Hz +8dB
Ausgangsspannungen & Impedanz:	PRE OUT Nenn 1V/100Ω Maximal 11V/100Ω
	TAPE DECK 1, 2 (REC OUT) 100mV/500Ω
	TAPE DECK 1 REC/PLAY (Aufnahme) 30mV/80kΩ

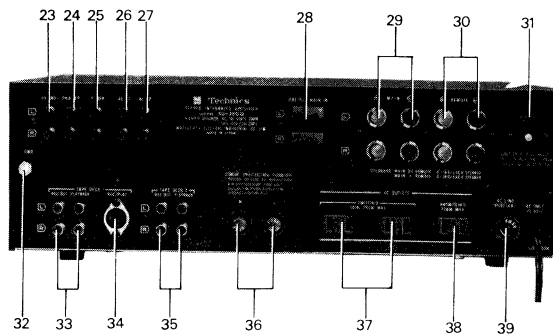
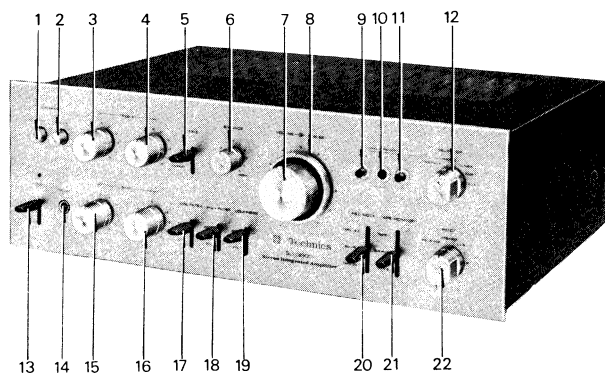
ALLGEMEINE DATEN

Netzspannung Umschaltbar:	50Hz 60Hz 110/120/220/240V
Leistungsaufnahme:	380W
Abmessungen (B×H×T):	410×140×340 mm
Gewicht:	10.2kg

MC-Service

MATSUSHITA ELECTRIC
MATSUSHITA ELECTRIC TRADING CO., LTD.
P. O. Box 288, Central Osaka, Japan

LOCATION OF CONTROLS



1. MAIN SPEAKER SWITCH [S10]
2. REMOTE SPEAKER SWITCH [S11]
3. LEFT TREBLE CONTROL
4. RIGHT TREBLE CONTROL
5. TONE SWITCH [S6]
6. BALANCE CONTROL
7. VOLUME CONTROL
8. PRE-SET
9. PHONO IMPEDANCE 25kΩ SWITCH [S2-1]
10. PHONO IMPEDANCE 50kΩ SWITCH [S2-2]
11. PHONO IMPEDANCE 100kΩ SWITCH [S2-3]
12. SELECTOR SWITCH [S1]
13. POWER SOURCE SWITCH [S12]
14. HEADPHONES JACK
15. LEFT BASS CONTROL
16. RIGHT BASS CONTROL
17. LOW FILTER SWITCH [S8]
18. HIGH FILTER SWITCH [S9]
19. LOUDNESS SWITCH [S7]
20. RECORDING MODE SWITCH [S4]
21. TAPE MONITOR SWITCH [S3]
22. MODE SWITCH [S5]

23. PHONO 1 INPUT TERMINALS
24. PHONO 2 INPUT TERMINALS
25. TUNER INPUT TERMINALS
26. AUX 1 INPUT TERMINALS
27. AUX 2 INPUT TERMINALS
28. PRE AMP AND MAIN AMP CONNECTION TERMINALS
29. MAIN SPEAKER TERMINALS
30. REMOTE SPEAKER TERMINALS
31. VOLTAGE SELECTOR SWITCH [S13]
32. GROUND TERMINAL
33. TAPE DECK 1 CONNECTION TERMINALS
34. TAPE DECK 1 CONNECTION DIN SOCKET
35. TAPE DECK 2 CONNECTION TERMINALS
36. CIRCUIT PROTECTION FUSES
37. AC OUTLETS Switched
38. AC OUTLET Unswitched
39. AC LINE FUSE

TO REMOVE CABINET AND BOTTOM BOARD

1. Remove six (6) cabinet mounting screws, nos. ① ~ ④, as illustrated in figure 1. (No. ③ and ④ screws are left and right side of cabinet.)
2. Remove cabinet from chassis.
3. Remove six (6) bottom board mounting red screws, nos. ⑤ ~ ⑩, as illustrated in figure 2.
4. Remove bottom board from chassis.

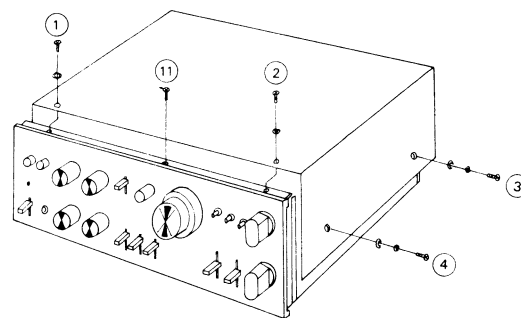


Fig. 1

TO REMOVE FRONT PANEL

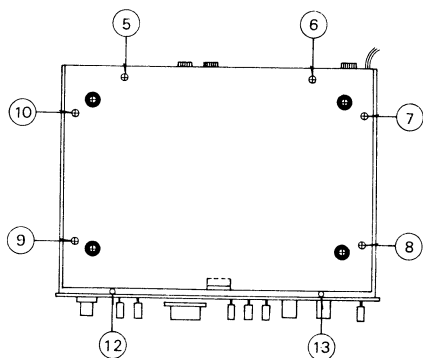


Fig. 2

1. Remove cabinet from chassis.
2. Remove control knobs from set. Refer to "Cabinet & Chassis Parts Location" on page 7.
3. Remove pre-set from set. Refer to "Cabinet & Chassis Parts Location" on page 7.
4. Remove three (3) panel mounting black screws, nos. ⑪ ~ ⑬ as illustrated in figure 1 and figure 2.
5. Remove front panel from chassis.

ALIGNMENT INSTRUCTIONS

Notes:

- Volume control Minimum
- Maintain line voltage at rated voltage.
- Before adjusting, lco adjusting volumes (VR402, Left and Right channel) should be turned to the right side completely.
- The lco adjustment should be started about 5 minutes after setting the power switch to the ON position.

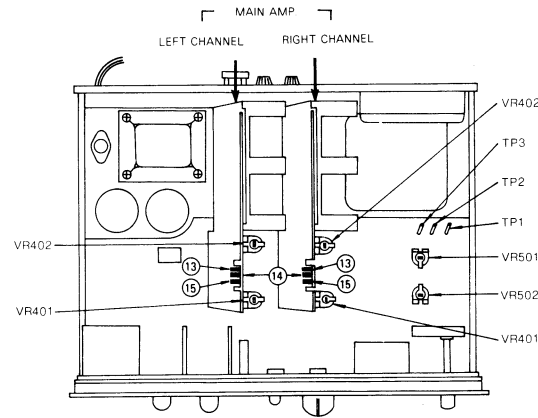
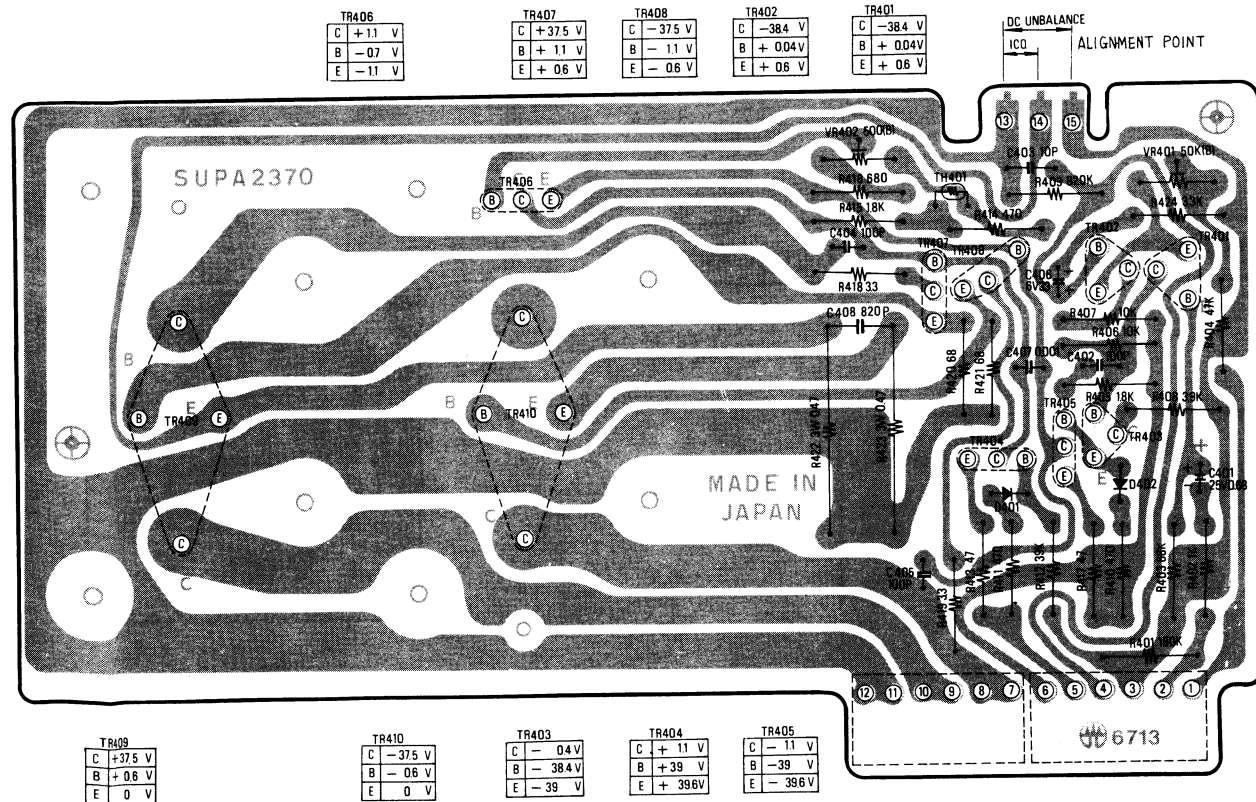


Fig. 3

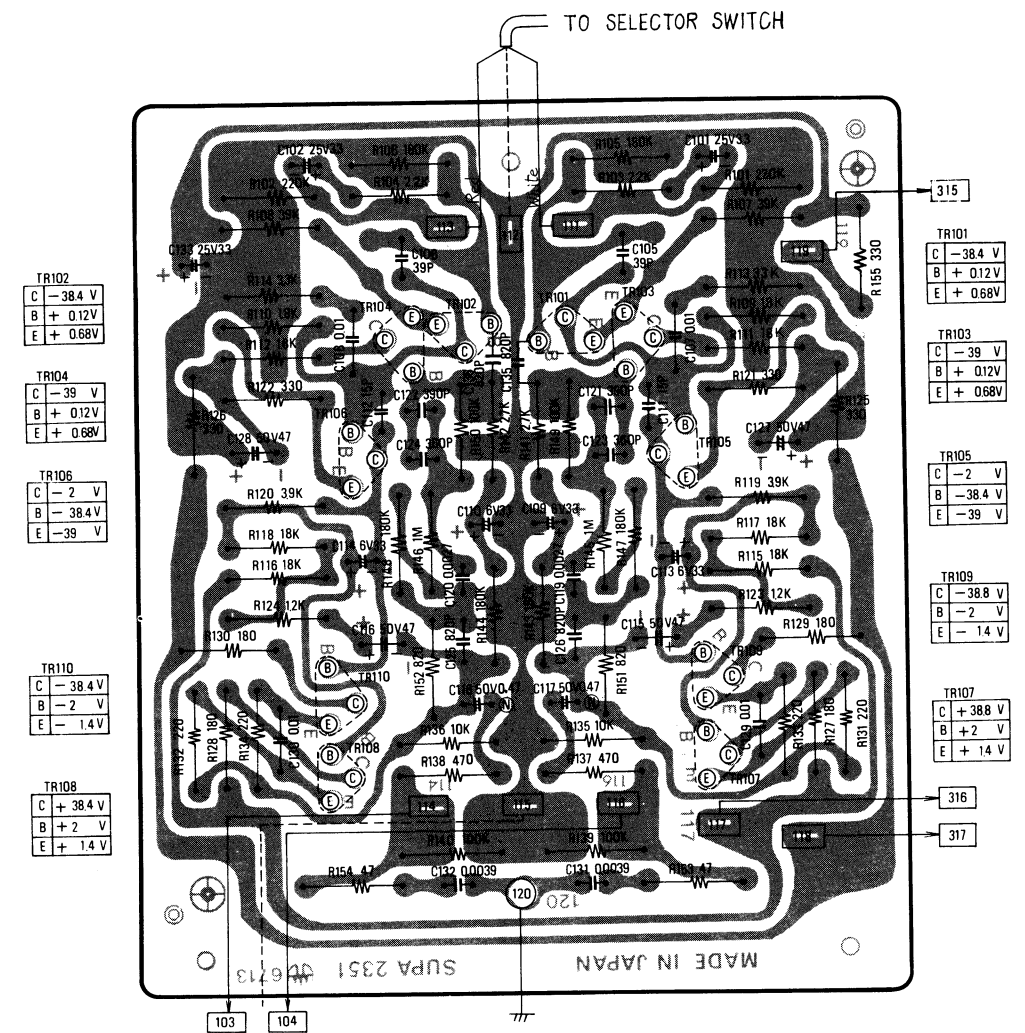
ALIGNMENT	DC VTVM CONNECTION	ADJUSTMENT POINTS	REMARKS
POSITIVE POWER VOLTAGE	Connect DC VTVM to test point TP3. Common to test point TP1.	VR501	Make sure that DC VTVM becomes positive (+) 40V.
NEGATIVE POWER VOLTAGE	Connect DC VTVM to test point TP1. Common to test point TP2.	VR502	Make sure that DC VTVM becomes negative (-) 40V.
DC UNBALANCE	Connect DC VTVM to alignment point ⑬ and ⑮ terminals. Refer to figure 3.	VR401	Make sure that DC VTVM becomes zero (0) V. [Left and Right side]
lco	Connect DC VTVM to alignment point ⑭ (positive side) and ⑬ (negative side) terminals. Refer to figure 3.	VR402	Make adjustment so that the indication on DC VTVM becomes 15mV. [Left and Right side]

MAIN AMPLIFIER Circuit

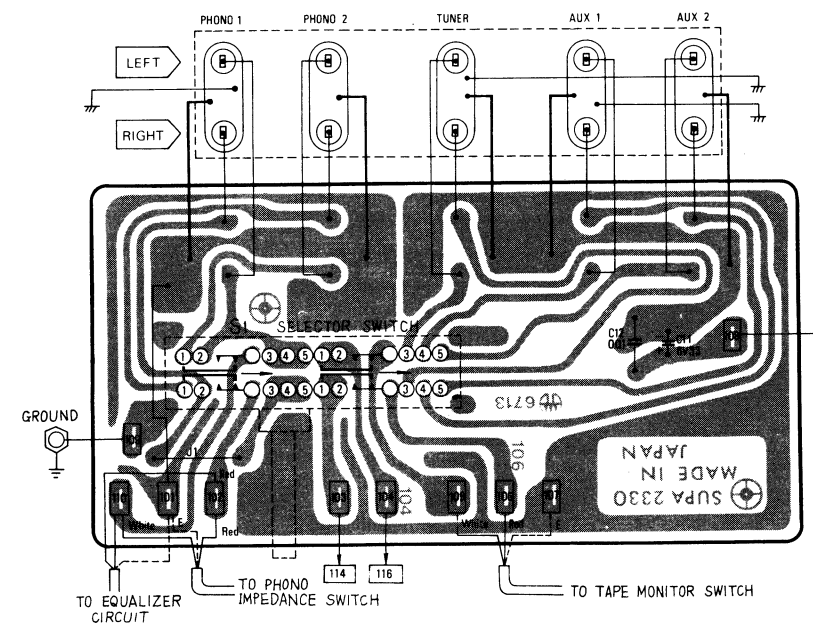
Left channel is same as Right channel



EQUALIZER Circuit Board



SELECTOR SWITCH Circuit Board

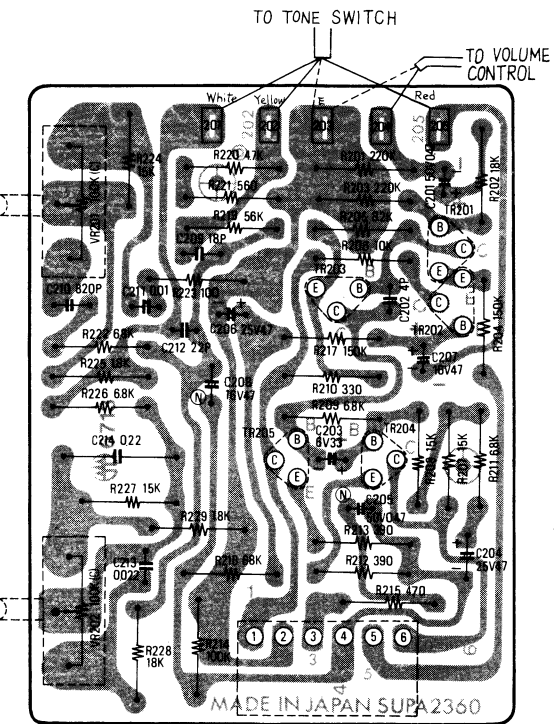
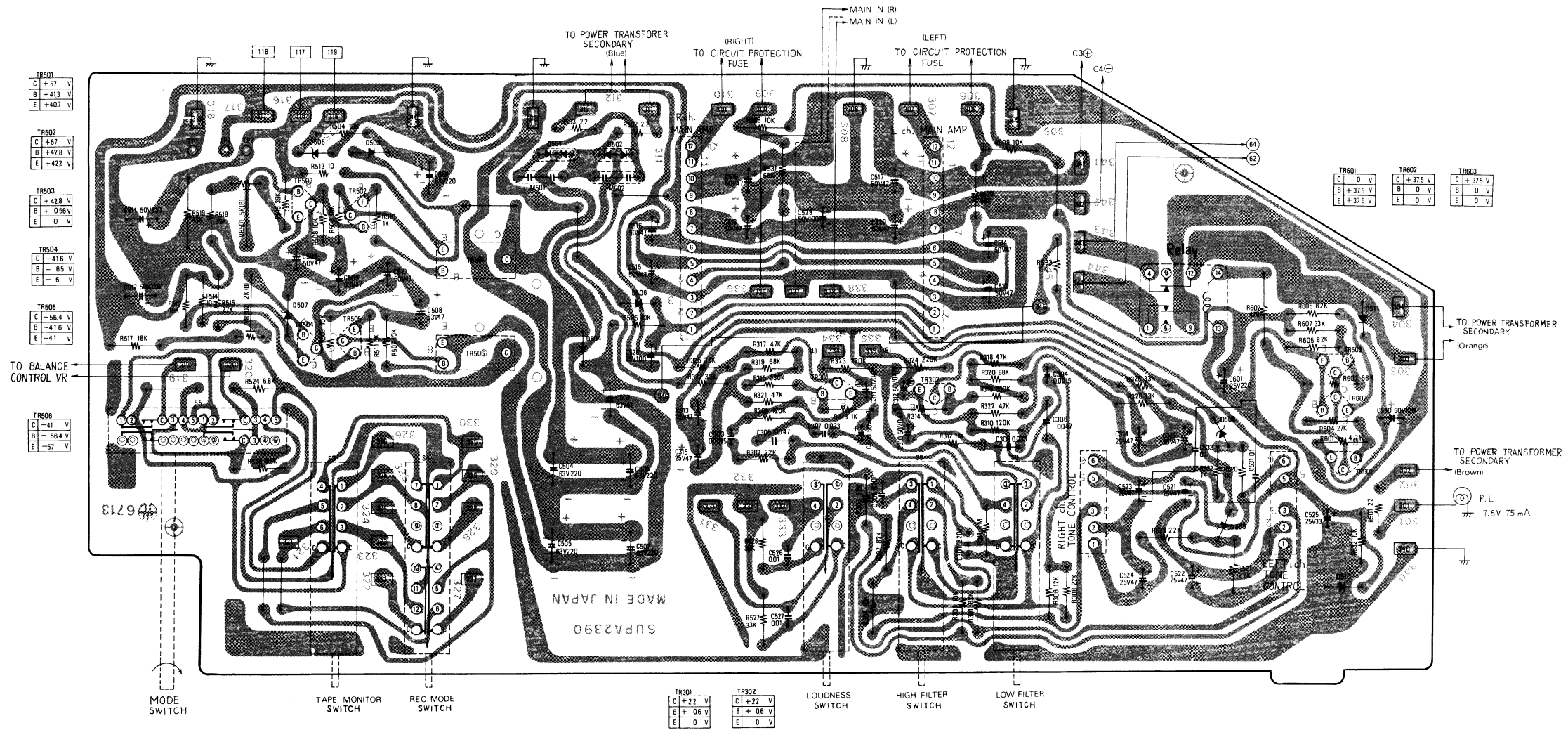


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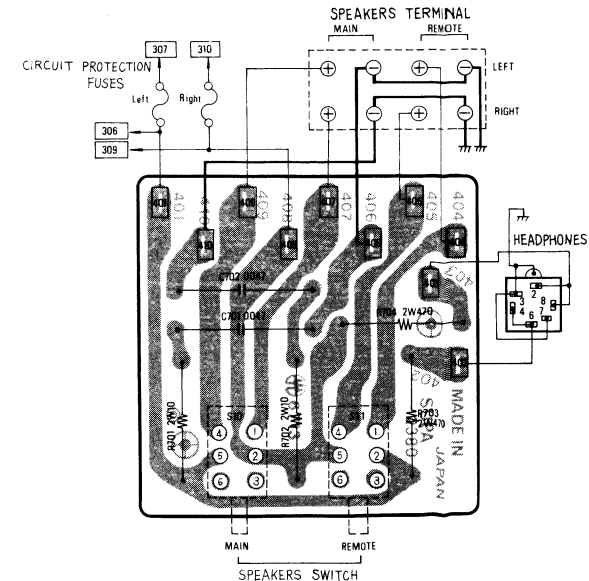
POWER SOURCE, SPEAKER PROTECTION, FILTER AMP, TAPE MONITOR SWITCH & MODE SWITCH Circuit Board

TONE CONTROL Circuit Board

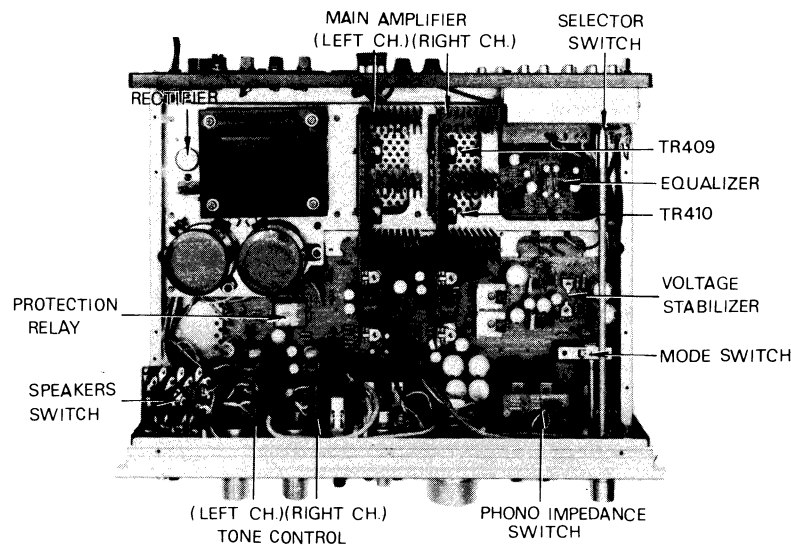
Left channel is same as Right channel



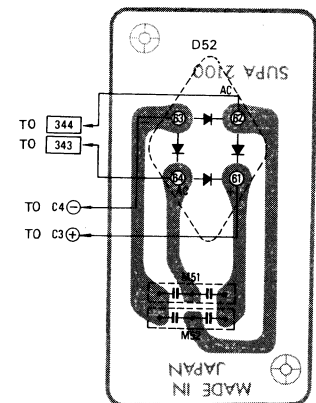
SPEAKERS SWITCH Circuit Board



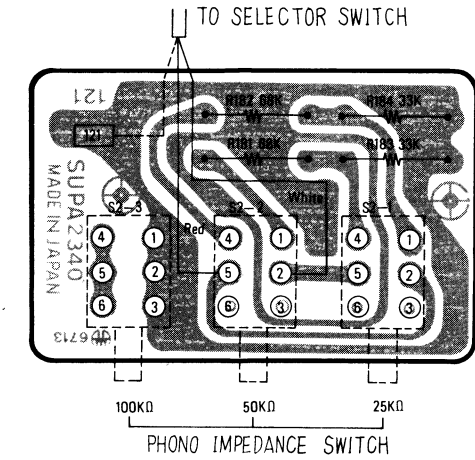
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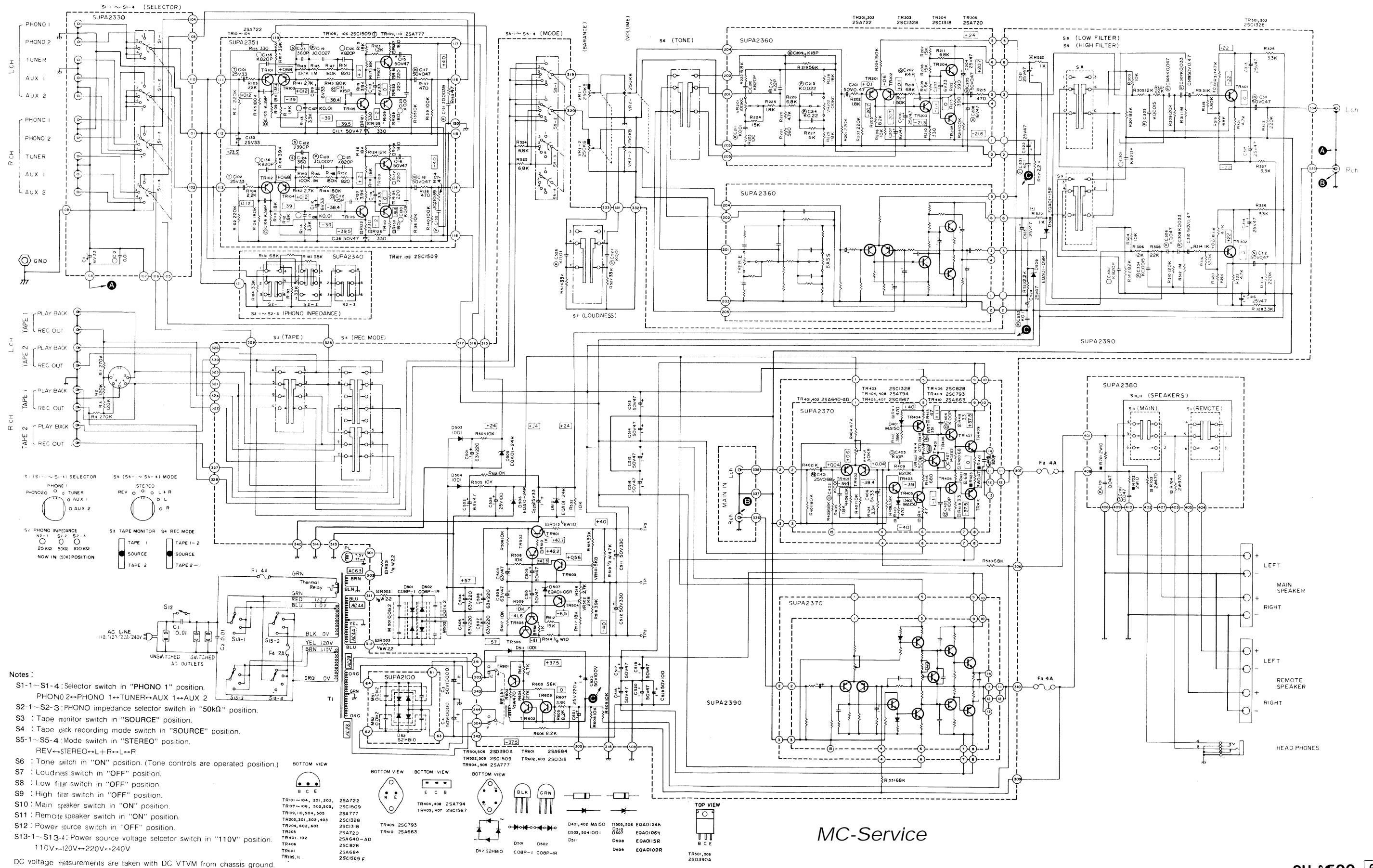
RECTIFIER



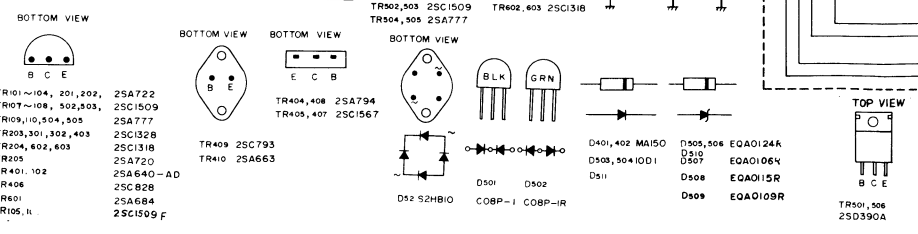
PHONO IMPEDANCE SWITCH Circuit Board



Schematic Diagram Model SU-3500 (This schematic diagram may be modified at any time with the development of new technology.)



- Notes:**
- S1-1~S1-4: Selector switch in "PHONO 1" position.
PHONO 2→PHONO 1→TUNER→AUX 1→AUX 2
 - S2-1~S2-3: PHONO impedance selector switch in "50kΩ" position.
 - S3: Tape monitor switch in "SOURCE" position.
 - S4: Tape deck recording mode switch in "SOURCE" position.
 - S5-1~S5-4: Mode switch in "STEREO" position.
REV→STEREO→L+R→L+R
 - S6: Tone switch in "ON" position. (Tone controls are operated position.)
 - S7: Loudness switch in "OFF" position.
 - S8: Low filter switch in "OFF" position.
 - S9: High filter switch in "OFF" position.
 - S10: Main speaker switch in "ON" position.
 - S11: Remote speaker switch in "ON" position.
 - S12: Power source switch in "OFF" position.
 - S13-1~S13-4: Power source voltage selector switch in "110V" position.
110V→120V→220V→240V
- DC voltage measurements are taken with DC VTVM from chassis ground.



MC-Service

Ref No	Part No	Description	Per Set (Pcs)	Remarks	Ref No	Part No	Description	Per Set (Pcs)	Remarks
VARIABLE RESISTORS									
VR1	EVF54A082252	250k Ω(B). Balance Control	1	○ X	S4	SSLA21S	Recording Mode Switch	1	○ X
VR2	EVG63A041BF5	250k Ω(B). Volume Control	1	○ X	S5	SSRA57	Mode Switch	1	○ X
VR201(×2)	EVC82A082C15	100k Ω(C). Bass & Treble Control	4	○ X	S6	SSLA24S	Tone Switch	1	○ X
VR401(×2)	EVLS0AA00B54	50k Ω(B). DC Unbalance Adjustment	2	X	S7 8 9	SSLA23S	Loudness. Low & High Filter Switch	3	○ X
VR402(×2)	EVLS0AA00B52	500 Ω(B). ICQ Adjustment	2	X	S10 11	SSHA42	Speakers Switch	1	○ X
VR501	EVLS3AA00B53	5k Ω(B). Voltage Stabilizer Adjustment	1	X	S12	SSLA20S	Power Source Switch	1	○ X
VR502	EVLS3AA00B23	2k Ω(B). Voltage Stabilizer Adjustment	1	X	S13	SSRA7S	Voltage Selector Switch	1	X
FUSES and LIGHTS									
F1	XBAS2A4001	Fuse. 4A Power Source	1	○ X	F2 3	XBAS1A4001	Fuse. 4A Circuit Protection	2	X
F4	XBAS2B2002	Fuse. 2A Power Source	1	○ X	PL	XAM37K150	Pilot Lamp (7.5V 75mA)	1	X
CAPACITORS									
C202(×2)	ECCD1H040C	4pF. 50WV. ±0.25pF. Ceramic	2	Z					
C209(×2)	ECCD1H180K	18pF. 50WV. ±10% Ceramic	2	Z					
C212(×2)	ECCD1H220K	22pF. 50WV. ±10% Ceramic	2	Z					
C105106	ECCD1H390K	39pF. 50WV. ±10% Ceramic	2	Z					
C402(×2)	ECCD1H101K	100pF. 50WV. ±10% Ceramic	2	Z					
C403(×2)	ECCD2H100K	10pF. 500WV. ±10% Ceramic	2	Z					
C111 112	ECCD2H150K	15pF. 500WV. ±10% Ceramic	2	○ Z					
C404(×2)	ECCD2H101K	100pF. 500WV. ±10% Ceramic	4	Z					
C405(×2)									
C408(×2)	ECKD1H821KB	820pF. 50WV. ±10% Ceramic	2	Z					
C125.126.135.	ECKD2H821KB	820pF. 500WV. ±10% Ceramic	8	Z					
136.210(×2).									
301.302									
C407(×2)	ECKD1H102PF	0.001 μF. 50WV. ±10% Ceramic	2	Z					
C12.107.108.	ECKE1H103PF	0.01 μF. 50WV. ±10% Ceramic	5	Z					
129.130									
C1.2	ECQU2A103MD	0.01 μF. 250VAC. ±20% Polyester	2	Z					
C303.304	ECQM05152KZ	0.0015 μF. 50WV. ±10% Polyester	2	Z					
C119.120	ECQM05272JZ	0.0027 μF. 50WV. ±5% Polyester	2	Z					
C131.132	ECQM05392JZ	0.0039 μF. 50WV. ±5% Polyester	2	Z					
C211(×2).526.	ECQM05103KZ	0.01 μF. 50WV. ±10% Polyester	4	Z					
527									
C213(×2)	ECQM05223KZ	0.022 μF. 50WV. ±10% Polyester	2	Z					
C307.308	ECQM05333KZ	0.033 μF. 50WV. ±10% Polyester	2	Z					
C305.306	ECQM05473KZ	0.047 μF. 50WV. ±10% Polyester	2	Z					
C531.532	ECQM05104KZ	0.1 μF. 50WV. ±10% Polyester	2	Z					
C214(×2)	ECQM05224KZ	0.22 μF. 50WV. ±10% Polyester	2	Z					
C701.702	ECQM1473M	0.047 μF. 125WV. ±20% Polyester	2	Z					
C123.124	ECOS1361JZ	360pF. 125WV. ±5% Styrol	2	Z					
C121.122	ECOS1391JZ	390pF. 125WV. ±5% Styrol	2	Z					
C11.109.110.	ECEA6V33	33 μF. 6.3WV. Electrolytic	9	Y					
113.114.									
203(×2).									
406(×2)									
C207(×2)	ECEA16V47	47 μF. 16WV. Electrolytic	2	Y					
C208(×2)	ECEA16N47	47 μF. 16WV. Non Polar Electrolytic	2	○ Y					
C401(×2)	ECAG25ER68X	0.68 μF. 25WV. Electrolytic	2	Y					
C101.102	ECSZ25EF3R3	3.3 μF. 25WV. Electrolytic	2	Y					
C206(×2)	ECEA25V4R7	4.7 μF. 25WV. Electrolytic	2	Y					
C133.525	ECEA25V33	33 μF. 25WV. Electrolytic	2	Y					
C204(×2).313.	ECEA25V47	47 μF. 25WV. Electrolytic	10	Y					
314.315.316.									
521.522.523.									
524									
C528	ECEA25V100	100 μF. 25WV. Electrolytic	1	Y					
C601	ECEA25V220V	220 μF. 25WV. Electrolytic	1	○ Y					
C205(×2).117.	ECEA50NR47X	0.47 μF. 50WV. Non Polar Electrolytic	6	Y					
118.311.312									
C201(×2).	ECEA50VR47G	0.47 μF. 50WV. Electrolytic	4	Y					
309.310									
C115.116.127.	ECEA50V47	47 μF. 50WV. Electrolytic	14	Y					
128.509.510.									
513.514.515.									
516.517.518.									
519.520									
C529	ECEA50V100	100 μF. 50WV. Electrolytic	1	Y					
C530	ECEA50V100V	100 μF. 50WV. Electrolytic	1	○ Y					
C511.512	ECEA50V330	330 μF. 50WV. Electrolytic	2	Y					
C3.4	ECEM50R103E	10000 μF. 50WV. Electrolytic	2	○ Y					
C502.503.508	ECEA63V47L	47 μF. 63WV. Electrolytic	3	○ Y					
C501.504.505.	ECEA63V220L	220 μF. 63WV. Electrolytic	5	○ Y					
506.507									
COMPONENT COMBINATIONS									
M51.52.501.	RXAF103P22HD	Hum Canceler. 0.01 μF. 500WV	4	Y					
502									
SPEAKERS PROTECTION RELAY									
	SSYA1	Relay. Power Source Circuit	1	X					
SWITCHES									
S1	SSRA58	Selector Switch	1	○ X					
S2	SSHA43S	Phono Impedance Selector Switch	1	○ X					
S3	SSLA22S	Tape Monitor Switch	1	○ X					
CABINET PARTS									
CA1	SBLA3	Knob. Lever Switches	7	○ X					
CA2	SBNA95.2E	Knob. Bass & Treble Controls	4	○ X					
CA3	SBNA116	Knob. Balance Control	1	○ X					
CA4	SBNA114E	Knob. Volume Control	1	○ X					
CA5	XUC8FZ	E-ring. Pre-Set	1	Y					
CA6	SBNA115E	Knob. Pre-Set	1	○ X					
CA7	SBSA8	Knob. Selector & Mode Switch	2	○ X					
CA8	SGXA6004	Bracket. Speaker Switch Button	2	Z					
CA9	SGLA9	Panel Light	1	○ Z					
CA10	SHRA601	Bracket. Pilot Lamp	1	Z					
CA11	XSS3+6KS	Screw. Front Panel M'tg	1	Z					
CA12	XTV3D8CK	Screw. Front Panel M'tg	2	Z					
	SYWA160A	Front Panel. Complete	1	○ Y					
CA13	SGWA1210	Panel. Not Available Order	(1)						
CA14	SGXA57	Bracket. SYWA 160A	(3)						
CA15	SBCA50	Button. Speaker Switches	2	○ Y					
CA16	SBCA51	Button. Phono Impedance Switches	3	○ Y					
CA17	XSB3+8KS	Screw. Cabinet M'tg	2	Z					
CA18	XWG3K	Washer. Cabinet M'tg Screw	2	Z					
CA19	XSB4+10KS	Screw. Cabinet M'tg	4	Z					
CA20	XWA4BK	Spring Washer. Cabinet M'tg Screw	4	Z					
CA21	XWG4K	Washer. Cabinet M'tg Screw	4	Z					
CA22	SKAA691	Cabinet	1	○ Y					
	SYUA81A	Bottom Board. Complete	1	○ Y					
CA23	SKUA351	Bottom Board Only	1	○ Z					
CA24	SHGA929	Leg	4	Z					
CA25	XWG3F10	Washer. Leg M'tg Screw	4	Z					
CA26	XTN3D12B	Screw. Leg M'tg	4	Z					
CA27	XTB4+8BR	Red Screw. Bottom Board M'tg	6	Z					
CA28	SJFA3015	Terminal. Phono. Tuner & Aux. Input	1	○ Y					
	SYPA252AS	Rear Panel. Complete	1	○ Y					
CA29	SNEA404	Nut. Ground Terminal	1	Z					
	SNEA204.2S	Volt. Ground Terminal	1	Z					
CA30	SGPA363A	Rear Panel Only	1	○ Z					
CA31	SJFA3409	Terminal. Pre & Main Amp Connector	1	Y					
CA32	SJFA4807	Terminal. Speakers	1	○ Y					
CA33	SJFA3407	Terminal. Tape Monitor 1 & 2	2	Y					
CA34	RHS31-1	DIN Socket. Tape Monitor	1	Y					
CA35	SJFA107	Holder. Circuit Protection Fuses	2	Y					
CA36	SJSA66	Sodket. AC Outlet	3	○ Y					
CA37	SJFA1	Holder. Power Source Fuses	1	○ Y					
CA38	SJAA3	AC Cord/with AC Plug	1	Y					
CA39	RHR111	Bushing. AC Cord	1	Z					
CA40	SJPA9201	Short Pin. Pre & Main Amplifier	2	X					
CA41	SJP9103	Short Pin Plug. Phono 2 Terminal	2	Y					
CHASSIS PARTS									
CH1	SNWA951	Slider. Pre-Set	1	Z					
CH2	SUWA167.1	Mounting. Pre-Set	1	Z					
CH3	SJJ1A14	Jack. Headphones	1	Y					
CH4	SMZA6091	Bracket. Pilot Lamp	1	Z					
CH5	SUSA33	Coil Type Spring. Pre-Set	1	Z					
CH6	SUHA8	Nut. Volume & Pre-Set	1	Z					
CH7	XWV8	Washer. Nut	1	Z					
CH8	SHGA943	Rubber Bracket. Pre-Set Mounting	2	Z					
CH9	SUSA34.1	Spring. Pre-Set Mounting	1	Z					
CH10	SUBA18	Coupling Rod. Selector Switch	1	○ Z					
CH11	XUC5FW	E-ring. Coupling Rod	2	Y					
CH12	SJSA65	Socket. Main & Tone Amp Circuit	6	Y					
CH13	XXAR3H6S	Screw. Coupler M'tg	3	Z					
CH14	SUBA21S	Coupler. Selector switch & Coupling Rod	1	○ Z					
CH15	SMWA21S	Cover. Input Terminal	1	○ Z					
ACCESSORIES									
A1	XBAS1A4001	4A Fuse. Circuit Protection	2	Y					
A2	RJP5	Pin Plug	4	Y					
A3	RJP16AS	AC Plug	1	Y					
A4	RJP 7AS	AC Plug	1	Y					

Ref. No.	Part No.	Description	Per Set (Pcs)	Remarks	Ref. No.	Part No.	Description	Per Set (Pcs)	Remarks
PACKING PARTS					P5	SPNA230A	Carton Box, Inner	1	○ Z
P1	SPPA16-1	Soft Cover	1	Z	P6	SPSA30	Pad, Between Inner & Outer Carton Box	1	Z
P2	SPP163	Polyethylene Bag	1	Z	P7	SPGA440A	Carton Box, Outer	1	○ Z
P3	SPSA73	Pad, Left Side	1	○ Z	P8	SQFA191	Printed Matter, Complete	1	○ Y
P4	SPSA70	Pad, Right Side	1	○ Z		SQXA5114	Instructions Book (Order SQFA191)	(1)	

■ PACKINGS

