SHARP OPTONICA

SERVICE MANUAL

SM-5100H
SM-5100HB

STEREO AMPLIFIER

MODEL SM-5100H
(Silver Panel)

SM-5100HB
(Brown Panel)

PHOTO : SM-5100H

The SM-5100H and SM-5100HB are quite the same except for the Panel and knobs different in color between them.
So, this Service Manual is prepared refering to the SM-5100H alone: the difference of the SM-5100HB against it can be made out with a reference to "DIFFERENTIAL PARTS LIST" at the end of PARTS LIST.

In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified be used.

SPECIFICATIONS

GENERAL DESCRIPTION

Power source:	A.C. 110/220/240V, 50/60Hz
Power consumption:	380W
Semiconductors:	3-ICS (Integrated circuit) 14-Transistors 2-FETS 12-Diodes 11-LEDS (light emitting diode)
Dimensions:	Width: 430mm (16-15/16 inch) Height: 75mm (2-31/32 inch) Depth: 382mm (15-1/16 inch)
Weight:	8 kg (17.7 lbs.)

POWER-AMPLIFIER

Circuit type:	All stage direct coupled, differential amplifier, complimentary final-stage, OCL (Output Capacitor-Less)
Continuous power output (at 1kHz):	2 x 45W/4 ohms, Both channels driven, 0.05% distortion 2 x 36W/8 ohms, Both channels driven, 0.01% distortion
Continuous power output (20Hz to 20kHz):	2 x 43W/4 ohms, Both channels driven, 0.05% distortion 2 x 33W/8 ohms, Both channels driven, 0.01% distortion
Intermodulation:	0.09% at rated power 0.02% at 40W output
Damping factor:	More than 50 (at 1kHz, 8 ohms)
Power bandwidth:	10Hz to 40kHz, at 0.05% distortion
Frequency response:	10Hz to 100kHz +1dB −3dB
Input sensitivity and input impedance:	650mV/33k ohms

PRE-AMPLIFIER

Circuit type:	
Equalizer;	Three-stages direct coupled amplifier, ICL (input capacitorless), dual power supply
Tone control;	"NF" type, differential amplifier, dual power supply
Input sensitivity and input impedance:	
PHONO;	2.8mV/47k ohms
AUX;	150mV/47k ohms
TUNER;	150mV/47k ohms
TAPE PB 1 and 2;	150mV/47k ohms
TAPE PB (DIN socket);	150mV/47k ohms
Allowable maximum input for equalizer:	220mV (RMS, 1kHz)
RIAA curve deviation:	±0.4dB (20Hz to 20kHz)
Frequency response:	10Hz to 65kHz +1dB −3dB (TUNER, AUX, TAPE PB)
Tone control:	Bass; ±10dB at 100Hz Treble; ±10dB at 10kHz
Low filter:	−3dB at 30Hz, 6dB/octave
High filter:	−3dB at 7kHz, 6dB/octave
Loudness contour:	+7dB at 100Hz +3dB at 10kHz
Audio muting:	−20dB
Signal to noise ratio:	(Using IHF "A" network) PHONO; 75dB AUX or TUNER; 90dB
Output level and loaded impedance:	
REC 1 and 2:	150mV
REC (DIN socket):	30mV/82k ohms

Specifications of this model are subject to change without prior notice.

LAYOUT OF PARTS

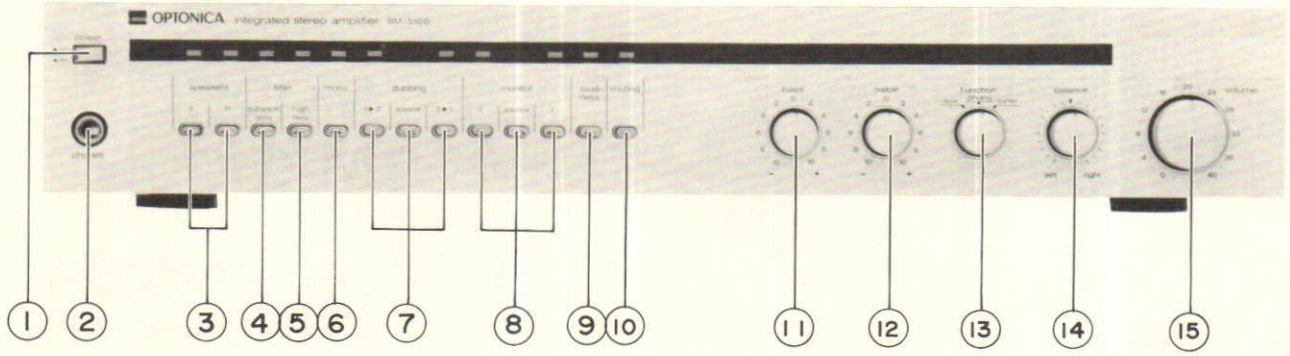


PHOTO : SM-5100H

Figure 2–1 FRONT PARTS

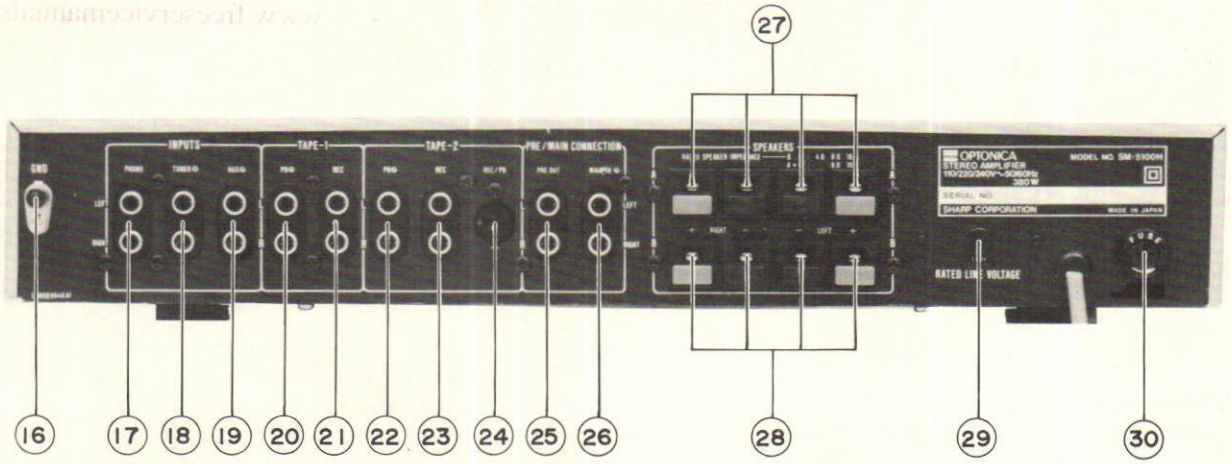


PHOTO : SM-5100H

Figure 2–2 REAR PARTS

① Power on/off
② Headphones jack
③ Speakers selector
④ Subsonic filter
⑤ High filter
⑥ Mono switch
⑦ Tape dubbing selector
⑧ Tape monitor selector
⑨ Loudness contour
⑩ Audio muting
⑪ Bass control
⑫ Treble control
⑬ Function selector
⑭ Balance control
⑮ Volume control
⑯ Earth terminal
⑰ Phono input jacks
⑱ Tuner input jacks
⑲ Auxiliary input jacks
⑳ Tape 1 input jacks
㉑ Tape 1 output jacks
㉒ Tape 2 input jacks
㉓ Tape 2 output jacks
㉔ Tape 2 record/playback socket
㉕ Outputs jack of pre-amplifier
㉖ Inputs jack for power-amplifier
㉗ Speaker A terminals
㉘ Speaker B terminals
㉙ Mains voltage selector
㉚ Fuse holder

DISASSEMBLY

Prior to removing the cabinet, be sure to draw the mains supply plug from an wall outlet and disconnect all of connection cords at the rear of the set.

A CABINET REMOVAL

1. Remove the four screws retaining the cabinet at the right and left surfaces. (Refer to Figure 3–1)
2. Shift the cabinet backward about 5 mm.
3. Giving a force to the bottom of cabinet, hold it up and remove. (Refer to Figure 3–1)

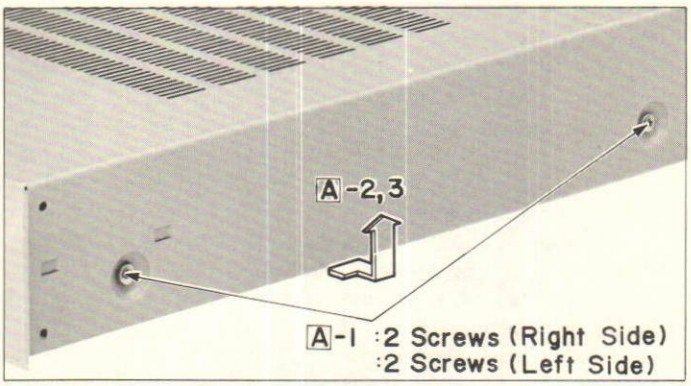


Figure 3–1

B BOTTOM LID REMOVAL

1. Turn the set over and remove the nine screws retaining the bottom lid, then the bottom lid can be detached by holding it up. (Refer to Figure 3–2)

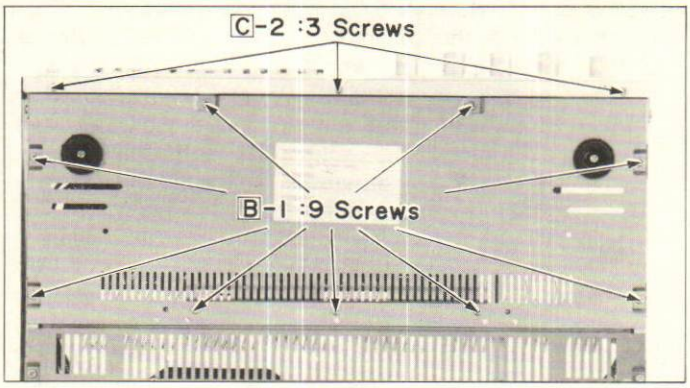


Figure 3–2

C FRONT PANEL REMOVAL

1. Pull out the five knobs (Bass control/Treble control/Function selector/Balance control/Volume control) from the front panel. (Refer to Figure 3–3)
2. Remove the five screws and the push rivet retaining the front panel, then the front panel can be detached by pulling it toward you. (Refer to Figures 3–2 and 3–3)

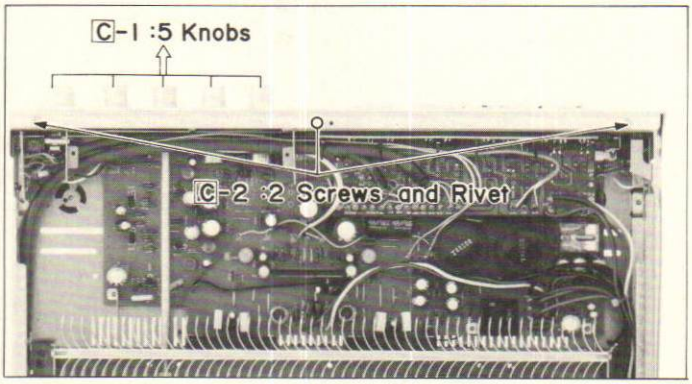


Figure 3–3

AC MAINS VOLTAGE SELECTION

Check the preset AC mains voltage before plugging the mains supply lead to a mains outlet. If the setting is defferent from that of your local mains supply voltage, the voltage selector must be re-set as follows. Rotate the voltage selector by using a screwdriver so that your local voltage number can be seen in the window.

When the AC mains voltage is to be set at 110V use a fuse of T4A. In other voltages 220V or 240V use a fuse of T2A.

1. Disconnect the AC cord plug from the wall outlet in order to prevent an electric shock.
2. Remove the fuse holder by turning it counterclockwise.
3. Replace the fuse with another one.
4. Replace the fuse holder to its original position.

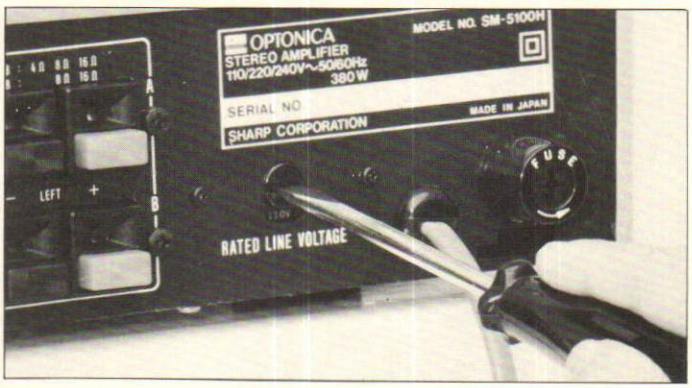


Figure 3–4

■ **EQUALIZER CIRCUIT** (Refer to Figures 4–1 and 4–2)
The equalizer circuit is energized by two power supply sources (+21 V and –27 V). This circuit is of 3-stage directly coupled negative feedback type which assures lower distortion factor.
At the 1st stage is employed junction type low-noise FET (Field Effect Transistor Q101 or Q102) which makes it unnecessary to use the input coupling capacitor (liable to adversely affect the tone quality). This results in that signal from the phono input terminal (SO903) is able to be directly supplied to the gate (G) of FET (Q101 or Q102). Being applied to the gate (G) of FET, the signal is supplied, through the drain (D), directly to the base of the 2nd stage transistor (Q103 or Q104) without a coupling capacitor. This FET (Q101 or Q102) and the transistor (Q103 or Q104) serve to amplify the voltage.
Coming out of the collector of the transistor (Q103 or Q104), the voltage thus amplified is applied to the base of the 3rd-stage transistor (Q105 or Q106). This 3rd-stage transistor is of emitter follower circuit which provides higher input impedance while lower output impedance so that the characteristic will be outstanding in linearity and stability. To the emitter of the 3rd-stage transistor (Q105 or Q106) are connected as a load the negative feedback elements: resistors (R131, R133 or R132, R134) and capacitors (C113, C115 or C114, C116). These negative feedback elements are for the purpose to provide RIAA characteristic according to the recording characteristic of a disk record to be played – although the impedance is lowered in the high-frequency range, a better dynamic range is assured by the employment of the emitter follower circuit.

Input vs Distortion factor characteristic of equalizer amplifer

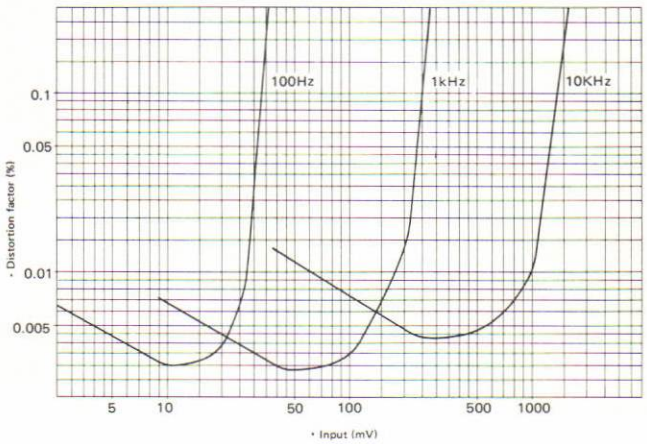


Figure 4–1

EQUALIZER CIRCUIT

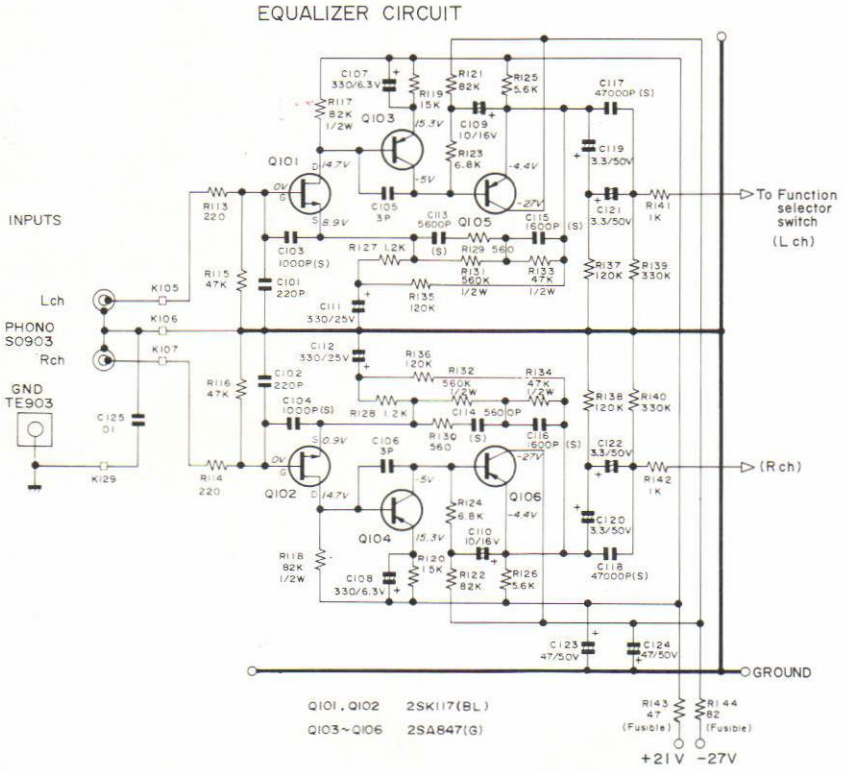


Figure 4–2

■ TONE CIRCUIT (Refer to Figure 5–1)

The tone control circuit is energized by two power supply sources (±25 V) and it is of 1-stage differential/2-stage directly coupled negative feedback type; the differential amplifier transistor (Q201 or Q202) is a PNP dual type which is able to operate well enough against possible temperature drift and voltage fluctuation.

Output from the differential amplifier is applied to the base of 2nd stage transistor (Q203 or Q204). And to the base of the differential transistor (Q201 or Q202) is supplied, through the collector of 2nd stage transistor (Q203 or Q204), the signal coming from the negative feedback circuit which consists of the bass control (VR203A or VR203B) and treble control (VR204A or V204B): by means of this signal, when the bass or treble control is rotated, the resistance and time constant are changed so that the frequency characteristic will be able to be varied.

■ RELAY CIRCUIT (Refer to Figure 5–2)

1. **Where the power switch is set at "on" position:**
   Then, a current is caused across the diode (D501) and resistors (R501 and R508) to charge up the electrolytic capacitor (C506): with this charging, voltage at the base of relay switching transistor (Q503) is increased so that this transistor will be turned on. As a result, a current runs in the relay (RLY501) for it to become turned on and with this, the power amplifier's output is connected to the speaker terminal (TE901 or TE902). It takes about 4 seconds from the time the power switch is turned on until such a connection will be set up between the amplifier output and speaker terminal: the time constant is assured by the resistor (R508) and electrolytic capacitor (C506).
2. **Where the power switch is set at "off" position:**
   Then, negative voltage that has been applied to the relay circuit through the diode (D502) and resistor (R502) is cancelled and instead positive voltage [charged at the electrolytic capacitor (C501)] is supplied thereto through the registor (R503); with this, voltage at the base of transistor (Q502) is increased so that this transistor will be turned on. This results in that the electrolytic capacitor (C506) discharges across the resistor (R510) so that the base voltage of transistor (Q503) is decreased for it to become turned off. Consequently, the relay (RLY501) will be given no current for it get turned off and hence the power amplifier's output be disconnected from the speaker terminal (TE901 or TE902).
   It is instantly when the power switch is turned off that there is disconnection between the power amplifier's output and speaker terminal.
3. **Where DC voltage is created accidentally for some reason at the power amplifier's output:**
   The transistors (Q501 and Q502) are intended to detect positive or negative voltage that is now generated at the power amplifier's output. As for the positive voltage, it is applied to the base of transistor (Q502) via the resistor (R505) for its voltage to be become increased, that is, this transistor is turned on. As for the negative voltage, since the emitter voltage of transistor (Q501) becomes lower than its base voltage, this transistor is switched on, resulting in the same as stated in the foregoing paragraph: the relay (RLY501) will be given no current to make the power amplifier's output be disconnected from the speaker terminal (TE901 or TE902).

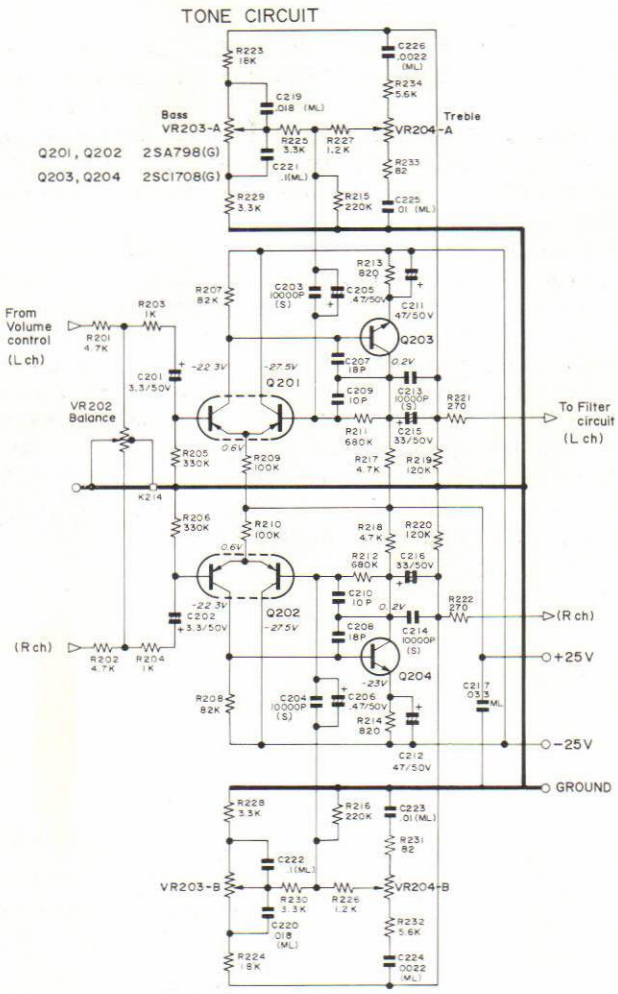


Figure 5–1

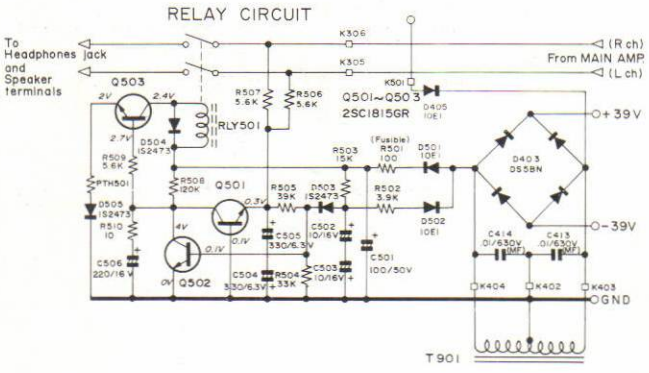


Figure 5–2

■ **MAIN AMPLIFIER CIRCUIT** (Refer to Figures 6–1 and 6–2)

Consisting of voltage amplifier IC (IC303) and power amplifier IC (IC301 or IC302), the main amplifier circuit is a differential 1-stage, constant-current driving/directly coupled pure complementary circuit which is very outstanding in speaker control characteristic (even at the extremely low-frequency range), low distortion factor and frequency characteristic.

Coming out of the filter circuit, the signal is passed on through the coupling capacitor (C303 or C304) to the input pin (1) or (15) of the voltage amplifier IC (IC303) undergoing the amplification, then it will go out of the output pins (5) and (6), (or (10) and (11)). And the new signal is now applied to input pins (1) and (10) of the power amplifier IC (IC301 or IC302), then the amplified signal will go out of the output pins (3) and (8); and it be delivered to the speaker terminal (TE901 or TE902) via the resistors (R313, R315 or R314, R316) and speaker selector switch (SW208 or SW209).

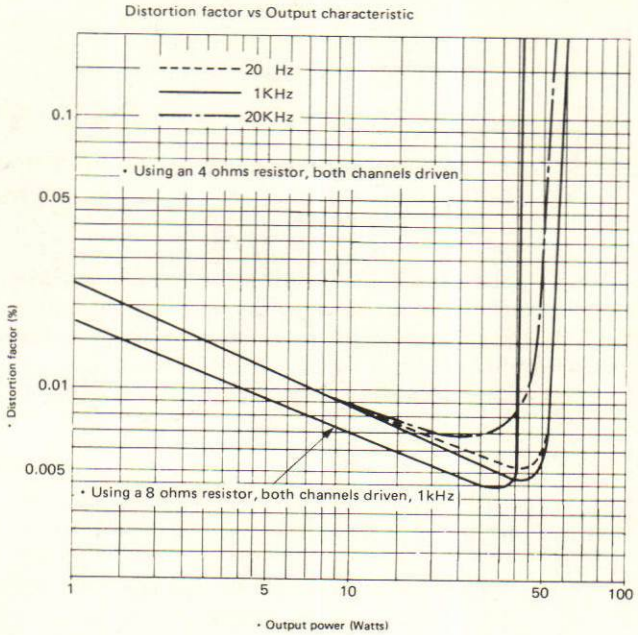


Figure 6–1

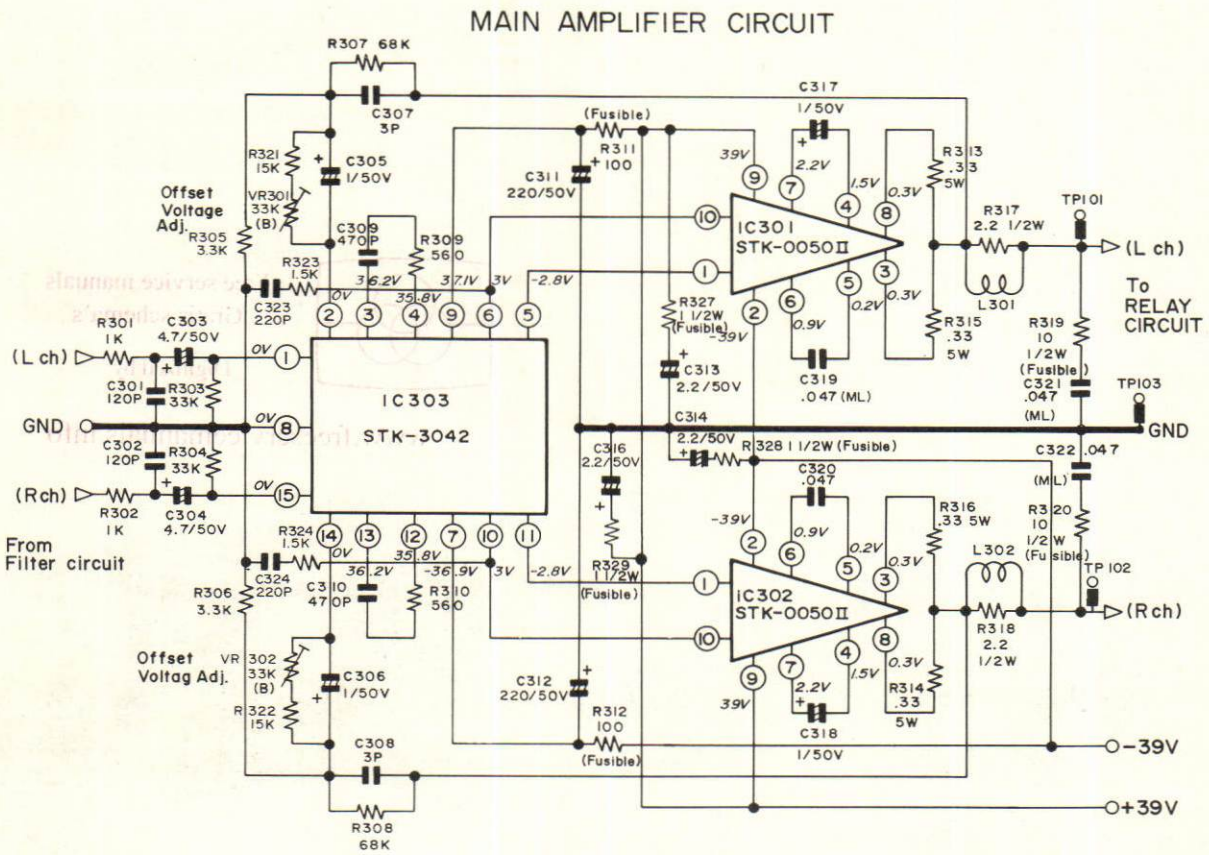


Figure 6–2

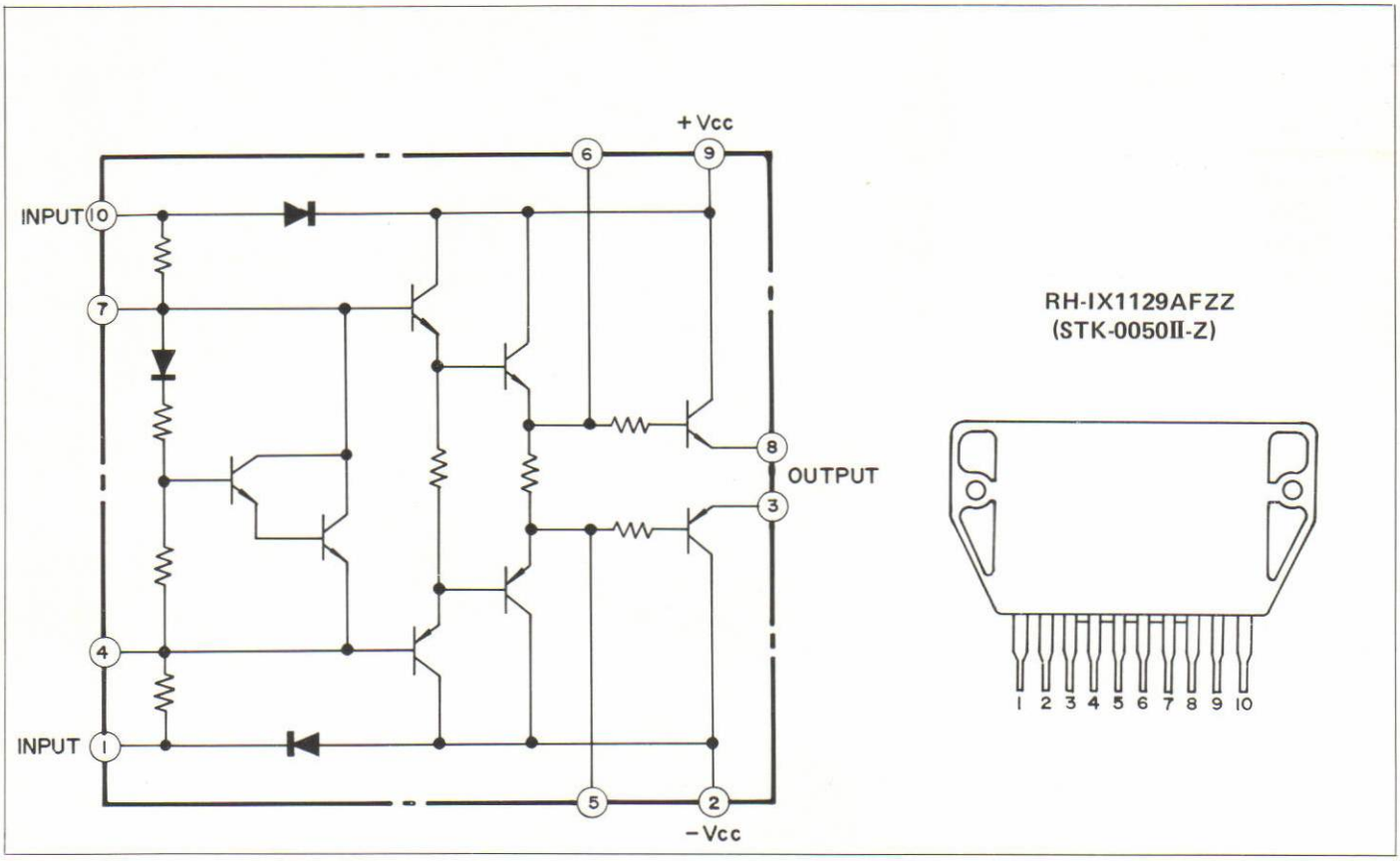


Figure 7–1 EQUIVALENT OF POWER AMPLIFIER IC (IC301, IC302)

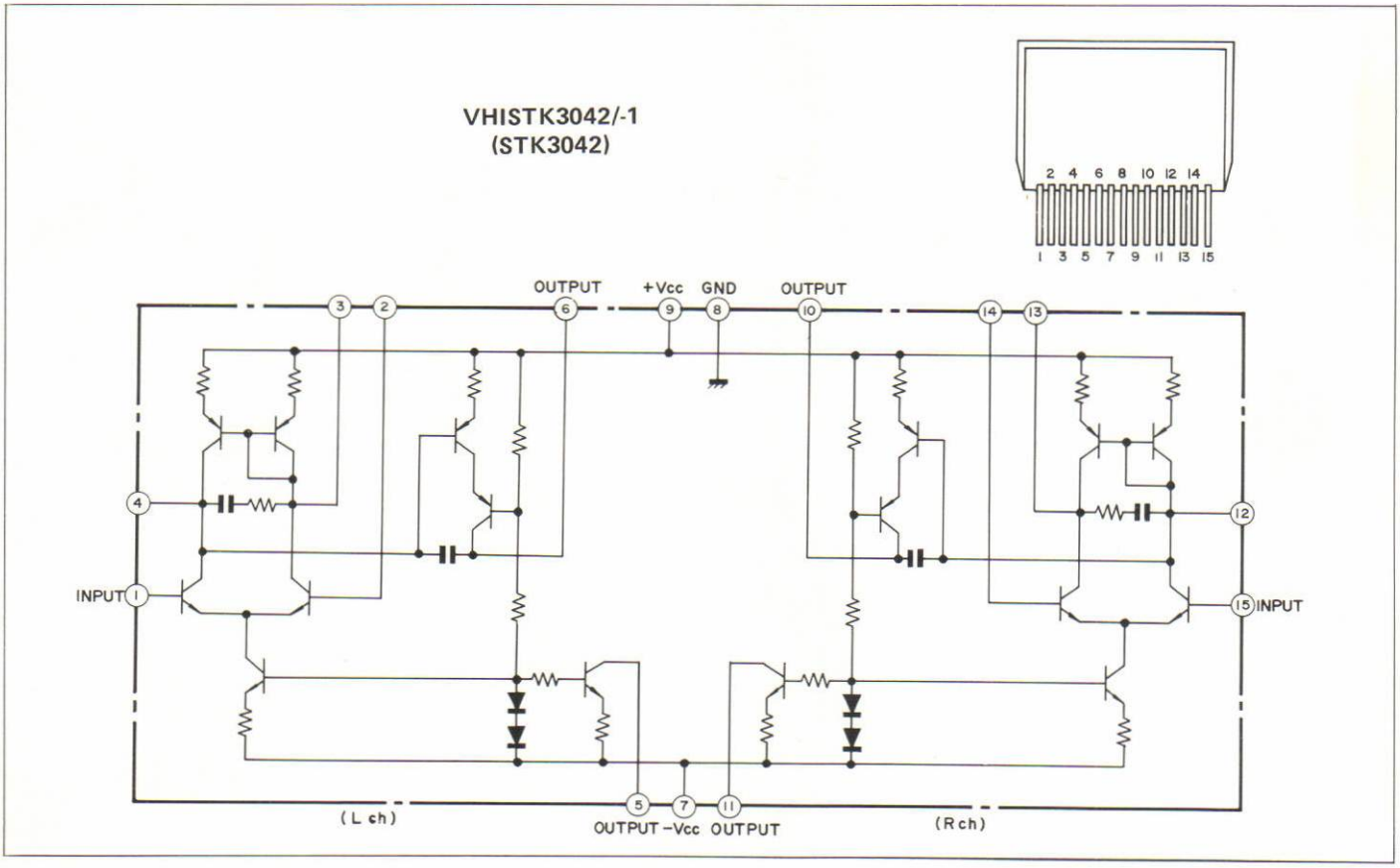


Figure 7–2 EQUIVALENT OF VOLTAGE AMPLIFIER IC (IC303)

AF ALIGNMENT

1. Set the power switch (SW901) to "on" position.
2. Set the volume control (VR201A, B) to minimum "0" position.
3. Check that the potential between the position Ⓐ and Ⓔ is +37V.
   - Position Ⓑ and Ⓔ is −37V.
   - Position Ⓒ and Ⓔ is +20V.
   - Position Ⓓ and Ⓔ is −27V.
4. Connect the DC VTVM to the test point TP101 (TP102) and TP103.
5. Adjust the semi-variable resistor VR301 (VR302) so that the DC VTVM read 0 V.

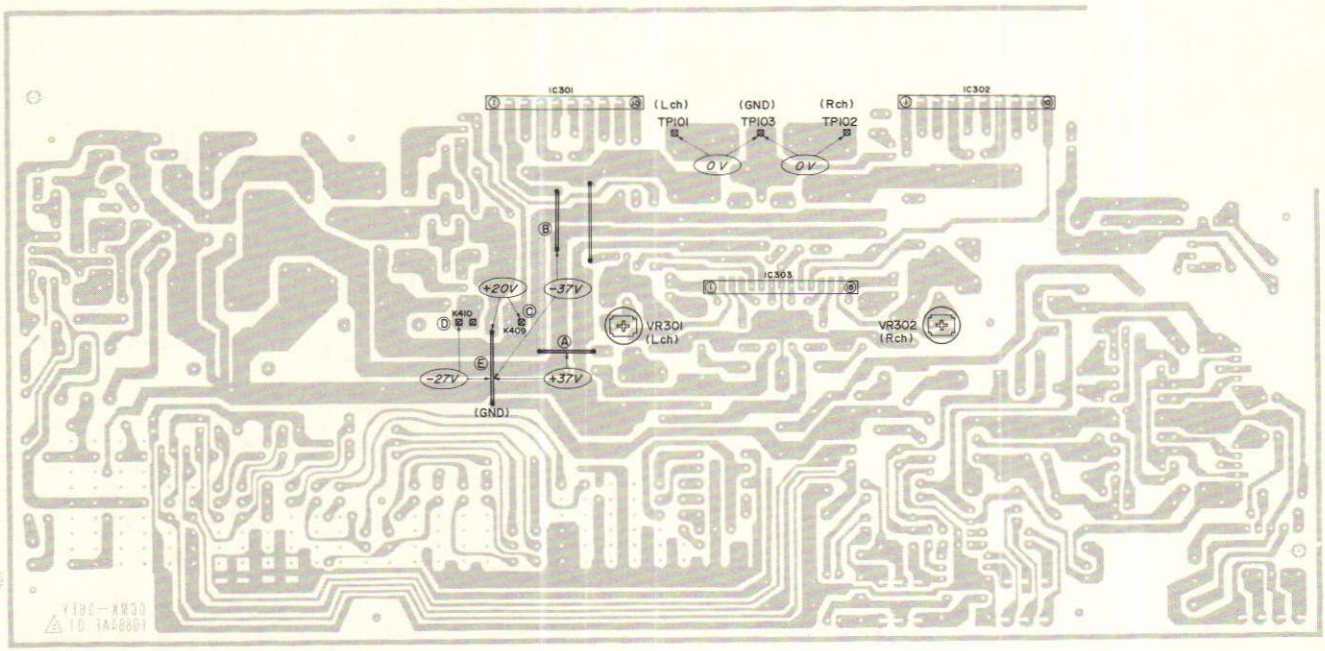


Figure 8–1

NOTE:
When replacing the power IC (IC301 or IC302), be sure to apply silicone grease on the surface of IC which is in contact with the heat sink, evenly and as sparingly as possible.

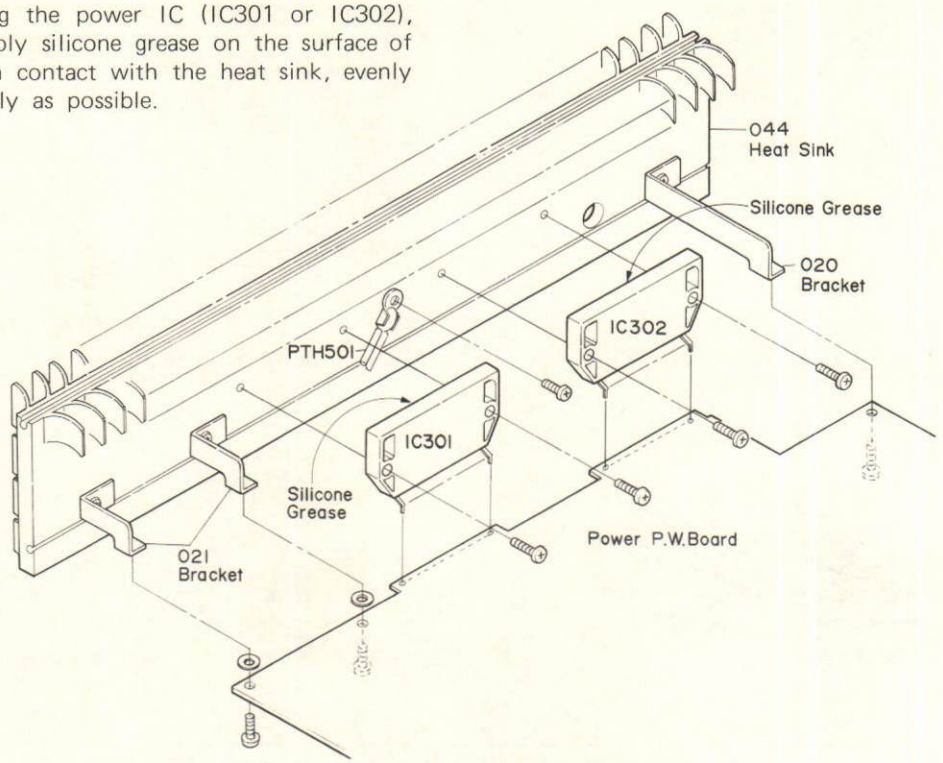


Figure 9–1 REPLACEMENT OF THE POWER IC

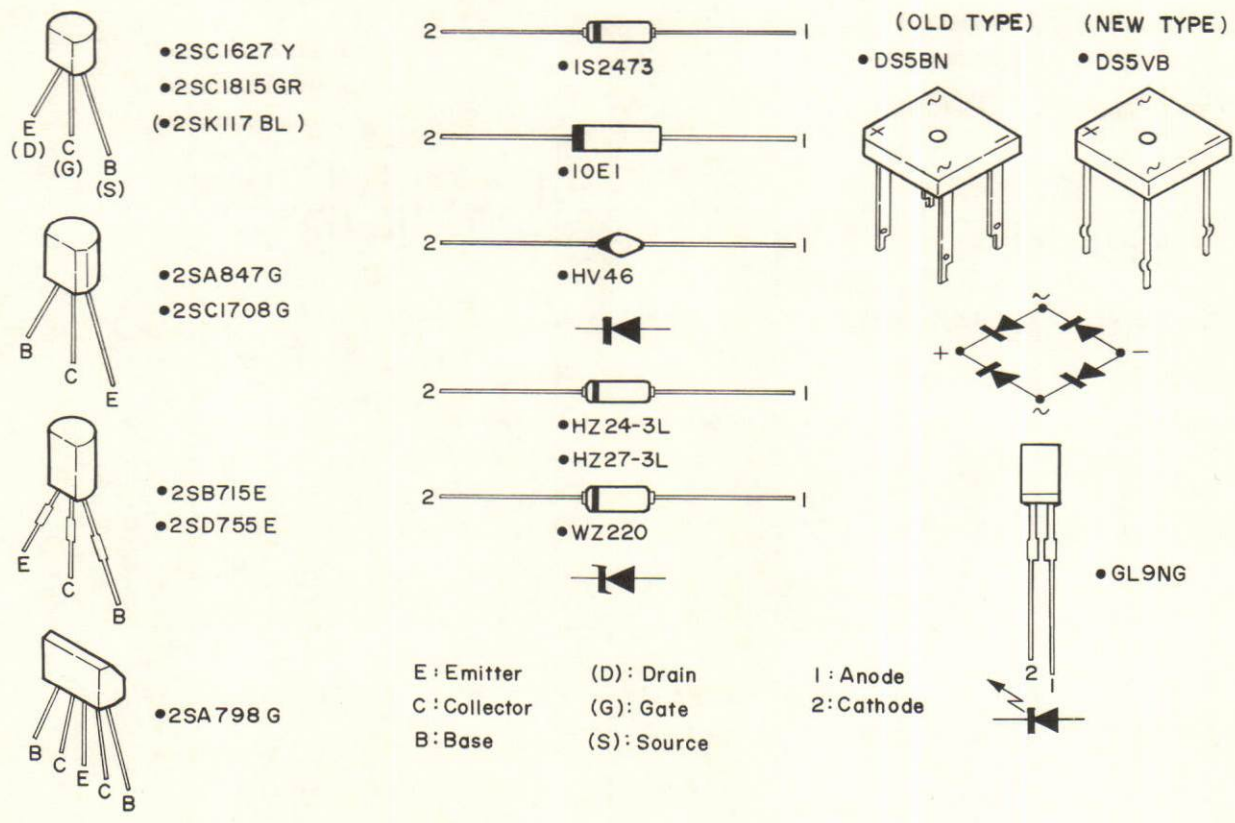


Figure 9–2 TYPES OF TRANSISTOR, DIODE AND LED

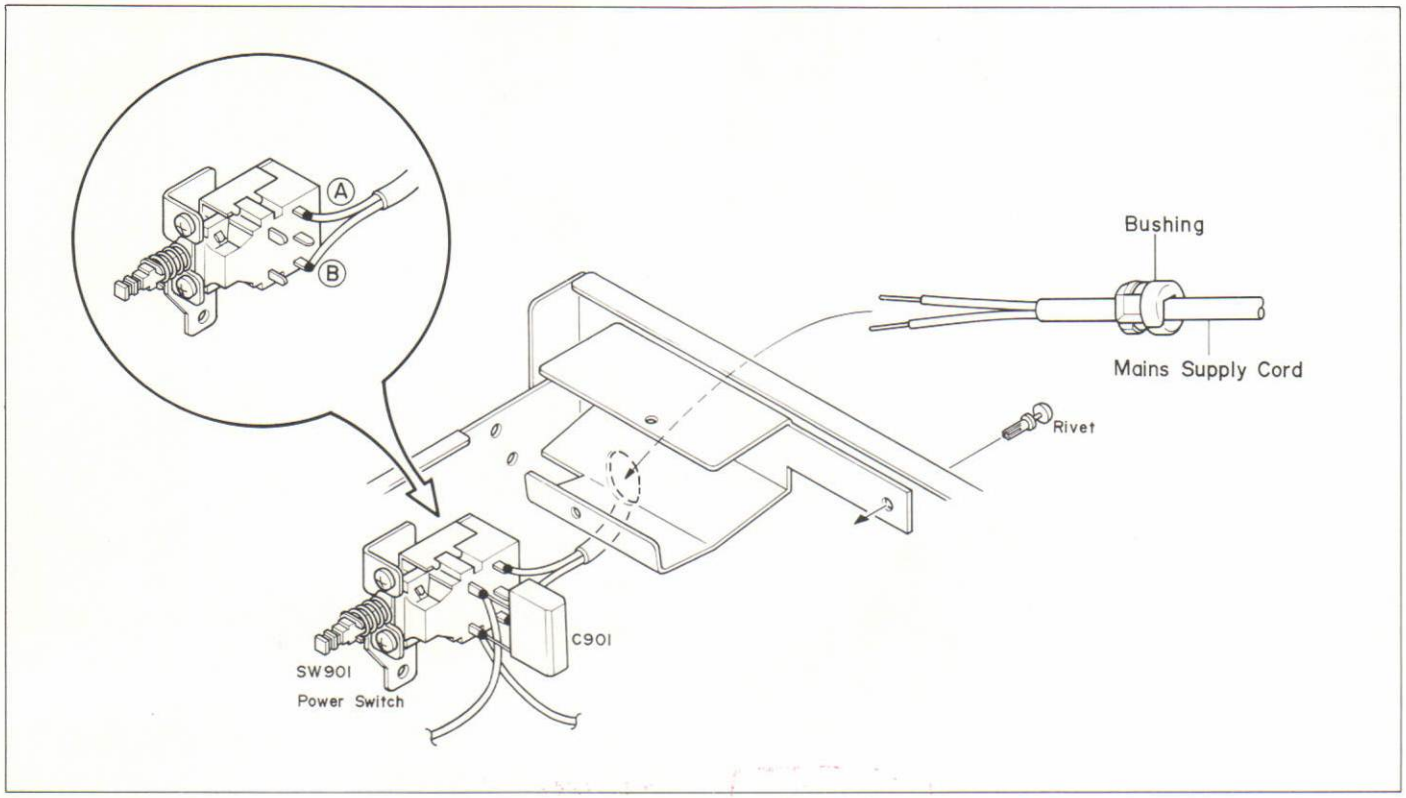


Figure 10–1 MAINS SUPPLY CORD WIRING CONNECTION

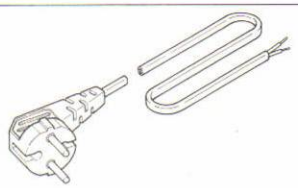
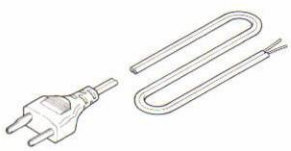
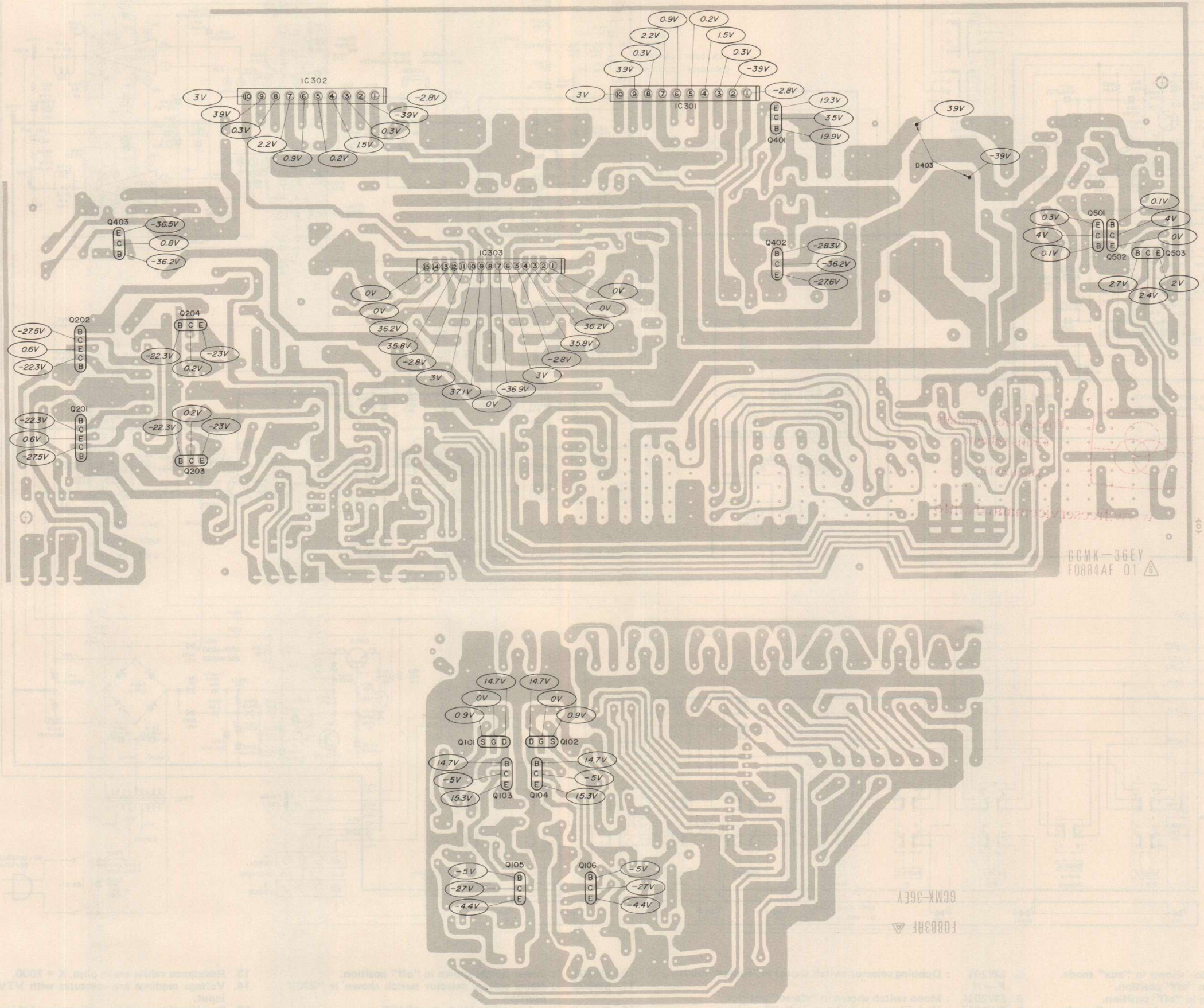
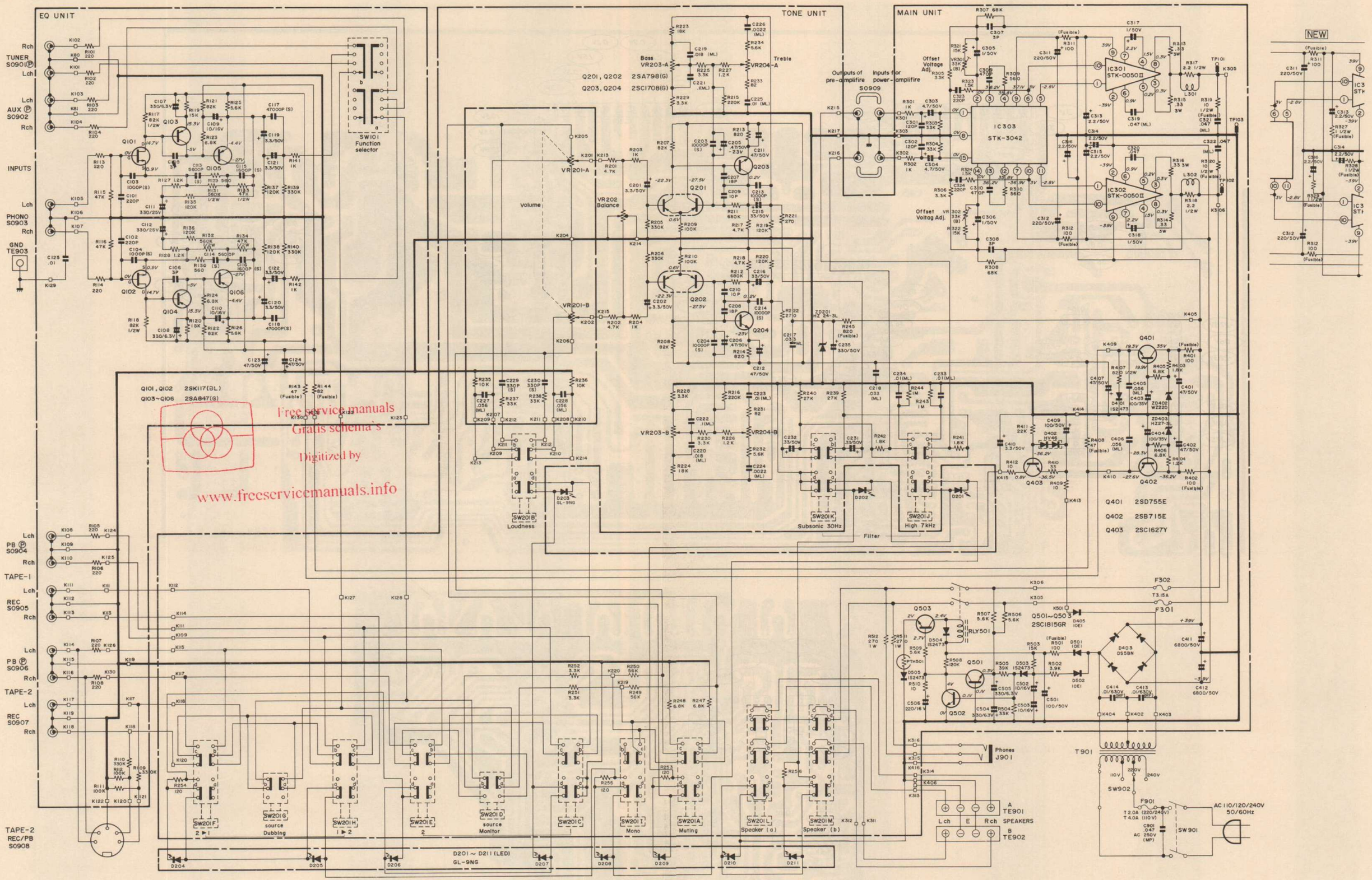
Mains supply cord	Bushing	Connection		Plug
		Ⓐ	Ⓑ	
QACCS0051AF00	LBSHC0004AGZZ	Blue	Brown	
QACCZ0002TA0F	LBSHC0007AFZZ	Brown	Brown	
QACCZ0052AF00	LBSHC0004AGZZ	Blue	Brown	
QACCZ0053AF00	LBSHC0007AFZZ	Black	Black	

TABLE 1 MAINS SUPPLY CORD WIRING CONNECTION



NOTE:
Voltage readings are measures with VTVM under no signal input.

Figure 11–1 VOLTAGE ON P.W.BOARD



NOTES;

1. **SW101 : Function selector switch shown in "aux" mode.**
2. **SW201A : Muting switch shown in "off" position.**
3. **SW201B : Loudness switch shown in "off" position.**
4. **SW201 C – E : Monitor selector switch shown in "source" mode.**
5. **SW201 F – H : Dubbing selector switch shown in "source" mode.**
6. **SW201I : Mono switch shown in "stereo" position.**
7. **SW201J : High filter switch shown in "off" position.**
8. **SW201K : Subsonic filter switch shown in "off" position.**
9. **SW201 L, M : Speakers selector switch shown in "off" position.**
10. **SW901 : Power swithc shown in "off" position.**
11. **SW902 : Mains voltage selector switch shown in "220V" position.**
12. **Capacitance values are in MFD, P = MMFD.**
    *** (MF) : Metallized Film, (ML) : Mylar, (MP) : Metallized Paper, (S) : Polystyrene Film**
13. **Resistance values are in ohm, K = 1000.**
14. **Voltage readings are measures with VTVM under no signal input.**
15. **Specifications or wiring diagrams of this model are subject to change for the improvement without prior notice.**

Figure 13–1 SCHEMATIC DIAGRAM

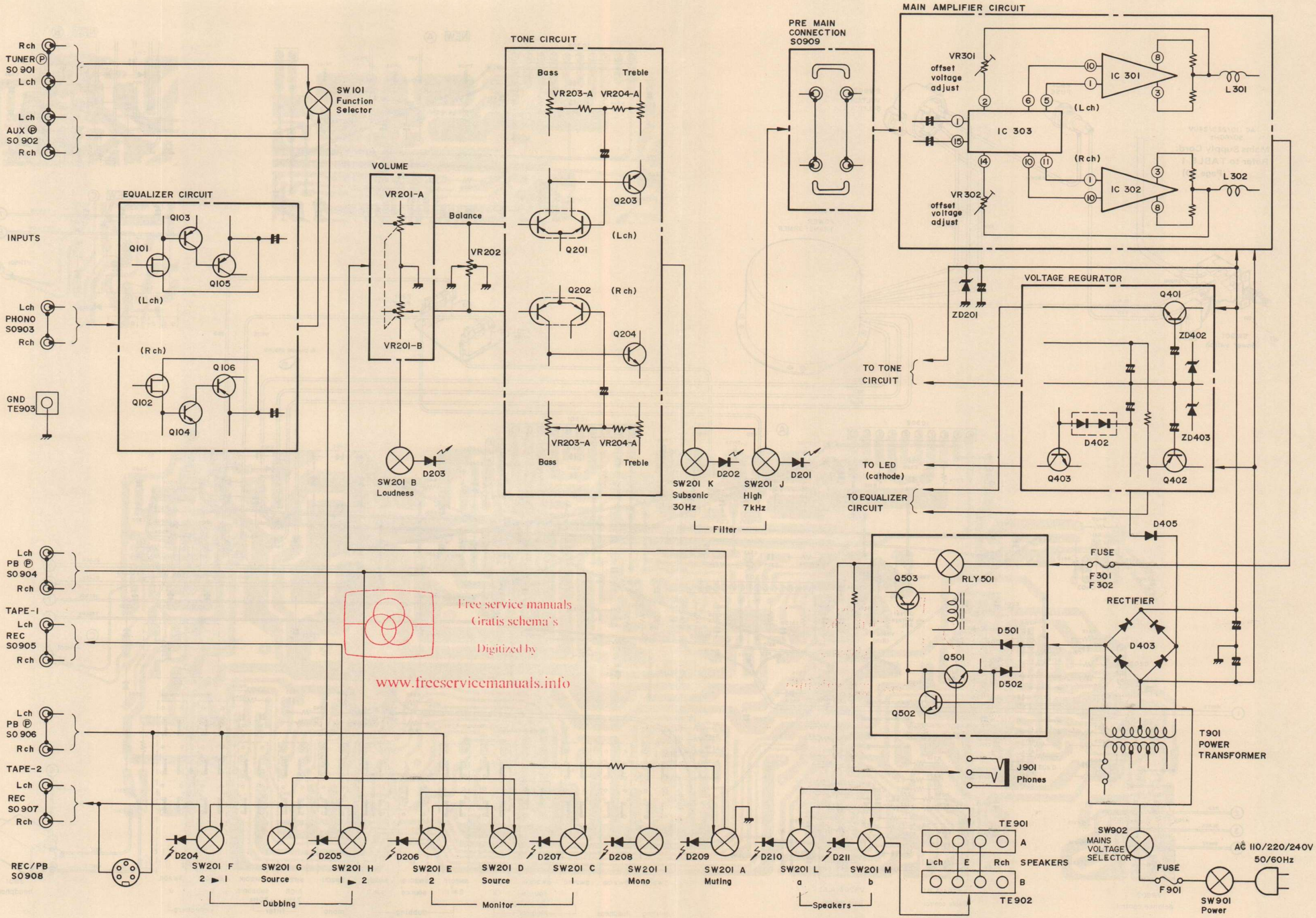


Figure 15–1 BLOCK DIAGRAM

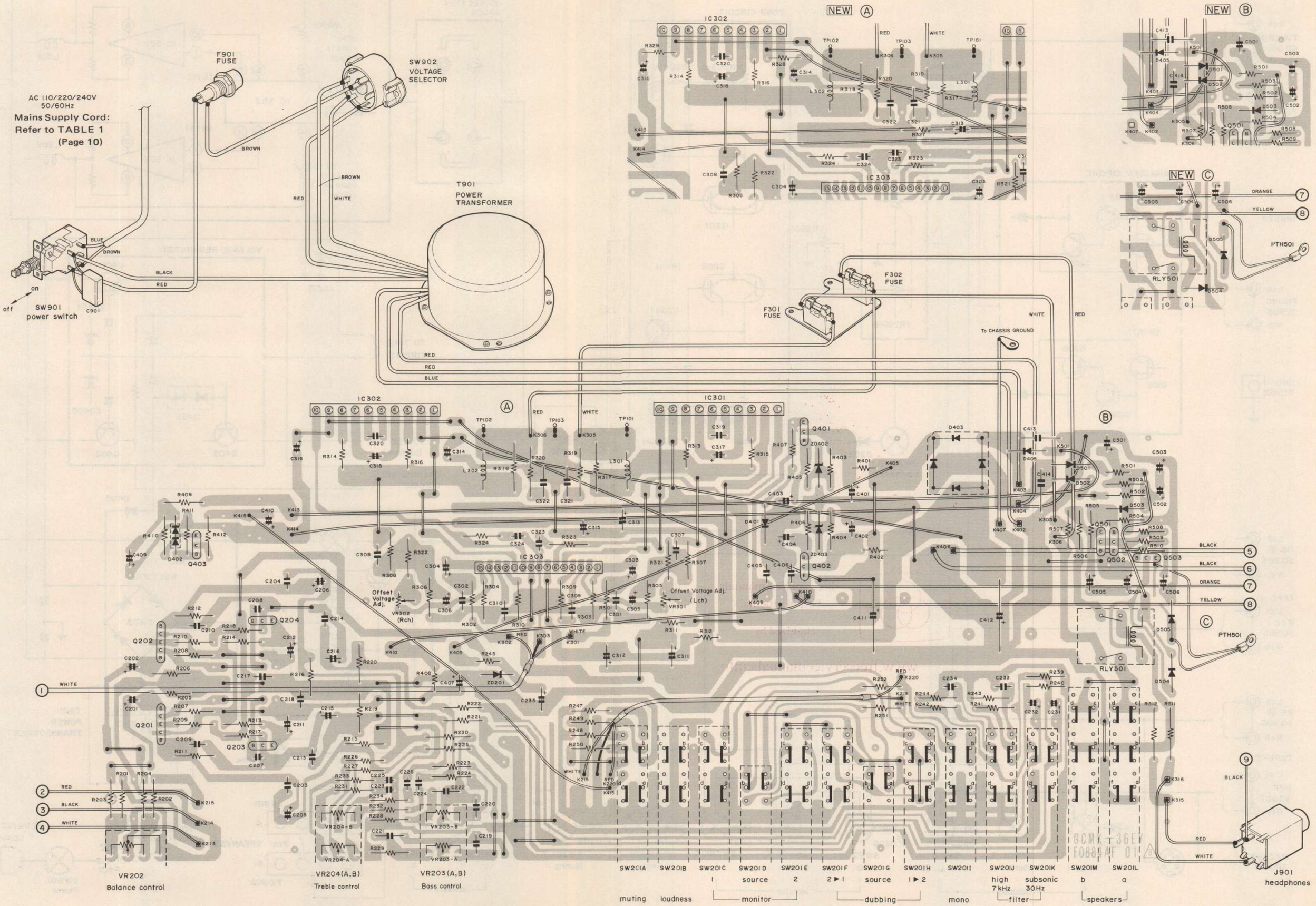


Figure 17–1 WIRING SIDE OF P.W.BOARD (POWER)

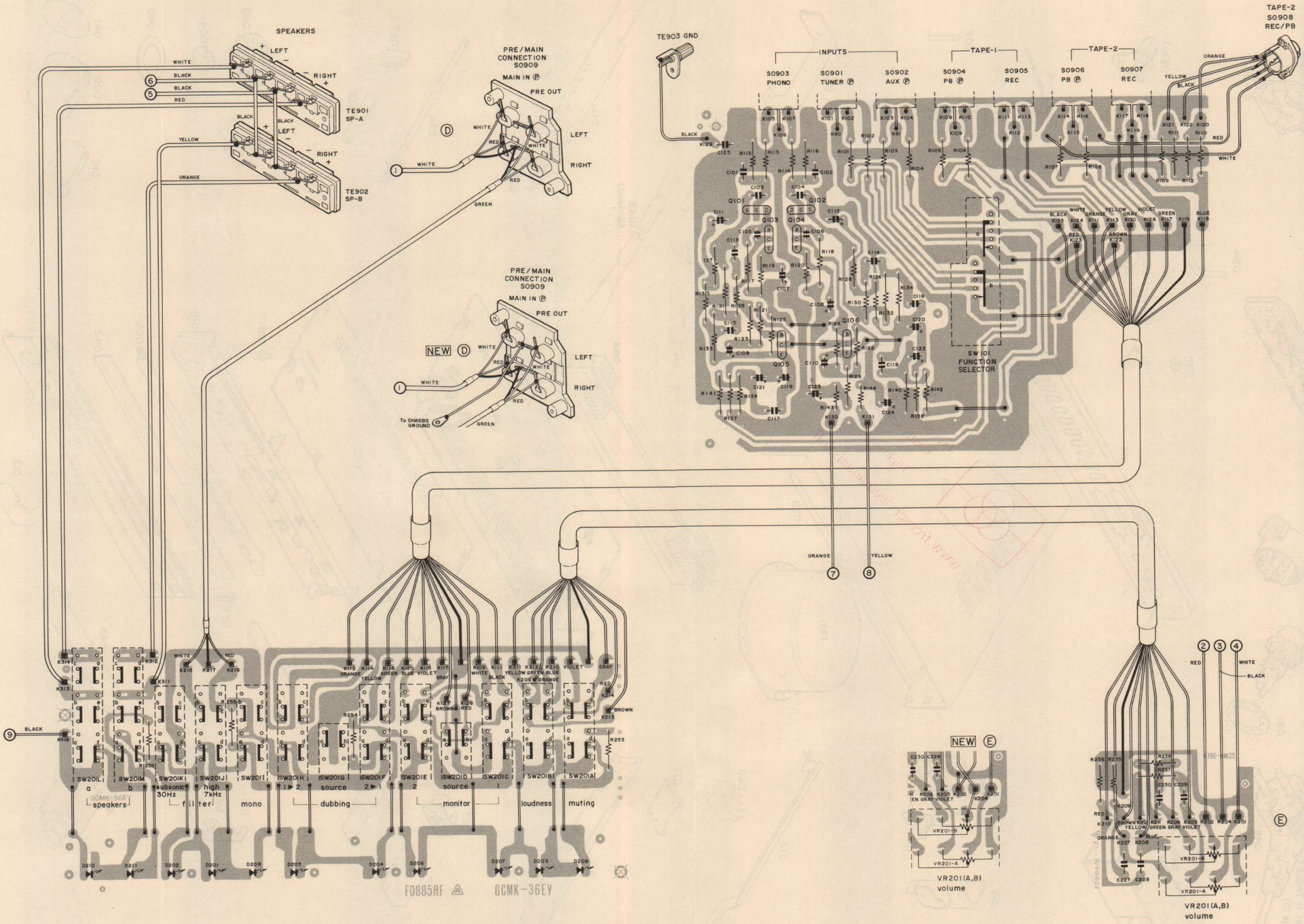


Figure 19–1 WIRING SIDE OF P.W.BOARD (LED/EQUALIZER/VOLUME)

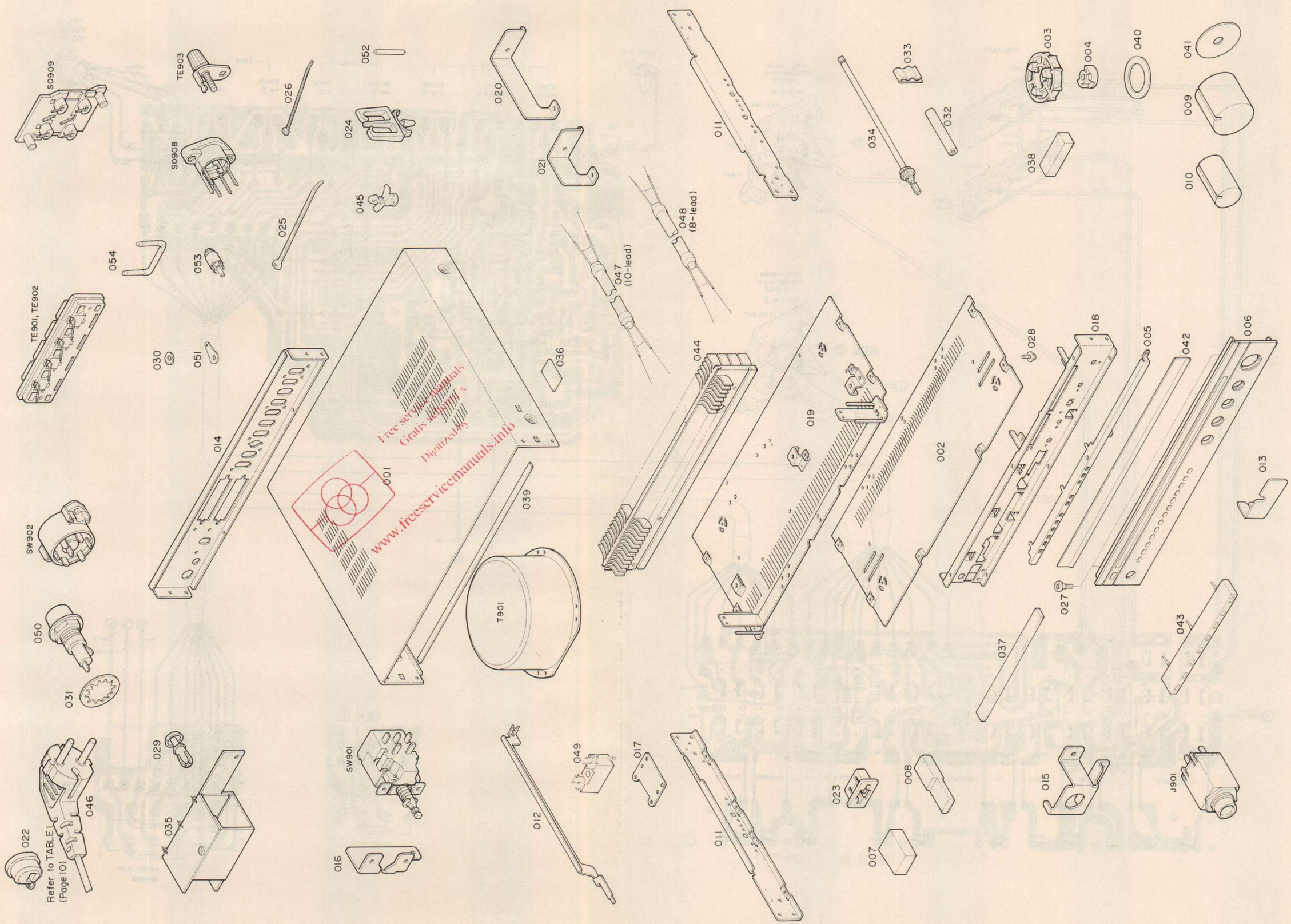


Figure 21–1 MISCELLANEOUS PARTS GUIDE

REPLACEMENT PARTS LIST

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

REF. NO.	PART NO.	DESCRIPTION	CODE
		INTEGRATED CIRCUITS	
IC301, IC302	RH-IX1129AFZZ	Power Amplifier (STK-0050II-Z)	AX
IC303	VHISTK3042/-1	Voltage Amplifier (STK3042)	AV
		TRANSISTORS	
Q101, Q102	VS2SK117-BL-1	FET, 1st Stage Equalizer Amplifier (2SK117BL)	AE
Q103, Q104	VS2SA847-G/-1	2nd Stage Equalizer Amplifier (2SA847G)	AD
Q105, Q106	VS2SA847-G/-1	3rd Stage Equalizer Amplifier (2SA847G)	AD
Q201, Q202	VS2SA798-G/-1	Differential Amplifier (2SA798G)	AF
Q203, Q204	VS2SC1708G/-1	Tone Amplifier (2SC1708G)	AC
Q401	VS2SD755-E/-1	Voltage Regulator (2SD755E)	AD
Q402	VS2SB715-E/-1	Voltage Regulator (2SB715E)	AD
Q403	VS2SC1627Y/-1	Voltage Regulator (2SC1627Y)	AE
Q501	VS2SC1815GR-1	Abnormal Detection (2SC1815GR)	AC
Q502	VS2SC1815GR-1	Abnormal Detection (2SC1815GR)	AC
Q503	VS2SC1815GR-1	Relay Switching (2SC1815GR)	AC
		DIODES	
D201	VHPGL-9NG12-1	LED, High Filter Indicator (GL9NG)	AD
D202	VHPGL-9NG12-1	LED, Subsonic Filter Indicator (GL9NG)	AD
D203	VHPGL-9NG12-1	LED, Loudness Indicator (GL9NG)	AD
D204	VHPGL-9NG12-1	LED, Tape Dubbing (2 ▶ 1) Indicator (GL9NG)	AD
D205	VHPGL-9NG12-1	LED, Tape Dubbing (1 ▶ 2) Indicator (GL9NG)	AD
D206	VHPGL-9NG12-1	LED, Tape Monitor (2) Indicator (GL9NG)	AD
D207	VHPGL-9NG12-1	LED, Tape Monitor (1) Indicator (GL9NG)	AD
D208	VHPGL-9NG12-1	LED, Mono Indicator (GL9NG)	AD
D209	VHPGL-9NG12-1	LED, Audio Muting Indicator (GL9NG)	AD
D210	VHPGL-9NG12-1	LED, Speaker (a) Indicator (GL9NG)	AD
D211	VHPGL-9NG12-1	LED, Speaker (b) Indicator (GL9NG)	AD
D401	VHD1S2473//-1	Transistor Protection (1S2473)	AB
D402	VHVHV46-G//-1	Stabilizer (HV46)	AC
D403	VHDDS5VB20/-1	Rectifier (New Type) (DS5VB)	**
	VHDDS5BN-M/-F	Rectifier (Old Type) (DS5BN)	AL
D405	VHD10E1////-1	Rectifier (10E1)	AC
D501	VHD10E1////-1	Rectifier (10E1)	AC
D502	VHD10E1////-1	Rectifier (10E1)	AC
D503	VHD1S2473//-1	Malfunction Prevention (1S2473)	AB
D504	VHD1S2473//-1	Surge Absorber (1S2473)	AB
D505	VHD1S2473//-1	Transistor Protection (1S2473)	AB
ZD201	VHEHZ24-3L/-1	Zener, 25V/400mW (HZ-24L)	AC
ZD402	VHEWZ220///-1	Zener, 22V/500mW (WZ220)	AD
ZD403	VHEHZ27-3L/-1	Zener, 27V/400mW (HZ27L)	AC
		COILS	
L301, L302	RCILZ0067AFZZ	1.2μH, Load Capacity Correction	AD
		TRANSFORMER	
T901	RTRNP0596AFZZ	Power	BL
		CONTROLS	
VR201 (A, B)	RVR-B0192AFZZ	100K (B) ohm, Volume	AM
VR202	RVR-B0193AFZZ	100K (B) ohm, Balance	AF
VR203 (A, B)	RVR-C0075AFZZ	100K (C) ohm, Bass	AK
VR204 (A, B)	RVR-C0075AFZZ	100K (C) ohm, Treble	AK
VR301, VR302	RVR-M0081AFZZ	33K (B) ohm, Offset Voltage Adjust	AD
		THERMISTOR	
PTH501	RH-QX1001AFZZ	Positive Temperature Coefficient	AF
		ELECTROLYTIC CAPACITORS	
C107, C108	VCEAAU0JW337Y	330MFD, 6.3V, +50 −10%	AC
C109, C110	VCEAAU1CW106Y	10MFD, 16V, +50 −10%	AB
C111, C112	RC-EZ1098AFZZ	330MFD, 25V, ±20%	AE
C119	RC-EZ1042AFZZ	3.3MFD, 50V, ±20%	AC

**: Price will be quoted upon receipt of order.

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
C120	RC-EZ1042AFZZ	3.3MFD, 50V, ±20%	AC
C121, C122	RC-EZ1042AFZZ	3.3MFD, 50V, ±20%	AC
C123, C124	RC-EZ1044AFZZ	47MFD, 50V, ±20%	AD
C201, C202	RC-EZ1042AFZZ	3.3MFD, 50V, ±20%	AC
C205, C206	RC-EZ1095AFZZ	.47MFD, 50V, ±20%	AC
C211, C212	VCEAAU1HW476Y	47MFD, 50V, +50 −10%	AC
C215, C216	RC-EZ1043AFZZ	33MFD, 50V, ±20%	AE
C231, C232	VCEALU1HW334M	.33MFD, 50V, ±20%	AB
C235	RC-EZ1046AFZZ	330MFD, 50V, ±20%	AG
C303, C304	RC-EZ1097AFZZ	4.7MFD, 50V, ±20%	AC
C305, C306	RC-EZ1096AFZZ	1MFD, 50V, ±20%	AC
C311, C312	RC-EZ1055AFZZ	220MFD, 50V, ±20%	AG
C313, C314	RC-EZ1094AFZZ	2.2MFD, 50V, ±20%	AC
C315, C316	RC-EZ1094AFZZ	2.2MFD, 50V, ±20%	AC
C317, C318	VCEAAU1HW105A	1MFD, 50V, +75 −10%	AB
C401, C402	RC-EZ1044AFZZ	47MFD, 50V, ±20%	AD
C403, C404	RC-EZ1119AFZZ	100MFD, 35V, +50 −10%	AF
C407	RC-EZ1044AFZZ	47MFD, 50V, ±20%	AD
C409	RC-EZ1072AFZZ	100MFD, 50V, ±20%	AD
C410	VCEAAU1HW335Y	3.3MFD, 50V, +50 −10%	AB
C411, C412	RC-EZ1092AFZZ	6800MFD, 50V, ±20%	AS
C501	RC-EZ1072AFZZ	100MFD, 50V, ±20%	AD
C502, C503	VCEAAU1CW106Y	10MFD, 16V, +50 −10%	AB
C504, C505	VCEAAU0JW337Y	330MFD, 6.3V, +50 −10%	AC
C506	RC-EZ1015AFZZ	220MFD, 16V, +50 −10%	AC
		CAPACITORS	
C101, C102	VCCSPU1HL221K	220PF, 50V, ±10%, Ceramic	AB
C103, C104	VCQSMA1HL102J	1000PF, 50V, ±5%, Polystyrene Film	AB
C105, C106	VCCSPU1HL3R0C	3PF, 50V, ±.25PF, Ceramic	AA
C113, C114	VCQSMA1HL562G	5600PF, 50V, ±2%, Polystyrene Film	AD
C115, C116	VCQSMA1HL162G	1600PF, 50V, ±2%, Polystyrene Film	AC
C117, C118	VCQSMA1HL473J	47000PF, 50V, ±5%, Polystyrene Film	AC
C125	VCKZPU1HF103P	.01MFD, 50V, +100 −0%, Ceramic	AE
C203, C204	VCQSMA1HL103J	10000PF, 50V, ±5%, Polystyrene Film	AC
C207, C208	VCCSPU1HL180K	18PF, 50V, ±10%, Ceramic	AA
C209, C210	VCCSPU1HL100K	10PF, 50V, ±10%, Ceramic	AA
C213, C214	VCQSMA1HL103J	10000PF, 50V, ±5%, Polystyrene Film	AC
C217, C218	VCQYKU1HM333M	.033MFD, 50V, ±20%, Mylar	AB
C219, C220	VCQYKU1HM183J	.018MFD, 50V, ±5%, Mylar	AC
C221, C222	VCQYKU1HM104K	.1MFD, 50V, ±10%, Mylar	AC
C223	VCQYKU1HM103J	.01MFD, 50V, ±5%, Mylar	AB
C224	VCQYKU1HM222J	.0022MFD, 50V, ±5%, Mylar	AB
C225	VCQYKU1HM103J	.01MFD, 50V, ±5%, Mylar	AB
C226	VCQYKU1HM222J	.0022MFD, 50V, ±5%, Mylar	AB
C227, C228	VCQYKU1HM563J	.056MFD, 50V, ±5%, Mylar	AC
C229, C230	VCQSMA1HL331J	330PF, 50V, ±5%, Polystyrene Film	AB
C233, C234	VCQYKU1HM103K	.01MFD, 50V, ±10%, Mylar	AB
C301, C302	VCCSPU1HL121K	120PF, 50V, ±10%, Ceramic	AA
C307, C308	VCCSPU1HL3R0C	3PF, 50V, ±.25PF, Ceramic	AA
C309, C310	VCCSPU1HL471K	470PF, 50V, ±10%, Ceramic	AB
C319, C320, C321, C322	VCQYKU1HM473K	.047MFD, 50V, ±10%, Mylar	AC
C323, C324	VCCSPU1HL221K	220PF, 50V, ±10%, Ceramic	AB
C405, C406	VCQYKU1HM563K	.056MFD, 50V, ±10%, Mylar	AC
C413, C414	VCFYSU2JB103M	.01MFD, 630V, ±20%, Metallized Film	**
C901	RC-HZ064CAFZZ	.047MFD, 250VAC, ±20%, Metallized Paper	AG
		RESISTORS	
		(Unless otherwise specified resistors are 1/4W, ±5%, Carbon Type.)	
R101, R102, R103, R104, R105, R106, R107, R108	VRD-ST2EE221J	220 ohm	AA
R109, R110	VRD-ST2EE334J	330K ohm	AA
R111, R112	VRD-ST2EE104J	100K ohm	AA
R113, R114	VRD-ST2EE221J	220 ohm	AA
R115, R116	VRD-ST2EE473J	47K ohm	AA
R117, R118	VRD-ST2HD823J	82K ohm, 1/2W, ±5%, Carbon	AA
R119, R120	VRD-ST2EE153J	15K ohm	AA
R121, R122	VRD-ST2EE823J	82K ohm	AA

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
R123, R124	VRD-ST2EE682J	6.8K ohm	AA
R125, R126	VRD-ST2EE562J	5.6K ohm	AA
R127, R128	VRD-ST2EE122J	1.2K ohm	AA
R129, R130	VRD-ST2EE561J	560 ohm	AA
R131, R132	VRD-ST2HE564G	560K ohm, 1/2W, ±2%, Carbon	**
R133, R134	VRD-ST2HE473G	47K ohm, 1/2W, ±2%, Carbon	**
R135, R136	VRD-ST2EE124J	120K ohm	AA
R137, R138	VRD-ST2EE124J	120K ohm	AA
R139, R140	VRD-ST2EE334J	330K ohm	AA
R141, R142	VRD-ST2EE102J	1K ohm	AA
R143	VRG-MU2EB470J	47 ohm, 1/4W, ±5%, Fusible	AD
R144	VRG-MU2EB820J	82 ohm, 1/4W, ±5%, Fusible	AD
R201, R202	VRD-ST2EE472J	4.7K ohm	AA
R203, R204	VRD-ST2EE102J	1K ohm	AA
R205, R206	VRD-ST2EE334J	330K ohm	AA
R207, R208	VRD-ST2EE823J	82K ohm	AA
R209, R210	VRD-ST2EE104J	100K ohm	AA
R211, R212	VRD-ST2EE684J	680K ohm	AA
R213, R214	VRD-ST2EE821J	820 ohm	AA
R215, R216	VRD-ST2EE224J	220K ohm	AA
R217, R218	VRD-ST2EE472J	4.7K ohm	AA
R219, R220	VRD-ST2EE124J	120K ohm	AA
R221, R222	VRD-ST2EE271J	270 ohm	AA
R223, R224	VRD-ST2EE183J	18K ohm	AA
R225	VRD-ST2EE332J	3.3K ohm	AA
R226, R227	VRD-ST2EE122J	1.2K ohm	AA
R228, R229, R230	VRD-ST2EE332J	3.3K ohm	AA
R231	VRD-ST2EE820J	82 ohm	AA
R232	VRD-ST2EE562J	5.6K ohm	AA
R233	VRD-ST2EE820J	82 ohm	AA
R234	VRD-ST2EE562J	5.6K ohm	AA
R235, R236	VRD-ST2EE103J	10K ohm	AA
R237, R238	VRD-ST2EE333J	33K ohm	AA
R239, R240	VRD-ST2EE273J	27K ohm	AA
R241, R242	VRD-ST2EE182J	1.8K ohm	AA
R243	VRD-ST2EE105J	1 Meg ohm	AA
R244	VRD-ST2EE105J	1 Meg ohm	AA
R245	VRG-MU2EB821J	820 ohm, 1/4W, ±5%, Fusible	AD
R247, R248	VRD-ST2EE682J	6.8K ohm	AA
R249, R250	VRD-ST2EE563J	56K ohm	AA
R251, R252	VRD-ST2EE332J	3.3K ohm	AA
R253, R254, R255, R256	VRD-ST2EE121J	120 ohm	AA
R301, R302	VRD-ST2EE102J	1K ohm	AA
R303, R304	VRD-ST2EE333J	33K ohm	AA
R305, R306	VRD-ST2EE332J	3.3K ohm	AA
R307, R308	VRD-ST2EE683J	68K ohm	AA
R309, R310	VRD-ST2EE561J	560 ohm	AA
R311, R312	VRG-MU2EB101J	100 ohm, 1/4W, ±5%, Fusible	AD
R313, R314, R315, R316	VRF-GF3LBR33K	.33 ohm, 3W, ±10%, Metal Plate	**
R317, R318	VRD-ST2HD2R2J	2.2 ohm, 1/2W, ±5%, Carbon	AA
R319, R320	VRG-ST2HA100J	10 ohm, 1/2W, ±5%, Fusible	AB
R321, R322	VRD-ST2EE153J	15K ohm	AA
R323, R324	VRD-ST2EE152J	1.5K ohm	AA
R325, R326, R327	RR-XZ0002AGZZ	1 ohm, 1/2W, ±5%, Fusible	AB
R401, R402	VRG-MU2EB101J	100 ohm, 1/4W, ±5%, Fusible	AD
R403	VRD-ST2EE182J	1.8K ohm	AA
R404	VRD-ST2EE122J	1.2K ohm	AA
R405	VRD-ST2EE682J	6.8K ohm	AA
R406	VRD-ST2EE682J	6.8K ohm	AA
R407	VRD-ST2HD821J	820 ohm, 1/2W, ±5%, Carbon	AA
R408	VRG-MU2EB470J	47 ohm, 1/4W, ±5%, Fusible	AD
R409	VRD-ST2EE100J	10 ohm	AA
R410	VRD-ST2EE330J	33 ohm	AA
R411	VRD-ST2EE223J	22K ohm	AA
R412	VRD-ST2EE100J	10 ohm	AA
R501	VRG-MU2EB101J	100 ohm, 1/4W, ±5%, Fusible	AD
R502	VRD-ST2EE392J	3.9K ohm	AA
R503	VRD-ST2EE153J	15K ohm	AA
R504	VRD-ST2EE333J	33K ohm	AA
R505	VRD-ST2EE393J	39K ohm	AA
R506, R507	VRD-ST2EE562J	5.6K ohm	AA
R508	VRD-ST2EE124J	120K ohm	AA
R509	VRD-ST2EE562J	5.6K ohm	AA
R510	VRD-ST2EE100J	10 ohm	AA
R511, R512	VRS-PT3AB271K	270 ohm, 1W, ±10%, Metal Oxide Film	AB

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
		MISCELLANEOUS	
F901	QFS-C202AAGNI	Fuse, T2.0A (220/240V)	AE
	QFS-C402DAFNI	Fuse, T4.0A (110V)	AE
F301, F302	QFS-C322CAGNI	Fuse, T3.15A	AE
J901	QJAKJ0070AFZZ	Jack, Headphones (with Nut)	AF
RLY501	RRLYZ0056AFZZ	Relay, Protection	AS
SO901, SO902, SO904	QSOCJ2667AFZZ	Jack Assembly; Tuner Input ; Auxiliary Input ; Tape 1 Input	AG
SO903	QSOCJ0270AFZZ	Jack, Phono Input	AD
SO905, SO906, SO907	QSOCJ2667AFZZ	Jack Assembly; Tape 1 Output ; Tape 2 Input ; Tape 2 Output	AG
SO908	QSOCD2553AFZZ	Socket, Tape 2 Record/Playback	AD
SO909	QSOCJ2459AFZZ	Jack, Inputs for Power-amplifier/Outputs of Pre-amplifier	AE
SW101 (a, b)	QSW-R0165AFZZ	Switch, Function Selector	AN
SW201A (a–d), SW201B (a–d), SW201C (a–d), SW201D (a, b), SW201E (a–d), SW201F (a–d), SW201G (a, b), SW201H (a–d), SW201I (a–d), SW201J (a–d), SW201K (a–d), SW201L (a–f), SW201M (a–f)	QSW-P0201AFZZ	Switch Assembly; Audio Muting ; Loudness Contour ; Tape Monitor (1) ; Tape Monitor (source) ; Tape Monitor (2) ; Tape Dubbing (2 ▶ 1) ; Tape Dubbing (source) ; Tape Dubbing (1 ▶ 2) ; Mono ; High Filter ; Subsonic Filter ; Speaker (a) ; Speaker (b)	AY
SW901	QSW-P0158AFZZ	Switch, Power	AM
SW902	QSOCE0559AFZZ	Switch, Mains Voltage Selector	AK
TE901, TE902	QTANZ0455AFZZ	Terminals, Speaker A & B	AG
TE903	QTANN0153AFZZ	Terminal, Phono GND	AD
001	GCAB-3067AFSA	Cabinet	AW
002	GFTAU3079AFZZ	Lid, Bottom	AL
003	GLEGP0065AF00	Leg, Outer	AA
004	GLEGP0066AF00	Leg, Inner	AA
005	HDECA0309AFSA	Bracket, L.E.D. (Light Emitting Diode)	AH
006	HPNLC3367AFSA	Panel, Front	AZ
006-A	GMADZ0051AFZZ	Window	AK
006-B	PSPAG0066AF00	Cushion, 30mm x 5mm x 1.5mm	AB
006-C	PSPAS0080AFSA	Spacer	AB
006-D	PSPAS0084AFSA	Spacer	AA
007	JKNBM0297AFSA	Knob, Power On/Off Switch	AD
008	JKNBM0298AFSA	Knob, Speakers Selector/Subsonic Filter/High Filter/Mono Switch/Tape Dubbing Selector/Tape Monitor Selector/Loudness Contour/Audio Muting	AD
009	JKNBN0403AFSA	Knob, Volume Control	AL
010	JKNBN0404AFSA	Knob, Bass Control/Treble Control/Function Selector/Balance Control	AH
011	LANGF0481AFZZ	Bracket, Right & Left Hand Side	AE
012	LANGG0066AFZZ	Lever, Power Switch	AD
013	LANGG0069AFZZ	Bracket, Printed Wiring Board	AD
014	LANGQ0648AFSA	Bracket, Terminals & Jacks	AN
015	LANGQ0650AFZZ	Bracket, Headphones Jack	AB
016	LANGQ0652AFZZ	Bracket, Power Switch	AB
017	LANGQ0670AFZZ	Bracket, Fuse Holder	AB
018	LANGR0468AFZZ	Bracket, Front	AM
019	LANGT0780AFZZ	Bracket, Bottom	AS
020	LANGT0782AFZZ	Bracket, Printed Wiring Board	AB
021	LANGT0783AFZZ	Bracket, Printed Wiring Board	AB
022	LBSHC0004AGZZ	Bushing, Mains Supply Cord (Refer to TABLE 1)	AC
	LBSHC0007AFZZ	Bushing, Mains Supply Cord (Refer to TABLE 1)	AB
023	LHLDS1052AF00	Guide, Power Switch Lever	AB
024	LHLDW1060AFZZ	Wire Holder	AA
025	LHLDW1068AFZZ	Nylon Band, 100mm	AA
026	LHLDW1075AFZZ	Nylon Band, 60mm	AA
027	LX-BZ0261AFFD	Screw, Front Panel Retaining	AA
028	LX-HZ0001SGFD	Screw, Bottom Lid Retaining	**
029	LX-LZ0051AF00	Push Rivet	**
030	LX-WZ3017CEFN	Lock Washer, 3mm Dia.	**
031	LX-WZ5065AGFE	Lock Washer, Fuse Holder	AB
032	MJNT-3051AFZZ	Coupling, Function Selector Shaft	AE
033	MSPRK0054AFFJ	Plate Spring, Function Selector Switch	AB
034	NSFTS0056AFZZ	Shaft, Function Selector	AC
035	PCOVW1105AFZZ	Cover, Power Switch	AE
036	PCUSZ0006AFZZ	Cushion, Cabinet, 58mm x 20mm x 1.5mm	AB
037	PCUSZ0007AFZZ	Cushion, 175mm x 9.8mm x 4.8mm	AB
038	PCUSZ0008AFZZ	Cushion, 15mm x 6mm x 4mm	**
039	PFLT-0330AF00	Felt, Cabinet	AA
040	PFLT-0366AFZZ	Felt, 22mm Dia. x 15.5mm Dia. x 2.5mm, Outer Leg	AB
041	PFLT-0367AFZZ	Felt, 32mm Dia. x 4.8mm Dia. x 0.9mm	AA
042	PFLT-0372AF00	Felt, 370mm x 24mm	AB
043	PGUMM0132AFZZ	Holder, L.E.D., Rubber	AE
044	PRDAR0193AFZZ	Heat Sink	AY
045	PSPAN0054AFZZ	Spacer, Nylon	AB
046	QACCS0051AF00	Mains Supply Cord (Refer to TABLE 1 (Page 10))	AM
	QACCZ0002TA0F	Mains Supply Cord (Refer to TABLE 1 (Page 10))	AF
	QACCZ0052AF00	Mains Supply Cord (Refer to TABLE 1 (Page 10))	AP
	QACCZ0053AF00	Mains Supply Cord (Refer to TABLE 1 (Page 10))	AK
047	QCNW-0492AF02	Cable, 10-lead (770mm)	AM
048	QCNW-0493AFZZ	Cable, 8-lead (330mm)	AH
049	QFSHC2051AFZZ	Holder, Fuse (F902, F903)	AD
050	QFSHP1001AGZZ	Holder, Fuse (F901)	AH

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
051	QHWS-0001CEFN	Tip, Wiring	**
052	QLUGP0111CEFW	Terminal Tip (13mm)	AA
053	QPLGS0150AFZZ	Plug, Short Circuit	AC
054	QPLGZ0153AFZZ	Connection Pin	AC
	SPAKA0567AFZZ	Cushion, Packing (Left Hand Side)	**
	SPAKA0568AFZZ	Cushion, Packing (Right Hand Side)	**
	SPAKC1279AFZZ	Individual Carton	**
	SPAKX0226AFZZ	Cushion, Packing (Bottom)	**
	SPAKX0228AFZZ	Cushion, Packing (Top)	**
	SSAKA0007SEZZ	Bag, Operation Manual	AA
	SSAKH0156AFZZ	Bag, Unit	**
	TINSZ0157AFZZ	Operation Manual	**
	TTAGH0078AFZZ	Tag	**
		PWB ASSEMBLY (Not Replacement Item)	
PWB-A, PWB-B	DUNTM0053AF02 (Combined Assembly)	Power, LED	**
PWB-C	DUNTP0043AF02	Equalizer	**

DIFFERENCE BETWEEN SM-5100H AND SM-5100HB

REF. NO.	SM-5100H (Front Panel: Silver)		SM-5100HB (Front Panel: Brown)		DESCRIPTION
	PARTS NO.	CODE	PARTS NO.	CODE	
006	HPNLC3367AFSA	AZ	HPNLC3367AFSB	**	Panel, Front
006-A	GMADZ0051AFZZ	AK	GMADZ0051AFZZ	AK	Window
006-B	PSPAG0066AF00	AB	PSPAG0066AF00	AB	Cushion, 30mm x 5mm x 1.5mm
006-C	PSPAS0080AFSA	AB	PSPAS0080AFSB	AB	Spacer
006-D	PSPAS0084AFSA	AA	PSPAS0084AFSB	AA	Spacer
007	JKNBM0297AFSA	AD	JKNBM0297AFSB	AD	Knob, Power On/Off Switch
008	JKNBM0298AFSA	AD	JKNBM0298AFSB	AD	Knob, Speakers Selector/Sub-sonic Filter/High Filter/Mono Switch/Tape Dubbing Selector /Loudness Contour/Audio Muting
009	JKNBN0403AFSA	AL	JKNBN0403AFSB	AL	Knob, Volume Control
010	JKNBN0404AFSA	AH	JKNBN0404AFSB	AH	Knob, Bass Control/Treble Con-trol/Function Selector/Balance Control
014	LANGQ0648AFSA	AN	LANGQ0687AFSA	AN	Bracket, Terminals & Jacks
	SPAKC1279AFZZ	**	SPAKC1329AFZZ	AL	Individual Carton

EQ UNIT

TONE UNIT

MAIN UNIT

TUNER S0901

AUX S0902

PHONO S0903

GND TE903

PRE OUT / MAIN IN S0909

SW101 FUNCTION

VOLUME

BALANCE 100K-B

100K-C VR203-A

100K-C VR204-A

100K-B VR201-A

100K-B VR201-B

VR203-B 100K-C

VR204-B 100K-C

Q101, Q102 2SK117(BL)

Q103~Q106 2SA847(G)

Q201, Q202 2SA798(G)

Q203, Q204 2SC1708(G)

IC303 STK-3042

IC301 STK-0050II

IC302 STK-0050II

Q401 2SD755E

Q402 2SB715E

Q403 2SC1627Y

Q501~Q503 2SC1815GR

RLY501

HEADPHONE J901

SP-A TE901

SP-B TE902

T901

F901 AC 110/120/240V 50/60Hz

SW902

SW901

PLAY S0904 Lch Rch

TAPE-1 REC S0905 Lch Rch

PLAY S0906 Lch Rch

TAPE-2 REC S0907 Lch Rch

TAPE-2 PB/REC S0908

SW202 LOUDNESS

SW207 LOW FILTER

SW206 HIGH FILTER

SW204-A DUBBING 2►1

SW204-B SOURCE

SW204-C DUBBING 1►2

SW203-C TAPE-2

SW203-B SOURCE

SW203-A TAPE-1

SW205 MODE

SW201 MUTING

SW208 SPEAKER-A

SW209 SPEAKER-B

D201~D211 (LED) GL-9NG

SM 5100

● Specifications or wiring diagrams of this model are subject to change for the improvement without prior notice.

MODEL SM-5100H,SM-5100HB

A7902-5.0MXM TMAPC0560AEZZ Printed in Japan