SHARP OPTONICA

SERVICE MANUAL

SM-5200H
SM-5200HB

ATSM980102PMA

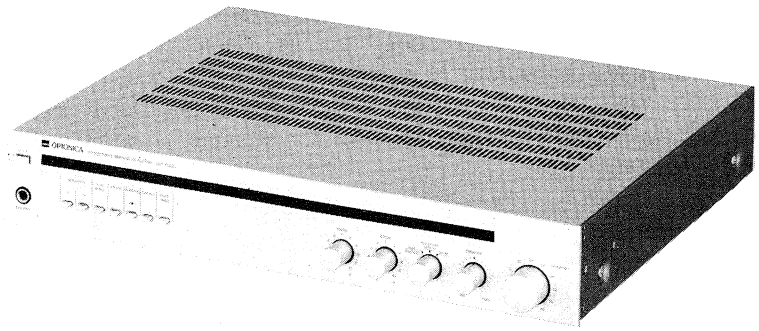


PHOTO : SM-5200H

STEREO AMPLIFIER

MODEL
SM-5200H
(Silver Panel)
SM-5200HB
(Bronze Panel)

The SM-5200H and SM-5200HB 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-5200H alone: the difference of the SM-5200HB against it can be made out with a reference to "DIFFERENCE BETWEEN SM-5200H AND SM-5200HB" at the end of PARTS LIST.

SPECIFICATIONS

GENERAL DESCRIPTION

Power source:	AC 110/220/240 Volt, 50/60 Hz
Power consumption:	330 W
Semiconductors:	3 ICs (integrated circuit) 13 Transistors 8 Diodes 7 LEDs (light emitting diodes)
Dimensions:	Width: 430mm (16-15/16") Height: 75mm (2-31/32") Depth: 382mm (15-1/16")
Weight:	7.7kg (14.6 lbs.)

POWER AMPLIFIER

Circuit type:	All stage direct coupled, differential amplifier, semi-complimentary final stage, OCL (output capacitor-less)
Continuous power output (at 1 kHz):	2 x 40W/4 ohm, both channels driven, 0.09% distortion 2 x 33W/8 ohm, both channels driven, 0.09% distortion
Continuous power output (20 Hz to 20 kHz):	2 x 30W/8 ohm, both channels driven, 0.09% distortion
Intermodulation:	0.09% at rated power 0.03% at 20W output
Damping factor:	More than 40 (at 1 kHz, 8 ohm)
Power bandwidth:	10 Hz to 30 kHz, at 0.15% distortion
Frequency response:	10 Hz to 80 kHz +1 dB −3 dB

PRE-AMPLIFIER

Circuit type	
Equalizer;	Dual junction type FET input operational amplifier, ICL (input capacitor-less), dual power supply
Tone control;	"NF" type, dual power supply
Input sensitivity and input impedance:	
Phono;	2,3mV/47k ohm
Aux;	150mV/47k ohm
Tuner;	150mV/47k ohm
Tape PB1;	150mV/47k ohm
Maximum input allowable for equalizer:	150mV (RMS, 1 kHz)
RIAA curve deviation:	±0.4 dB (20 Hz to 20 kHz)
Frequency response:	10 Hz to 65 kHz +1 dB −3 dB (Tuner, Aux, Tape PB)
Tone control:	Bass; ±10 dB at 100 Hz Treble; ±10 dB at 10 kHz
Subsonic filter:	−3 dB at 30 Hz, 6 dB/octave
Loudness contour:	+6 dB at 100 Hz +4 dB at 10 kHz
Signal-to-noise ratio:	(Using IHF "A" network) Phono; 70 dB Aux or Tuner; 90 dB
Output level and loaded impedance:	
Rec 1;	150mV
Rec (DIN socket);	60mV/82k ohm

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

SHARP CORPORATION OSAKA, JAPAN

FEATURES

DISTORTION-FREE POWER AMPLIFIER
The differential amplifier and direct coupled complementary OCL circuitry in the amplifier stages provide broad band power with minimum distortion.

EQUALIZER WITH DUAL POWER SUPPLY
ICL equalizer amplifier includes a dual power supply system (plus 15 V and minus 15 V) to improve the signal-to-noise ratio, assuring a greater dynamic range.

NF TYPE TONE CONTROL
Bass and treble controls permit a wide variety of tone control and allow sound to be adjusted to personal taste and room acoustics.

TAPE DUBBING
Tape dubbing from "Tape 2" to "Tape 1" is possible with the connection of two separate tape decks.

SUBSONIC FILTER
6 dB octave filter effectively reduce unwanted noise at low end of the sound spectrum.

DUAL SPEAKER OUTPUTS
Connections are provided for two separate pairs of speakers with front mounted control for separate or combined operation.

NAME OF PARTS

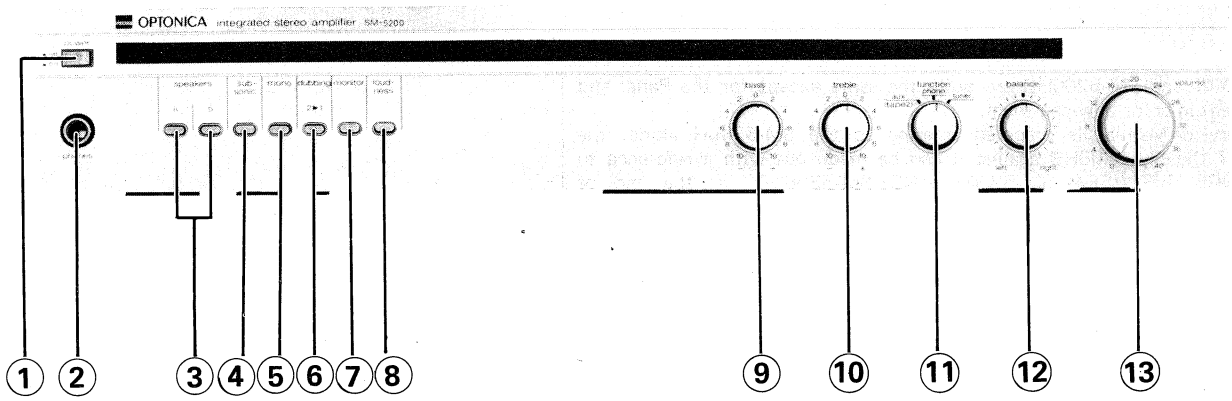


PHOTO: SM-5200H

Figure 2–1 FRONT PARTS

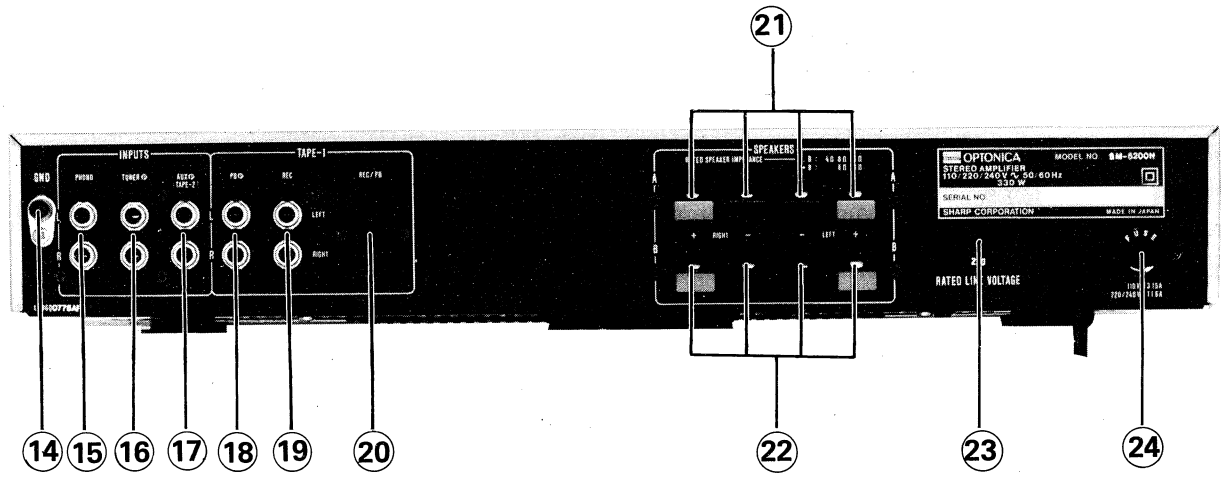


PHOTO: SM-5200H

Figure 2–2 REAR PARTS

FRONT PARTS

① Power on/off switch
② Headphones jack
③ Speakers selector
④ Subsonic filter
⑤ Mono switch
⑥ Tape dubbing 2 → 1
⑦ Tape monitor switch
⑧ Loudness contour
⑨ Bass contorl
⑩ Treble control
⑪ Function selector
⑫ Balance control
⑬ Volume control
⑭ Earth terminal
⑮ Phono input sockets
⑯ Tuner input sockets
⑰ Auxiliary/Tape 2 input sockets
⑱ Tape 1 input sockets
⑲ Tape 1 output sockets
⑳ Tape 1 record/play back socket
㉑ Speaker A terminals
㉒ Speaker B terminals
㉓ Mains voltage selector
㉔ 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)

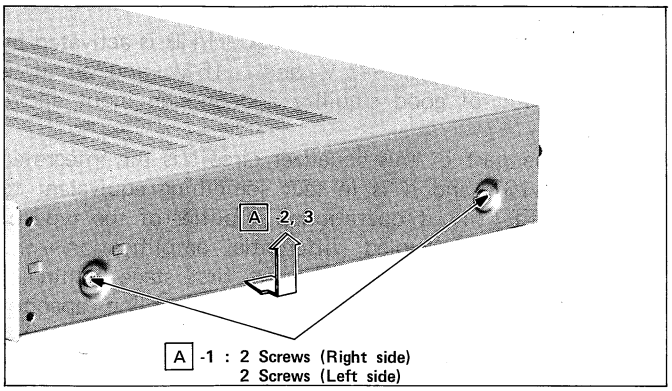


Figure 3–1

[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)

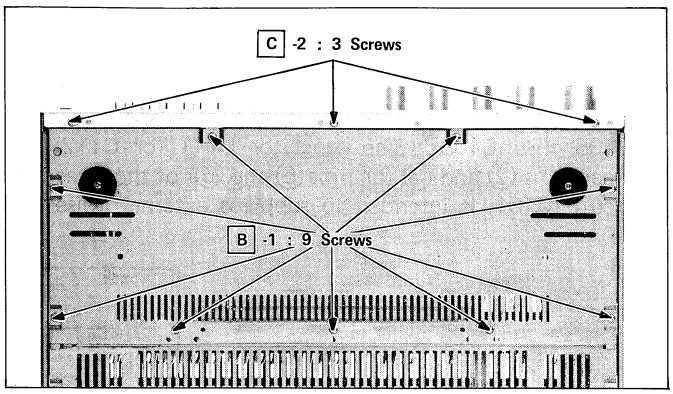


Figure 3–2

[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)

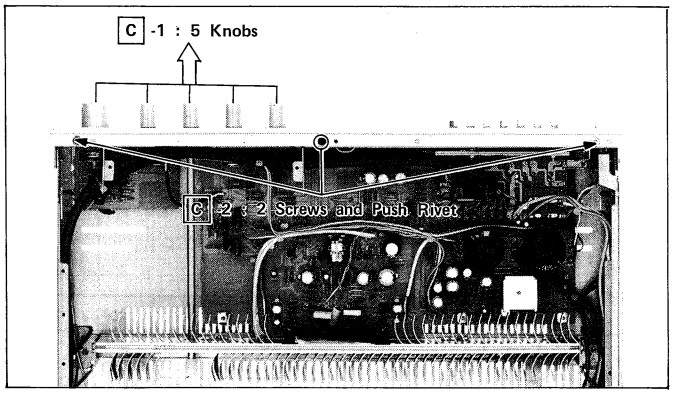


Figure 3–3

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 T3.15A. In other voltages 220V or 240V use a fuse of T1.6A.

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.

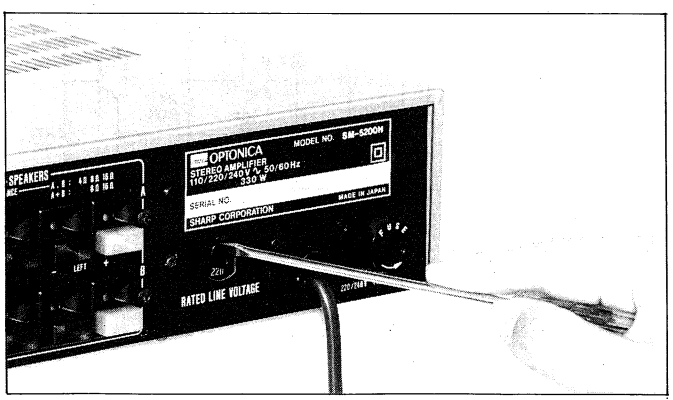


Figure 3–4

■ EQUALIZER CIRCUIT

The equalizer circuit of the SM-5200H/HB is activated by two power supplies, +15 V and −15 V, and so it is characteristic of good stability and enough input allowance.

The prime part of this equalizer circuit is the integrated circuit IC101, and it is in fact something equivalent to a dual J-FET input operational amplifier of the type of 3-stage directly coupled differential amplification — the low noise J-FET employed in its first stage eliminates the need to use the conventional input coupling capacitor which is responsible for a decrease of the reproduction. The signal coming from the phono input terminal SO901-A is applied via the resistor R101 (or R102) to pin ③ (or ⑤)) of the integrated circuit IC101 where it is amplified enough to go out of pin ① (or ⑦), and the amplified signal then arrives at the function switch SW201. The NF (Negative Feedback) circuit, a part of the equalizer circuit, is composed of resistors (R105 thru R112), electrolytic capacitors (C103 and C104) and capacitors (C105 thru C108). The capacitor C111 (or C112), between pins ② and ③ (or pins ⑥ and ⑤) of the integrated circuit IC101, is intended to suppress external noises.

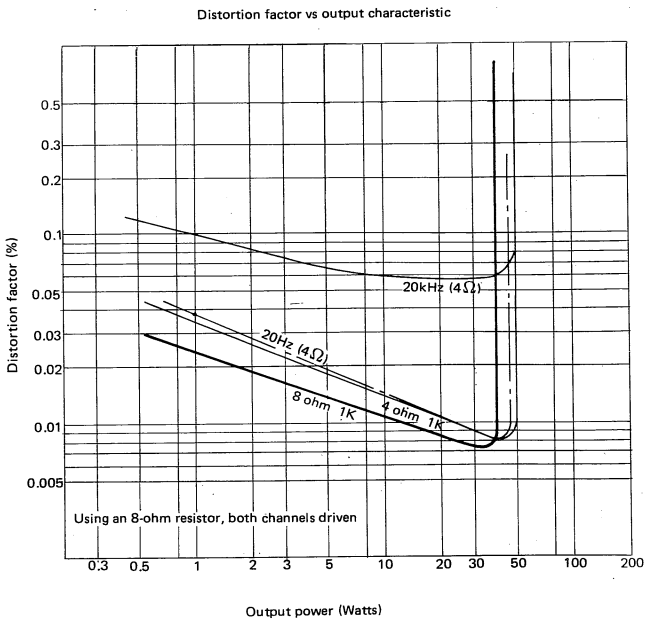


Figure 4–1

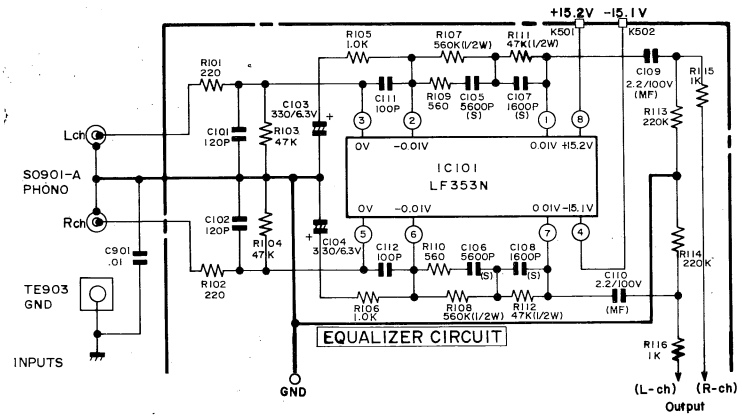


Figure 4–2

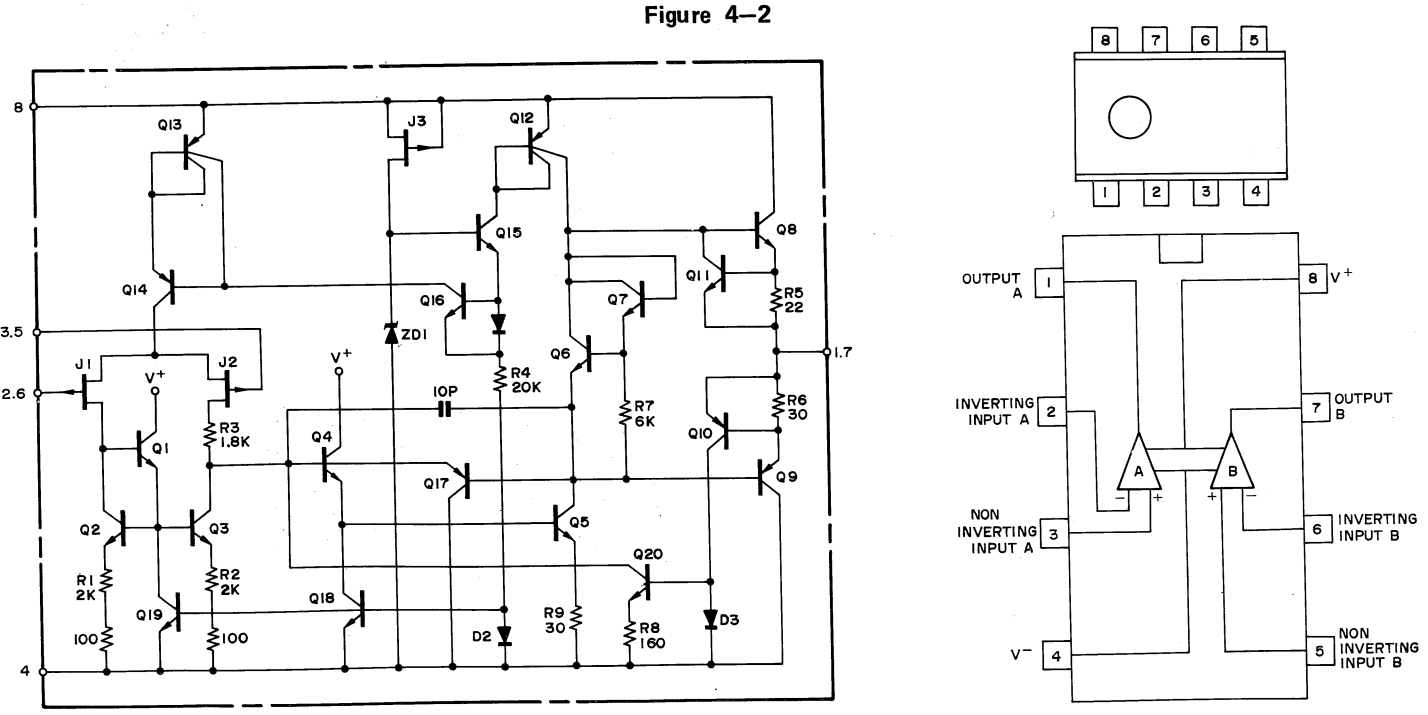
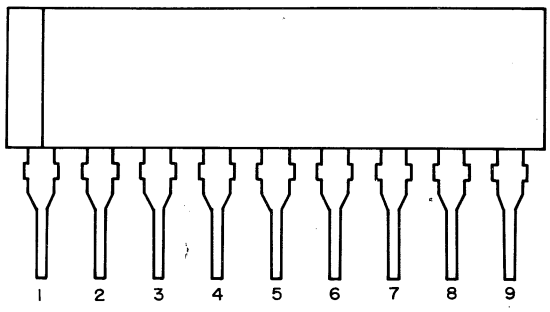


Figure 4–3 IC101 (LF353N)

■ TONE CIRCUIT

The tone circuit also depends upon two power supplies +15 V and −15 V, for its stabilized operation, and the integrated circuit IC201, an essential part of it, is a dual low noise operational amplifier of the type of differential 1-stage and 3-stage directly coupled NF amplification.

The signal coming from the function selector switch SW201 is passed on via the volume controls VR201A and VR201B, balance control VR202 and coupling capacitor C205 (or C206) into pin ④ (or ⑥) of the integrated circuit IC201 where it is amplified enough to go out of pin ② (or ⑧). The amplified signal then enters via the electrolytic capacitor C219 (or C220) into the main amplifier.



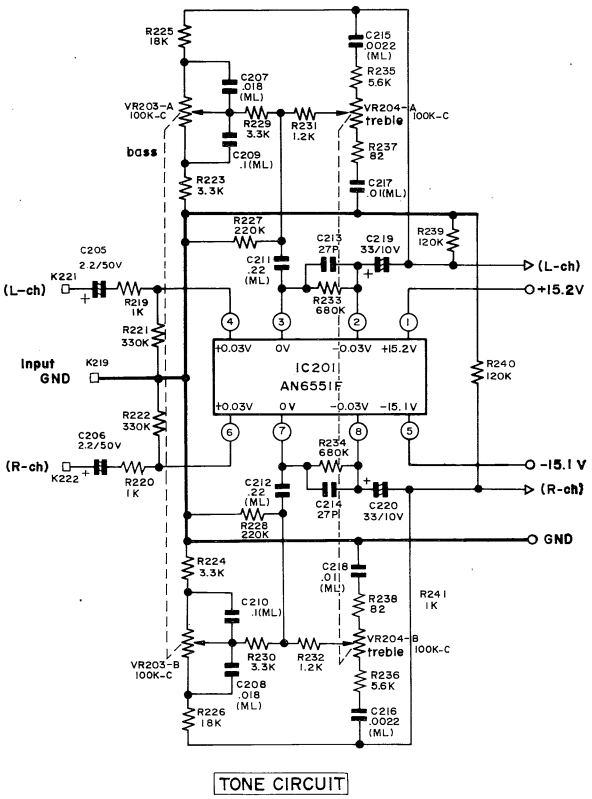


Figure 5–1

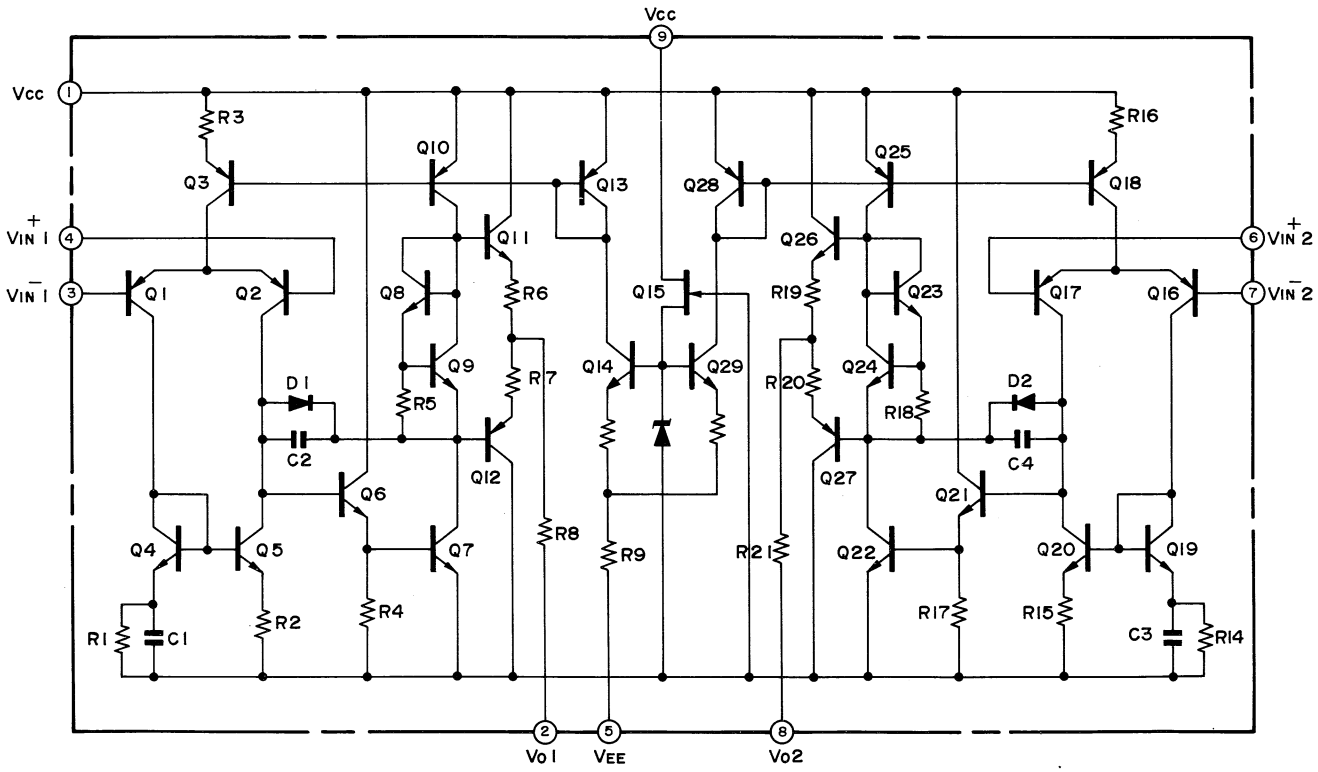


Figure 5–2 IC201 (AN6551F)

■ MAIN AMPLIFIER CIRCUIT

The essential part of this main amplifier circuit is the integrated circuit IC301 which is characteristic of a semi-complementary dual integration of the type of 1-stage differential amplification, and is proud of the lessened distortion factor over a wider frequency range. It also uses two power supplies, +33.5 V and −33.5 V, for its stabilized operation, and its output potential stays almost at zero level.

Going out of the tone circuit, the signal is routed via the coupling capacitor C303 (or C304) into pin ① (or ⑯) of the integrated circuit IC301 where it is amplified enough to go out of pin ⑦ (or ⑩). The amplified signal then reaches via the relay circuit into the speaker terminal TE901 (or TE902).

The NF circuit is composed of resistors (R305, R306, R313 and R314) and electrolytic capacitors (C307 and C308): of them, the resistors R305, R306, R313 and R314 are to decide NF amount at the high-frequency range, and the capacitors C307 and C308 and resistors R305 and R306 are to decide NF amount at the low-frequency range.

The resistors (R315 and R316) and capacitors (C313 and C314) are intended to keep the amplifier from its load fluctuation.

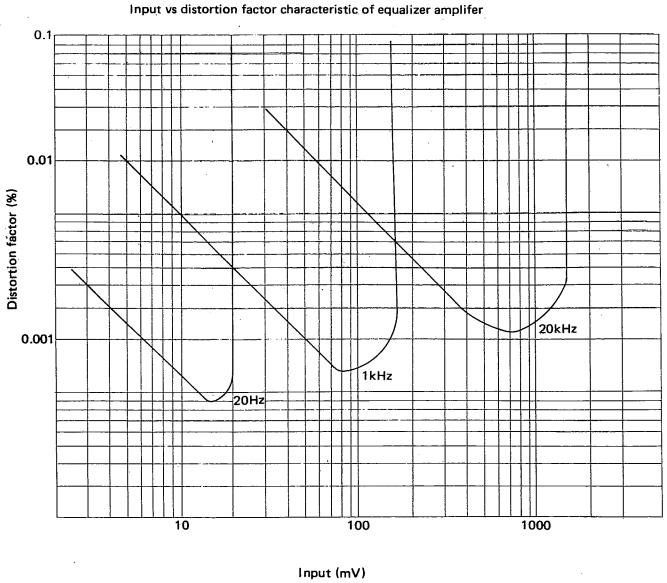


Figure 6–1

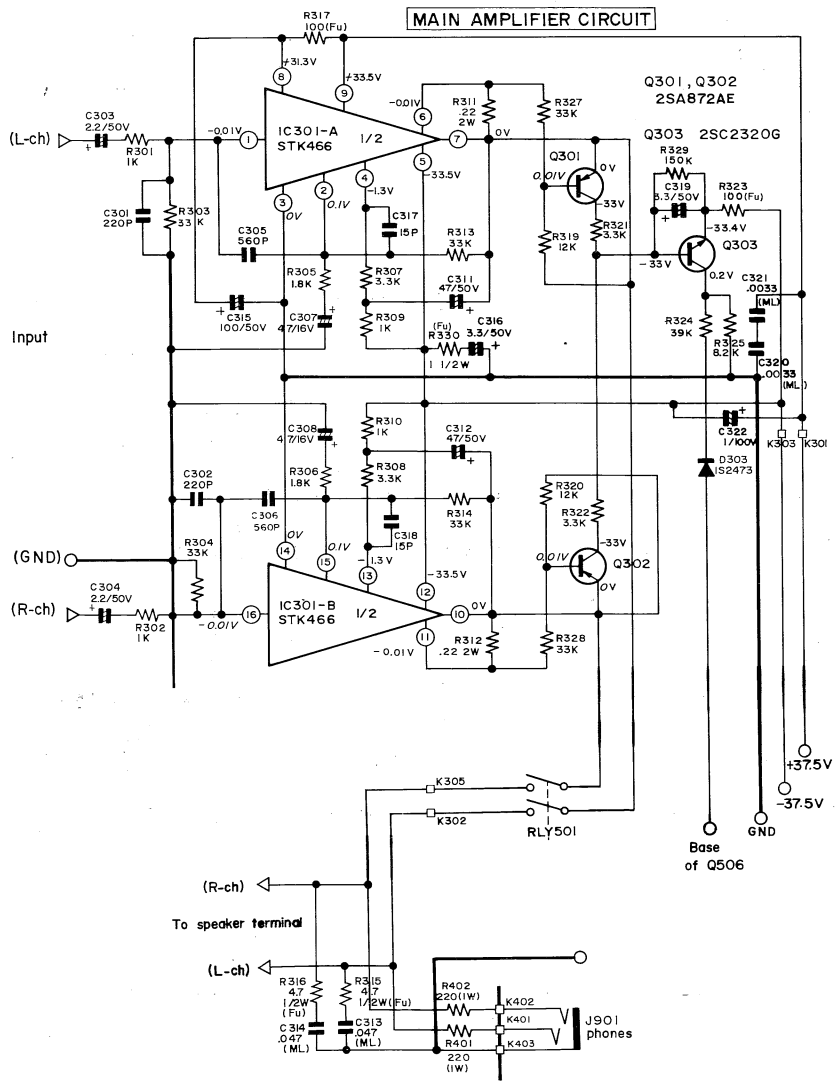


Figure 6–2

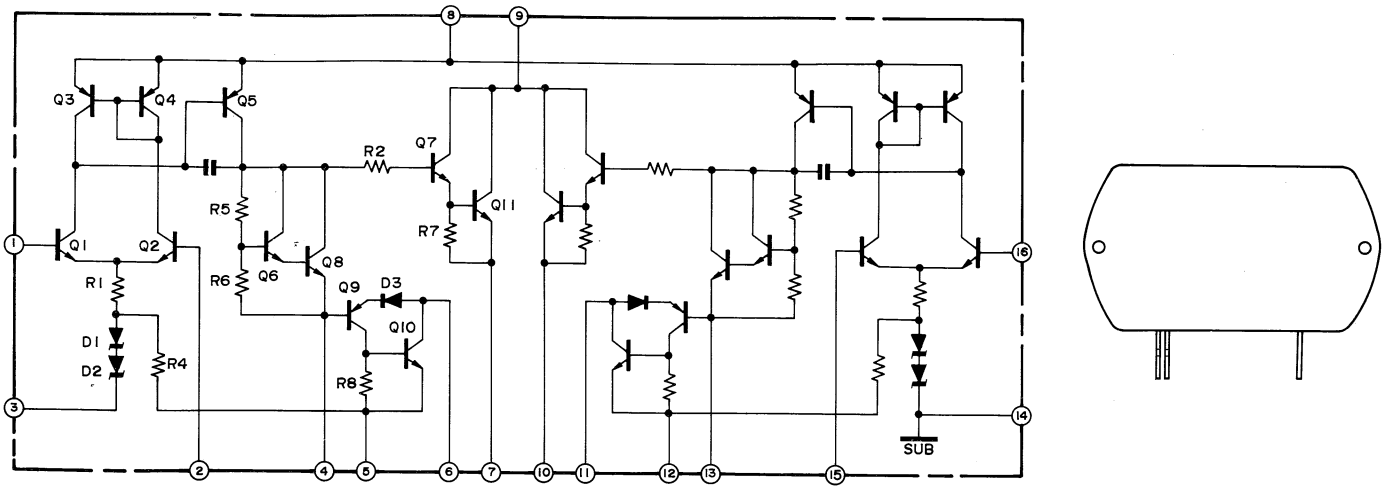


Figure 7–1 IC301 (STK466)

■ RELAY CIRCUIT

1. Speaker Protector Circuit

When the speaker terminal TE901 or TE902 (+ and –) is shorted by error, the relay circuit functions to save the speaker from a breakdown and prevent the other parts from suffering heat and damage.

Always with the use of the OCL (Output Capacitor Less) type amplifier circuit, the output of the power amplifier is coupled to the speaker directly, and its normal operation allows DC voltage of the speaker terminal TE901 or TE902 to be kept at the earth (zero) voltage.

If, however, the trouble (due to the speaker terminal shorting, etc.) occurs, the zero potential breaks to be positive or negative; that is to say, a DC voltage is caused at the speaker terminal TE901 or TE902 and it enters the speaker body very likely to hurt itself. If such happens, the output center voltage (at pin ⑦ or ⑩) of the power amplifier IC301, as it has been at zero, now changes to be positive making active the transistor Q503. This action permits the relay RLY501 to operate to prevent the power amplifier output from reaching the speaker terminals (TE901 and TE902).

In the usual operation; an AC current flows through the electrolytic capacitors C511 and C512 into the earth, so that the relay RLY501 don't tend to operate. The transistor Q503 depends upon so high h_{FE} as to make the entire circuit very quick to sense the DC line (±1.5 V) which might be unbalanced by the above-mentioned trouble.

The voltage level can be set as desired by changing the constant of the resistor R517.

2. Thermo-control Circuit

The thermo-control circuit works with a temperature increase of the heat sink, the aim of which is to keep the power amplifier from heating.

As the heat sink increases its heat quantity, the posistor PTH501 functions to change the collector current of transistor Q509, so that the relay RLY501 gets active to save the speaker terminal from the output of the power amplifier.

The temperature level is decided by the posistor itself and it has been factory-adjusted to 100°C.

3. Muting Circuit

Always with the use of the OCL (Output Capacitor Less) type amplifier circuit, the operation is stated by two power supplies, positive and negative, and if the power switch is turned on and off repeatedly, this may cause the smoothing capacitor to charge and discharge repeatedly, the current of which is responsible for unusual sound likely to occur for a moment. That still exerts a shock on the speaker, i.e., the tweeter, a delicate speaker, may be damaged due to it.

The muting circuit is something like a relay circuit which is positioned between the power amplifier and the speaker terminals TE901 and TE902, and the aim of which is to disconnect them from each other for 3 to 5 seconds after the power switch has been turned on, say, until the entire circuit is in a stable conduction. The result is that the speaker escapes a danger which would affect it if DC voltage is over-charged or the input signal is of too low a frequency.

Still, when the power switch is turned off, it will be a little while before the power amplifier is disconnected from the speaker terminals TE901 and TE902: during that time, though not so long, there may be a wrong voltage to enter the speaker terminals. However, this erratic voltage is suppressed to zero by no more than the muting circuit, not affecting the speaker terminals anyway.

The muting-on time constant is decided by the resistor R521 and electrolytic capacitor C513, and each of them can be adjusted to change its present constant to another. The muting-off time constant is decided by the resistor R525, electrolytic capacitor C514, diode D502 and resistor R526, and it still depends on what voltage the resistor R527 (in connection with the secondary of the power transformer) will be set at.

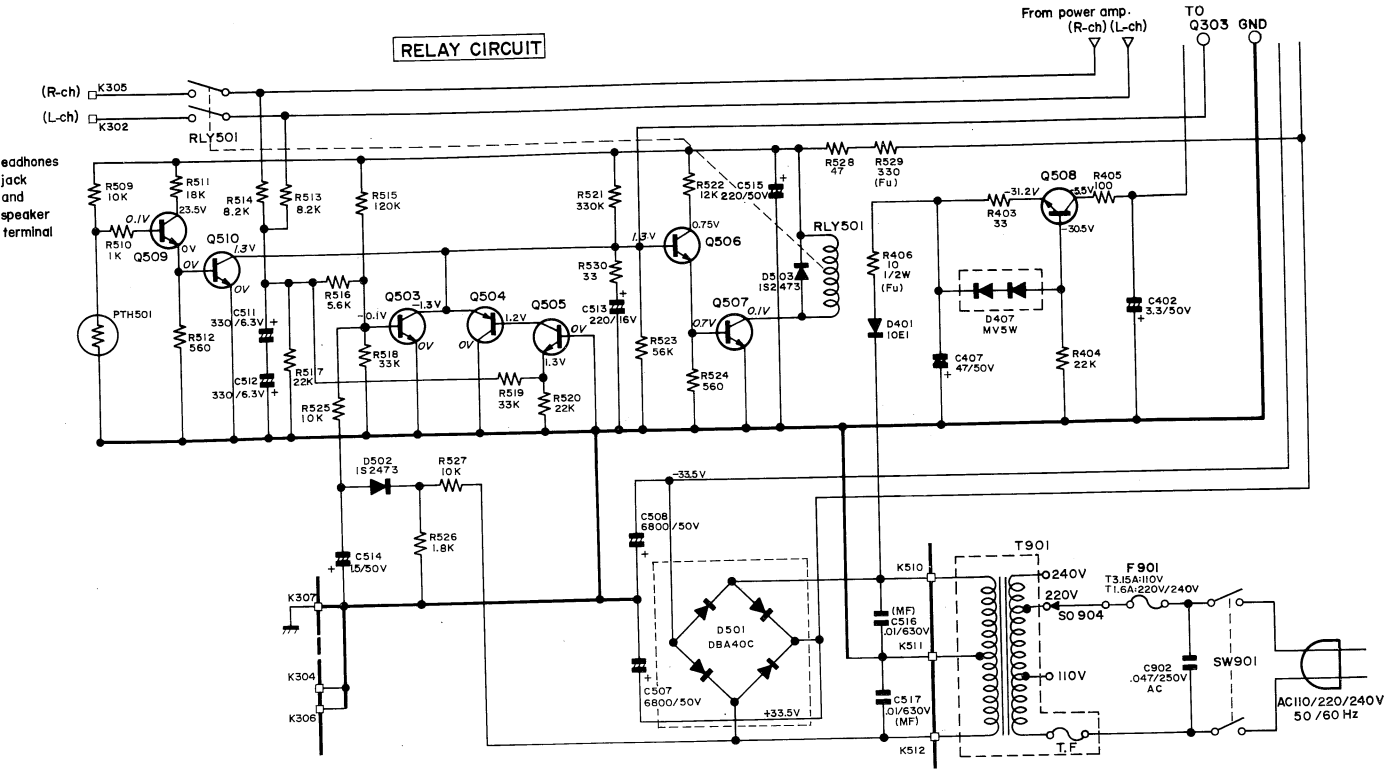


Figure 8–1

NOTE:
When replacing the power IC (IC301), 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.

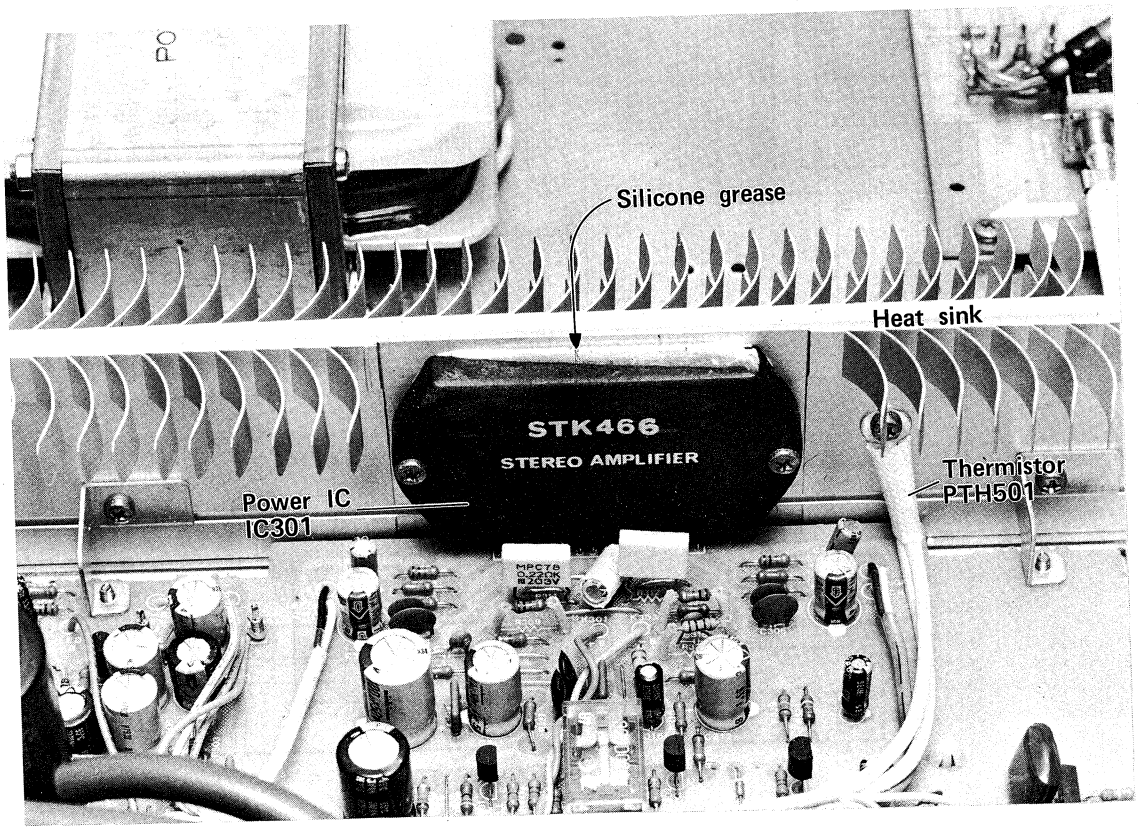
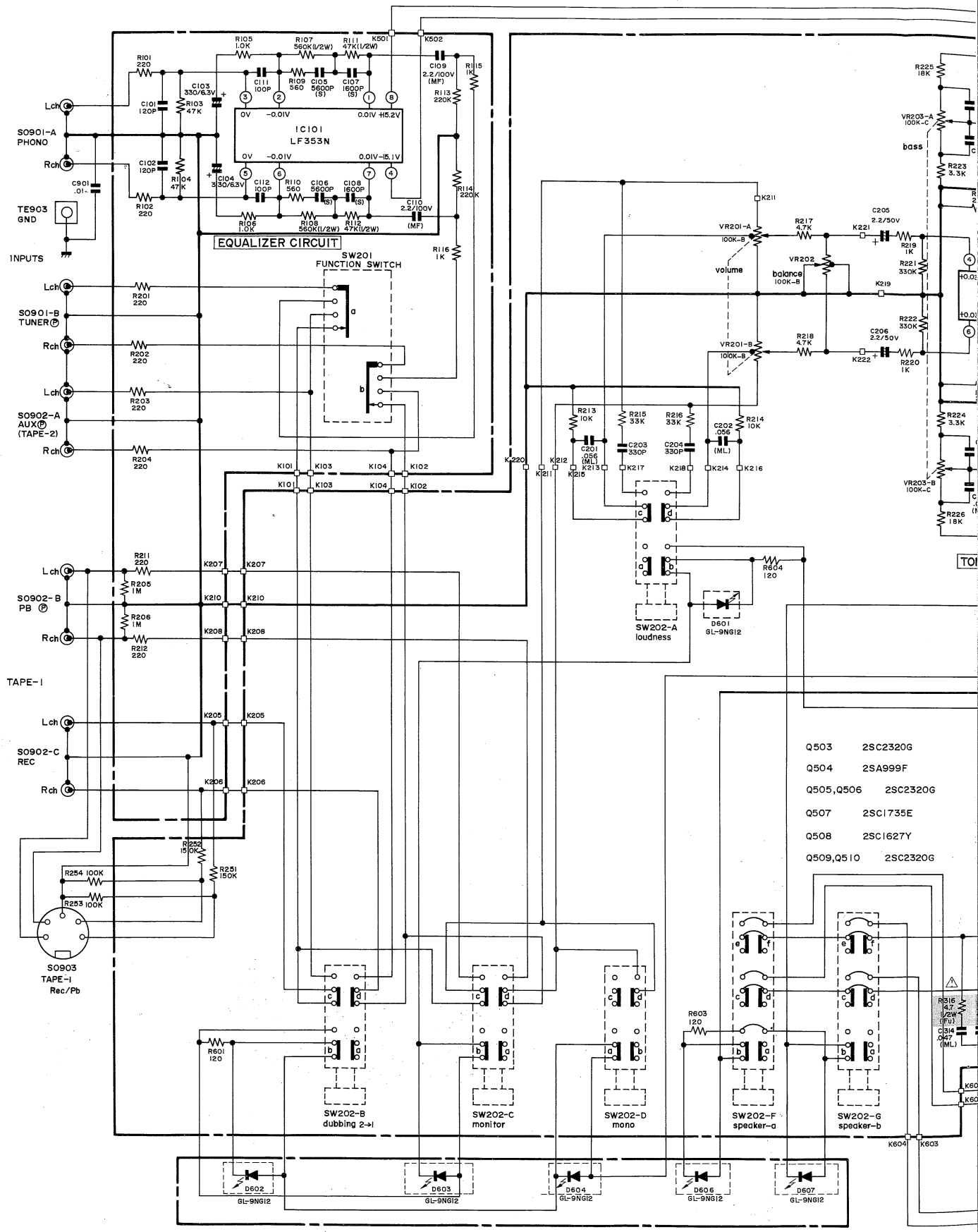
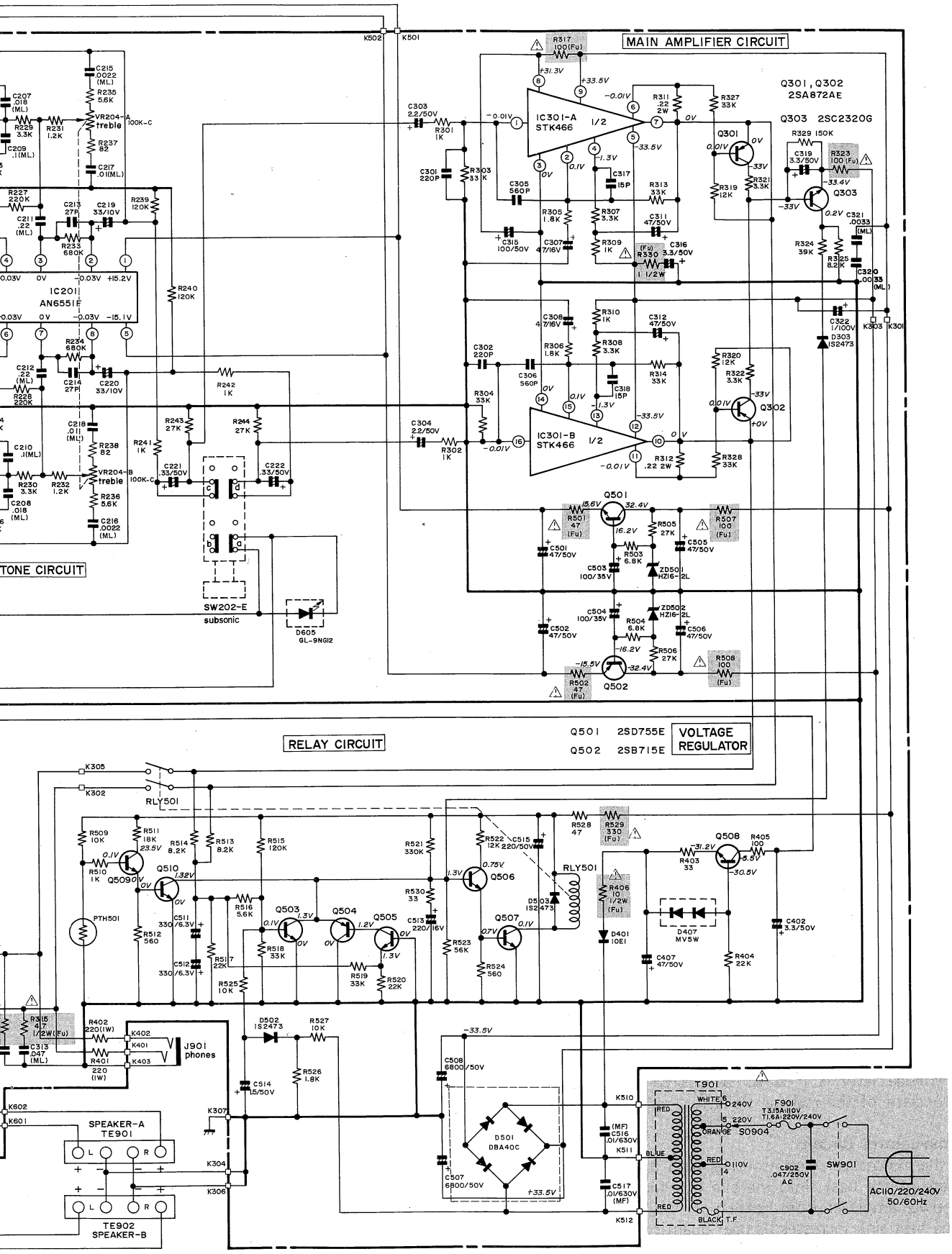


Figure 8–2 REPLACEMENT OF THE POWER IC



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

Figure 9–1 SCHEMATIC DI

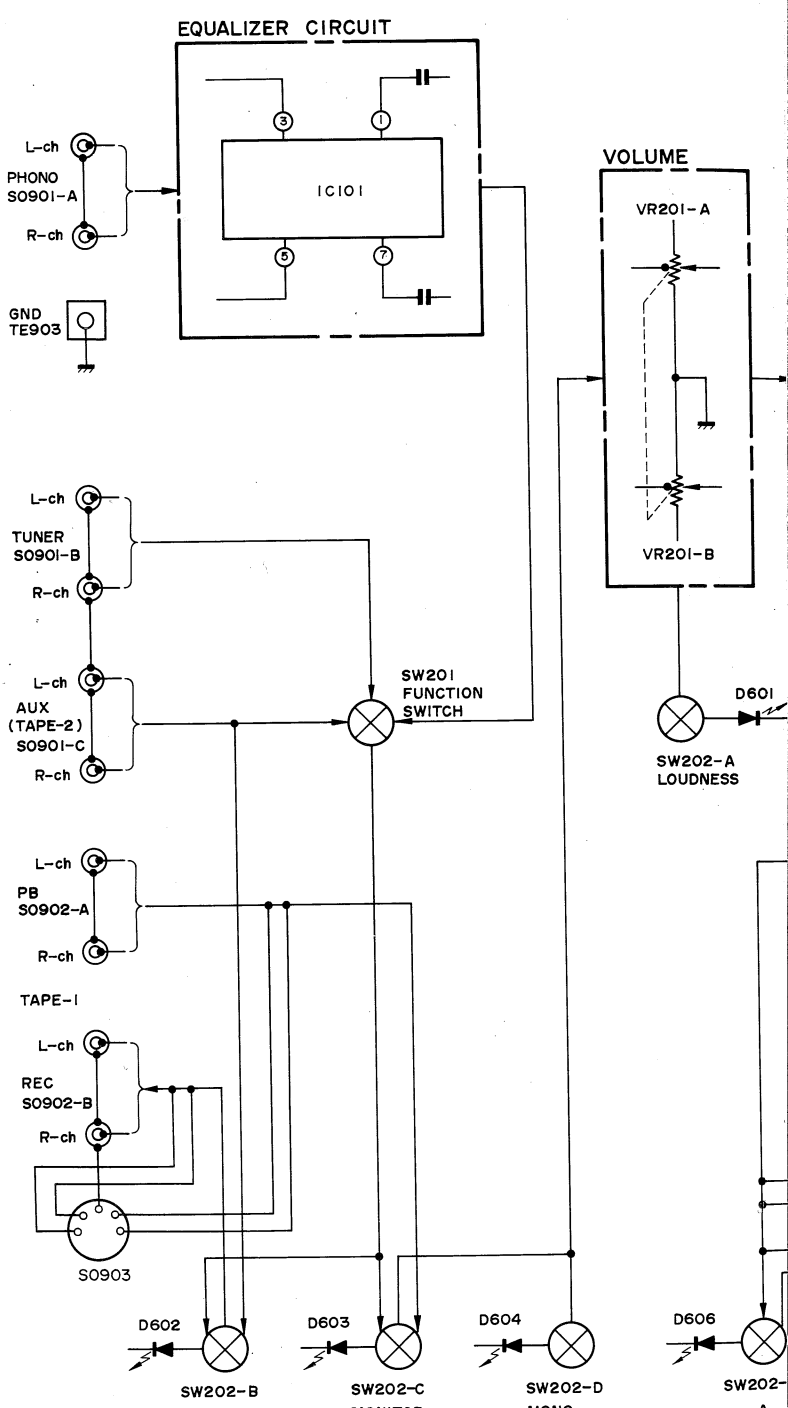

MAIN AMPLIFIER CIRCUIT
Q301, Q302
2SA872AE
Q303 2SC2320G
IC301-A
STK466 1/2
IC301-B
STK466 1/2
IC201
AN6551F
TONE CIRCUIT
VR204-A treble 100K-C
VR204-B treble 100K-C
SW202-E
subsonic
D605
GL-9NG12
Q501 2SD755E
Q502 2SB715E
VOLTAGE REGULATOR
RELAY CIRCUIT
RLY501
PTH501
J901 phones
SPEAKER-A
TE901
TE902
SPEAKER-B
D501
DBA40C
T901
F901
T3.15A:110V
T1.6A:220V/240V
S0904
SW901
AC110/220/240V
50/60Hz

DIAGRAM

NOTES:

1. SW201: Function switch shown in "tuner" mode.
2. SW202A: Loudness contour switch shown in "off" position.
3. SW202B: Tape dubbing switch shown in "off" position.
4. SW202C: Tape monitor switch shown in "off" position.
5. SW202D: Mono switch shown in "stereo" mode.
6. SW202E: Subsonic filter switch shown in "off" position.
7. SW202F: Speaker selector (a) switch shown in "off" position.
8. SW202G: Speaker selector (b) switch shown in "off" position.
9. SW901: Power switch shown in "off" position.
10. Capacitance values are in MFD, P = MMFD.
    * (MF): Metallized Film, (ML): Mylar,
    (MP): Metallized Paper, (S): Styrol
11. Resistance values are in ohm, K = 1000.
    * (Fu): Fusible
12. Voltage readings are measure with VTVM under no signal input.

Be sure to use regular parts for securing the safety and reliability of the set. Parts marked with "⚠" and parts crosshatched (in balck) are especially important for maintaining the safety and protecting ability of the set. Be sure to replace them with parts of specified parts number.



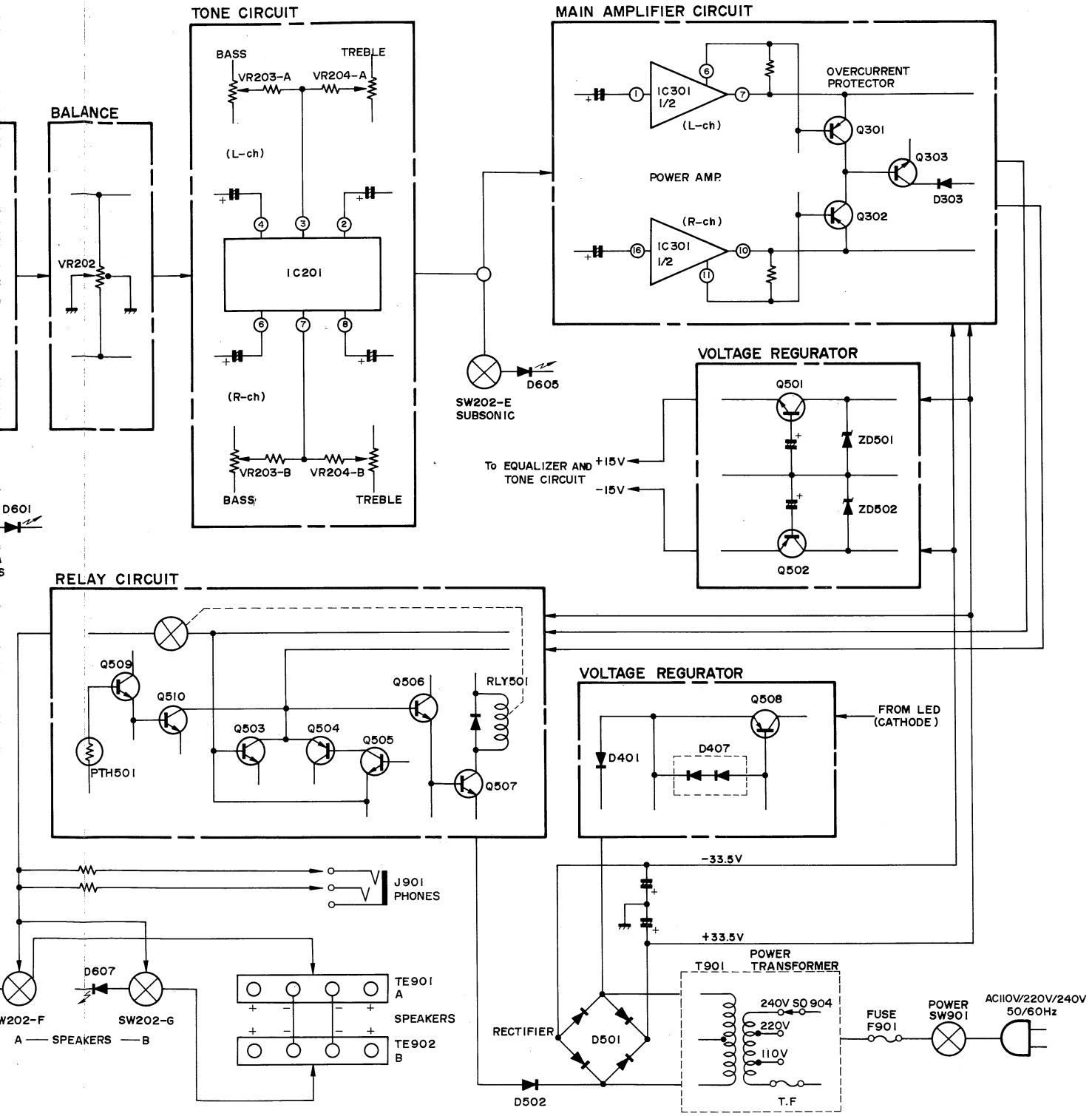


Figure 11–1 BLOCK DIAGRAM

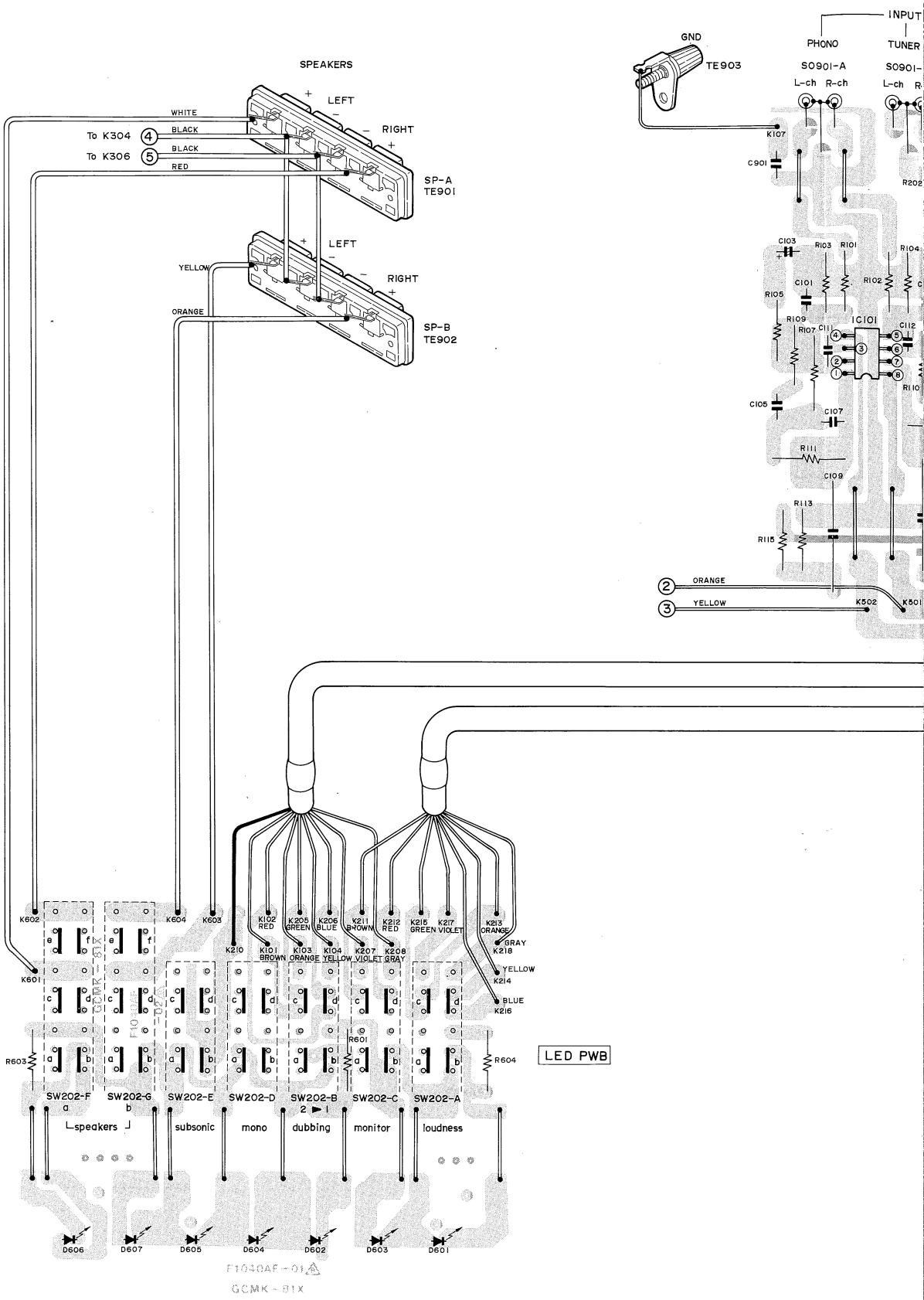
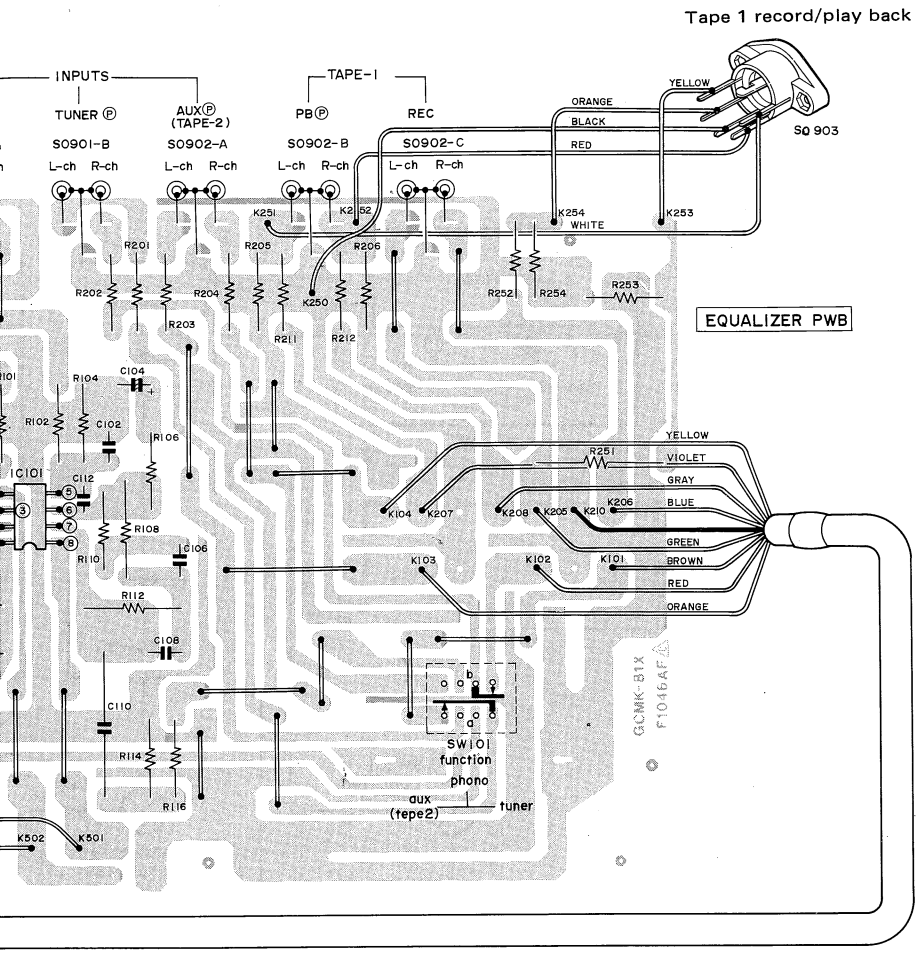
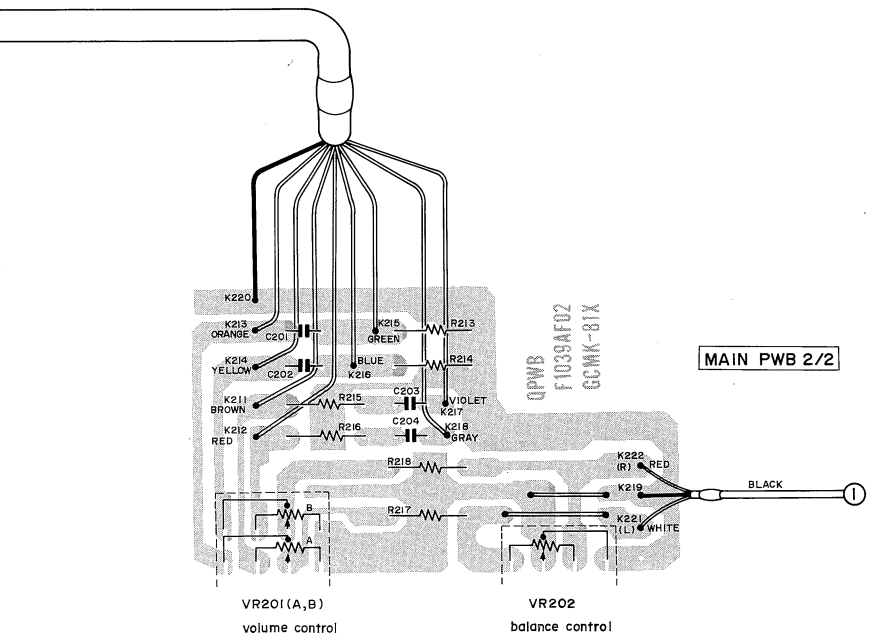


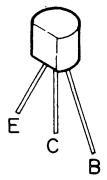
Figure 13–1 WIRING SIDE OF P.W. BOARD (L



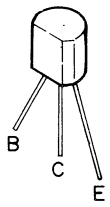


TRANSISTOR

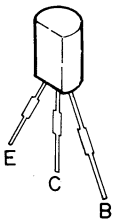
- 2SA999F
- 2SC1627Y
- 2SC2320G



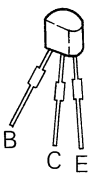
- 2SC1735E



- 2SB715E
- 2SD755E



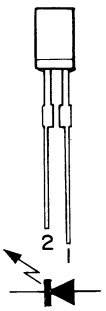
- 2SA872A



E: Emitter
C: Collector
B: Base

LED

- GL-9NG12



1: Anode
2: Cathode

OARD (LED/EQUALIZER/MAIN 2/2)

mains voltage selector switch

AC110/220/240
50/60Hz

fuse
F901

power switch
SW901

on
off

BLUE
BROWN
RED

C902

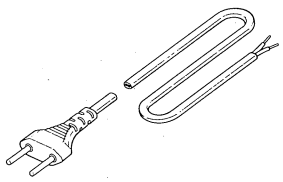
S0904
ORANGE
RED
BROWN
WHITE

POWER TRANSFORMER
T901

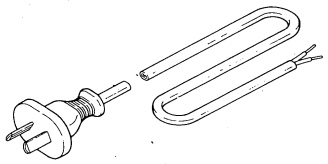
BLACK

RED
BLUE
RED

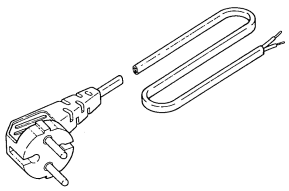
< Bushing >
LBSHC0004AGZZ
< Mains Supply Cord >
· QACCS0051AF00



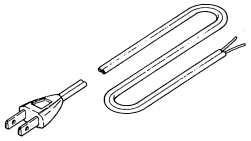
· QACCL0051AFZZ



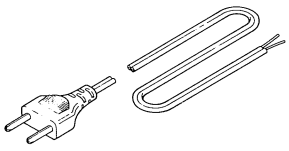
· QACCZ0052AF00



< Bushing >
LBSHC0007AFZZ
< Mains Supply Cord >
· QACCZ0002TA0F



· QACCZ0053AF00



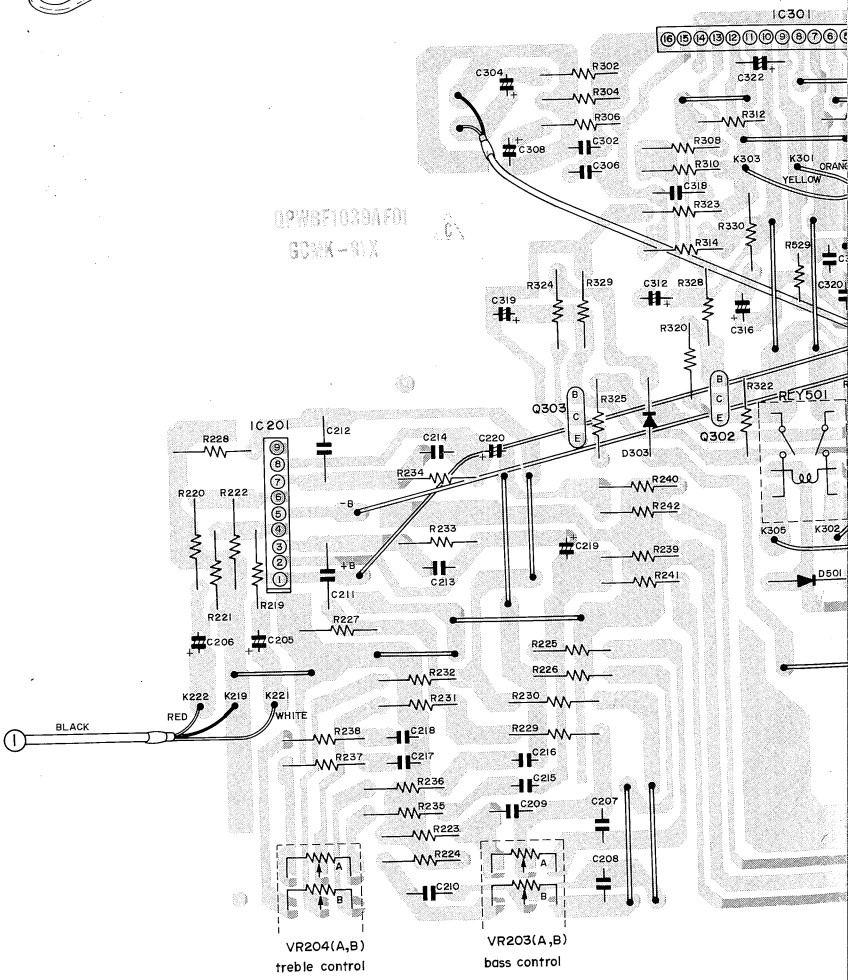
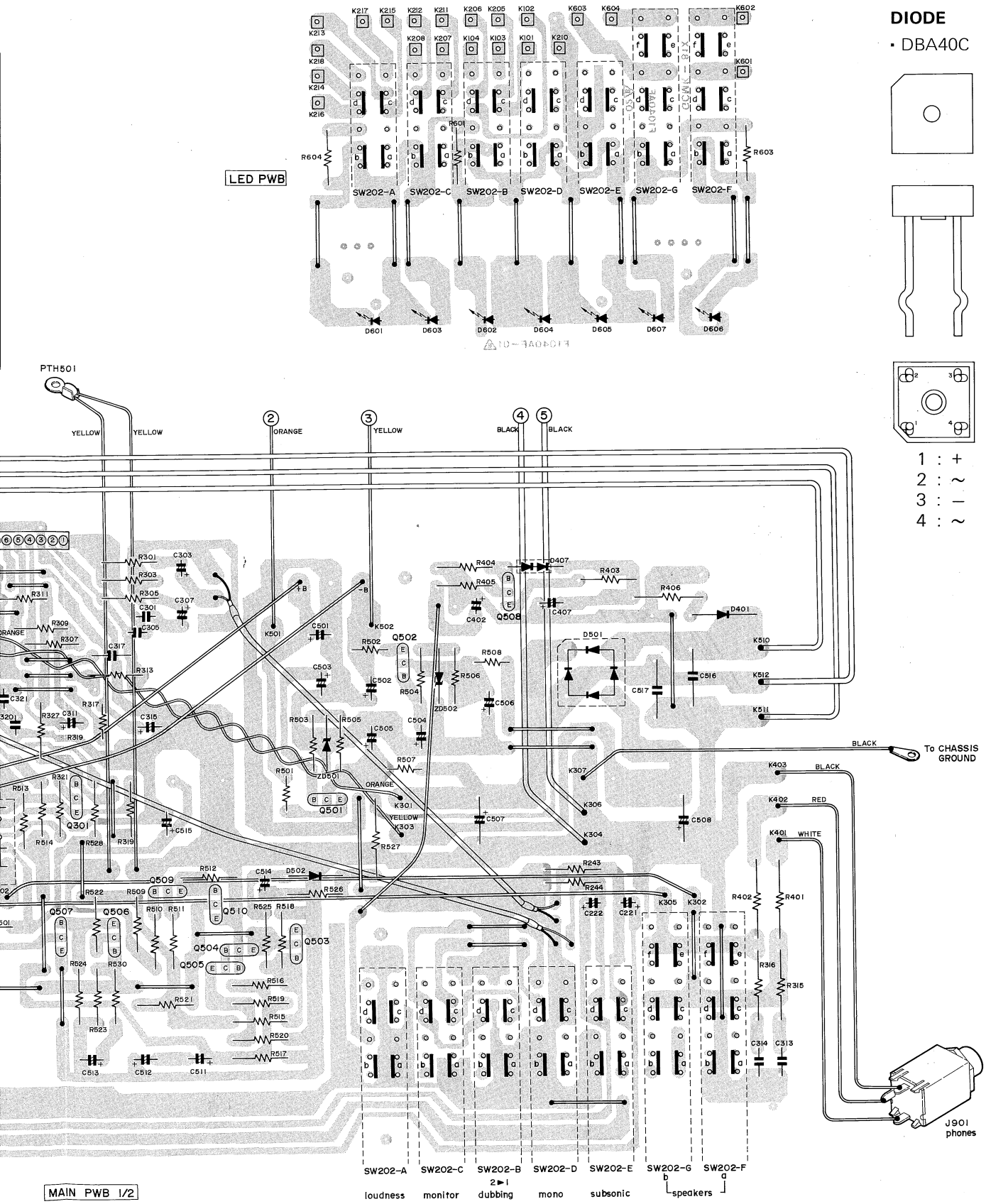


Figure 15–1 WIRIN



DIODE

- DBA40C

1 : +
2 : ~
3 : –
4 : ~

NG SIDE OF P.W. BOARD (MAIN 1/2)

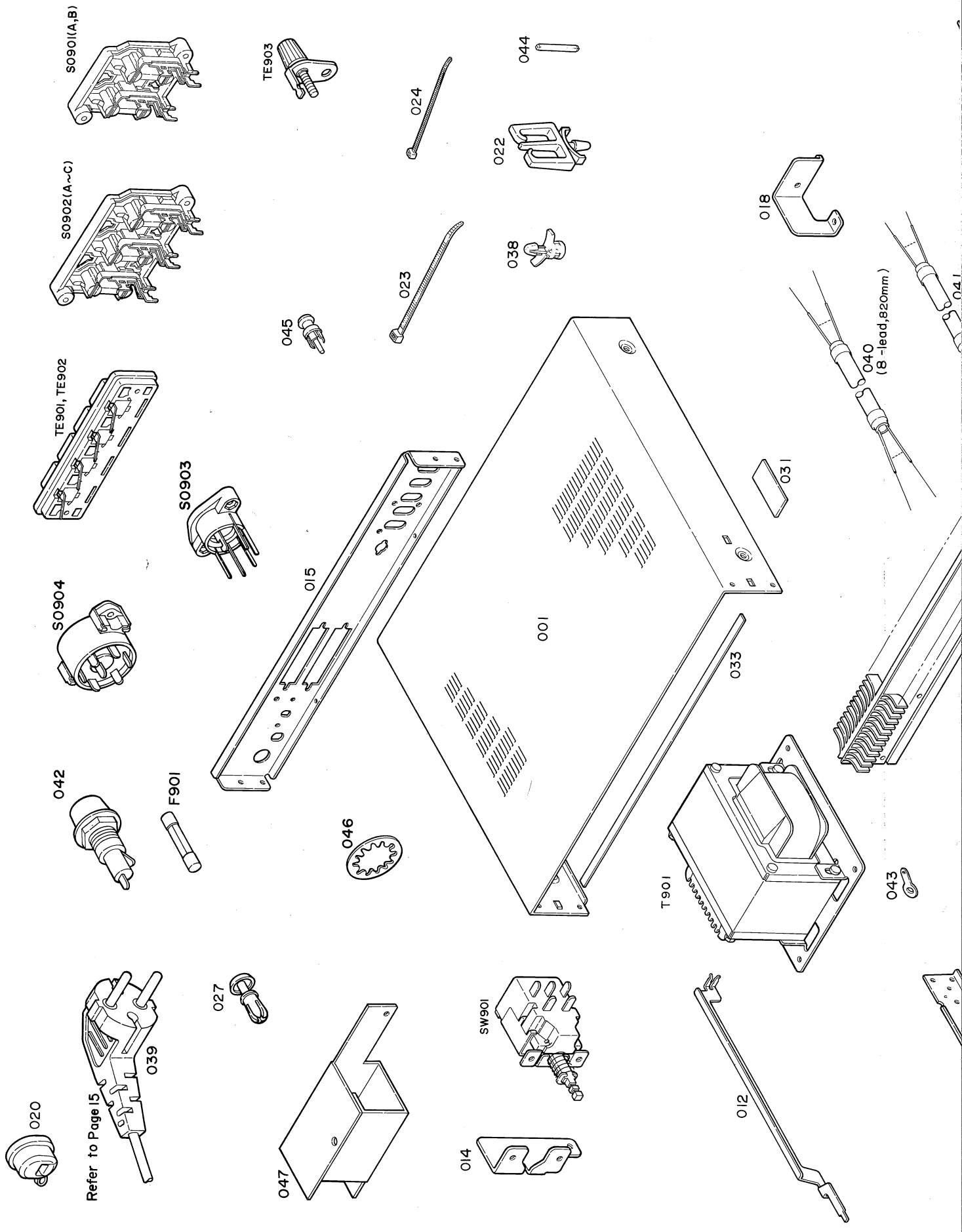
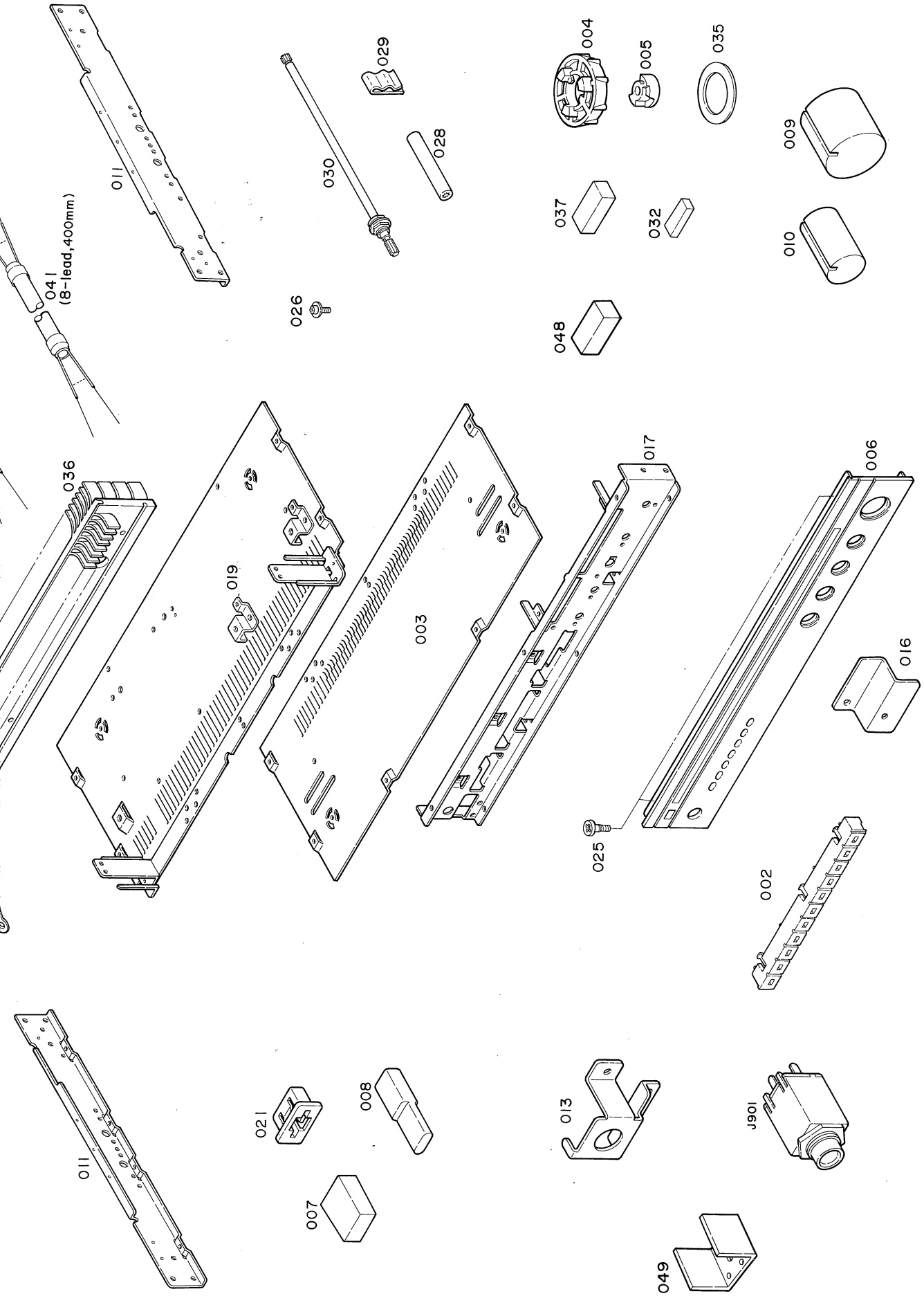


Figure 17–1 MISCELLANEOUS



ANEOUS PARTS GUIDE

REPLACEMENT PARTS LIST

"HOW TO ORDER REPLACEMENT PARTS"

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

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

NOTES:
Be sure to use regular parts for securing the safety and reliability of the set. Parts marked with "⚠" and parts cross-hatched (in black) are especially important for maintaining the safety and protecting ability of the set.
Be sure to replace them with parts of specified part number.

REF. NO.	PART NO.	DESCRIPTION	CODE
		IC (Integrated Circuit)	
IC101	VHILF353N//-1	Equalizer Amplifier (LF353N)	AN
IC201	RH-IX1192AFZZ	Tone Amplifier (AN6551F)	AG
IC301	RH-IX1203AFZZ	Power Amplifier (STK466)	BB
		TRANSISTORS	
Q301, Q302	VS2SA872A-E-1	Overcurrent Protector (2SA872AE)	AC
Q303	VS2SC2320-G-1	Switching (2SC2320 G)	AB
Q501	VS2SD755-E/-1	Voltage Regulator (2SD755 E)	AD
Q502	VS2SB715-E/-1	Voltage Regulator (2SB715 E)	AD
Q503	VS2SC2320-G-1	Protection Circuit (2SC2320 G)	AB
Q504	VS2SA999-F/-1	Protection Circuit (2SA999 F)	AC
Q505	VS2SC2320-G-1	Protection Circuit (2SC2320 G)	AB
Q506	VS2SC2320-G-1	Relay Switching (2SC2320 G)	AB
Q507	VS2SC1735-E-1	Relay Switching (2SC1735 E)	AD
Q508	VS2SC1627Y/-1	Voltage Regulator (2SC1627 Y)	AD
Q509, Q510	VS2SC2320-G-1	Protection Circuit (2SC2320 G)	AB
		DIODES	
D303	VHD1S2473//-1	Protector, Reverse Current (1S2473)	AB
D401	VHD10E1////-1	Rectifier (10E1)	AC
D407	VHVMV-5W///-1	Stabilizer (MV-5W)	AC
D501	VHDDBA40C//-1	Rectifier (DBA40C)	AH
D502	VHD1S2473//-1	Rectifier (1S2473)	AB
D503	VHD1S2473//-1	Surge Absorber (1S2473)	AB
D601	VHPGL-9NG12-1	LED, Loudness Indicator (GL-9NG12)	AD
D602	VHPGL-9NG12-1	LED, Dubbing Indicator (GL-9NG12)	AD
D603	VHPGL-9NG12-1	LED, Monitor Indicator (GL-9NG12)	AD
D604	VHPGL-9NG12-1	LED, Mono Indicator (GL-9NG12)	AD
D605	VHPGL-9NG12-1	LED, Subsonic Indicator (GL-9NG12)	AD
D606	VHPGL-9NG12-1	LED, Speaker (a) Indicator (GL-9NG12)	AD
D607	VHPGL-9NG12-1	LED, Speaker (b) Indicator (GL-9NG12)	AD
ZD501	VHEHZ16-2L/-1	Zener, 16V, Voltage Regulator (HZ16-2L)	AB
ZD502	VHEHZ16-2L/-1	Zener, 16V, Voltage Regulator (HZ16-2L)	AB

REF. NO.	PART NO.	DESCRIPTION	CODE
		TRANSFORMER	
⚠T901	RTRNP0706AFZZ	Power	BK
		CONTROLS	
VR201 (A, B)	RVR-B0216AFZZ	100K ohm (B), Volume Control	AK
VR202	RVR-B0193AFZZ	100K ohm (B), Balance Control	AF
VR203 (A, B)	RVR-C0078AFZZ	100K ohm (C), Bass Control	AH
VR204 (A, B)	RVR-C0078AFZZ	100K ohm (C), Treble Control	AH
		THERMISTOR	
PTH501	RH-QX1001AFZZ	Positive Temperature Coefficient	AF
		ELECTROLYTIC CAPACITORS	
C103, C104	RC-EZ1011AFZZ	330MFD, 6.3V, +50 −10%	AB
C205, C206	VCEALU1HC225M	2.2MFD, 50V, ±20% (Orange)	AB
C219, C220	VCEALU1AC336M	33MFD, 10V, ±20% (Orange)	AB
C221, C222	VCEALU1HW334M	.33MFD, 50V, ±20% (Yellow)	AB
C303, C304	VCEALU1HC225M	2.2MFD, 50V, ±20% (Orange)	AB
C307, C308	RC-EZ1038AFZZ	47MFD, 16V, +50 −10%	AB
C311, C312	RC-EZ1012AFZZ	47MFD, 50V, +50 −10%	AC
C315	RC-EZ1072AFZZ	100MFD, 50V, +50 −10%	AC
C322	VCEAAU2AW105A	1MFD, 100V, +75 −10%	AB
C316, C319, C402	VCEAAU1HW335Y	3.3MFD, 50V, +50 −10%	AB
C407, C501, C502	RC-EZ1012AFZZ	47MFD, 50V, +50 −10%	AC
C503, C504	RC-EZS107AF1V	100MFD, 35V, +50 −10%	AC
C505, C506	RC-EZ1012AFZZ	47MFD, 50V, +50 −10%	AC
C507, C508	RC-EZ1068AFZZ	6800MFD, 50V, +50 −10%	AQ
C511, C512	RC-EZ1011AFZZ	330MFD, 6.3V, +50 −10%	AB
C513	RC-EZ1015AFZZ	220MFD, 16V, +50 −10%	AC

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
C514	VCEALU1HW155M	1.5MFD, 50V, ±20% (Yellow)	AB
C515	RC-EZS227AF1H	220MFD, 50V, ±20%	AD

CAPACITORS

C101, C102	VCCSPU1HL121K	120PF, 50V, ±10%, Ceramic	AA
C105, C106	VCQSMA1HL562G	5600PF, 50V, ±2%, Styrol	AD
C107, C108	VCQSMA1HL162G	1600PF, 50V, ±2%, Styrol	AC
C109, C110	VCFYSU2AB225K	2.2MFD, 100V, ±10%, Metallized Film	AH
C111, C112	VCCSPU1HL101K	100PF, 50V, ±10%, Ceramic	AA
C201, C202	VCQYKU1HM563K	.056MFD, 50V, ±10%, Mylar	AB
C203, C204	VCCSPU1HL331K	330PF, 50V, ±10%, Ceramic	AA
C207, C208	VCQYKU1HM183J	.018MFD, 50V, ±5%, Mylar	AB
C209, C210	VCQYKU1HM104K	.1MFD, 50V, ±10%, Mylar	AB
C211, C212	VCQYKU1HM224K	.22MFD, 50V, ±10%, Mylar	AD
C213, C214	VCCSPU1HL270J	27PF, 50V, ±5%, Ceramic	AA
C215, C216	VCQYKU1HM222J	.0022MFD, 50V, ±5%, Mylar	AB
C217, C218	VCQYKU1HM103J	.01MFD, 50V, ±5%, Mylar	AB
C301, C302	VCCSPU1HL221K	220PF, 50V, ±10%, Ceramic	AA
C305, C306	VCCSPU1HL561K	560PF, 50V, ±10%, Ceramic	AA
C313, C314	VCQYKU1HM473K	.047MFD, 50V, ±10%, Mylar	AB
C317, C318	VCCSPU1HL150K	15PF, 50V, ±10%, Ceramic	AA
C320, C321	VCQYKU1HM332K	.0033MFD, 50V, ±10%, Mylar	AA
C516, C517	VCFYSU2JB103M	.01MFD, 630V, ±20%, Metallized Film	AC
C901	VCKZPU1HF103P	.01MFD, 50V, +100 −0%, Ceramic	AA
⚠C902	RC-HZ064CAFZZ	.047MFD, 250VAC, ±20%, Metallized Paper	AG

RESISTORS

(Unless otherwise specified resistors are 1/4W, ±5%, Carbon type.)

R101, R102	VRD-ST2EE221J	220 ohm	
R103, R104	VRD-ST2EE473J	47K ohm	
R105, R106	VRD-ST2EE102J	1K ohm	
R107, R108	VRD-ST2HE564G	560K ohm, 1/2W, ±2%, Carbon	
R109, R110	VRD-ST2EE561J	560 ohm	
R111, R112	VRD-ST2HE473G	47K ohm, 1/2W, ±2%, Carbon	
R113, R114	VRD-ST2EE224J	220K ohm	
R115, R116	VRD-ST2EE102J	1K ohm	
R201, R202, R203, R204	VRD-ST2EE221J	220 ohm	
R205, R206	VRD-ST2EE105J	1 Meg. ohm	
R211, R212	VRD-ST2EE221J	220 ohm	
R213, R214	VRD-ST2EE103J	10K ohm	
R215, R216	VRD-ST2EE333J	33K ohm	
R217, R218	VRD-ST2EE472J	4.7K ohm	
R219, R220	VRD-ST2EE102J	1K ohm	
R221, R222	VRD-ST2EE334J	330K ohm	
R223, R224	VRD-ST2EE332J	3.3K ohm	
R225, R226	VRD-ST2EE183J	18K ohm	
R227, R228	VRD-ST2EE224J	220K ohm	
R229, R230	VRD-ST2EE332J	3.3K ohm	
R231, R232	VRD-ST2EE122J	1.2K ohm	
R233, R234	VRD-ST2EE684J	680K ohm	
R235, R236	VRD-ST2EE562J	5.6K ohm	
R237, R238	VRD-ST2EE820J	82 ohm	
R239, R240	VRD-ST2EE124J	120K ohm	
R241, R242	VRD-ST2EE102J	1K ohm	
R243, R244	VRD-ST2EE273J	27K ohm	
R251, R252	VRD-ST2EE154J	150K ohm	
R253, R254	VRD-ST2EE104J	100K ohm	
R301, R302	VRD-ST2EE102J	1K ohm	
R303, R304	VRD-ST2EE333J	33K ohm	
R305, R306	VRD-ST2EE182J	1.8K ohm	
R307, R308	VRD-ST2EE332J	3.3K ohm	
R309, R310	VRD-ST2EE102J	1K ohm	
R311, R312	RR-FZ1006AFZZ	.22 ohm, 2W, ±10%, Metallized	AB
R313, R314	VRD-ST2EE333J	33K ohm	
R315, ⚠R316	VRG-ST2HA4R7J	4.7 ohm, 1/2W, ±5%, Fusible	AB
R317	VRG-MU2EB101J	100 ohm, 1/4W, ±5%, Fusible	AD

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
R319, R320	VRD-ST2EE123J	12K ohm	
R321, R322	VRD-ST2EE332J	3.3K ohm	
⚠R323	VRG-ST2EA101J	100 ohm (Fusible)	
R324	VRD-ST2EE393J	39K ohm	
R325	VRD-ST2EE822J	8.2K ohm	
R327, R328	VRD-ST2EE333J	33K ohm	
R329	VRD-ST2EE154J	150K ohm	
⚠R330	VRG-ST2HA1R0J	1 ohm, 1/2W, ±5%, Fusible	AB
R401, R402	VRS-PT3AB221K	220 ohm, 1W, ±10%, Metal Oxide Film	
R403	VRD-ST2EE330J	33 ohm	
R404	VRD-ST2EE223J	22K ohm	
R405	VRD-ST2EE101J	100 ohm	
R406	VRG-ST2HA100J	10 ohm, 1/2W, ±5%, Fusible	AB
⚠R501, R502	VRG-MU2EB470J	47 ohm, 1/4W, ±5%, Fusible	AD
R503, R504	VRD-ST2EE682J	6.8K ohm	
R505, R506	VRD-ST2EE273J	27K ohm	
⚠R507, R508	VRG-MU2EB101J	100 ohm, 1/4W, ±5%, Fusible	AD
R509	VRD-ST2EE103J	10K ohm	
R510	VRD-ST2EE102J	1K ohm	
R511	VRD-ST2EE183J	18K ohm	
R512	VRD-ST2EE561J	560 ohm	
R513, R514	VRD-ST2EE822J	8.2K ohm	
R515	VRD-ST2EE124J	120K ohm	
R516	VRD-ST2EE562J	5.6K ohm	
R517	VRD-ST2EE223J	22K ohm	
R518	VRD-ST2EE333J	33K ohm	
R519	VRD-ST2EE333J	33K ohm	
R520	VRD-ST2EE223J	22K ohm	
R521	VRD-ST2EE334J	330K ohm	
R522	VRD-ST2EE123J	12K ohm	
R523	VRD-ST2EE563J	56K ohm	
R524	VRD-ST2EE561J	560 ohm	
R525	VRD-ST2EE103J	10K ohm	
R526	VRD-ST2EE182J	1.8K ohm	
R527	VRD-ST2EE103J	10K ohm	
R528	VRD-ST2EE470J	47 ohm	
⚠R529	VRG-MU2EB331J	330 ohm, 1/4W, ±5%, Fusible	AD
R530	VRD-ST2EE330J	33 ohm	
R601, R603, R604	VRD-ST2EE121J	120 ohm	

MISCELLANEOUS

⚠F901	QFS-C162CAGNI	Fuse, T1.6A	AE
	QFS-C322CAGNI	Fuse, T3.15A	AE
J901	QJAKJ0070AFZZ	Jack, Headphones	AF
RLY501	RRLYZ0077AFZZ	Relay, Speaker Protector	AQ
SO901 (A, B)	QSOCJ2466AFZZ	Socket Assembly A: Phono Input B: Tuner Input	AE
SO902 (A~C)	QSOCJ2667AFZZ	Socket Assembly A: Auxiliary Input (Tape 2) B: Tape 1 Input C: Tape 1 Output	AG
SO903	QSOCD2553AFZZ	Socket, Tape 1 Record /Playback	AD
⚠SO904	QSOCE0559AFZZ	Switch, Mains Voltage Selector	AL
SW201	QSW-R0174AFZZ	Switch, Function Selector	AH
SW202 (A~G)	QSW-P0251AFZZ	Switch Assembly A: Loudness Contour B: Tape Dubbing C: Tape Monitor D: Mono E: Subsonic Filter F: Speaker Selector (a) G: Speaker Selector (b)	AU
⚠SW901	QSW-P0158AFZZ	Switch, Power	AL
TE901, TE902	QTANZ0455AFZZ	Terminals, Speaker (a) & (b)	AG
TE903	QTANN0153AFZZ	Terminal, Earth	AC
001	GCAB-3067AFSA	Cabinet	AW
002	GCOVA1166AFSA	Holder, LED	AF
003	GFTAU3079AFZZ	Lid, Bottom	AL
004	GLEGP0065AF00	Leg, Outer	AB
005	GLEGP0066AF00	Leg, Inner	AA
006	HPNLC3446AFSA	Panel, Front	AZ
006-1	GMADZ0061AFSA	Window	AK
006-2	PSPAS0080AFSA	Spacer, Power Switch	AB
●006-3	PSPAS0084AFSA	Spacer, Push Switch	AA
007	JKNBM0297AFSA	Knob, Power on/off Switch	AD
008	JKNBM0298AFSA	Knob, Speakers Selector/Subsonic Filter/Mono/Tape Dubbing/Tape Monitor/Loudness Contour	AD
009	JKNBN0403AFSA	Knob, Volume Control	AL
010	JKNBN0404AFSA	Knob, Bass Control/Treble Control/Function Selector/Balance Control	AH
011	LANGF0481AFZZ	Bracket, Right & Left Side	AE
012	LANGG0066AFZZ	Lever, Power Switch	AD
013	LANGQ0650AFZZ	Bracket, Headphones Jack	AB
014	LANGQ0652AFZZ	Bracket, Power Switch	AB
015	LANGQ0776AFZZ	Bracket, Terminals & Sockets	AN
016	LANGQ0750AFZZ	Bracket, Push Switch	AB
017	LANGR0468AFZZ	Bracket, Front	AM
018	LANGT0783AFZZ	Bracket, P.W. Board	AB
019	LANGT0923AFZZ	Bracket, Bottom	AQ
020	LBSHC0004AGZZ	Bushing, Mains Supply Cord	AB
	LBSHC0007AFZZ	Bushing, Mains Supply Cord	AB
021	LHLDS1052AF00	Guide, Power Switch Lever	AB
022	LHLDW1060AFZZ	Wire Holder	AA
023	LHLDW1068AFZZ	Nylon Band (100mm)	AA
024	LHLDW1075AFZZ	Nylon Band (60mm)	AA
025	LX-BZ0261AFFD	Screw, Front Panel Retaining	AA
026	LX-HZ0053AFFD	Screw, Equalizer P.W.B. Retaining	AA
027	LX-LZ0051AF00	Push Rivet	AA
028	MJNT-3051AFZZ	Coupling, Function Selector Switch Shaft	AE
029	MSPRK0054AFFJ	Spring, Function Selector Switch	AB
030	NSFTS0056AFZZ	Shaft, Function Selector Switch	AC
031	PCUSZ0006AFZZ	Cushion, Cabinet (58 x 20 x 1.5mm)	AB
032	PCUSZ0008AFZZ	Cushion (15 x 6 x 4mm)	AA

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
033	PFLT-0330AFZZ	Felt, Cabinet	AA
035	PGUMM0139AF00	Rubber, Outer Leg	AA
036	PRDAR0219AFZZ	Heat Sink	BA
037	PSPAG0075AFZZ	Spacer, Rubber	AA
038	PSPAN0054AFZZ	Spacer, Nylon	AB
	QACCL0051AFZZ	Mains Supply Cord	AM
	QACCS0051AF00	Mains Supply Cord	AM
⚠039	QACCZ0002TA0F	Mains Supply Cord	AG
	QACCZ0052AF00	Mains Supply Cord	AP
	QACCZ0053AF00	Mains Supply Cord	AK
040	QCNW-0702AF01	Cable, 8-lead (820mm)	AK
041	QCNW-0702AF02	Cable, 8-lead (400mm)	AE
⚠042	QFSHP1001AGZZ	Holder, Fuse	AG
043	QHWS-0001CEFN	Lug Terminal	AA
044	QLUGP0111CEFW	Terminal Tip (13mm)	AA
045	QPLGS0150AFZZ	Plug, Short Circuit	AB
046	LX-WZ5065AGFE	Look Washer, Fuse Holder	AA
047	PCOVW1105AFZZ	Cover, Power Switch	AE
048	PCUSS0134AFZZ	Cushion 15 x 25 x 10mm	AA
049	PRDAR0231AFZZ	Heat Sink, Rectifier Diode (D501)	AD
	SPAKA0567AFZZ	Cushion (Left Side)	AF
	SPAKA0568AFZZ	Cushion (Right Side)	AF

REF. NO.	PART NO.	DESCRITION	CODE
	SPAKC1543AFFZ	Packing Case	AQ
	SPAKX0226AFZZ	Cushion (Bottom)	AG
	SPAKX0228AFZZ	Cushion (Top)	AE
	SSAKA0024AFZZ	Bag, Operation Manual	AA
	SSAKH0156AFZZ	Bag, Unit	AC
	TCAUA0200AFZZ	R Card (110V)	
	TCAUA0201AFZZ	R Card (220V)	
	TCAUS0076AFZZ	Caution Card	
	TGANE1119AFZZ	Warranty Card (SCA)	
	TGANG1039AFZZ	Warranty Card, SEEG DV	
	TINSP0131AFZZ	Operation Manual	AH
	TLABS0080AFZZ	Label, SEMKO	
	TLABS0081AFZZ	Label, NEMKO	
	TLABS0082AFZZ	Label, DEMKO	
	TLABS0083AFZZ	Label, SEV	
	TLABS0084AFZZ	Label, SND	
	TLSTS0001ZZR0	List, Service Station (SCA)	
	TMAPC0692AFZZ	Schematic Diagram	
	TTAGH0139AFZZ	Tag	

PWB ASSEMBLY (Not Replacement Item)

DUNTM0072AF04	Main Amp.	—

DIFFERENCE BETWEEN SM-5200H AND SM-5200HB

REF. NO.	SM-5200H (Front Panel: Silver)		SM-5200HB (Front Panel: Bronze)		DESCRIPTION
	PARTS NO.	CODE	PARTS NO.	CODE	
006	HPNLC3446AFSA	AZ	HPNLC3446AFSB	AZ	Panel, Front
006-2	PSPAS0080AFSA	AB	PSPAS0080AFSB	AB	Spacer, Power Switch
•006-3	PSPAS0084AFSA	AA	PSPAS0084AFSB	AA	Spacer, Push Switch
007	JKNBM0297AFSA	AD	JKNBM0297AFSB	AD	Knob, Power on/off Switch
008	JKNBM0298AFSA	AD	JKNBM0298AFSB	AD	Knob, Speakers Selector/Subbsoinc Filter/ Mono/Tape Dubbing/Tape Monitor/Loudness Contour
009	JKNBN0403AFSA	AL	JKNBN0403AFSB	AM	Knob, Volume Control
010	JKNBN0404AFSA	AH	JKNBN0404AFSB	AK	Knob, Bass Control/Treble Control/Function Selector/Balance Control
015	LANGQ0776AFSA	AN	LANGQ0782AFSA	AN	Bracket, Terminals & Sockets
	SPAKC1543AFZZ	AQ	SPAKC1544AFZZ	AQ	Paking Case

A8009-3MNK.
Printed in Japan