



SERVICE MANUAL

SM-7100H
SM-7100HB

STEREO AMPLIFIER

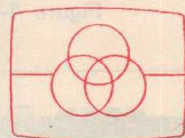
MODEL SM-7100H

(Silver Panel)

SM-7100HB

(Brown Panel)

(PHOTO: SM-7100H)

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

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GENERAL DESCRIPTION

Power source: A.C. 110/220/240 V, 50/60 Hz
 Power consumption: 500 W
 Semiconductors: 5-ICs (Integrated Circuit)

Circuit:

45-Transistors
 14-FETs (Field Effect Transistor)
 24-Diodes (3-Zener Diodes)
 17-LEDs (Light Emitting Diode)
 Power amplifier;
 Symmetrically balanced D.C. amplifier, complementary final stage
 Equalizer;
 ICL (Input Capacitor-less), FET differential amplifier, complementary final stage, dual power supply
 Tone control;
 ICL (Input Capacitor-less), FET differential amplifier, dual power supply
 Dimensions: Width; 430 mm (16-15/16 inch)
 Height; 75 mm (2-31/32 inch)
 Depth; 382 mm (15-1/16 inch)
 Weight: 10.8 kg (23.8 lbs.)

POWER AMPLIFIER

Continuous power output (at 1 kHz):

2 x 70 W/4 ohms, Both channels driven, 0.005% distortion
 2 x 60 W/8 ohms, Both channels driven, 0.005% distortion

Continuous power output (20 Hz — 20 kHz):

2 x 65 W/4 ohms, Both channels driven, 0.03% distortion
 2 x 60 W/8 ohms, Both channels driven, 0.03% distortion

Intermodulation:

0.02% at rated power
 0.01% at 35 W output

Damping factor:

more than 70 (at 1 kHz, 8 ohms)

Power bandwidth:

5 Hz to 40 kHz, at 0.05% distortion

Frequency response:

D.C. to 80 kHz +0 dB
 —1.5 dB

SPECIFICATIONS

Input sensitivity and input impedance:
 830 mV/10k ohms

PRE-AMPLIFIER

Input sensitivity and input impedance:
 PHONO 1 and 2; 2.8 mV/47k ohms
 AUX; 150 mV/47k ohms
 TUNER; 150 mV/47k ohms
 TAPE PB 1 and 2; 150 mV/47k ohms
 TAPE PB (DIN socket); 150 mV/47k ohms

Allowable maximum input for equalizer:
 300 mV (RMS, 1 kHz)

RIAA curve deviation:

±0.3 dB (20 Hz to 20 kHz)

Frequency response: +0 dB (TUNER, AUX, 7 Hz to 70 kHz)
 —3 dB TAPE PB)

Tone control: Bass; ±10 dB at 100 Hz
 Treble; ±9 dB at 10 kHz

Low filter: —3 dB at 15 Hz, 6 dB/octave
 —3 dB at 30 Hz, 6 dB/octave

High filter: —3 dB at 8 kHz, 6 dB/octave
 —3 dB at 15 kHz, 6 dB/octave

Loudness contour: +6 dB at 100 Hz
 +3 dB at 10 kHz

Audio muting: —20 dB

Signal to noise ratio: PHONO; 80 dB
 (using IHF "A" network) AUX or TUNER;
 95 dB

Output level and loaded impedance:
 REC 1 and 2; 150 mV/47k ohms
 REC (DIN socket); 30 mV/82k ohms

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

LAYOUT OF FRONT & REAR PARTS (Figure 3-1 and Figure 3-2)

1. Power On/Off switch knob (JKNBM0297AFSA) (SM-7100H)
(JKNBM0297AFSB) (SM-7100HB)

2. Power/protection indicator, D901 (VHPGL-52RG/1F)

3. Headphones jack, J901 (QJAKJ0070AFZZ)

4. Speakers selector knob (JKNBM0298AFSA) (SM-7100H)
(JKNBM0298AFSB) (SM-7100HB)

5. Subsonic filter knob (JKNBM0298AFSA) (SM-7100H)
(JKNBM0298AFSB) (SM-7100HB)

6. High filter knob (JKNBM0298AFSA) (SM-7100H)
(JKNBM0298AFSB) (SM-7100HB)

7. Mono switch knob (JKNBM0298AFSA) (SM-7100H)
(JKNBM0298AFSB) (SM-7100HB)

8. Tape dubbing selector knob (JKNBM0298AFSA) (SM-7100H)
(JKNBM0298AFSB) (SM-7100HB)

9. Tape monitor selector knob (JKNBM0298AFSA) (SM-7100H)
(JKNBM0298AFSB) (SM-7100HB)

10. Tone control circuit on/off knob
(JKNBM0298AFSA) (SM-7100H)
(JKNBM0298AFSB) (SM-7100HB)

11. Loudness contour knob (JKNBM0298AFSA) (SM-7100H)
(JKNBM0298AFSB) (SM-7100HB)

12. Audio muting knob (JKNBM0298AFSA) (SM-7100H)
(JKNBM0298AFSB) (SM-7100HB)

13. Bass control knob (JKNBN0404AFSA) (SM-7100H)
(JKNBN0404AFSB) (SM-7100HB)

14. Treble control knob (JKNBN0404AFSA) (SM-7100H)
(JKNBN0404AFSB) (SM-7100HB)
15. Function selector knob (JKNBN0404AFSA) (SM-7100H)
(JKNBN0404AFSB) (SM-7100HB)

16. Balance control knob (JKNBN0404AFSA) (SM-7100H)
(JKNBN0404AFSB) (SM-7100HB)

17. Volume control knob (JKNBN0403AFSA) (SM-7100H)
(JKNBN0403AFSB) (SM-7100HB)

18. Output power indicator, D609 & D610 (VHPGL112N31-1)

19. Switch indicator, D701 – D714 (VHPGL-9NG12-1)

20. Earth terminal, TE903 (QTANN0153AFZZ)

21. Phono 1 input jacks (QSOCZ2472AFZZ)

22. Phono 2 input jacks (QSOCZ2472AFZZ)

23. Tuner input jacks (QSOCJ2667AFZZ)

24. Auxiliary input jacks (QSOCJ2667AFZZ)

25. Tape 1 input jacks (QSOCJ2667AFZZ)

26. Tape 1 output jacks (QSOCJ2667AFZZ)

27. Tape 2 input jacks (QSOCJ2667AFZZ)

28. Tape 2 output jacks (QSOCJ2667AFZZ)

29. Tape 2 record/playback socket (QSOCD2553AFZZ)

30. Output of pre-amplifier jacks (QSOCJ2459AFZZ)

31. Input for power amplifier jacks (QSOCJ2459AFZZ)

32. Speaker A terminals (QTANZ0455AFZZ)

33. Speaker B terminals (QTANZ0455AFZZ)

34. Mains voltage selector (QSOCE0559AFZZ)

35. Fuse holder (QFSHP1001AGZZ)

(PHOTO: SM-7100H)

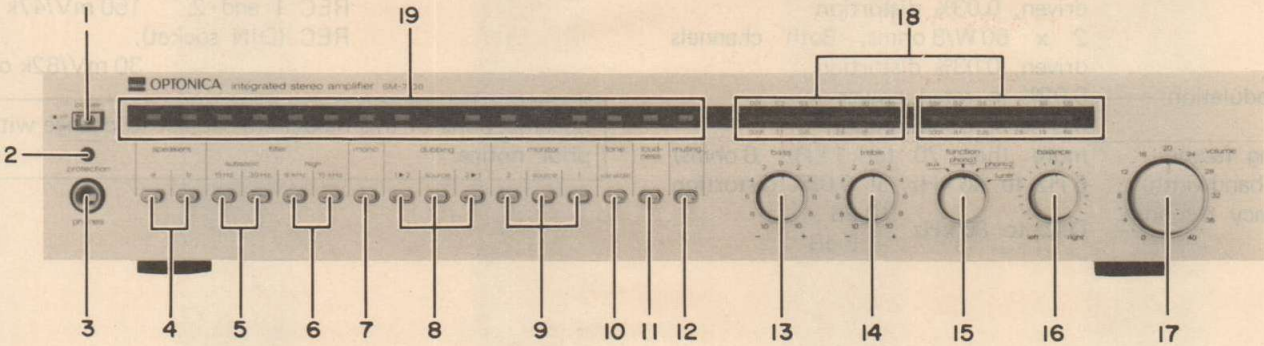


Figure 3-1

(PHOTO: SM-7100H)

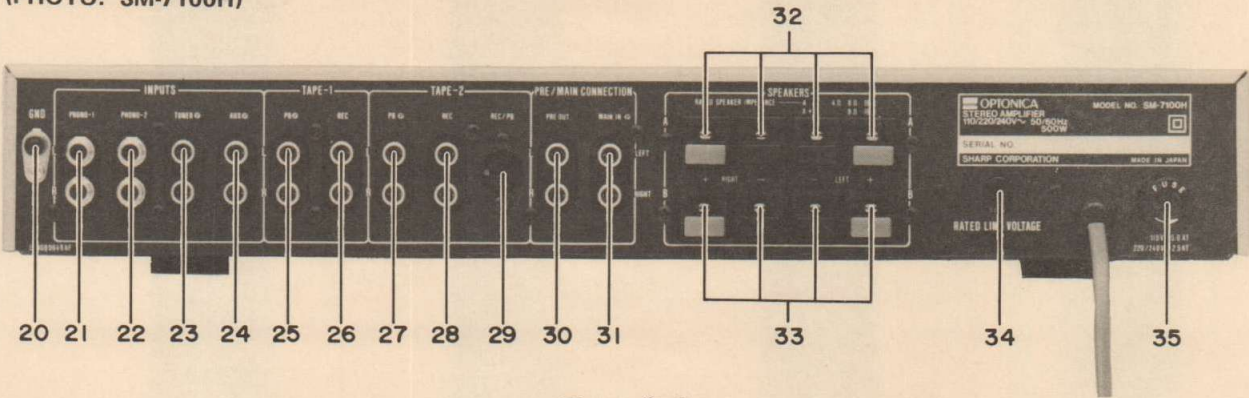


Figure 3-2

DISASSEMBLY

Prior to removing the chassis, be sure to draw the mains supply cord from a wall outlet. Then, proceed with the removal work in the following order after disconnecting all of the connection cords at the rear of the set.

- 1) To remove the cabinet: (See Figure 4-1)
Remove 4 screws retaining the cabinet (2 screws each for the right and left sides), then the cabinet can be detached.
- 2) To remove the bottom lid: (See Figure 4-2)
Turn over the set and remove 9 screws retaining the bottom lid, then the bottom lid can be detached.
- 3) To remove the front panel: (See Figure 4-2 and 4-3)
 1. Pull out the 5 knobs.
 2. Remove the 5 screws and push rivet retaining the front panel, then the front panel can be detached.

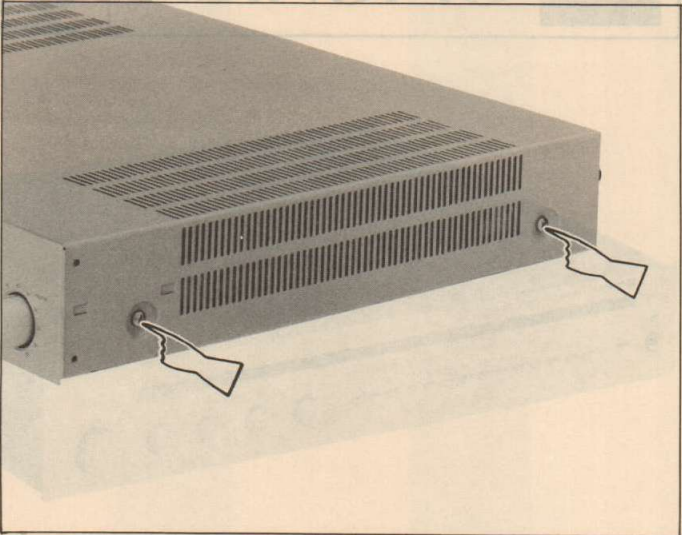


Figure 4-1

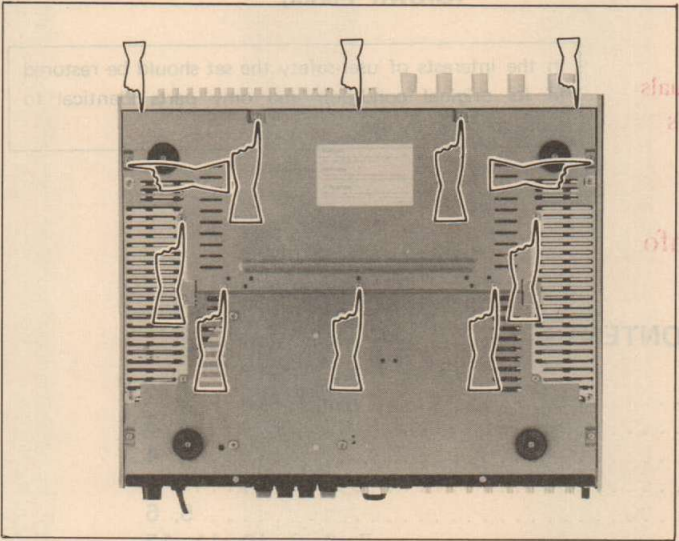


Figure 4-2

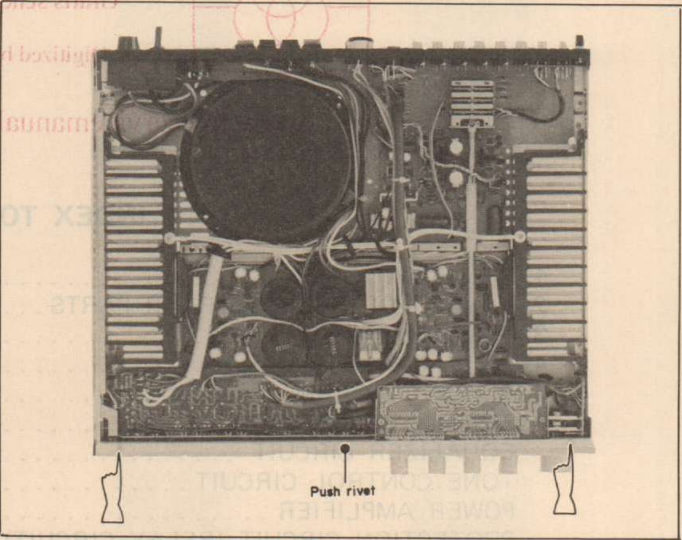


Figure 4-3

AC MAINS VOLTAGE

Check the preset AC mains voltage before plugging the mains supply lead to a mains outlet. If the setting is different 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 T6.3A. In other voltages 220V or 240V use a fuse of T4.0A.

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.

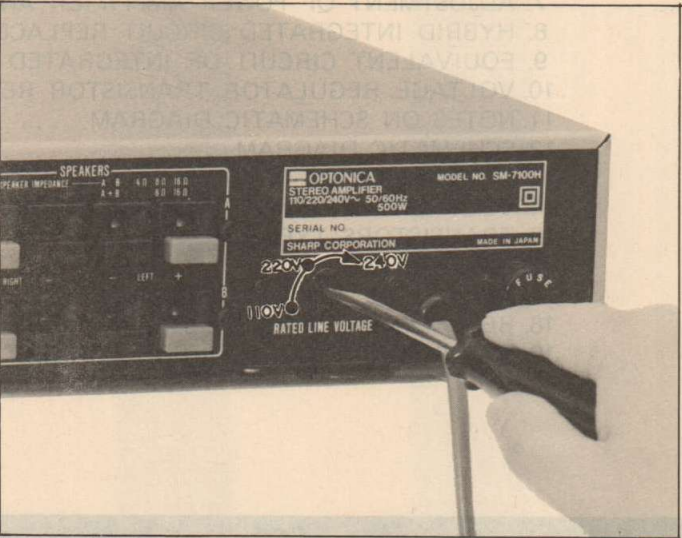


Figure 4-4

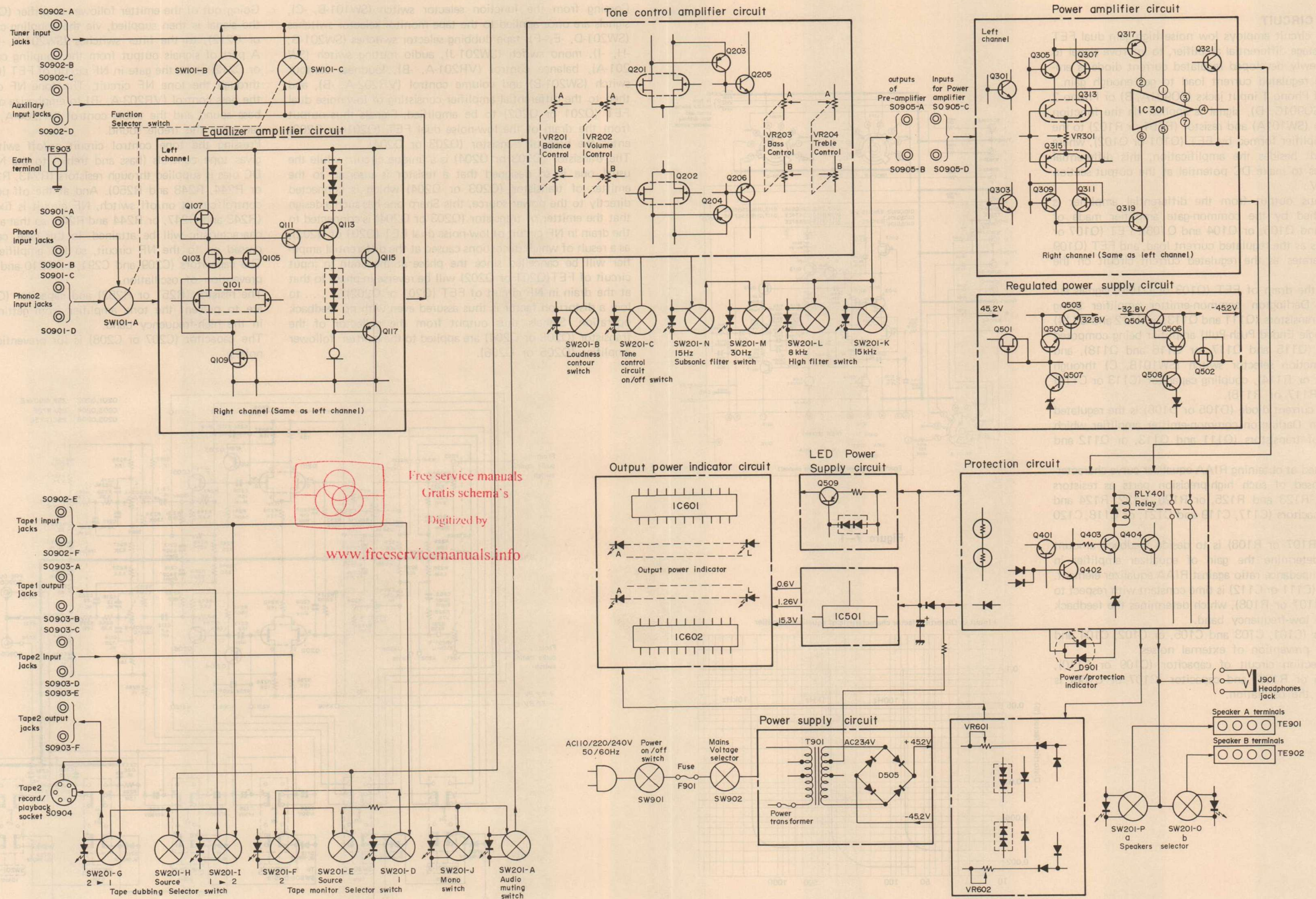


Figure 5 BLOCK DIAGRAM

CIRCUIT DESCRIPTION

EQUALIZER CIRCUIT

This equalizer circuit employs low noise high gain dual FET in the initial stage differential amplifier, to improve signal to noise ratio. Newly developed regulated current diode is employed as the regulated current load to get enough gain. Coming out of Phono 1 input jacks (SO901A, B) or Phono 2 input jacks (SO901C, D), signal is applied via the function selector switch (SW101A) and resistor (R101 or R102) to the differential amplifier formed by FET (Q101 or Q102), where it is amplified: besides the amplification, this differential amplifier serves to make DC potential at the output section be kept to 0V.

The signal thus output from the differential amplifier is further amplified by the common-gate amplifier made of FETs (Q103 and Q105, or Q104 and Q106). FET (Q107 or Q108) operates as the regulated current load, and FET (Q109 or Q110) operates as the regulated current circuit on the other hand.

Coming from the drain of FET (Q103 or Q104), signals are amplified by Darlington common-emitter amplifier being composed of transistors (Q111 and Q113, or Q112 and Q114) and SEPP (Single Ended Push-Pull) amplifier being composed of transistors (Q115 and Q117, or Q116 and Q118), and enter into function selector switch (SW101B, C) through resistor (R113 or R114), coupling capacitor (C113 or C114) and resistor (R117 or R118).

The regulated current diode (D105 or D106) is the regulated current load in Darlington common-emitter amplifier which is composed of transistors (Q111 and Q113, or Q112 and Q114).

NF circuit aimed at obtaining RIAA equalizer curve characteristic is composed of such high-precision parts as resistors (R119, R121, R123 and R125, or R120, R122, R124 and R126) and capacitors (C117, C119 and C121, or C118, C120 and C122).

The resistor (R107 or R108) is to decide feedback amount and besides determine the gain of equalizer amplifier in terms of the impedance ratio against RIAA equalizer element. The capacitor (C111 or C112) is time constant with respect to the resistor (R107 or R108), which determines the feedback amount about low-frequency band.

The capacitors (C101, C103 and C105, or C102, C104 and C106) are for prevention of external noises.

Directly connection circuit of capacitor (C109 or C110), resistor (R105 or R106) and capacitor (C107 or C108) is for preventing the oscillation.

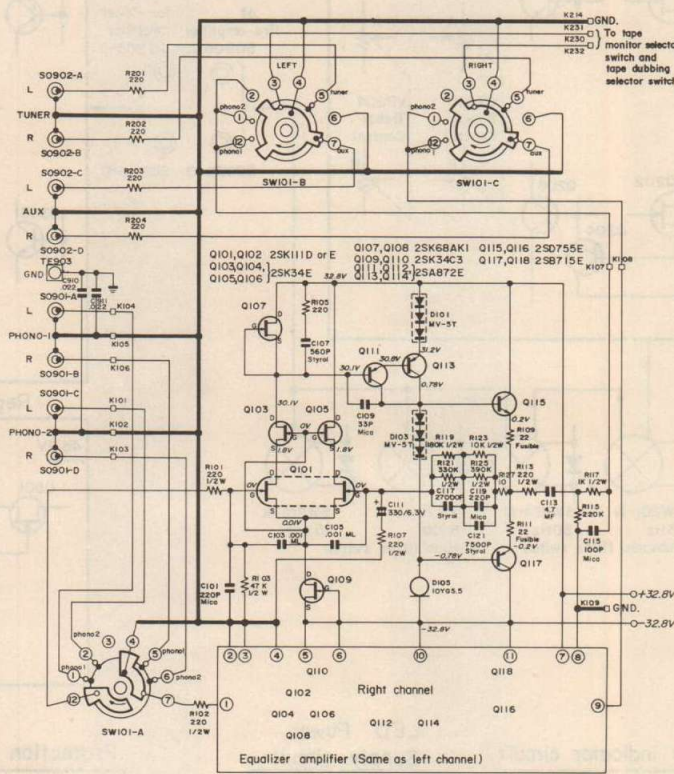


Figure 7-1

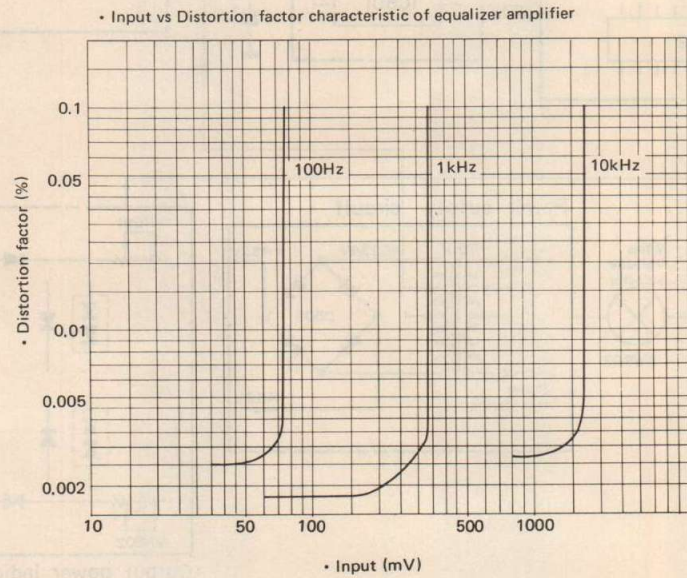


Figure 7-2

TONE CONTROL CIRCUIT

Coming from the function selector switch (SW101-B, -C), signals are once applied to the tape monitor selector switches (SW201-D, -E, -F), tape dubbing selector switches (SW201-G, -H, -I), mono switch (SW201-J), audio muting switch (SW201-A), balance control (VR201-A, -B), loudness contour switch (SW201-B) and volume control (VR202-A, -B), and then to the differential amplifier consisting of low-noise dual FET (Q201 or Q202) to be amplified. Signals thus output from the drain of the low-noise dual FET (Q201 or Q202) enter the base of transistor (Q203 or Q204).

The transistor (Q203 or Q204) is a unique circuit: while the usual one is so designed that a resistor is inserted to the emitter of transistor (Q203 or Q204) which is connected directly to the power source, this Sharp one has such a design that the emitter of transistor (Q203 or Q204) is connected to the drain in NF circuit of low-noise dual FET (Q201 or Q202), as a result of which distortions caused at the differential amplifier will be cancelled since the phase at the drain in input circuit of FET (Q201 or Q202) will be reverse in phase to that at the drain in NF circuit of FET (Q201 or Q202) to low a distortion factor is thus assured even with no feedback operation. Signals thus output from the collector of the transistor (Q203 or Q204) are applied to the emitter follower amplifier (Q205 or Q206).

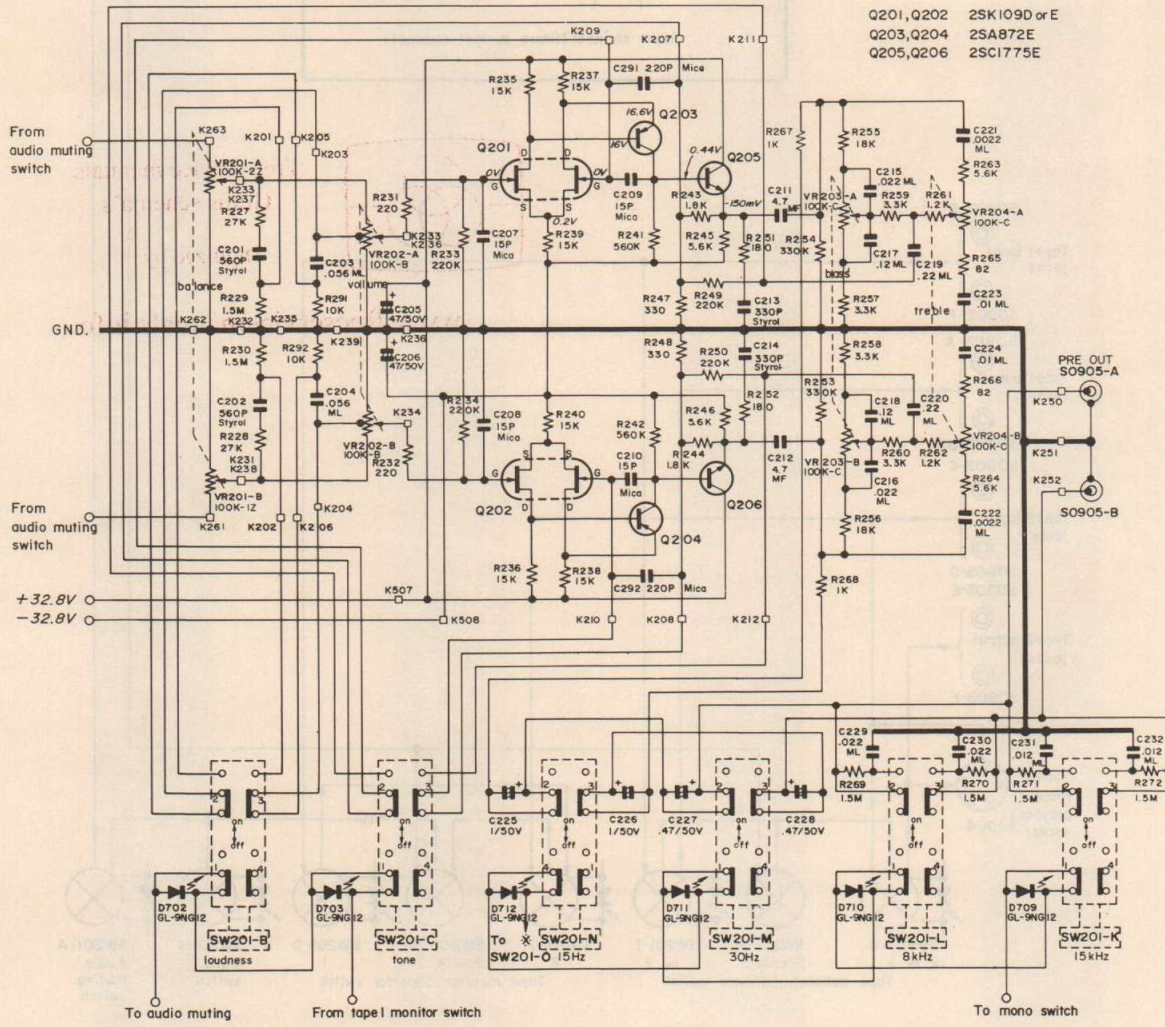


Figure 8

Going out of the emitter follower amplifier (Q205 or Q206), the signal is then supplied, via the coupling capacitor (C211 or C212), to the filter switches (SW201-K, -L, -M, -N). A part of signals output from the coupling capacitor (C211 or C212) enter the gate in NF circuit of FET (Q201 or Q202) through the tone NF circuit. The tone NF circuit includes the bass control (VR203-A, -B) to emphasize or attenuate the bass sound and the treble control (VR204-A, -B) to do the same for the treble sound.

Pressing the tone control circuit on/off switch (SW201-C) gives tone controls (bass and treble) to the NF circuit, and DC bias is supplied through resistors (R243, R247 and R249, or R244, R248 and R250). And at the off position of tone control circuit on/off switch, NF circuit is fixed at resistors (R243 and R247, or R244 and R248) so that a flat frequency characteristic will be attained. In this case, capacitor is not passed on to the NF circuit, so DC amplifier operates. The capacitors (C209 and C291, or C210 and C292) are for prevention of oscillation.

The resistor (R251 or R252) and capacitor (C213 or C214) are to prevent the tone amplifier from getting unstabilized in the high-frequency band.

The capacitor (C207 or C208) is for prevention of external noises.

POWER AMPLIFIER

The power amplifier circuit is DC amplifier with symmetrically balanced driver circuit.

The signal coming from the filter switches (SW201-K, -L, -M, -N) is amplified by the differential amplifier made of low-noise transistors (Q313 and Q315, or Q314 and Q316) via resistor (R303 or R304), and then by the common-base amplifier formed by transistors (Q305, Q307, Q309 and Q311, or Q306, Q308, Q310 and Q312), further going on to the next stage. In general, most of the audio units are not provided with such cascode amplifier (Composed of Q305, Q307, Q309 and Q311, or Q306, Q308, Q310 and Q312) as in our unit. The reason of our employment of it is to prevent the transistors (Q313 and Q315, or Q314 and Q316) from being affected by possible fluctuations of the power supply voltage as well as to keep the resultant high-frequency band characteristic from degrading due to C_{cb} (collector-base capacitance) caused by the transistors (Q313 and Q315, or Q314 and Q316). [The potentials at the bases of transistors (Q305, Q307, Q309 and Q311, or Q306, Q308, Q310 and Q312) are kept to $\pm 10V$ by the constant voltage circuit formed by transistors (Q301 and Q303, or Q302 and Q304).]

The signal going out of the transistors (Q305 and Q309, or Q306 and Q310) is then supplied to the voltage amplifier formed by transistors (Q317 and Q319, or Q318 and Q320) which are of so called push-pull operation: this design is aimed at protecting the high gain and great amplitude ensured in this amplification stage against any distortion (which may be caused without the push-pull operated design).

The amplified signal is fed to the second and sixth terminal of hybrid integrated circuit (IC301 or IC302) where the 3-stage Darlington connection is built-in, and the currently amplified signal is produced at the output of the fourth terminal. This signal is fed to the speaker terminals (TE901 or TE902) through relay (RLY401) and speakers selector switches (SW201-O, -P).

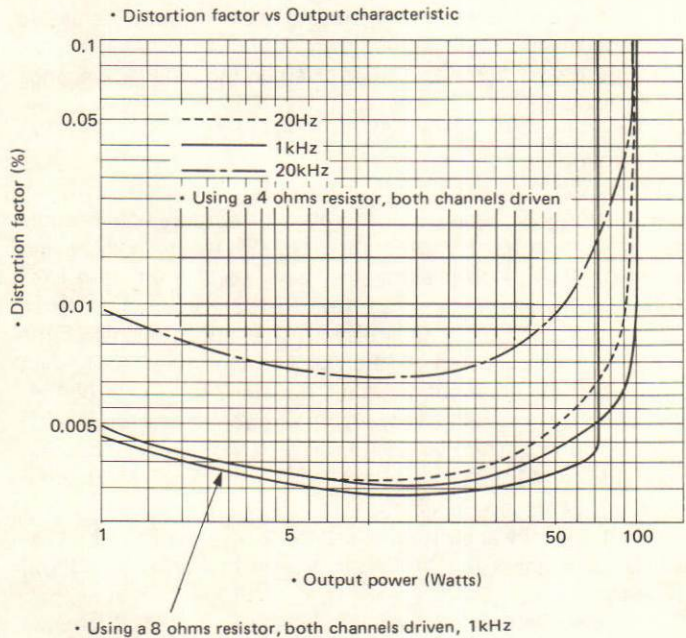


Figure 9-1

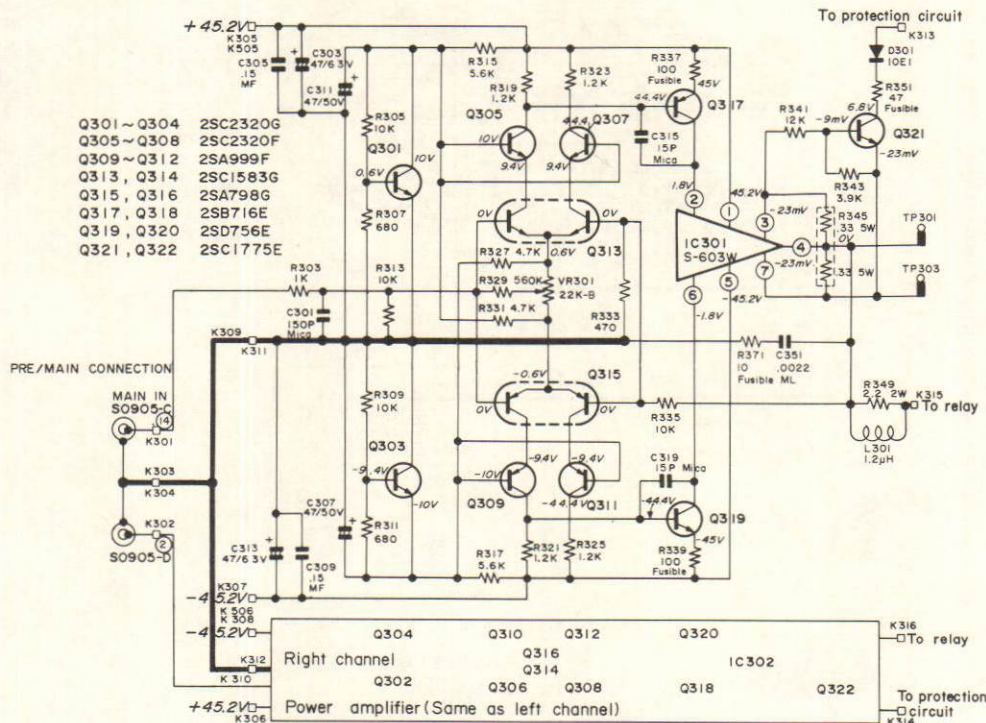


Figure 9-2

PROTECTION CIRCUIT (RELAY CIRCUIT)

The protection circuit used in this set is so designed as to function in the following instances.

- (1) It protects the speaker against possible shock noise caused when the power switch is turned on.
- (2) It protects the speaker against possible shock noise caused when the power switch is turned off.
- (3) It functions when DC voltage is generated at the speaker terminal.
(for instance, when DC voltage gets unbalanced due to a trouble inside the amplifier).
- (4) In the case of the temperature of heat sink increasing abnormally.
- (5) The speaker terminals are shorted and the load impedance is lowered.
(for instance, when several speakers are connected in parallel to the amplifier).

* When the power switch is set to "on" position, until the power supply voltage to the protection circuit will become stabilized, a current runs in resistors (R410 and R412) and capacitor (C406) and since the base voltage of transistor (Q403) is increased, the transistor (Q403) is switched on to cause a current run in the relay so that output signal of the amplifier be connected to the speaker terminals. And when the power switch is set to "on" position, transistor (Q404) is switched on, and power/protection indicator (D901) lights up in red. Then when transistor (Q403) is switched on, transistor (Q404) is switched off, and power/protection indicator lights up in green.

* When the power switch is set to "off" position, the base voltage of transistor (Q402) increases and transistor (Q402) is switched on.

Then as the voltage charged in capacitor (C406) discharges through resistor (R412), the base voltage of transistor (Q403) decreases and transistor (Q403) is switched off.

As a result, the relay will be given no current to make the amplifier and speaker terminals be disconnected from each other.

* If DC voltage is generated at the speaker terminals, positive (+) or negative (–) voltage is applied to transistors (Q401 and Q402) through resistors (R407 and R408). As for the positive voltage, it is applied to the base of transistor (Q402) via resistor (R406) so as to switched on transistor (Q402). As for the negative voltage, since the emitter voltage of transistor (Q401) becomes lower than its base voltage, the transistor (Q401) is switched on, resulting in the same as stated in the foregoing paragraph: the relay will be given no current to make the amplifier and speaker terminals be disconnected from each other.

* When the temperature of heat sink increases abnormally, resistance value of over-heat preventive posistor (PTH401 and PTH402) provided at the heat sink is also increased and as a result voltage is applied to the base of transistor (Q402) via resistors (R402 and R404) and diode (D402) so that the transistor (Q402) be switched on. This results in the same as said in the foregoing paragraph: there will be no current running in the relay to disconnect the amplifier output and speaker terminals from each other.

* If the speaker terminals are shorted or load impedance is lessened, this causes in the power transistor of hybrid integrated circuit (IC301 and IC302) that the voltage produced (between the terminals 3 and 7) by its emitter resistance becomes higher than as specified so that there will be a potential difference between the base and emitter of transistor (Q321 or Q322). Accordingly, the transistor (Q321 or Q322) is switched on so that there will be a current running through diode (D301 or D302) to have transistor (Q403) be switched off.

Diode (D405) is used to keep the emitter voltage of transistor (Q403) stable.

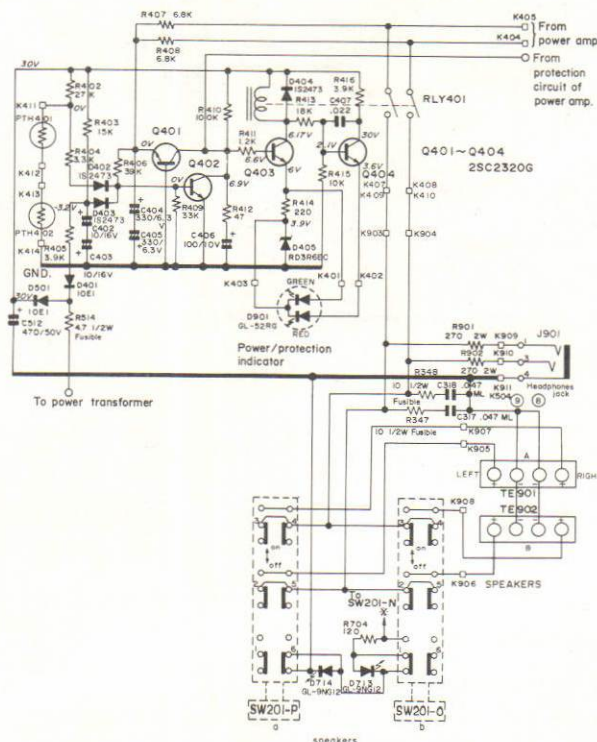


Figure 10

OUTPUT POWER INDICATOR CIRCUIT

This circuit is for rectifying and logarithmically compressing the output signal, and for operating the output power indicator. As for signal coming from power amplifier, elements of super low-range frequency are removed in capacitor (C601 or C602), and is half wave rectified in diode (D603 or D604). The signal is compressed logarithmically in diodes (D605 and D607, or D606 and D608), and it is passed on through the semi-variable resistor (VR601 or VR602) for adjusting output power indicator level, and enters into the 21st terminal of integrated circuit (IC601 or IC602) for operating output power indicator. Output power indicators (D601 or D602) lights up by the voltage at the 21st terminal of integrated circuit (IC601 or IC602).

As diode (D603 or D604) is germanium diode, large reverse voltage makes current flow in the reverse direction, and as a result an error is produced in the display of output power indicators (D601 or D602). Diode (D601 or D602) prevents these situations.

Capacitor (C603 or C604) is for lengthening the light up time of output power indicators (D601 or D602).

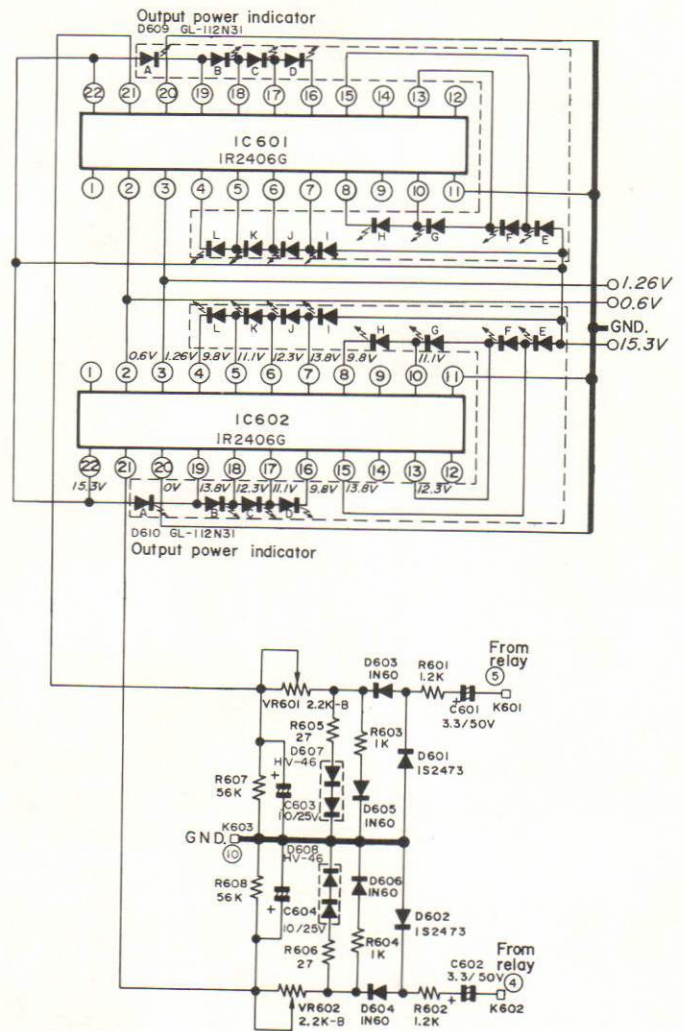


Figure 11

POWER SUPPLY CIRCUIT

The power transformer of this unit employs thin troidal core transformer the voltage regulation of which is excellent. The output voltage of the second alternating current of power transformer (T901) is rectified in the bridged all wave rectifier circuit (D505), and is supplied to the regulated voltage power supply circuit for power amplifier and equalizer/tone control circuit through smoothing circuit consisting of low impedance capacitors (C905 and C907, or C906 and C908).

Capacitors (C901 to C904) are for removing the switching noise of rectifier circuit and noises from the primary side of power transformer.

The positive (+) side of regulated voltage power supply circuit for equalizer and tone control circuit consists of transistors (Q501, Q503, Q505 and Q507), and the negative (-) side consists of transistors (Q502, Q504, Q506 and Q508). Transistor (Q507 or Q508) is for the detection of output voltage, and it operates measuring comparatively the reference voltage regulated by zener diode (D502 or D503) and the voltage available partly at resistors (R503 and R507, or R504 and R508). For example, if the positive (+) side of output voltage rises, base voltage of transistor (Q507) rises, and a

current flows from collector of transistor (Q507) to emitter. At this time because of fall of voltage in the source side of FET (Q501), the base voltage of transistor (Q505) falls. As a result base voltage of transistor (Q503) falls, and the resistance between collector-emitter of transistor (Q503) increases, and finally the output voltage falls. In the case of fall of output voltage, the movement reverse to the above said occurs.

Electrolytic capacitor (C503 or C504) is for absorbing the noise of zener diode (D502 or D503), and electrolytic capacitors (C501 and C513, or C502 and C514) serves as a ripple filter. FET (Q501 or Q502) operates as a regulated current supply load for transistor (Q507 or Q508). Alternating current output voltage coming from the second side tap of power transformer (T901) enters into fusible resistor (R514), and is half wave rectified in diode (D501), and through electrolytic capacitor (C512) for smoothing is supplied to the regulated current circuit for switch indicators, and protection circuit, and to the regulated voltage circuit for output power indicator.

The regulated current circuit for switch indicators consists of transistor (Q509), diode (D504) and resistor (R518), and lights up the directly connected indicators (D701 to D712). The amount of current is determined in diode (D504) and resistor (R518). Resistors (R701 to R704) reduce the load on transistors (Q509) when indicators (D701, D706, D708 and D713) do not light up.

The regulated voltage circuit for output power indicator employs 1-tip monolithic IC regulator, and its output voltage attains 15 V. The voltage partly available in resistors (R512 and R513) and resistor (R511) is fed to the terminal 3 of IC (IC601 or IC602) and becomes standard voltage for the comparison with the input signal.

The voltage partly available in resistors (R511 and R512) and resistor (R513) is fed to the terminal 2 of IC (IC601 or IC602), and it regulates the current flowing in LED.

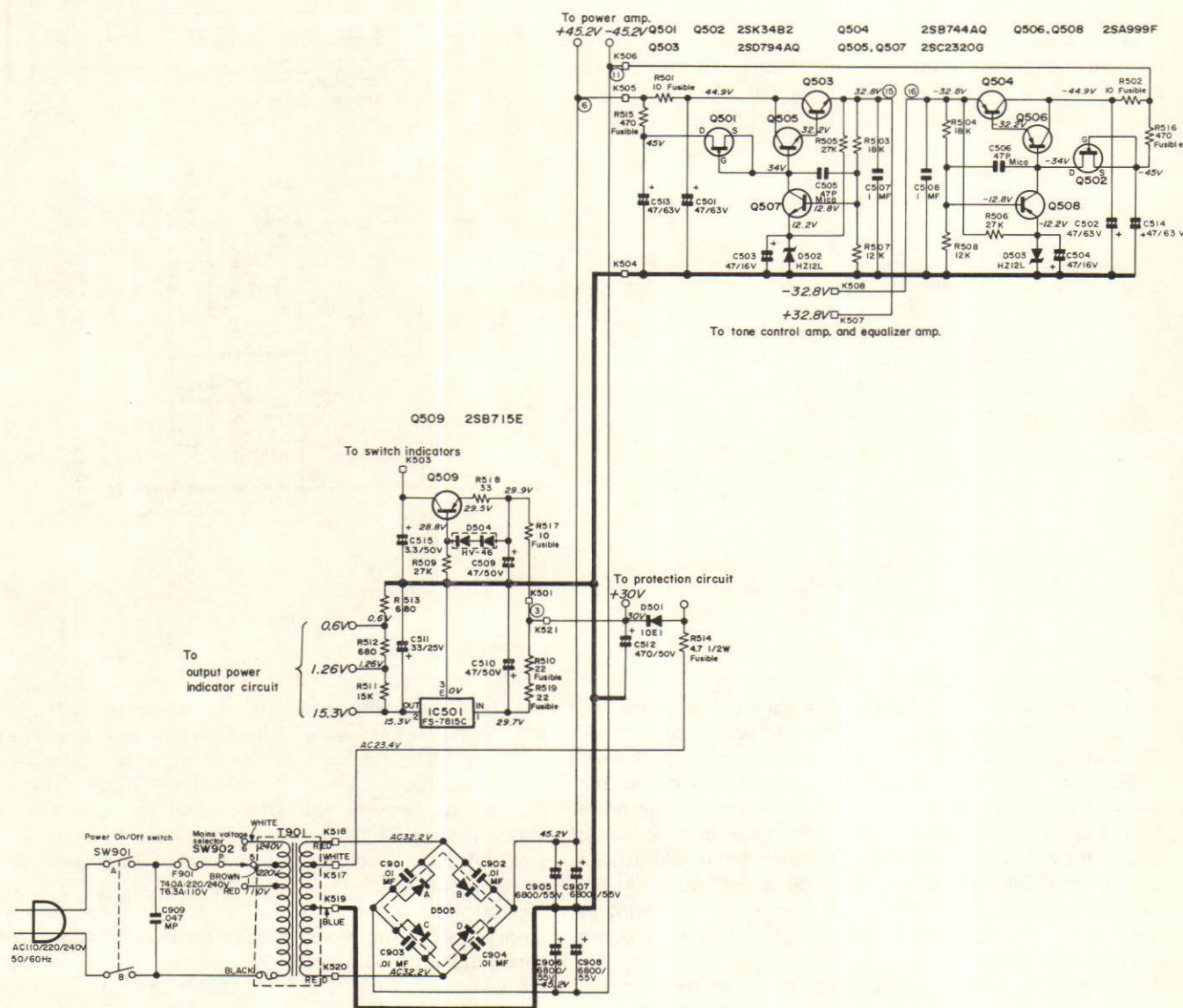


Figure 12

ADJUSTMENT OF POWER AMPLIFIER AND OUTPUT POWER INDICATOR

1. Set the volume control to "0" position.
2. Set the power switch (SW901) to "on" position.
3. Offset Voltage Adjustment

ALIGNMENT	METER	OUTPUT INDICATOR	ADJUSTMENT	REMARKS
Output DC voltage (0 volt)	100mV DC voltmeter	Voltmeter is connected between the test points.	VR301 for left channel, VR302 for right channel	$0V \pm 3mV$

4. Connect a DC millivoltmeter between the test points TP301 (or TP304) and TP303 (or TP302).

5. If the idle current is normal, the DC millivoltmeter should read 9 mV to 26 mV.
6. Output Power Indicator Adjustment
 - (1) By using a signal generator (1 kHz, 200 mV), apply signals to the jack "AUX" at the rear of the unit and adjust the volume control and balance control so that the output of the speaker terminal becomes 16.0 V.
 - (2) Adjust the variable resistor VR601 (or VR602) so that the 12th LED (at the extreme right) of the output power indicator will be put off.
 - (3) Adjust the volume control and balance control so that the output of the speaker terminal becomes 2.0 V: see, then, that six LEDs (say, up to the 6th one) of the output power indicator are lighting up.

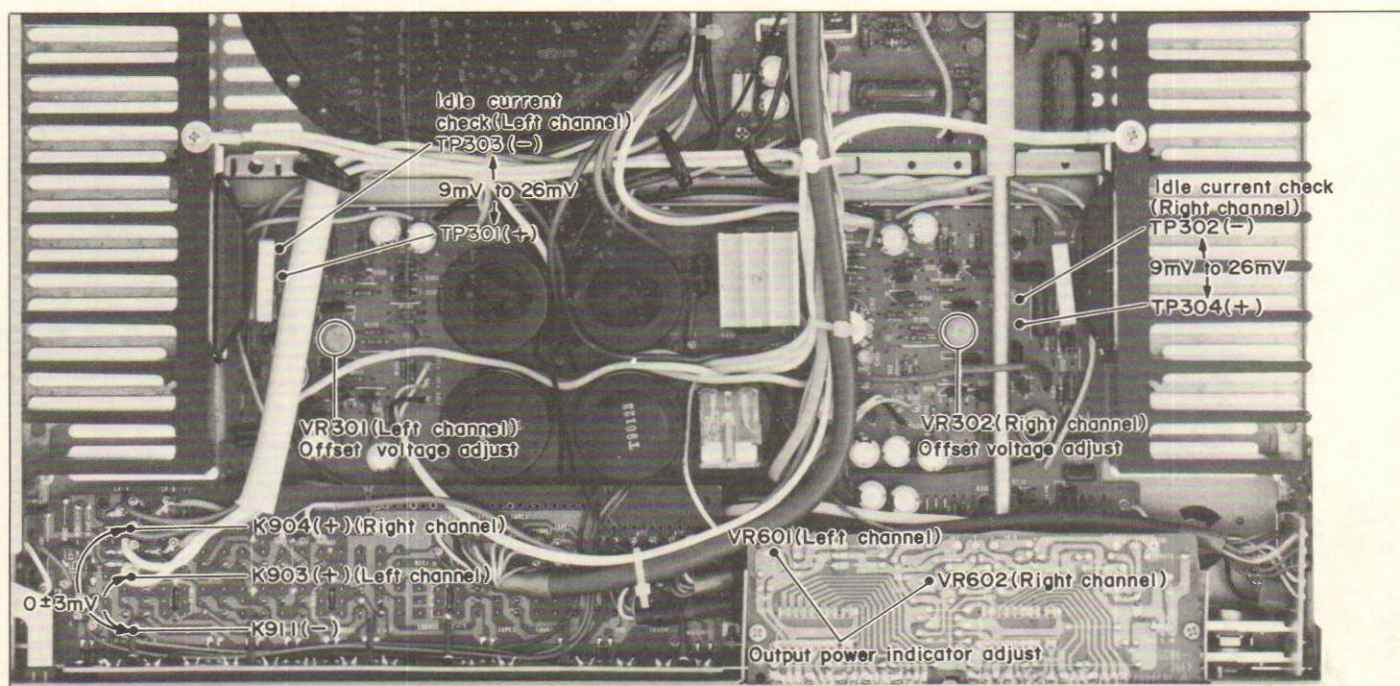
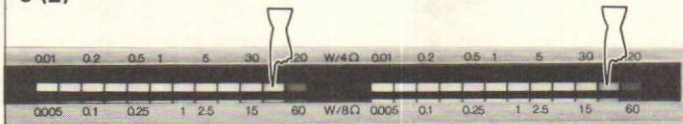


Figure 13-1

6-(2)



6-(3)

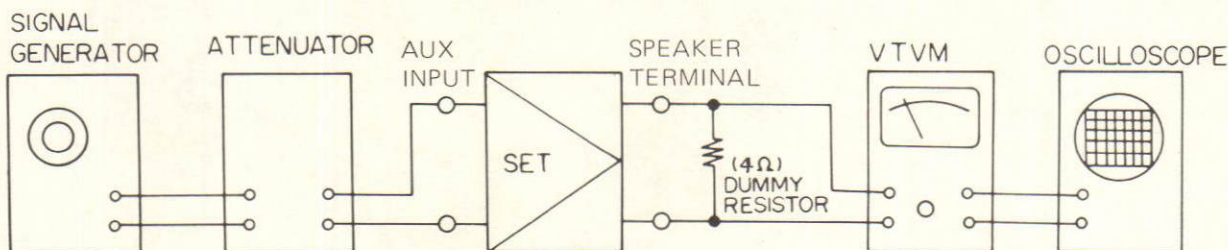
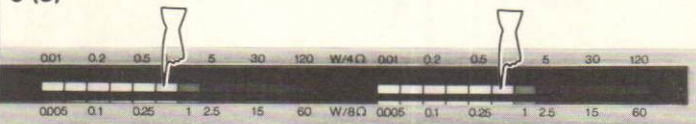


Figure 13-2

HYBRID INTEGRATED CIRCUIT REPLACEMENT

Observe the following procedures when replacing the hybrid integrated circuit with a new one: handling it requires a great care since it is very a precision part, or it would be damaged to again get in a failure.

1. Remove the cabinet and bottom lid following the "DIS-ASSEMBLY".
2. Unsolder the printed wiring board on the hybrid integrated circuit (IC301 or IC302) — melt and remove the solder of it.
3. Remove the four (4) screws retaining the heat sink and the one (1) screw retaining the positive temperature coefficient thermistor (PTH401 or PTH402).
4. Hold the heat sink up being careful not to damage the

fitting part of the printed wiring board against the hybrid integrated circuit.

5. Remove the two (2) screws retaining the hybrid integrated circuit and take it out from the heat sink.
6. Clean away the surface of a new hybrid integrated circuit, to which the heat sink will get close, and apply silicone grease thereto.
7. Attach the new hybrid integrated circuit to the heat sink with the two (2) screws.
8. Insert the pins of hybrid integrated circuit into the printed wiring board and fix the heat sink with the four (4) screws.
9. Solder the pins of the hybrid integrated circuit.

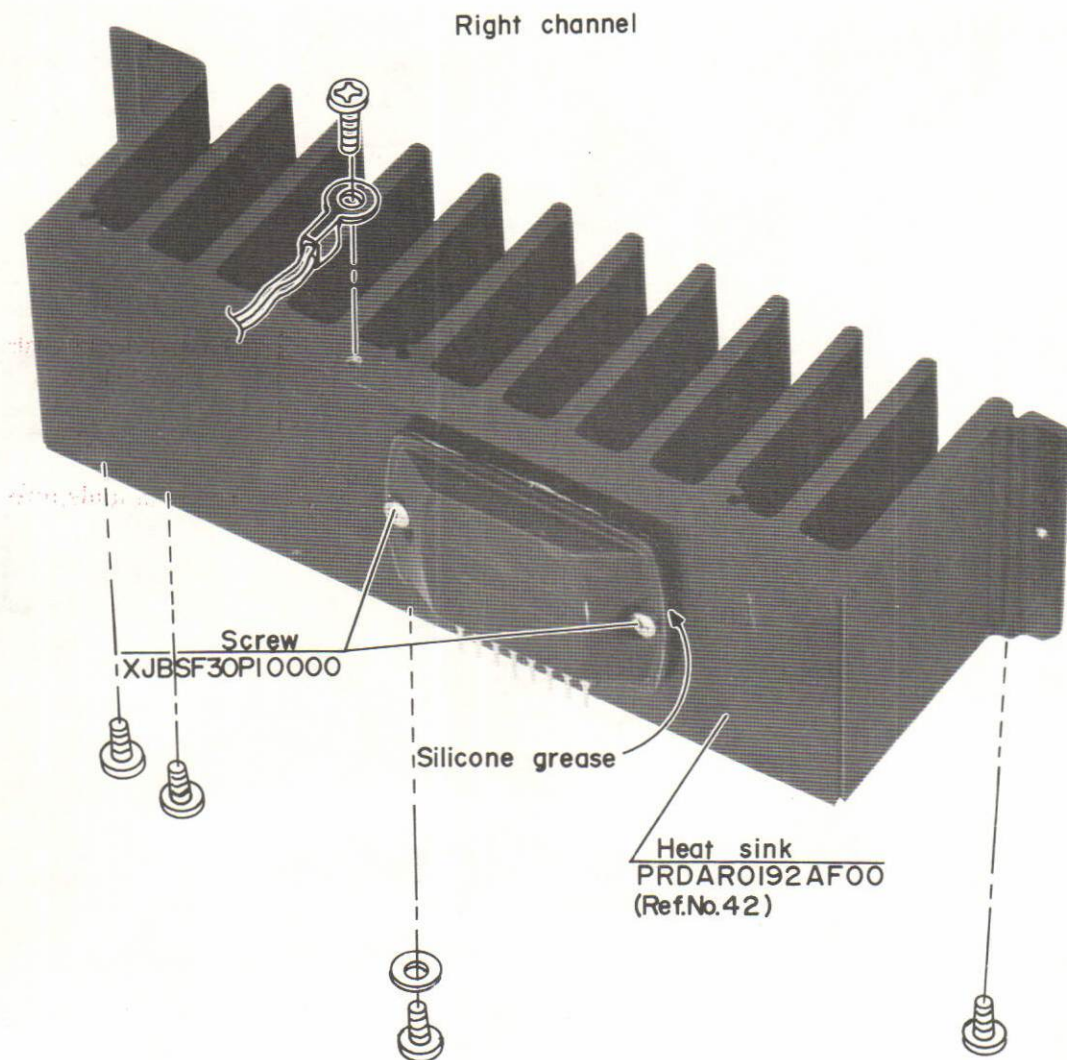


Figure 14

IC301, IC302
RH-IX1128AFZZ(S-603W)

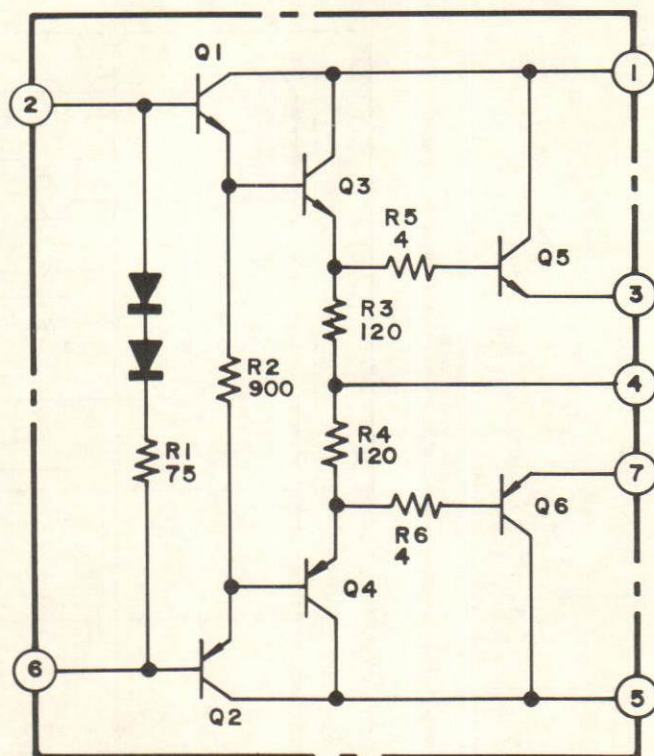
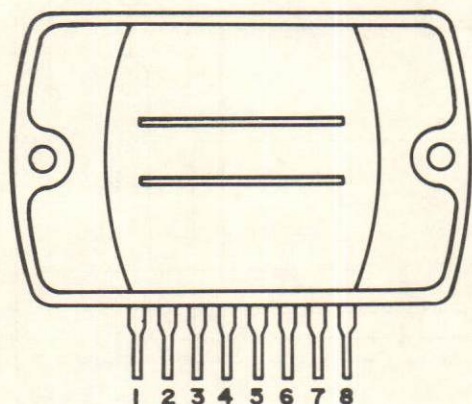
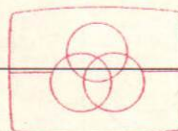


Figure 15-1 EQUIVALENT CIRCUIT OF INTEGRATED CIRCUIT (IC301, IC302)

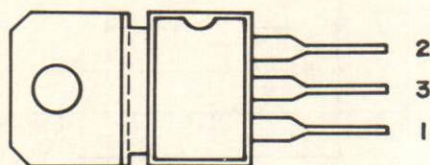


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IC501
VHIFS-7815C-1(FS-7815C)



1. Input
2. Output
3. Common

Figure 15-2 OUTER VIEW OF INTEGRATED CIRCUIT (IC501)

IC601, IC602 VH1R2406G-1F(IR2406G)

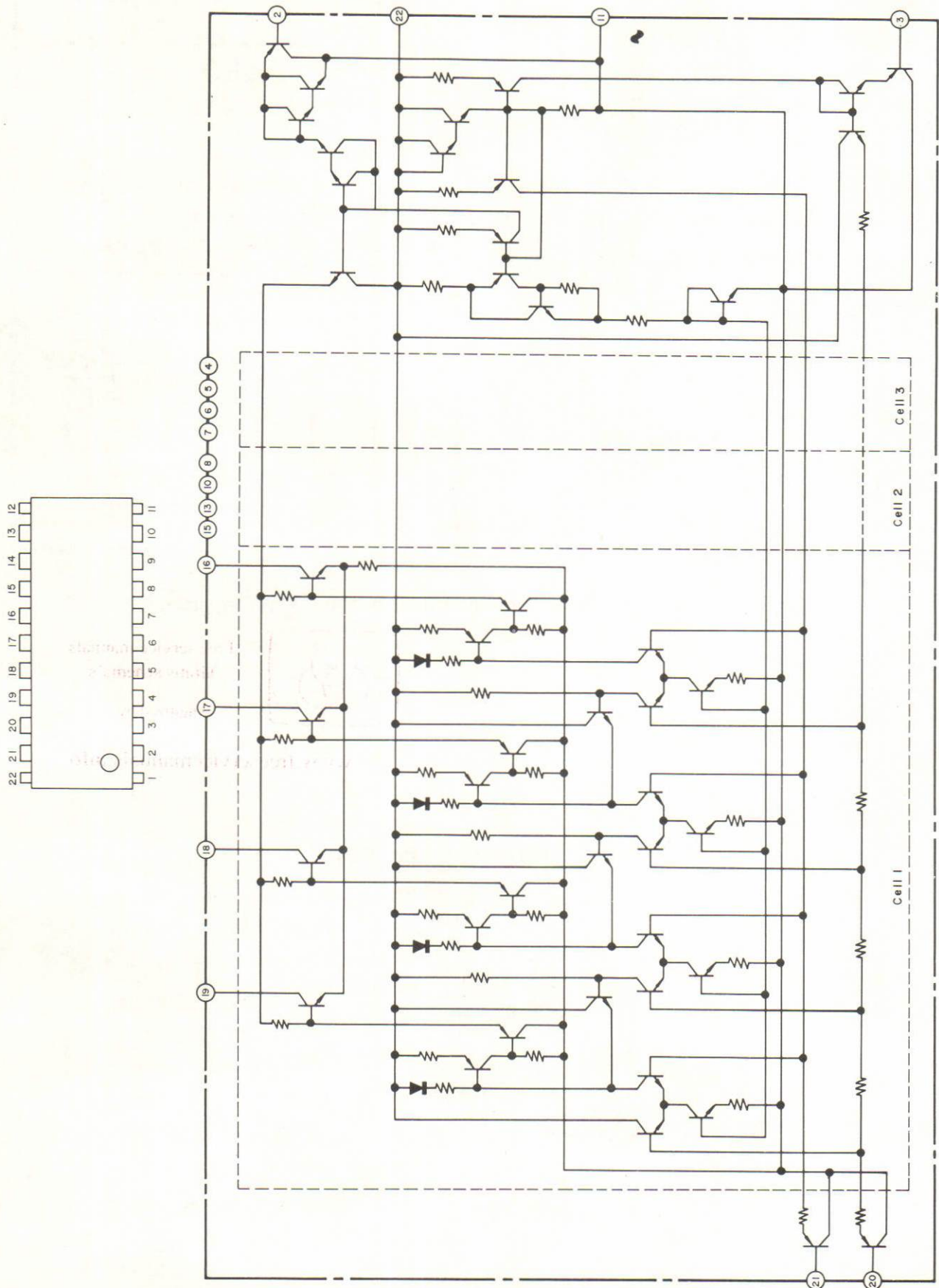
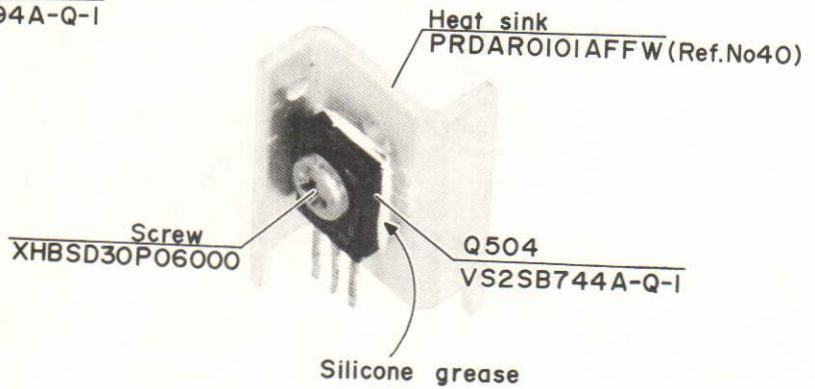
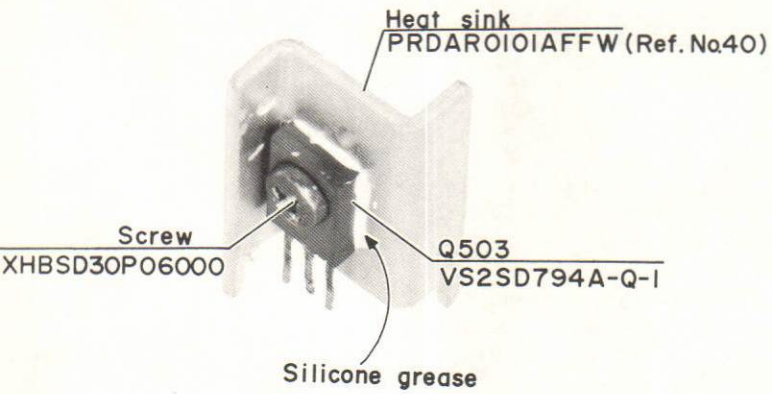


Figure 16 EQUIVALENT CIRCUIT OF INTEGRATED CIRCUIT (IC601, IC602)

VOLTAGE REGULATOR TRANSISTOR REPLACEMENT

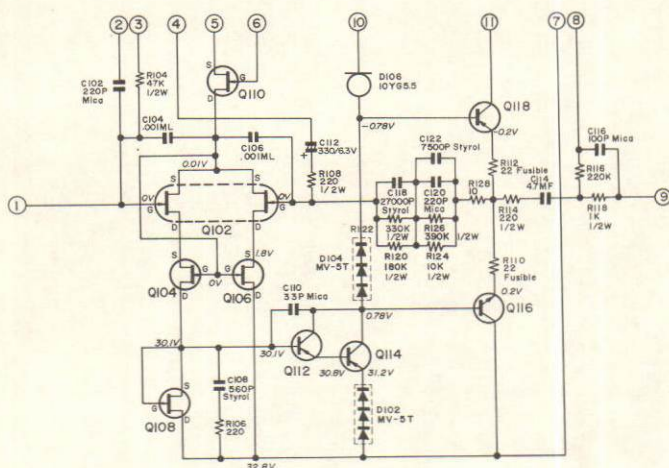


NOTES ON SCHEMATIC DIAGRAM

1. SW101 (A, B, C): Function selector switch. (Shown in "aux" position.)
2. SW201A: Audio muting switch. (Shown in off mode.)
3. SW201B: Loudness contour switch. (Shown in off mode.)
4. SW201C: Tone control circuit on/off switch. (Shown in off mode.)
5. SW201D: Tape 1 monitor switch. (Shown in off mode.)
6. SW201E: Source monitor switch. (Shown in on mode.)
7. SW201F: Tape 2 monitor switch. (Shown in off mode.)
8. SW201G: 2►1 tape dubbing switch. (Shown in off mode.)
9. SW201H: Source dubbing switch. (Shown in on mode.)
10. SW201I: 1►2 tape dubbing switch. (Shown in off mode.)
11. SW201J: Mono switch. (Shown in off mode.)
12. SW201K: 15 kHz high filter switch. (Shown in off mode.)
13. SW201L: 8 kHz high filter switch. (Shown in off mode.)
14. SW201M: 30 Hz subsonic filter switch. (Shown in off mode.)
15. SW201N: 15 Hz subsonic filter switch. (Shown in off mode.)
16. SW201O: "b" speaker switch. (Shown in off mode.)
17. SW201P: "a" speaker switch. (Shown in off mode.)
18. SW901: Power switch. (Shown in off mode.)
19. SW902: Mains voltage selector switch. (Shown in "220 V" position.)
20. Resistor: To differentiate the units of resistors, such symbols as K and M are used: the symbol K means 1000 ohm and the symbol M means 1000K ohm and the resistor without any symbol is ohm-type resistor. Besides, the one with "Fusible" is a fuse type.
21. Capacitor: To indicate the unit of capacitor, a symbol P is used: this symbol P means micro-microfarad and the unit of the capacitor without such symbol is microfarad. As to electrolytic capacitor, the expression "capacitance/withstand voltage" is used.
22. The indicated voltage in each section is the one measured by VTVM between such a section and the chassis with no signal being given.

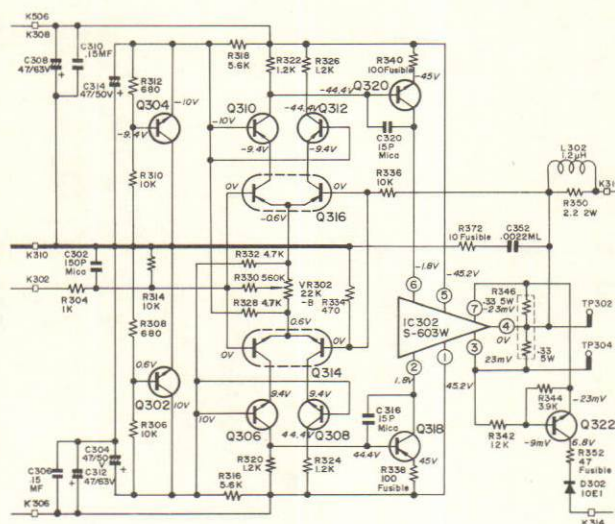
Equalizer amplifier

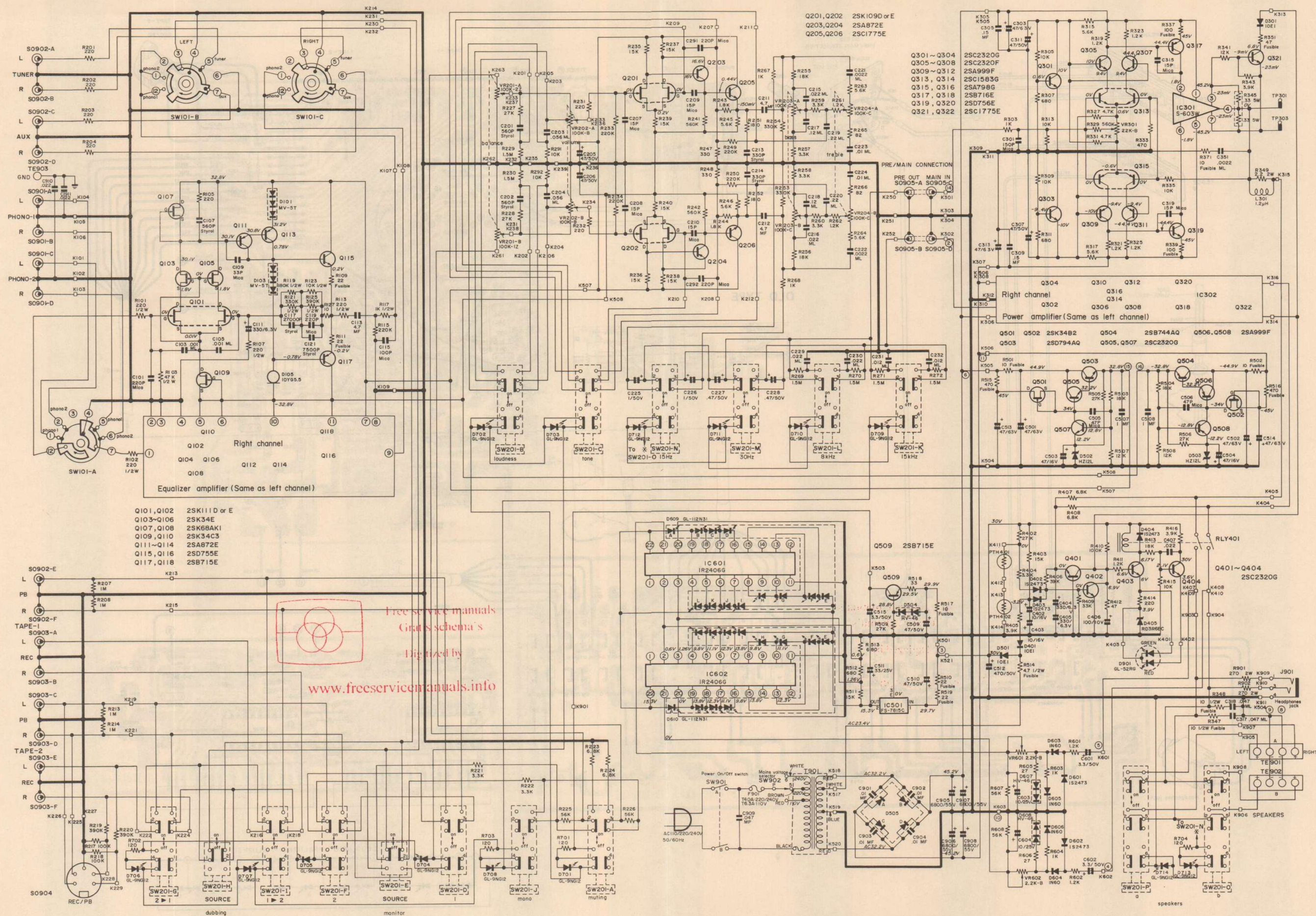
Right channel



Power amplifier

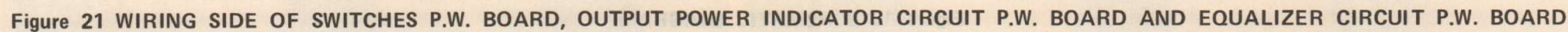
Right channel





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

Figure 19 SCHEMATIC DIAGRAM



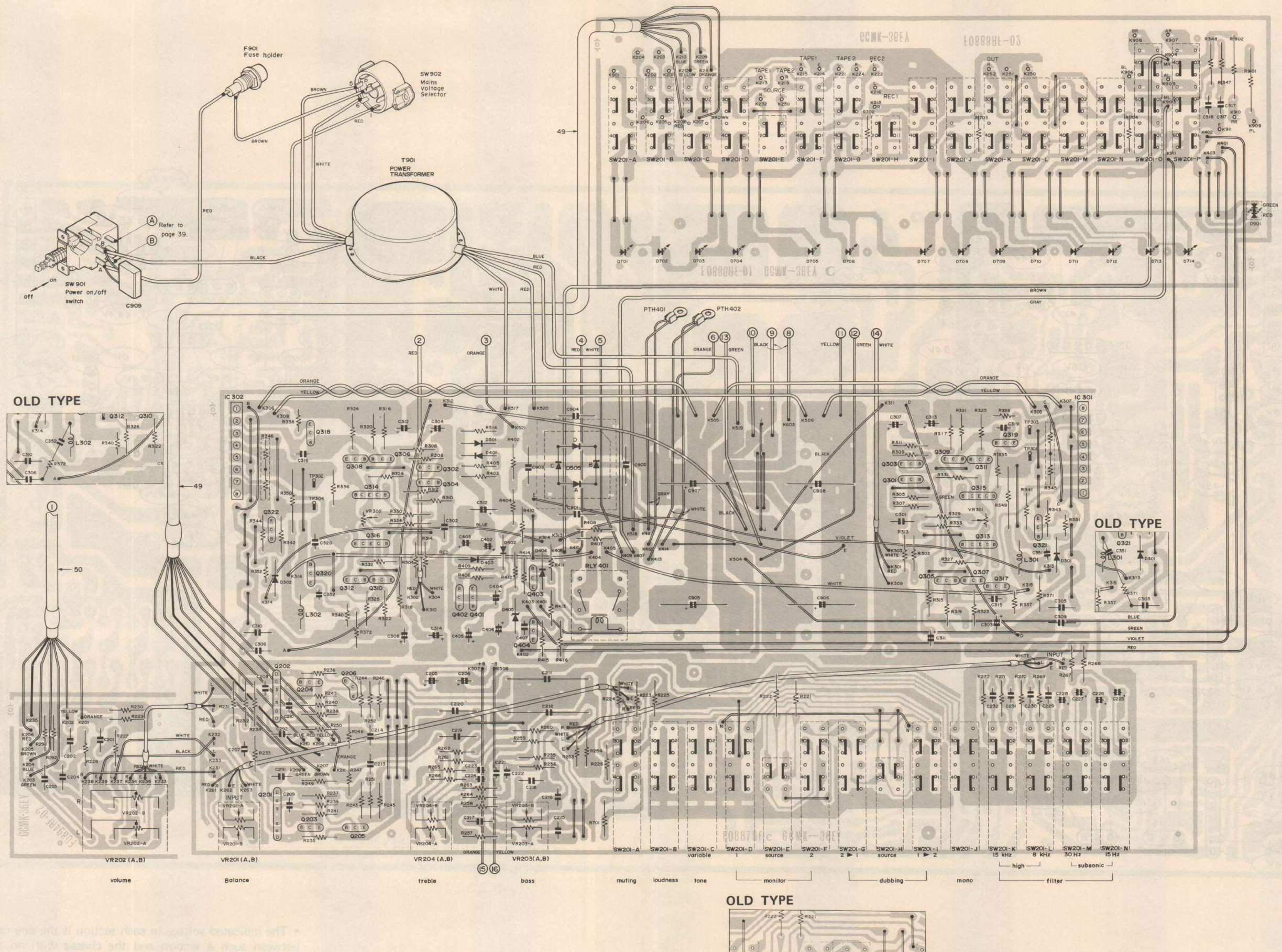
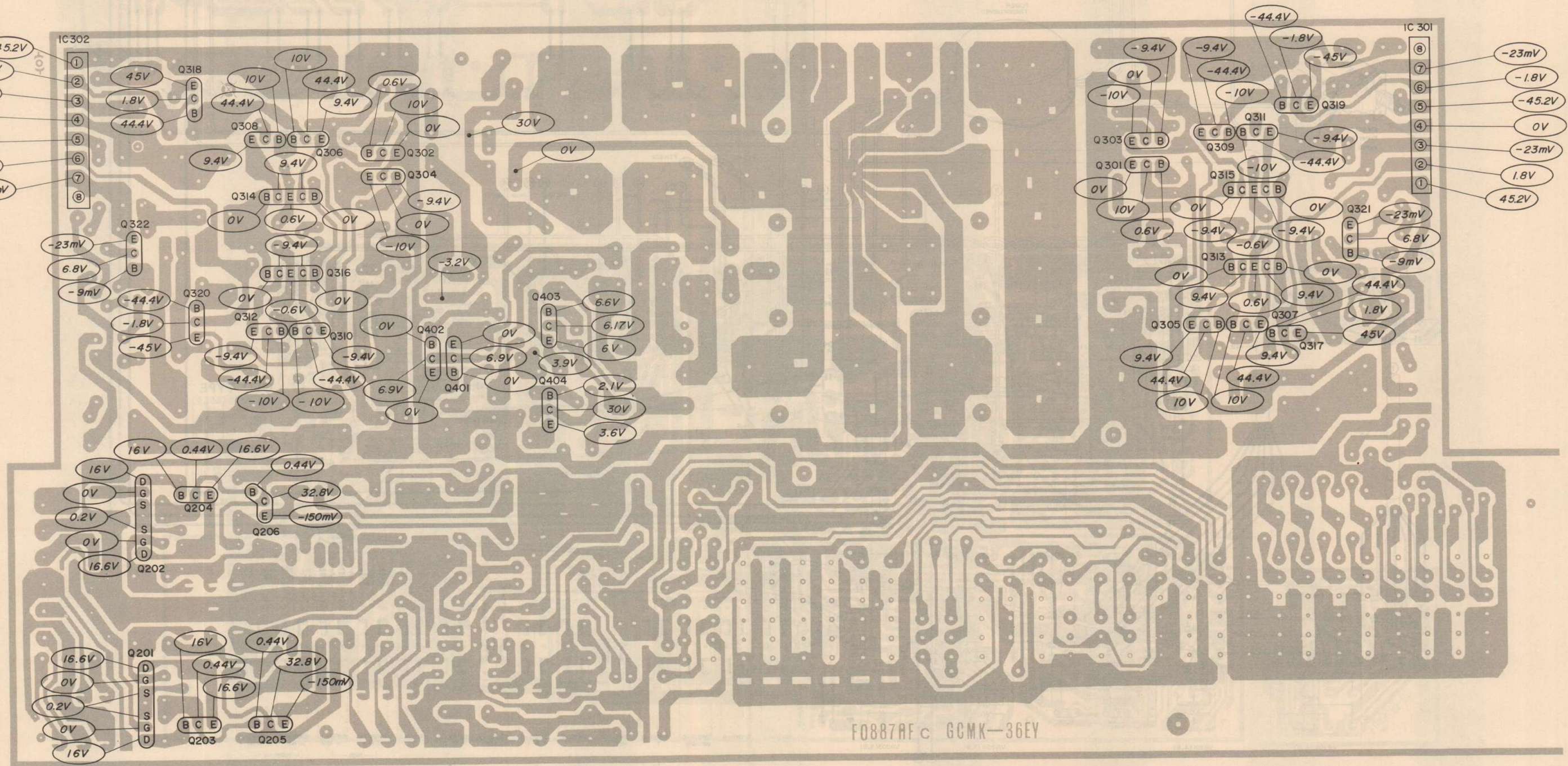


Figure 23 WIRING SIDE OF TONE CONTROL CIRCUIT/POWER AMPLIFIER P.W. BOARD



* The indicated voltage in each section is the one measured by VTVM between such a section and the chassis with no signal being given.

Figure 25 VOLTAGES ON TONE CONTROL CIRCUIT/POWER AMPLIFIER P.W. BOARD

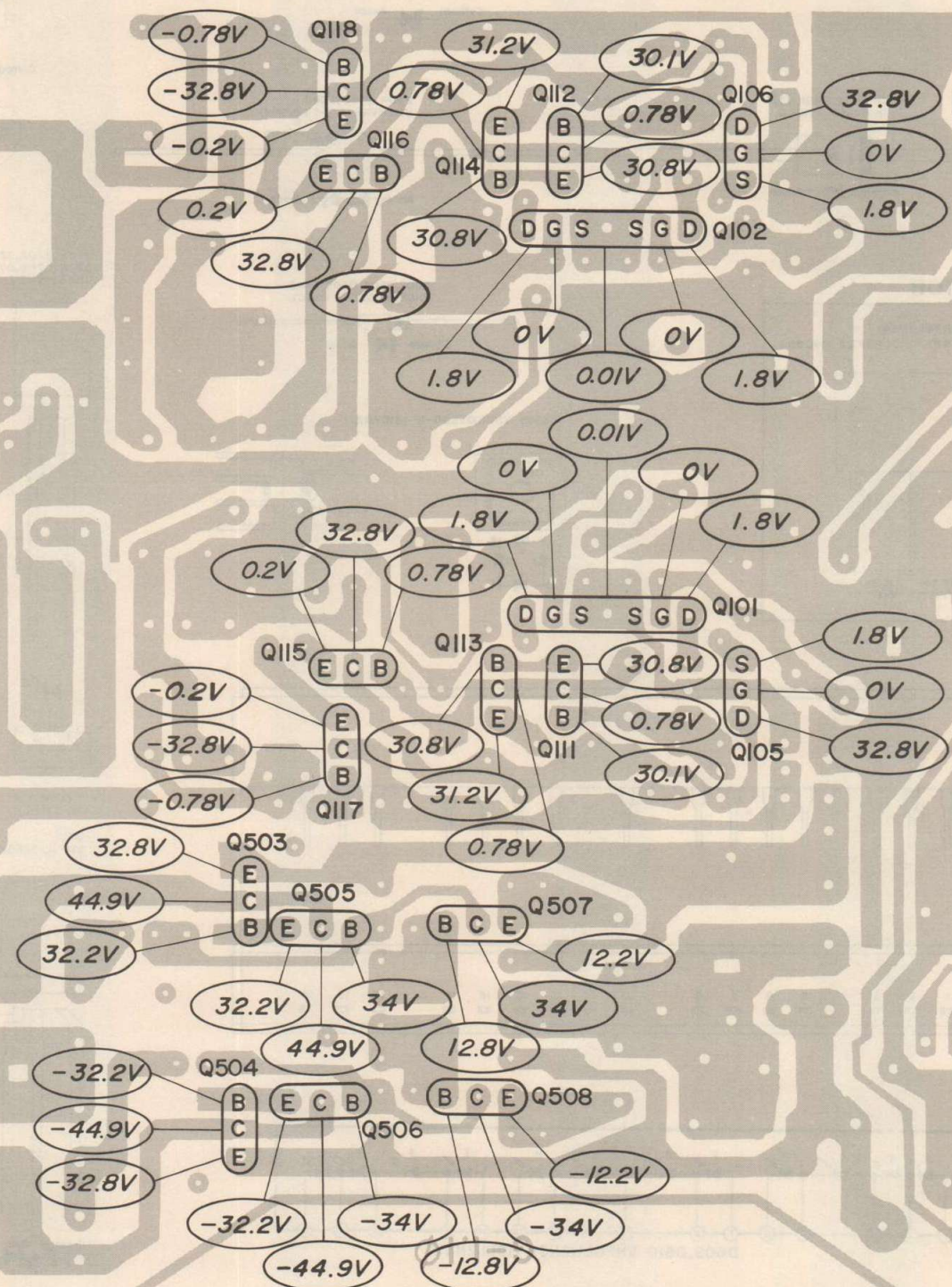
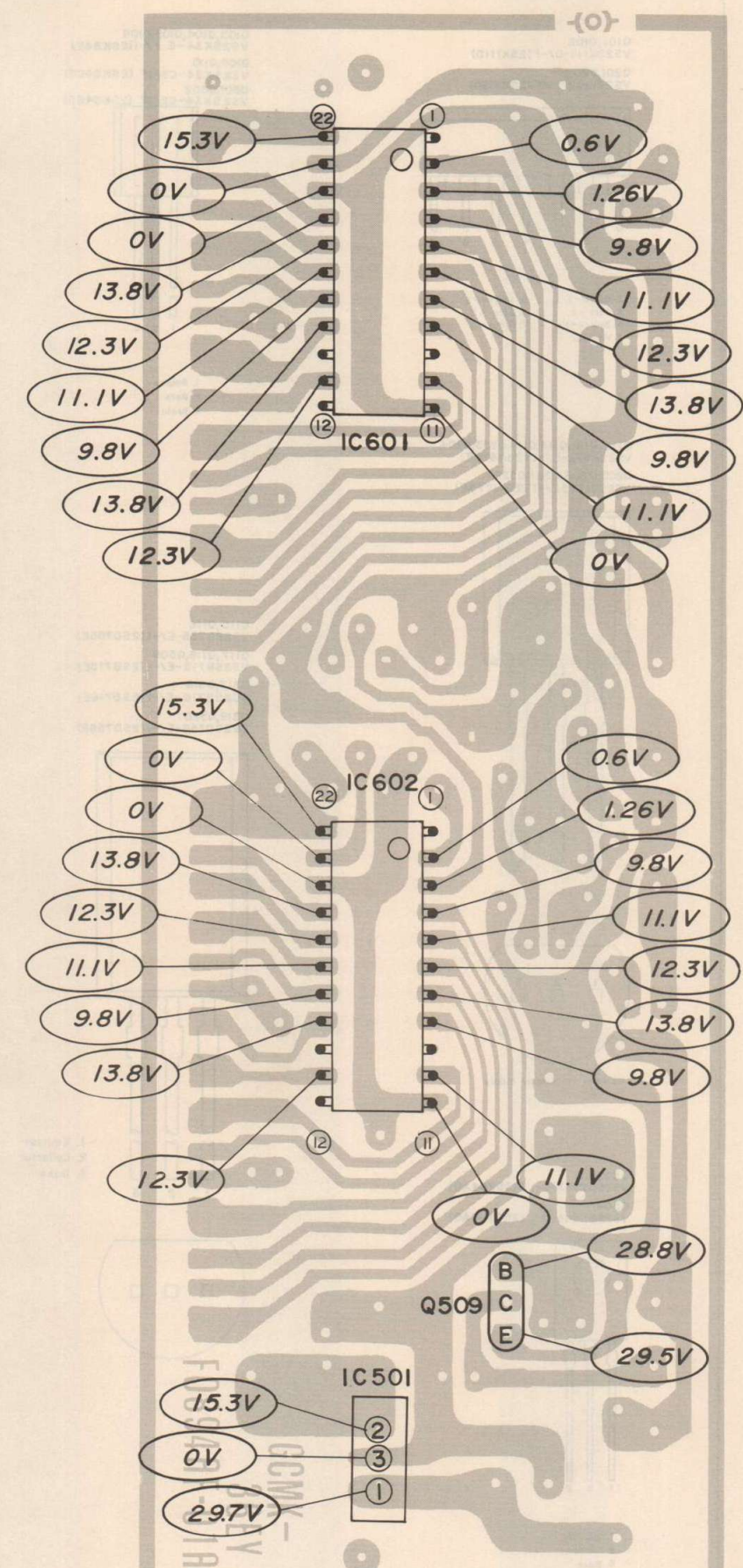
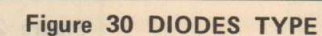
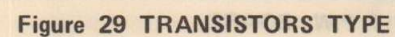


Figure 27 VOLTAGES ON EQUALIZER CIRCUIT P.W. BOARD AND OUTPUT POWER INDICATOR CIRCUIT P.W. BOARD



* The indicated voltage in each section is the one measured by VTVM between such a section and the chassis with no signal being given.



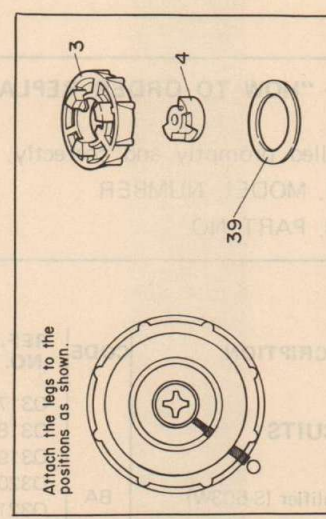


Figure 32 MISCELLANEOUS PARTS GUIDE

REPLACEMENT PARTS LIST

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	REF. NO.	PART NO.	DESCRIPTION	CODE
INTEGRATED CIRCUITS				Q317, Q318	VS2SB716-E/-1	Power Amplifier, Voltage Amplifier (2SB716E)	AD
IC301, IC302	RH-IX1128AFZZ	Power Amplifier (S-603W)	BA	Q319, Q320	VS2SD756-E/-1	Power Amplifier, Voltage Amplifier (2SD756E)	AD
IC501	VHIFS-7815C-1	Voltage Regulator, 15V/300mA (FS-7815C)	AH	Q321, Q322	VS2SC1775E/-1	Power Amplifier, Transient Current Detection Circuit (2SC1775E)	AD
IC601, IC602	VHIIR2406G-1F	Output Power Indicator Drive (IR2406G)	AQ	Q401	VS2SC2320-G-1	Protection Circuit, Detector (2SC2320G)	AB
TRANSISTORS				Q402	VS2SC2320-G-1	Protection Circuit, Detector (2SC2320G)	AB
Q101, Q102	VS2SK111-D/-1	Equalizer Circuit, Differential Amplifier (2SK111D or E)	AP	Q403	VS2SC2320-G-1	Protection Circuit, Relay Switching (2SC2320G)	AB
Q103, Q104, Q105, Q106	VS2SK34-E/-1	Equalizer Circuit, Common Gate Amplifier (2SK34E)	AE	Q404	VS2SC2320-G-1	Protection Circuit, Indicator Switching (2SC2320G)	AB
Q107, Q108	VS2SK68A-K-1	Equalizer Amplifier, Constant Current Load (2SK68AK1)	AE	Q501	VS2SK34-B2/1F	Constant Voltage Circuit, Constant Current Load (2SK34B2)	AE
Q109, Q110	VS2SK34-C3/1F	Equalizer Amplifier, Constant Current Circuit (2SK34C3)	AE	Q502	VS2SK34-B2/1F	Constant Voltage Circuit, Constant Current Load (2SK34B2)	AE
Q111, Q112, Q113, Q114	VS2SA872-E/-1	Equalizer Circuit, Common Emitter Amplifier (2SA872E)	AE	Q503	VS2SD794A-Q-1	Constant Voltage Circuit, Voltage Regulator (2SD794AQ)	AE
Q115, Q116	VS2SD755-E/-1	Equalizer Circuit, SEPP (Single Ended Push-Pull) Amplifier (2SD755E)	AD	Q504	VS2SB744A-Q-1	Constant Voltage Circuit, Voltage Regulator (2SB744AQ)	AE
Q117, Q118	VS2SB715-E/-1	Equalizer Circuit, SEPP (Single Ended Push-Pull) Amplifier (2SB715E)	AD	Q505	VS2SC2320-G-1	Constant Voltage Circuit, Voltage Regulator (2SC2320G)	AB
Q201, Q202	VS2SK109/-1F	Tone Control Circuit, Differential Amplifier (2SK109D or E)	AH	Q506	VS2SA999-F/-1	Constant Voltage Circuit, Voltage Regulator (2SA999F)	AE
Q203, Q204	VS2SA872-E/-1	Tone Control Circuit, Common Emitter Amplifier (2SA872E)	AE	Q507	VS2SC2320-G-1	Constant Voltage Circuit, Voltage Comparison (2SC2320G)	AB
Q205, Q206	VS2SC1775E/-1	Tone Control Circuit, Emitter Follower Amplifier (2SC1775E)	AD	Q508	VS2SA999-F/-1	Constant Voltage Circuit, Voltage Comparison (2SA999F)	AE
Q301, Q302, Q303, Q304	VS2SC2320-G-1	Power Amplifier, Constant Voltage Circuit (2SC2320G)	AB	Q509	VS2SB715-E/-1	Constant Current Circuit (2SB715E)	AD
Q305, Q306, Q307, Q308	VS2SC2320-F-1	Power Amplifier, Common Base Amplifier (2SC2320F)	AB	DIODES			
Q309, Q310, Q311, Q312	VS2SA999-F/-1	Power Amplifier, Common Base Amplifier (2SA999F)	AE	D101, D102	RH-VX1001AFZZ	Equalizer Amplifier, Current Stabilizer (MV-5T)	AE
Q313, Q314	VS2SC1583G2-4	Power Amplifier, Differential Amplifier (2SC1583G)	AF	D103, D104	RH-VX1001AFZZ	Equalizer Amplifier, Current Stabilizer (MV-5T)	AE
Q315, Q316	VS2SA798-G2-4	Power Amplifier, Differential Amplifier (2SA798G)	AF	D105, D106	RH-DX1011AFZZ	Constant Current Load, 10V/5.5mA (10YG5.5)	AG
				D301, D302	VHD10E1////-1	Transient Current Rectifier, 100V/1A (10E1)	AC
				D401	VHD10E1////-1	Voltage Detector, 100V/1A (10E1)	AC

REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE
D402	VHD1S2473//--1	Malfunction Prevention (1S2473)	AB	TRANSFORMER			
D403	VHD1S2473//--1	Malfunction Prevention (1S2473)	AB	T901	RTRNP0597AFZZ	Power	BP
D404	VHD1S2473//--1	Surge Current Prevention (1S2473)	AB	CONTROLS			
D405	VHERD3R6EC/-1	Zener, 3.6V/400mW (RD3R6EC)	AC	VR201 (A, B)	RVR-G0053AFZZ	100K (1Z/2Z) ohm, Balance	AK
D501	VHD10E1////-1	Half-wave Rectifier, 100V/1A (10E1)	AC	VR202 (A, B)	RVR-B0192AFZZ	100K (B) ohm, Volume	AM
D502, D503	VHEHZ12A2L/-1	Zener, 12V/0.4W (HZ12L)	AC	VR203 (A, B)	RVR-C0075AFZZ	100K (C) ohm, Bass	AK
D504	VHVHV46-G//--1	Constant Current Circuit (HV46G)	AC	VR204 (A, B)	RVR-C0075AFZZ	100K (C) ohm, Treble	AK
D505	VHDS10VB20-1F	Power Rectifier (S10VB20)	AP	VR301, VR302	RVR-M0057AGZZ	22K (B) ohm, Offset Voltage Adjust	AE
D601, D602	VHD1S2473//--1	Voltage (—) Protector (1S2473)	AB	VR601, VR602	RVR-M0142AFZZ	2.2K (B) ohm, Output Power Indicator Sensitivity Adjust	AD
D603, D604	VHD1N60////-1	Half-wave Rectifier (1N60)	AB	ELECTROLYTIC CAPACITORS			
D605, D606	VHD1N60////-1	Logarithm Compression Circuit (1N60)	AB	C111, C112	RC-EZ1011AFZZ	330MFD, 6.3V, +50 — 10%	AC
D607, D608	VHVHV46-G//--1	Logarithm Compression Circuit (HV46G)	AC	C205, C206	RC-EZ1012AFZZ	47MFD, 50V, +50 — 10%	AC
D609, D610	VHPGL112N31-1	Indicator, Output Power (GL-112N31)	AR	C225, C226	VCEALU1HW105M	1MFD, 50V, ±20%	AD
D701	VHPGL-9NG12-1	Indicator, Audio Muting Switch (GL-9NG12)	AD	C227, C228	VCEALU1HW474M	.47MFD, 50V, ±20%	AB
D702	VHPGL-9NG12-1	Indicator, Loudness Contour Switch (GL-9NG12)	AD	C303	RC-EZ1040AFZZ	47MFD, 63V, +50 — 10%	AD
D703	VHPGL-9NG12-1	Indicator, Tone Control Circuit On/Off Switch (GL-9NG12)	AD	C304	RC-EZ1012AFZZ	47MFD, 50V, +50 — 10%	AC
D704	VHPGL-9NG12-1	Indicator, Tape 1 Monitor Switch (GL-9NG12)	AD	C307	RC-EZ1012AFZZ	47MFD, 50V, +50 — 10%	AC
D705	VHPGL-9NG12-1	Indicator, Tape 2 Monitor Switch (GL-9NG12)	AD	C308	RC-EZ1040AFZZ	47MFD, 63V, +50 — 10%	AD
D706	VHPGL-9NG12-1	Indicator, 2 ► 1 Tape Dubbing Switch (GL-9NG12)	AD	C311	RC-EZ1012AFZZ	47MFD, 50V, +50 — 10%	AC
D707	VHPGL-9NG12-1	Indicator, 1 ► 2 Tape Dubbing Switch (GL-9NG12)	AD	C312, C313	RC-EZ1040AFZZ	47MFD, 63V, +50 — 10%	AD
D708	VHPGL-9NG12-1	Indicator, Mono Switch (GL-9NG12)	AD	C314	RC-EZ1012AFZZ	47MFD, 50V, +50 — 10%	AC
D709	VHPGL-9NG12-1	Indicator, 15kHz Filter Switch (GL-9NG12)	AD	C402, C403	VCEAAU1CW106Y	10MFD, 16V, +50 — 10%	AB
D710	VHPGL-9NG12-1	Indicator, 8kHz Filter Switch (GL-9NG12)	AD	C404, C405	RC-EZ1011AFZZ	330MFD, 6.3V, +50 — 10%	AC
D711	VHPGL-9NG12-1	Indicator, 30Hz Filter Switch (GL-9NG12)	AD	C406	RC-EZ1007AFZZ	100MFD, 10V, +50 — 10%	AC
D712	VHPGL-9NG12-1	Indicator, 15Hz Filter Switch (GL-9NG12)	AD	C501, C502	RC-EZ1040AFZZ	47MFD, 63V, +50 — 10%	AD
D713	VHPGL-9NG12-1	Indicator, “b” Speakers Switch (GL-9NG12)	AD	C503, C504	RC-EZ1038AFZZ	47MFD, 16V, +50 — 10%	AB
D714	VHPGL-9NG12-1	Indicator, “a” Speakers Switch (GL-9NG12)	AD	C509, C510	RC-EZ1012AFZZ	47MFD, 50V, +50 — 10%	AC
D901	VHPGL-52RG/1F	Indicator, Power/Protection (GL-52RG)	AK	C511	RC-EZ1010AFZZ	33MFD, 25V, +50 — 10%	AB
POSITIVE TEMPERATURE COEFFICIENT THERMISTORS				C512	RC-EZS477AF1H	470MFD, 50V, ±20%	AE
PTH401, PTH402	RH-QX1001AFZZ	Temperature Detection	AF	C513, C514	RC-EZ1040AFZZ	47MFD, 63V, +50 — 10%	AD
COILS				C515	VCEAAU1HW335Y	3.3MFD, 50V, +50 — 10%	AB
L301, L302	RCILZ0067AFZZ	1.2μH, Oscillation Prevention	AD	601, 602	VCEAAU1HW335Y	3.3MFD, 50V, +50 — 10%	AB
				C603, C604	VCEAAU1EW106Y	10MFD, 25V, +50 — 10%	AB
				C905, C906	RC-EZ1093AFZZ	6800MFD, 55V, ±20%	AT
				C907, C908	RC-EZ1099AFZZ	6800MFD, 55V, ±20%	AR

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE
CAPACITORS							
C101, C102, C103, C104, C105, C106	VCMZYU1HC221J	220PF, 50V, $\pm 5\%$, Mica	**	C407	VCKZPU1HF223Z	.022MFD, 50V, $+80 -20\%$, Ceramic	AA
C107, C108	VCQYKU1HM102K	.001MFD, 50V, $\pm 10\%$, Mylar	AB	C505, C506, C507, C508	VCMZYU1HC470J	47PF, 50V, $\pm 5\%$, Mica	**
C109, C110	VCQSMU1HS561J	560PF, 50V, $\pm 5\%$, Polystyrene Film	AB	C901, C902, C903, C904	VCFYSU2AB105K	1MFD, 100V, $\pm 10\%$, Metallized Film	**
C113, C114	VCMZYU1HC330J	33PF, 50V, $\pm 5\%$, Mica	**	C909	VCFYSU2JB103M	.01MFD, 630V, $\pm 20\%$, Metallized Film	**
C115, C116	VCFYSU2AB475K	4.7MFD, 100V, $\pm 10\%$, Metallized Film	**	C910, C911	RC-HZ064CAFZZ	.047MFD, 250VAC, $\pm 20\%$, Metallized Paper	AG
C117, C118	VCMZYU1HC101J	100PF, 50V, $\pm 5\%$, Mica	**		VCKZPU1HF223Z	.022MFD, 50V, $+80 -20\%$, Ceramic	AA
C119, C120	VCQSMU1HL273G	27000PF, 50V, $\pm 2\%$, Polystyrene Film	AD	RESISTORS			
C121, C122	VCMZYU1HC221J	220PF, 50V, $\pm 5\%$, Mica	**	(Unless otherwise specified resistors are 1/4W, $\pm 5\%$, Carbon Type.)			
C201, C202	VCQSMU1HL752G	7500PF, 50V, $\pm 2\%$, Polystyrene Film	AC	R101, R102, R103, R104	VRD-ST2HD221J	220 ohm, 1/2W, $\pm 5\%$, Carbon	AA
C203, C204	VCQSMU1HS561J	560PF, 50V, $\pm 5\%$, Polystyrene Film	AB	R105, R106	VRD-ST2EE221J	220 ohm	AA
C207, C208	VCQYSH1HM563J	.056MFD, 50V, $\pm 5\%$, Mylar	AC	R107, R108	VRD-ST2HD221J	220 ohm, 1/2W, $\pm 5\%$, Carbon	AA
C209, C210	VCMZYU1HC150J	15PF, 50V, $\pm 5\%$, Mica	**	R109, R110, R111, R112	VRG-ST2EA220J	22 ohm, 1/4W, $\pm 5\%$, Fusible	AB
C211, C212	VCMZYU1HC150J	15PF, 50V, $\pm 5\%$, Mica	**	R113, R114	VRD-ST2HD221J	220 ohm, 1/2W, $\pm 5\%$, Carbon	AA
C213, C214	VCFYSU2AB475K	4.7MFD, 100V, $\pm 10\%$, Metallized Film	**	R115, R116	VRD-ST2EE224J	220K ohm	AA
C215, C216	VCQSMU1HS331J	330PF, 50V, $\pm 5\%$, Polystyrene Film	AC	R117, R118	VRD-ST2HD102J	1K ohm, 1/2W, $\pm 5\%$, Carbon	AA
C217, C218	VCQYKU1HM223J	.022MFD, 50V, $\pm 5\%$, Mylar	AC	R119, R120	VRD-ST2HE184G	180K ohm, 1/2W, $\pm 2\%$, Carbon	**
C219, C220	VCQYKU1HM124J	.12MFD, 50V, $\pm 5\%$, Mylar	AE	R121, R122	VRD-ST2HE334G	330K ohm, 1/2W, $\pm 2\%$, Carbon	**
C221, C222	VCQYKU1HM224K	.22MFD, 50V, $\pm 10\%$, Mylar	AE	R123, R124	VRD-ST2HE103G	10K ohm, 1/2W, $\pm 2\%$, Carbon	**
C223, C224	VCQYKU1HM222J	.0022MFD, 50V, $\pm 5\%$, Mylar	AB	R125, R126	VRD-ST2HE394G	390K ohm, 1/2W, $\pm 2\%$, Carbon	**
C229, C230	VCQYKU1HM103J	.01MFD, 50V, $\pm 5\%$, Mylar	AB	R127, R128	VRD-ST2EE100J	10 ohm	AA
C231, C232	VCQYKU1HM223J	.022MFD, 50V, $\pm 5\%$, Mylar	AC	R201, R202, R203, R204, R205, R206	VRD-ST2EE221J	220 ohm	AA
C291, C292	VCQYKU1HM123J	.012MFD, 50V, $\pm 5\%$, Mylar	AC	R207, R208	VRD-ST2EE105J	1 Meg ohm	AA
C301, C302	VCMZYU1HC221J	220PF, 50V, $\pm 5\%$, Mica	**	R209, R210, R211, R212	VRD-ST2EE221J	220 ohm	AA
C305, C306	VCMZYU1HC151J	150PF, 50V, $\pm 5\%$, Mica	**	R213, R214	VRD-ST2EE105J	1 Meg ohm	AA
C309, C310	VCFYSU2AB154K	.15MFD, 100V, $\pm 10\%$, Metallized Film	**	R215, R216	VRD-ST2EE221J	220 ohm	AA
C315, C316	VCFYSU2AB154K	.15MFD, 100V, $\pm 10\%$, Metallized Film	**	R217, R218	VRD-ST2EE104J	100K ohm	AA
C317, C318	VCMZYU1HC150J	15PF, 50V, $\pm 5\%$, Mica	**				
C319, C320	VCQYKU1HM473K	.047MFD, 50V, $\pm 10\%$, Mylar	AC				
C351, C352	VCMZYU1HC150J	15PF, 50V, $\pm 5\%$, Mica	**				
	VCQYKU1HM222K	.0022MFD, 50V, $\pm 10\%$, Mylar	AB				

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PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE
R219, R220	VRD-ST2EE394J	390K ohm	AA	R312	VRD-ST2EE681J	680 ohm	AA
R221, R222	VRD-ST2EE332J	3.3K ohm	AA	R313, R314	VRD-ST2EE103J	10K ohm	AA
R223, R224	VRD-ST2EE682J	6.8K ohm	AA	R315, R316, R317, R318	VRD-ST2EE562J	5.6K ohm	AA
R225, R226	VRD-ST2EE563J	56K ohm	AA	R319, R320, R321, R322, R323, R324, R325, R326	VRD-ST2EE122J	1.2K ohm	AA
R227, R228	VRD-ST2EE273J	27K ohm	AA	R327, R328	VRD-ST2EE472J	4.7K ohm	AA
R229, R230	VRD-ST2EE155J	1.5 Meg ohm	AA	R329, R330	VRD-ST2EE564J	560K ohm	AA
R231, R232	VRD-ST2EE221J	220 ohm	AA	R331, R332	VRD-ST2EE472J	4.7K ohm	AA
R233, R234	VRD-ST2EE224J	220K ohm	AA	R333, R334	VRD-ST2EE471J	470 ohm	AA
R235, R236, R237, R238, R239, R240	VRD-ST2EE153J	15K ohm	AA	R335, R336	VRD-ST2EE103J	10K ohm	AA
R241, R242	VRD-ST2EE564J	560K ohm	AA	R337, R338, R339, R340	VRG-MU2EB101J	100 ohm, 1/4W, $\pm 5\%$, Fusible	AD
R243, R244	VRD-ST2EE182J	1.8K ohm	AA	R341, R342	VRD-ST2EE123J	12K ohm	AA
R245, R246	VRD-ST2EE562J	5.6K ohm	AA	R343, R344	VRD-ST2EE392J	3.9K ohm	AA
R247, R248	VRD-ST2EE331J	330 ohm	AA	R345, R346	RR-FZ1002AFZZ	.33 ohm, 5W, $\pm 10\%$, Metal Plate (RGC55)	AD
R249, R250	VRD-ST2EE224J	220K ohm	AA	R347, R348	VRG-ST2HA100J	10 ohm, 1/2W, $\pm 5\%$, Fusible	AB
R251, R252	VRD-ST2EE181J	180 ohm	AA	R349, R350	VRS-PT3DB2R2K	2.2 ohm, 2W, $\pm 10\%$, Metal Oxide Film	AB
R253, R254	VRD-ST2EE334J	330K ohm	AA	R351, R352	VRG-MU2EB470J	47 ohm, 1/4W, $\pm 5\%$, Fusible	AD
R255, R256	VRD-ST2EE183J	18K ohm	AA	R371, R372	VRG-ST2EA100J	10 ohm, 1/4W, $\pm 5\%$, Fusible	AB
R257, R258, R259, R260	VRD-ST2EE332J	3.3K ohm	AA	R402	VRD-ST2EE273J	27K ohm	AA
R261, R262	VRD-ST2EE122J	1.2K ohm	AA	R403	VRD-ST2EE153J	15K ohm	AA
R263, R264	VRD-ST2EE562J	5.6K ohm	AA	R404	VRD-ST2EE332J	3.3K ohm	AA
R265, R266	VRD-ST2EE820J	82 ohm	AA	R405	VRD-ST2EE392J	3.9K ohm	AA
R267, R268	VRD-ST2EE102J	1K ohm	AA	R406	VRD-ST2EE393J	39K ohm	AA
R269, R270, R271, R272	VRD-ST2EE155J	1.5 Meg ohm	AA	R407, R408	VRD-ST2EE682J	6.8K ohm	AA
R291, R292	VRD-ST2EE103J	10K ohm	AA	R409	VRD-ST2EE333J	33K ohm	AA
R303, R304	VRD-ST2EE102J	1K ohm	AA	R410	VRD-ST2EE104J	100K ohm	AA
R305, R306	VRD-ST2EE103J	10K ohm	AA	R411	VRD-ST2EE122J	1.2K ohm	AA
R307, R308	VRD-ST2EE681J	680 ohm	AA	R412	VRD-ST2EE470J	47 ohm	AA
R309, R310	VRD-ST2EE103J	10K ohm	AA	R413	VRD-ST2EE183J	18K ohm	AA
R311	VRD-ST2EE681J	680 ohm	AA	R414	VRD-ST2EE221J	220 ohm	AA
				R415	VRD-ST2EE103J	10K ohm	AA
				R416	VRD-ST2EE392J	3.9K ohm	AA
				R501, R502	VRG-ST2EA100J	10 ohm, 1/4W, $\pm 5\%$, Fusible	AB
				R503, R504	VRD-ST2EE183J	18K ohm	AA
				R505, R506	VRD-ST2EE273J	27K ohm	AA
				R507	VRD-ST2EE123J	12K ohm	AA

PARTS LIST

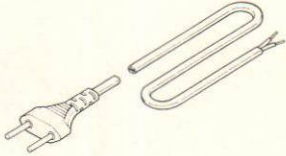
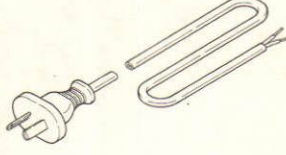
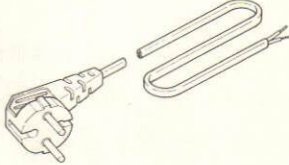
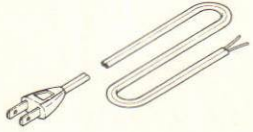
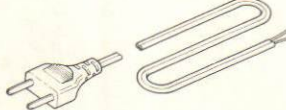
REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE
R508	VRD-ST2EE123J	12K ohm	AA		JKNBM0298AFSB	Knob, Speakers Selector/Sub-sonic Filter/High Filter/Mono Switch/Tape Dubbing Selector/Tape Monitor Selector/Tone Control Circuit On/Off/Loudness Contour/Audio Muting (SM-7100HB)	AD
R509	VRD-ST2EE273J	27K ohm	AA				
R510	VRG-ST2EA220J	22 ohm, 1/4W, $\pm 5\%$, Fusible	AB				
R511	VRD-ST2EE153J	15K ohm	AA				
R512, R513	VRD-ST2EE681J	680 ohm	AA				
R514	VRG-ST2HA4R7J	4.7 ohm, 1/2W, $\pm 5\%$, Fusible	AB	9	JKNBN0403AFSA	Knob, Volume Control (SM-7100H)	AL
R515, R516	VRG-ST2EA471J	470 ohm, 1/4W, $\pm 5\%$, Fusible	AB		JKNBN0403AFSB	Knob, Volume Control (SM-7100HB)	AL
R517	VRG-ST2EA100J	10 ohm, 1/4W, $\pm 5\%$, Fusible	AB	10	JKNBN0404AFSA	Knob, Bass Control/Treble Control/Function Selector/Balance Control (SM-7100H)	AH
R518	VRD-SU2EE330J	33 ohm	AA		JKNBN0404AFSB	Knob, Bass Control/Treble Control/Function Selector/Balance Control (SM-7100HB)	AH
R519	VRG-ST2EA220J	22 ohm, 1/4W, $\pm 5\%$, Fusible	AB	11	LANGF0482AFZZ	Bracket, Left & Right Hand Side	AF
R601, R602	VRD-ST2EE122J	1.2K ohm	AA	12	LANGG0066AF00	Lever, Power Switch	AD
R603, R604	VRD-ST2EE102J	1K ohm	AA	13	LANGG0069AFZZ	Bracket, Printed Wiring Board	AD
R605, R606	VRD-ST2EE270J	27 ohm	AA	14	LANGQ0649AFSA	Bracket, Terminals & Jacks (SM-7100H)	AN
R607, R608	VRD-ST2EE563J	56K ohm	AA		LANGQ0688AFSA	Bracket, Terminals & Jacks (SM-7100HB)	AN
R701, R702, R703, R704	VRD-ST2EE121J	120 ohm	AA	15	LANGQ0650AFZZ	Bracket, Headphones Jack	AB
R901, R902	VRS-PT3DB271K	270 ohm, 2W, $\pm 10\%$, Metal Oxide Film	AB	16	LANGQ0652AFZZ	Bracket, Power Switch	AB
MISCELLANEOUS				17	LANGR0468AFZZ	Bracket, Front	AM
1	GCAB-3068AFSA	Cabinet	AX	18	LANGT0781AFZZ	Bracket, Bottom	AM
2	GFTAU3080AFZZ	Lid, Bottom	AK	19	LANGT0785AFZZ	Bracket, Center	AE
3	GLEGP0065AF00	Leg, Outer	AA	20	LBSHC0004AGZZ	Bushing, Mains Supply Cord	AC
4	GLEGP0066AF00	Leg, Inner	AA	21	LBSHC0007AFZZ	Bushing, Mains Supply Cord	AB
5	HDECA0310AFSA	Bracket, L.E.D. (Light Emitting Diode)	AK	22	LHLDP8004AF00	Holder, Power/Protection Indicator	AC
6	HPNLC3368AFSA	Panel, Front (SM-7100H)	AZ	23	LHLD51052AF00	Guide, Power Switch Lever	AB
	GMADZ0051AFZZ	Window	AK	24	LHLDW1062AFZZ	Wire Holder	AA
	PSPAG0066AF00	Cushion, 30mm x 5mm x 1.5mm	AB	25	LHLDW1068AFZZ	Nylon Band, 100mm	AA
	PSPAS0080AFSA	Spacer, Power Switch Knob (SM-7100H)	AB	26	LHLDW1075AFZZ	Nylon Band, 60mm	AA
	PSPAS0084AFSA	Spacer, Push Switch Knobs (SM-7100H)	AA	27	LHLDW9002CEZZ	Wire Holder	AA
	HPNLC3368AFSB	Panel, Front (SM-7100HB)	AZ	28	LHLDW9003CEZZ	Wire Holder	AA
	GMADZ0051AFZZ	Window	AK	29	LX-BZ0261AFFD	Screw, Front Panel Retaining	AA
	PSPAG0066AF00	Cushion, 30mm x 5mm x 1.5mm	AB	30	LX-HZ0069AFFD	Screw, 4mm Dia. x 10mm, Transformer Retaining	**
	PSPAS0080AFSB	Spacer, Power Switch Knob (SM-7100HB)	AB	31	LX-LZ0051AF00	Push Rivet	**
	PSPAS0084AFSB	Spacer, Push Switch Knobs (SM-7100HB)	AA	32	LX-WZ0065AGFE	Lock Washer, Fuse Holder	AB
7	JKNBM0297AFSA	Knob, Power On/Off Switch (SM-7100H)	AD	33	MJNT-3051AFZZ	Coupling, Function Selector Shaft	AE
	JKNBM0297AFSB	Knob, Power On/Off Switch (SM-7100HB)	AD	34	MSPRK0054AFFJ	Plate Spring, Function Selector Switch	AB
8	JKNBM0298AFSA	Knob, Speakers Selector/Sub-sonic Filter/High Filter/Mono Switch/Tape Dubbing Selector/Tape Monitor Selector/Tone Control Circuit On/Off/Loudness Contour/Audio Muting (SM-7100H)	AD	35	NSFTS0056AFZZ	Shaft, Function Selector	AC
				36	PCOVW1105AFZZ	Cover, Power Switch	AE
					PCUSZ0007AFZZ	Cushion, 175mm x 9.8mm x 4.8mm	AB
					PCUSZ0008AFZZ	Cushion, 15mm x 6mm x 4mm	AB
				37	PFLT-0330AF00	Felt, Cabinet	AA
					PFLT-0367AFZZ	Felt, 32mm Dia. x 4.8mm Dia. x 0.9mm	AA
					PFLT-0372AF00	Felt, 370mm x 24mm	AB
					PFLT-0373AF00	Felt, 57mm x 5mm, Output Power Indicator	AA
				38	PGUMM0132AFZZ	Holder, L.E.D., Rubber	AE
				39	PGUMM0139AF00	Cushion, 22mm Dia. x 15.5mm Dia. x 2.2mm, Outer Leg	AE
				40	PRDAR0101AFFW	Heat Sink, Transistor (Q503 & Q504)	AB

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

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	DESCRIPTION	CODE
41	PRDAR0191AF00	Heat Sink, IC301, Left Channel	AY			SW201H: Switch, Source Dubbing	
42	PRDAR0192AF00	Heat Sink, IC302, Right Channel	AY			SW201I: Switch, 1 ► 2 Tape Dubbing	
43	PSPAN0054AFZZ	Spacer, Nylon	AB			SW201J: Switch, Mono	
44	QACCL0051AFZZ	Mains Supply Cord, For Users in Australia	AM			SW201K: Switch, 15kHz High Filter	
45	QACCS0051AF00	Mains Supply Cord	AM			SW201L: Switch, 8kHz High Filter	
46	QACCZ0002TA0F	Mains Supply Cord	AF			SW201M: Switch, 30Hz Subsonic Filter	
47	QACCZ0052AF00	Mains Supply Cord	AP			SW201N: Switch, 15Hz Subsonic Filter	
48	QACCZ0053AF00	Mains Supply Cord	AK			SW201O: Switch, "b" Speaker	
49	QCNW-0489AF02	Cable, 6-lead, 230mm	AG			SW201P: Switch, "a" Speaker	
50	QCNW-0489AF03	Cable, 6-lead, 300mm	AH				
51	QCNW-0492AF01	Cable, 10-lead, 520mm	AL				
F901	QFS-C402DAFNI	Fuse, T4.0A (220/240V)	AE				
	QFS-C632DAFNI	Fuse, T6.3A (110V)	AE				
52	QFSHP1001AGZZ	Holder, Fuse (F901)	AH	SW101	QSW-R0164AFZZ	Switch, Function Selector	AT
J901	QJAKJ0070AFZZ	Jack, Headphones, with Nut	AF	(A,B,C)			
53	QLUGP0111CEFW	Terminal Tip, 13mm	AA	TE903	QTANN0153AFZZ	Terminal, Earth	AD
54	QLUGP9052AFZZ	Terminal Tip	AA	TE901	QTANZ0455AFZZ	Terminal, Speaker A	AG
55	QPLGZ0153AFZZ	Connection Pin	AC	TE902	QTANZ0455AFZZ	Terminal, Speaker B	AG
SO904	QSOCD2553AFZZ	Socket, Tape 2 Record/Playback	AD	RLY401	RRLYZ0056AFZZ	Relay, Protection	AS
					SPAKA0567AFZZ	Cushion, Packing, Left Hand Side	AF
SW902	QSOCE0559AFZZ	Switch, Mains Voltage Selector	AK		SPAKA0568AFZZ	Cushion, Packing, Right Hand Side	AF
SO905	QSOCJ2459AFZZ	SO905 (A, B): Jack, Outputs of Pre-amplifier	AE		SPAKC1280AFZZ	Individual Carton (SM-7100H)	**
(A~D)		SO905 (C, D): Jack, Inputs for Power-amplifier			SPAKC1330AFZZ	Individual Carton (SM-7100HB)	AL
SO902	QSOCJ2667AFZZ	SO902 (A, B): Jack, Tuner Input	AG		SPAKX0226AFZZ	Cushion, Packing, Bottom	AC
(A~F)		SO902 (C, D): Jack, Auxiliary Input			SPAKX0228AFZZ	Cushion, Packing, Top	AE
		SO902 (E, F): Jack, Tape 1 Input			SSAKA0007SEZZ	Bag, Operation Manual	AA
SO903	QSOCJ2667AFZZ	SO903 (A, B): Jack, Tape 1 Output	AG		SSAKH0156AFZZ	Bag, Unit, 500mm x 640mm	AC
(A~F)		SO903 (C, D): Jack, Tape 2 Input			TCAUA0200AFZZ	Caution Sheet, Fuse (6.3A), with Pouch	—
		SO903 (E, F): Jack, Tape 2 Output			TCAUA0201AFZZ	Caution Sheet, Fuse (4.0A), with Pouch	—
SO901	QSOCZ2472AFZZ	SO901 (A, B): Jack, Phono 1 Input	AH		TCAUS0052AFZZ	Caution Label, Bottom Lid	—
(A~D)		SO901 (C, D): Jack, Phono 2 Input			TCAUS0076AFZZ	Caution Label, Cabinet	—
SW901	QSW-P0158AFZZ	Switch, Power	AM		TGANE1119AFZZ	Warranty Card, For Users in Australia	—
SW201	QSW-P0200AFZZ	SW201A: Switch, Audio Muting	AZ		TGANG1039AFZZ	Warranty Card, For Users in Europe	—
(A~P)		SW201B: Switch, Loudness Contour			TINSZ0158AFZZ	Operation Manual	AK
		SW201C: Switch, Tone Control Circuit On/Off			TLABS0080AFZZ	Label, SEMKO	—
		SW201D: Switch, Tape 1 Monitor			TLABS0081AFZZ	Label, NEMKO	—
		SW201E: Switch, Source Monitor			TLABS0082AFZZ	Label, DEMKO	—
		SW201F: Switch, Tape 2 Monitor			TLABS0083AFZZ	Label, SEV	—
		SW201G: Switch, 2 ► 1 Tape Dubbing			TLSTS0001ZZR0	Service Station List, For Users in Australia	—
					TMAPC0561AFZZ	Schematic Diagram	—
					TTAGH0079AFZZ	Tag, English/German/French/Spanish/Swedish	AC
					PRINTED WIRING BOARD ASSEMBLY (Not replacement item.)		
					DUNT0030AF02	Output Power Indicator Circuit	**
					DUNT0054AF02	Power Amplifier	**
					(Combined assembly)		

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

Mains supply cord	Bushing	Connection		Figure
		Ⓐ	Ⓑ	
④⑤ QACCS0051AF00	LBSHC0004AGZZ	Blue	Brown	
④④ QACCL0051AFZZ	LBSHC0007AFZZ	Blue	Brown	
④⑦ QACCZ0052AF00	LBSHC0004AGZZ	Blue	Brown	
④⑥ QACCZ0002TA0F	LBSHC0007AFZZ	Brown	Brown	
④⑧ QACCZ0053AF00	LBSHC0007AFZZ	Black	Black	

MAINS SUPPLY CORD WIRING CONNECTIONS

