

Service Manual



Stereo Integrated Amplifier

SU-8080

(X), (XAL), (XG), (XGH),
(XGF), (XSD), (XSW), (XE)

The model SU-8080 (XAL) is available in Australia only.
The model SU-8080 (XG) is available in European only.
The model SU-8080 (XGH) is available in Holland only.
The model SU-8080 (XGF) is available in France only.
The model SU-8080 (XSD) is available in Scandinavia only.
The model SU-8080 (XSW) is available in Switzerland only.
The model SU-8080 (XE) is available in England only.

The model SU-8080 (X) is available in Asia, Latin America, Middle East and Africa only.

TECHNICAL SPECIFICATIONS (IHF) Specifications are subject to change without notice for further improvement

POWER AMPLIFIER SECTION

1 kHz continuous power output
both channels driven 92W + 92W (4Ω), 74W + 74W (8Ω)
20 Hz ~ 20 kHz continuous power output
both channels driven 90W + 90W (4Ω), 72W + 72W (8Ω)
Power bandwidth (both channels driven at 8Ω)
5 Hz ~ 40 kHz, -3 dB
Total harmonic distortion
rated power at 1 kHz (8Ω, 4Ω) 0.02%
rated power at 20 Hz ~ 20 kHz (8Ω) 0.02%
rated power at 20 Hz ~ 20 kHz (4Ω) 0.05%
half power at 1 kHz (8Ω, 4Ω) 0.0015%
Frequency response 20 Hz ~ 20 kHz, +0 dB, -0.1 dB
0 Hz ~ 100 kHz, +0 dB, -3 dB
S/N (IHF, A) 115 dB
Residual hum & noise 100 μV
Damping factor 35 (4Ω), 70 (8Ω)
Input sensitivity & Impedance 1V/50 kΩ
Load impedance MAIN or REMOTE 4 ~ 16Ω
MAIN + REMOTE 8 ~ 16Ω

PREAMPLIFIER SECTION

Input sensitivity & impedance
PHONO 1, 2 2.5mV/47kΩ, 27kΩ
TUNER, AUX 200mV/35kΩ
REC/PLAY input (TAPE DECK 1) 200mV/35kΩ
PLAYBACK (TAPE DECK 1, 2) 200mV/35kΩ

PHONO 1, 2 maximum input voltage (1 kHz, RMS) 280mV
Total harmonic distortion 0.01%
S/N (IHF, A) PHONO 1, 2 88 dB
TUNER, AUX via tone 100 dB direct 106 dB
Frequency response RIAA standard curve ±0.2 dB
PHONO 1, 2 20 Hz ~ 20 kHz, +0 dB, -0.1 dB
TUNER, AUX 50 Hz, +7.5 dB ~ -7.5 dB
Tone controls BASS 20 kHz, +7.5 dB ~ -7.5 dB
TREBLE 30 Hz, -12 dB/oct.
Filters equalizer subsonic filter 10 kHz, -6 dB/oct.
high filter 100 Hz, +8 dB
Loudness control (volume at -30 dB) -14 dB
Muting -14 dB
Output voltage & impedance
PREOUT rated 1V/1kΩ, maximum 9V/1kΩ
REC/PLAY output (TAPE DECK 1) 30mV/82kΩ
REC OUT (TAPE DECK 1, 2) 200mV

GENERAL
Power supply (50/60 Hz) 110V/120V/220V/240V
240V only (Set for Australia)
Power consumption 490W
570W (Set for united kingdom)
Dimensions (WxHxD) 450x140x371mm (17 1/2" x 5 1/2" x 14 1/2")
Weight 14 kg (30.9 lb.)

CARACTERISTIQUES TECHNIQUES (IHF) Sujet à changement sans préavis.

PARTIE AMPLIFICATEUR DE PUISSANCE

1 kHz, puissance continue
total 2 canaux 92W + 92W (4Ω), 74W + 74W (8Ω)
20 Hz ~ 20 kHz, puissance continue
total 2 canaux 90W + 90W (4Ω), 72W + 72W (8Ω)
Largeur de bande de puissance
total 2 canaux 8Ω 5 Hz ~ 40 kHz, -3 dB
Distorsion harmonique totale
à la puissance nominale, 1 kHz (8Ω, 4Ω) 0.02%
à la puissance nominale, 20 Hz ~ 20 kHz (8Ω) 0.02%
à la puissance nominale, 20 Hz ~ 20 kHz (4Ω) 0.05%
à demi-puissance, 1 kHz (8Ω, 4Ω) 0.0015%
Courbe de réponse 20 Hz ~ 20 kHz, +0 dB, -0.1 dB
0 Hz ~ 100 kHz, +0 dB, -3 dB
Rapport S/B (IHF, A) 115 dB
Tension résiduelle de bruit 100 μV
Facteur d'amortissement 35 (4Ω), 70 (8Ω)
Sensibilité et impédance d'entrée 1V/50 kΩ
Impédance de charge PRINCIPAL ou ELOIGNE 4 à 16Ω
PRINCIPAL + ELOIGNE 8 à 16Ω

PARTIE PREAMPLIFICATEUR

Sensibilité et impédance d'entrée
PHONO 1, 2 2.5mV/47kΩ, 27kΩ
TUNER, AUX 200mV/35kΩ
Magnétophone 1, 2 LECTURE (PLAYBACK) 200mV/35kΩ
Magnétophone 1, REC/PLAY 200mV/35kΩ

Tension max. d'entrée PHONO 1, 2 (1 kHz, eff.) 280mV
Distorsion harmonique totale 0.01%
Rapport S/B (IHF, A) PHONO 1, 2 88 dB
TUNER, AUX via tone 100 dB direct 106 dB

Courbe de réponse:
PHONO 1, 2 norme RIAA ±0.2 dB
TUNER, AUX 20 Hz ~ 20 kHz, +0 dB, -0.1 dB

Commandes de tonalité
Grave (BASS) 50 Hz, +7.5 dB à -7.5 dB
Aigu (TREBLE) 20 kHz, +7.5 dB à -7.5 dB

Filtrage intra acoustique compensateur 30 Hz, -12 dB/oct.
Filtre Aigu (HIGH) 10 kHz, -6 dB/oct.
Correction physiologique (Volume à -30 dB) 100 Hz, +8 dB
Silencieux -14 dB

Tension de sortie et impédance
Sortie préampli à tension nominale 1V/1kΩ
à tension maximale 9V/1kΩ

Magnétophone 1, REC/PLAY 30mV/82kΩ
Magnétophone 1, 2 Enregistrement (REC OUT) 200mV

GENERALITES

Alimentation (50Hz/60Hz) 110V/120V/220V/240V
Consommation 490W
Dimensions (L x H x P) 450 x 140 x 371 mm
Poids 14 kg

TECHNISCHE DATEN (DIN 45 500) Spezifikationen können infolge von Verbesserungen ohne Ankündigung geändert werden.

VERS TÄRKERTEIL

RMS-Dauertonleistung bei 1 kHz	
beide Kanäle zusammen angesteuert	2 x 92W (4Ω) 2 x 74W (8Ω)
RMS-Dauertonleistung bei 40 Hz ~ 16,000 Hz	
beide Kanäle zusammen angesteuert	2 x 90W (4Ω) 2 x 72W (8Ω)
RMS-Dauertonleistung bei 20 Hz ~ 20,000 Hz	
beide Kanäle zusammen angesteuert	2 x 90W (4Ω) 2 x 72W (8Ω)
Harmonische Verzerrungen	
Nennausgangsleistung bei 1 kHz (8Ω, 4Ω)	0.02%
Nennausgangsleistung bei 40 Hz ~ 16,000 Hz (8Ω)	0.02%
Nennausgangsleistung bei 40 Hz ~ 16,000 Hz (4Ω)	0.05%
-26 dB Nennausgangsleistung bei 1 kHz (4Ω)	0.08%
50mW Ausgangsleistung bei 1 kHz (4Ω)	0.15%
Hum & Noise	100μV
Eingangsempfindlichkeit & Impedanz	1V/50kΩ
Dämpfungsfaktor	35 (4Ω), 70 (8Ω)
Endimpedanz	4 ~ 16Ω
MAIN oder REMOTE	8 ~ 16Ω

VORVERSTÄRKERTEIL

Eingangsempfindlichkeit & Impedanz	
PHONO 1, 2	2,5mV/47kΩ, 27kΩ
TUNER, AUX	200mV/35kΩ
PLAYBACK (TAPE DECK 1, 2)	200mV/35kΩ
REC/PLAY Wiedergabe (TAPE DECK 1)	200mV/35kΩ
PHONO 1, 2 Maximale Eingangsspannung (1 kHz, RMS)	280mV
Harmonische Verzerrungen	0.01%

Rauschabstand bei Nennausgangsleistung

PHONO 1, 2	70 dB	TUNER, AUX	92 dB
Rauschabstand bei -26 dB Nennausgangsleistung			
PHONO 1, 2	65 dB	TUNER, AUX	67 dB

Rauschabstand bei 50mW Ausgangsleistung

PHONO 1, 2	60 dB	TUNER, AUX	62 dB
Frequenzgang		PHONO 1, 2	nach RIAA ±0.2 dB
		TUNER, AUX	

Klangregler	BÄSSE	20 Hz ~ 20 kHz, +0 dB, -0.1 dB
	HÖHEN	50 Hz +7.5 dB ~ -7.5 dB
		20 kHz, +7.5 dB ~ -7.5 dB

Gehörriichtige Lautstärke (Lautstärke -30 dB)

		100 Hz, +8 dB
Entzerrungs Unterschaltfilter		30 Hz, -12 dB/oct
Höhenfilter		10 kHz, -6 dB/oct
Stummabstimm		-14 dB

Ausgangsspannungen	PRE OUT Nominal	1V/1kΩ
		Maximal
& Impedanz		9V/1kΩ

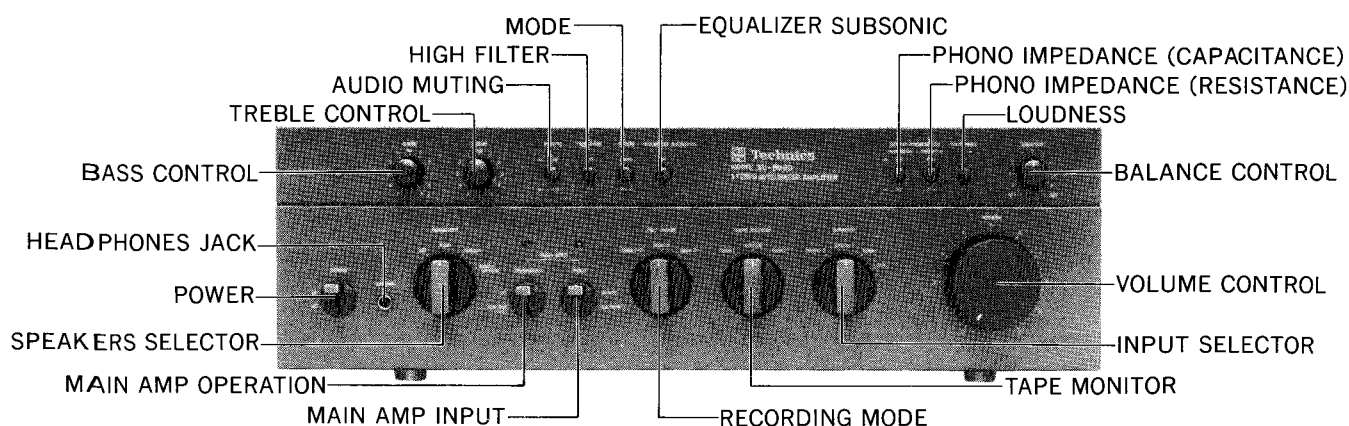
REC OUT	(TAPE DECK 1, 2)	200mV
REC/PLAY Aufnahme (TAPE DECK 1)		30mV/82kΩ
Kanaltrennung		±1.0 dB

Kopfhörerpegel & Ausgangsimpedanz	550mV/330Ω
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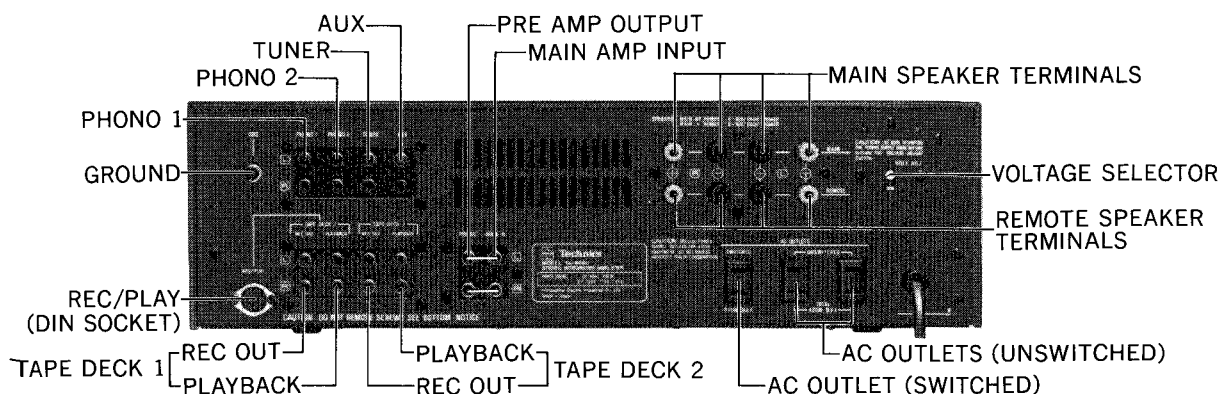
ALLGEMEINE DATEN

Leistungsaufnahme	490W
Netzspannung umschaltbar (50/60 Hz)	110/120/220/240V
Abmessungen (B x H x T)	450 x 140 x 371 mm
Gewicht	14 kg

LOCATION OF CONTROLS

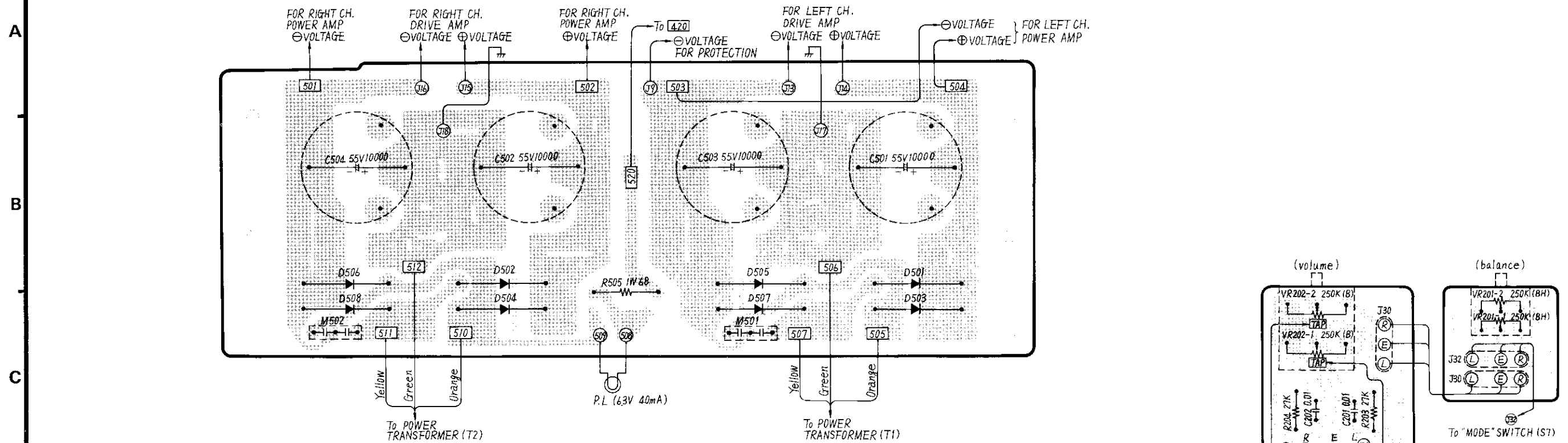


Front Panel View

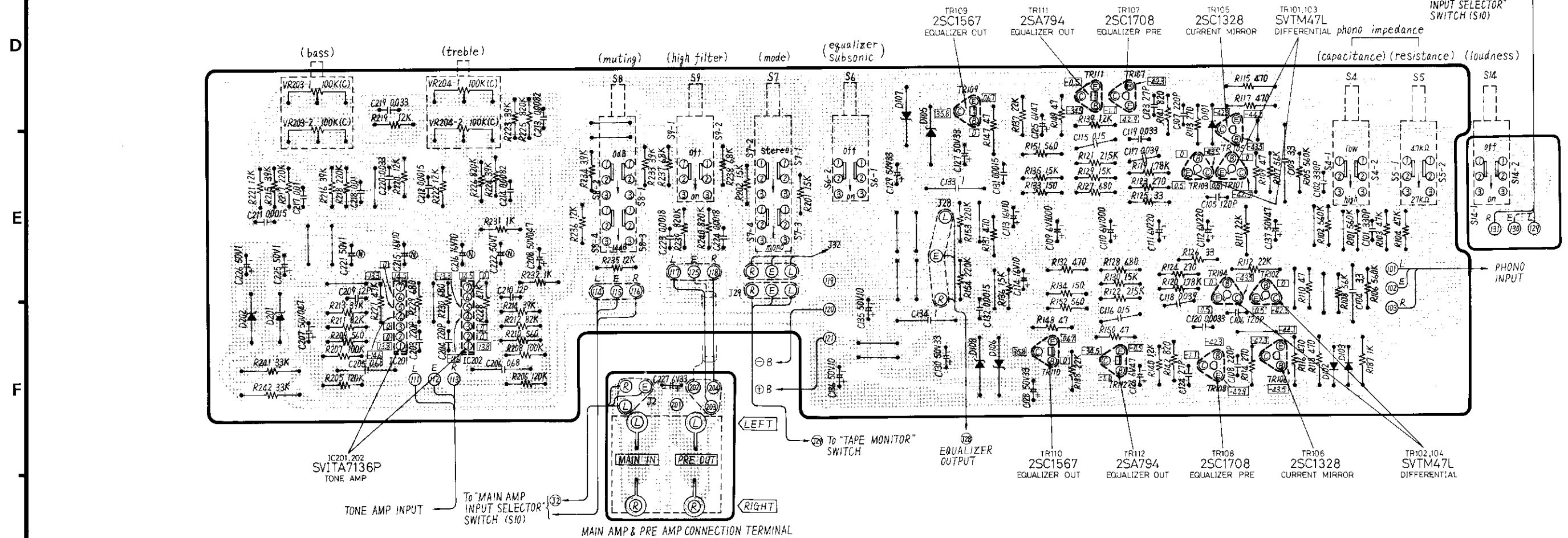


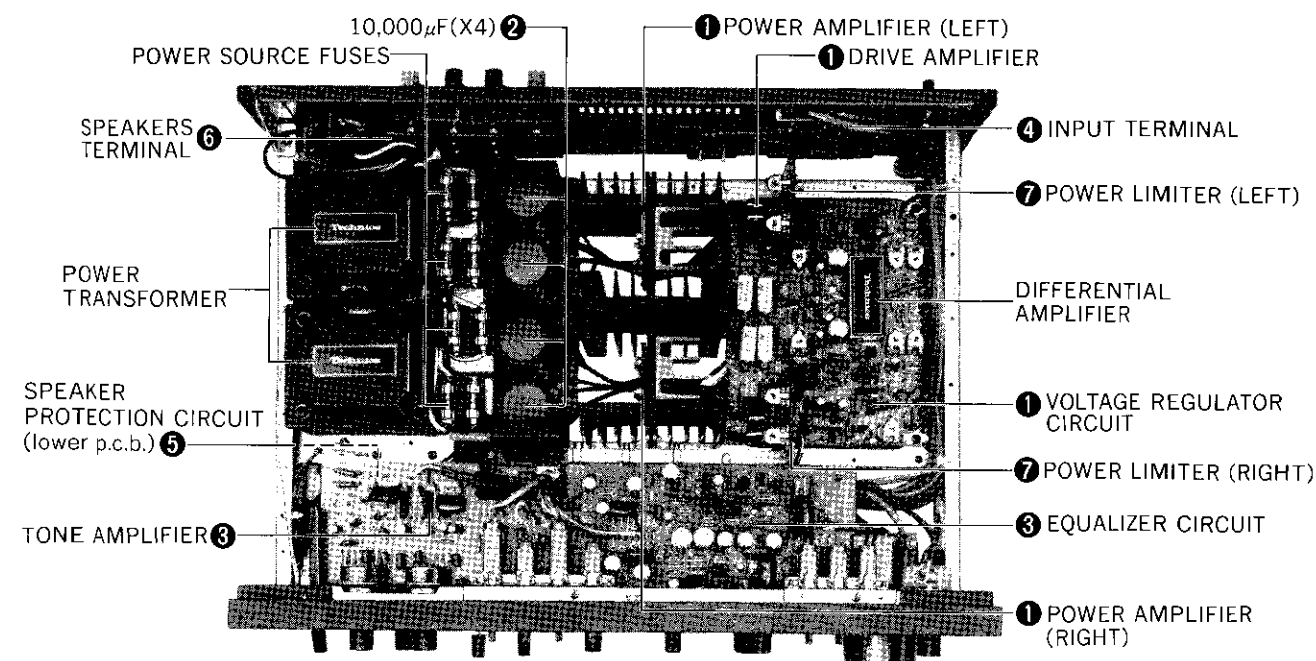
Rear Panel View

② POWER SUPPLY PRINTED CIRCUIT BOARD FOR MAIN AMPLIFIER



③ EQUALIZER & TONE AMPLIFIER PRINTED CIRCUIT BOARD





■ SERVICE AID

In the equalizer circuit of this unit, the ultra-Low Noise Transistors specially developed for the unit have been adopted at the initial stage, while carefully selected parts are employed for the NF elements to obtain high S/N ratio. Additionally, in the initial stages of the equalizer circuit and main amplifier circuit, the differential amplifier of current Mirror Load which provides high gain and stable functioning has been adopted.

- Although to tone amplifier has gain of 14 dB, the input signal is directly applied to the main amplifier when the "main amp input" switch is set to "direct", resulting in shortage of gain by -14 dB as compared with the case where the tone amplifier gain is obtained with the same switch set to "Via-tone". Therefore, in the "direct" position, the input to the main amplifier is increased by 14 dB, while the same input is decreased by 14 dB in the "Via tone" position to obtain flat characteristics.
- In the output circuit, there are connected the speaker protection circuit which prevents damages to the speaker when DC current is developed at the speaker terminals and the overload having impedance less than 4 Ω , with the power limiter circuit being employed for preventing breakage of the power amplifier when excessive power is developed or upon short-circuiting of the speaker terminals. In cases where sufficient output is not produced even when playing is started with the speakers connected, or where the sound is interrupted intermittently, check the speakers for connections and impedance.

● POWER LIMITER CIRCUIT

Fig. 1 shows the power limiter circuit. In cases where the speaker terminals are short-circuited or large power is developed with overload of less than 4 Ω impedance connected, large current flows through the emitter resistances R345 and R347 of TR319 and TR321, resulting in increased voltage drop. The voltage is applied to the bases of TR351 and TR352 of the power limiter circuit, thus turning these 2 transistors "ON". The collectors of TR351 and TR352 are connected to the bases of TR313 and TR315 of the driver amplifier through D350 and D351. Therefore, when TR351 and D350. Therefore, when TR351 and TR352 are rendered conductive, the base bias for the driver amplifier becomes shallow, and the voltage to be applied to TR319 and TR321 of the power amplifier is reduced to make these transistors inoperative, with the output being consequently suspended.

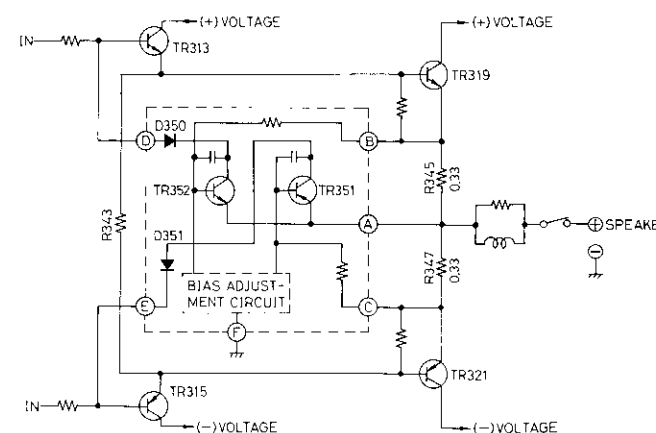
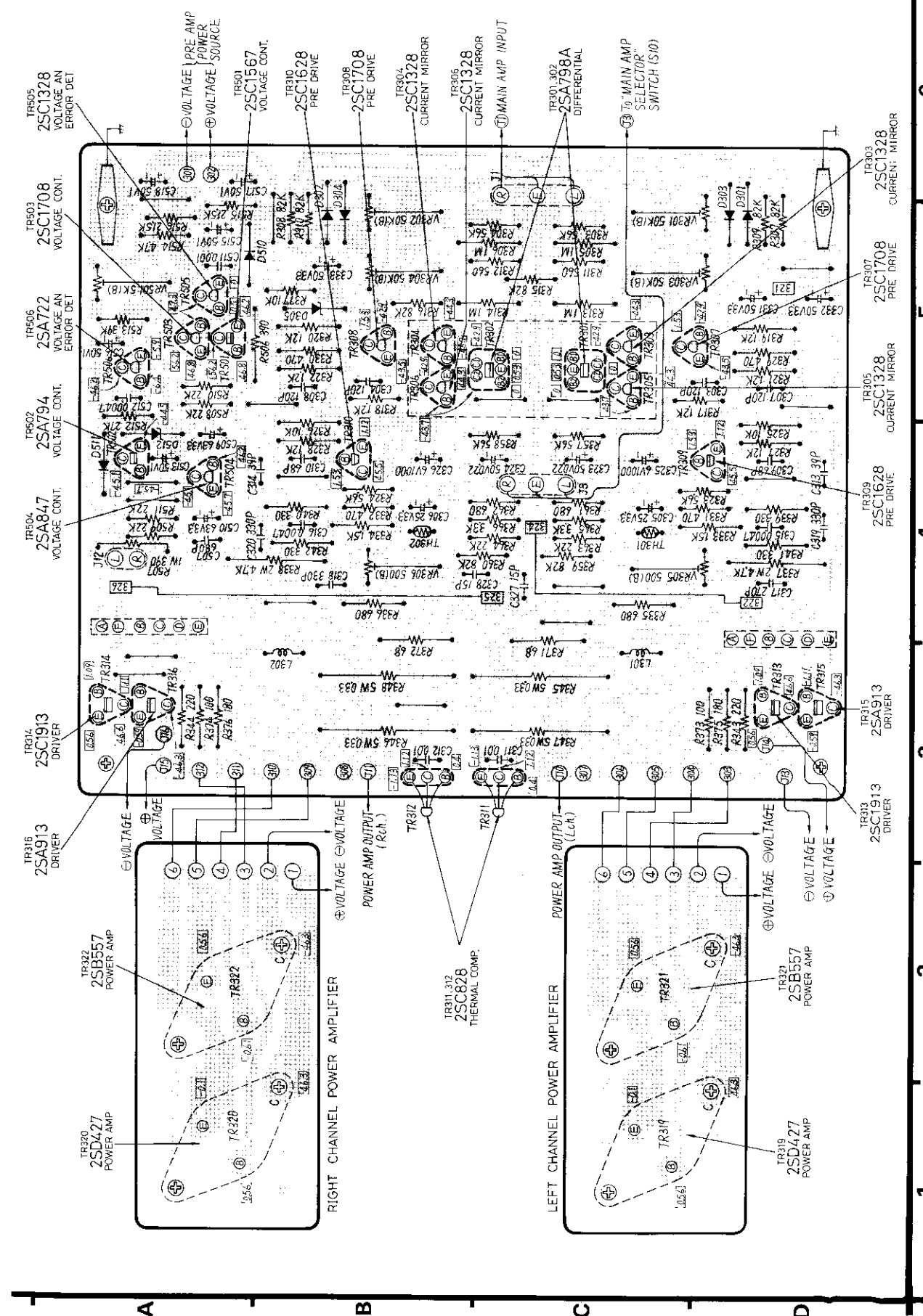
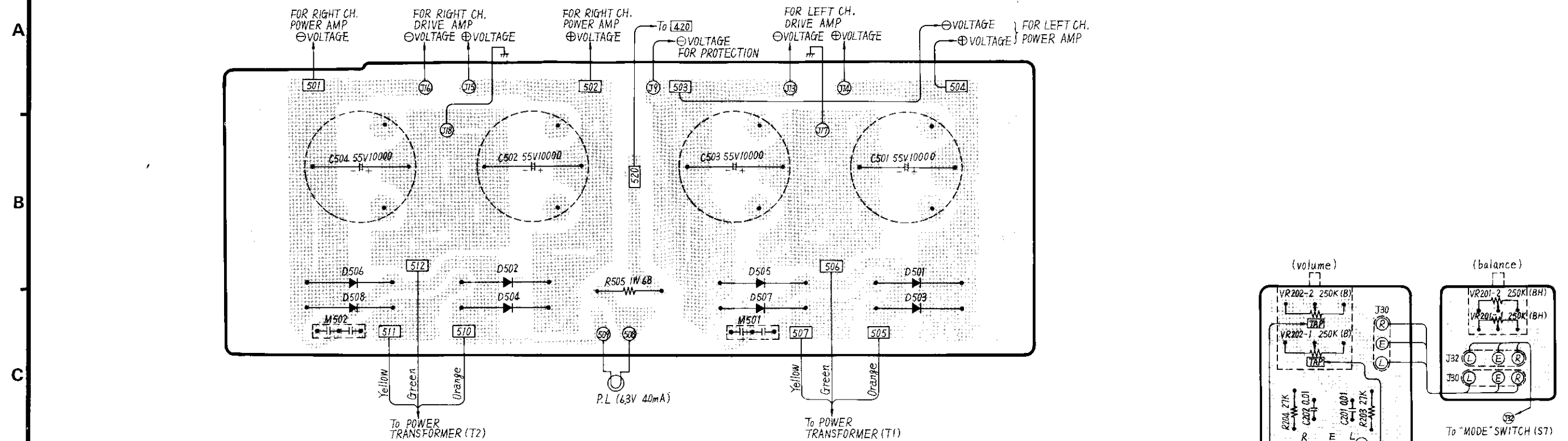


Fig. 1

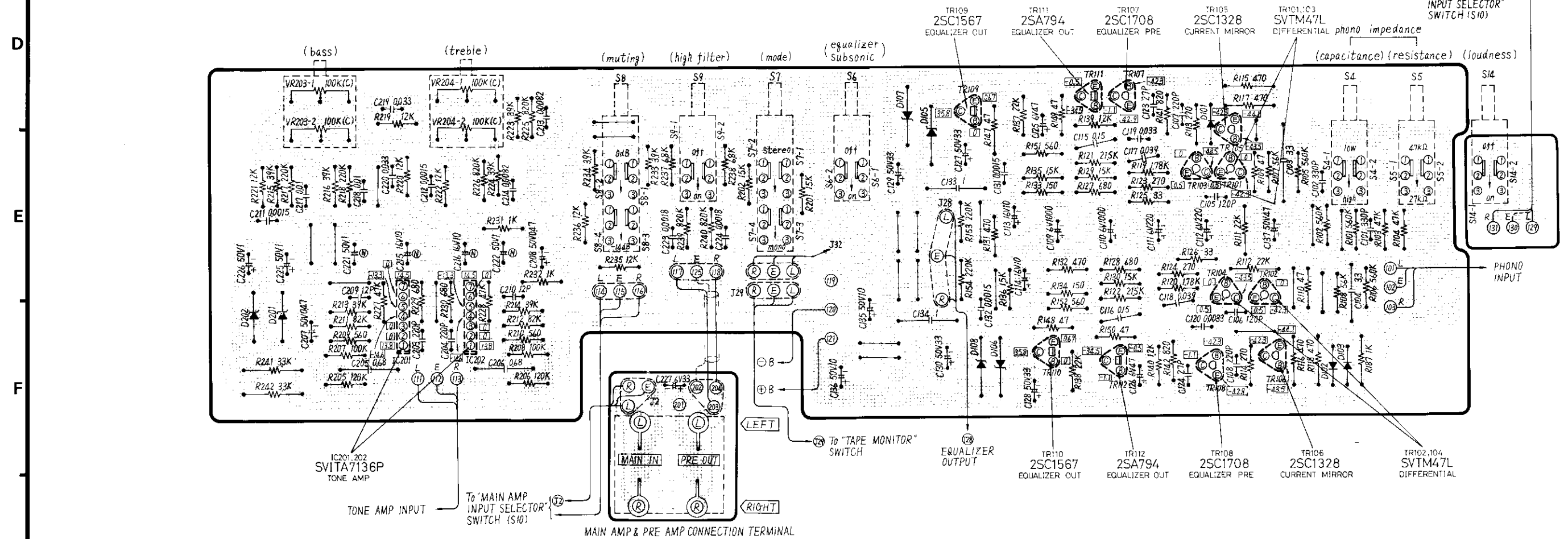
① MAIN AMPLIFIER & POWER TRANSISTOR PRINTED CIRCUIT BOARD



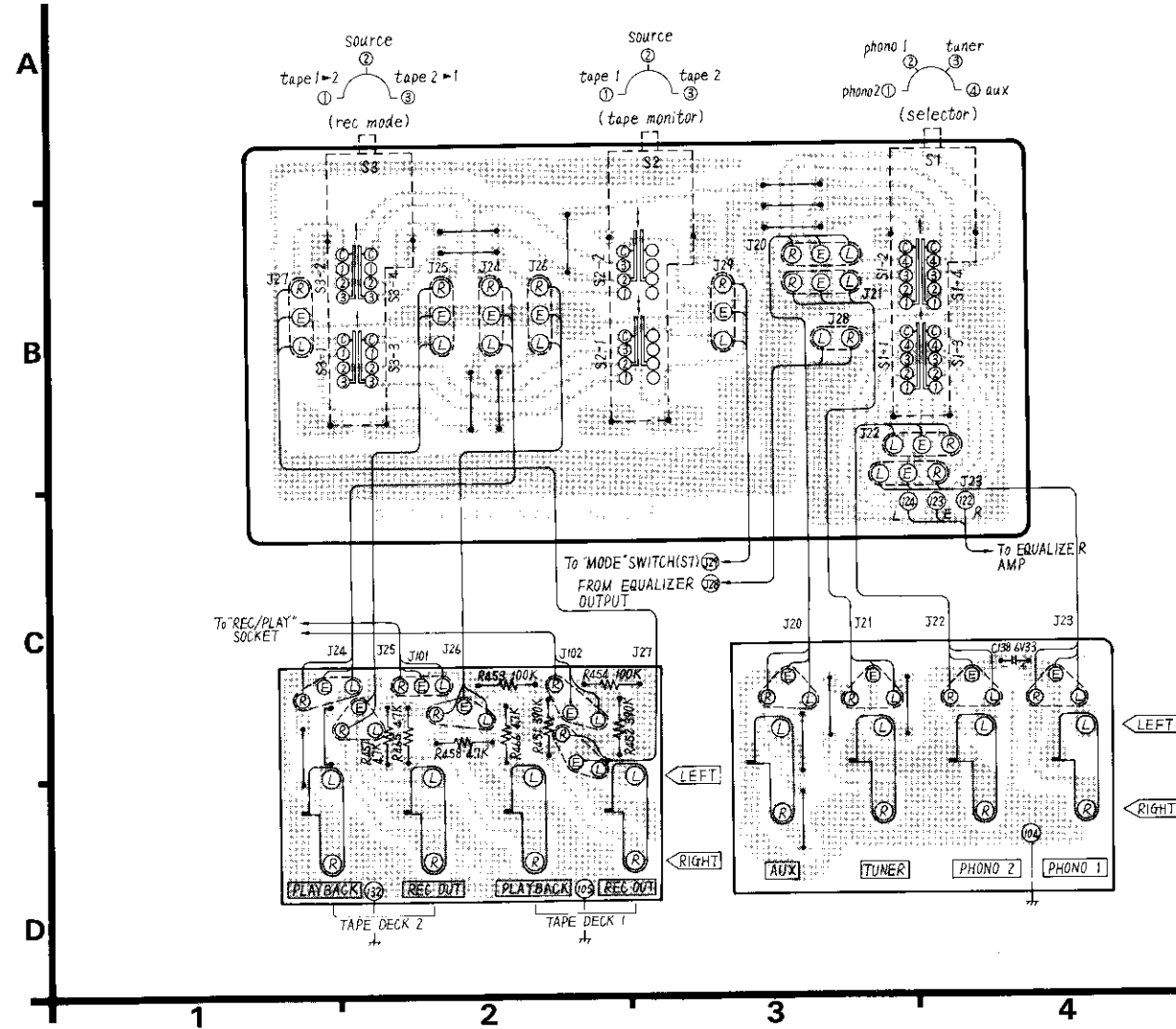
② POWER SUPPLY PRINTED CIRCUIT BOARD FOR MAIN AMPLIFIER



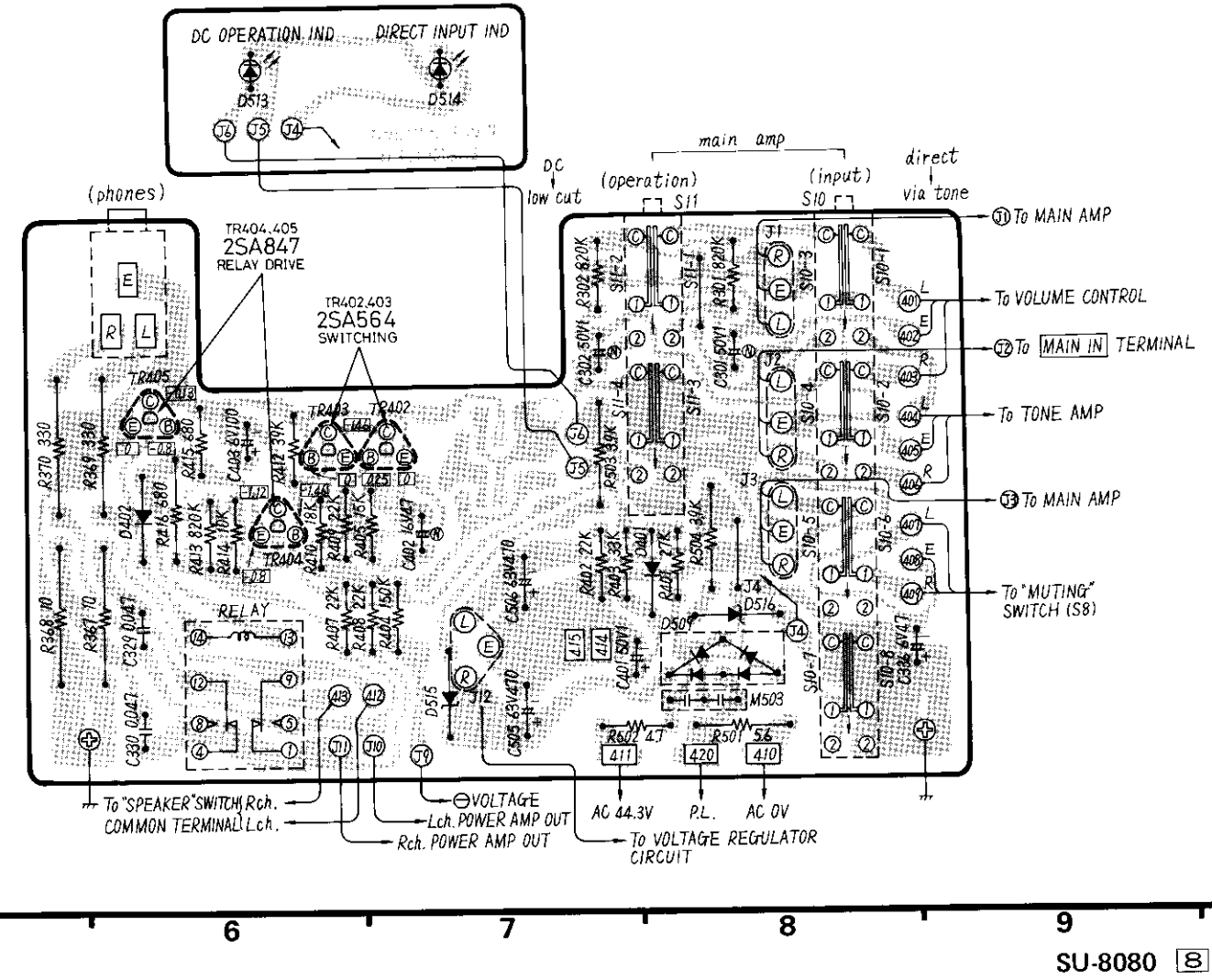
③ EQUALIZER & TONE AMPLIFIER PRINTED CIRCUIT BOARD



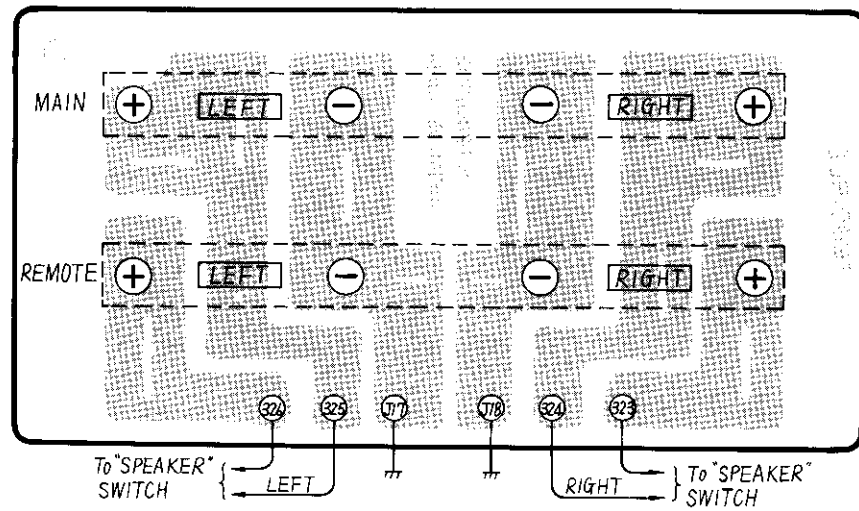
④ INPUT & TAPE MONITOR SWITCH PRINTED CIRCUIT BOARD



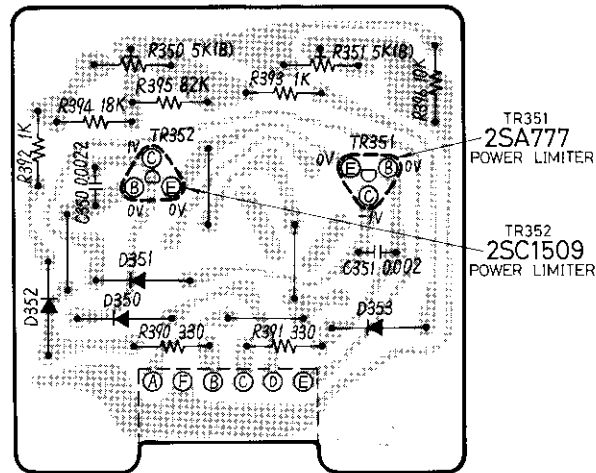
⑤ PROTECTION & MAIN AMPLIFIER SELECTOR PRINTED CIRCUIT BOARD



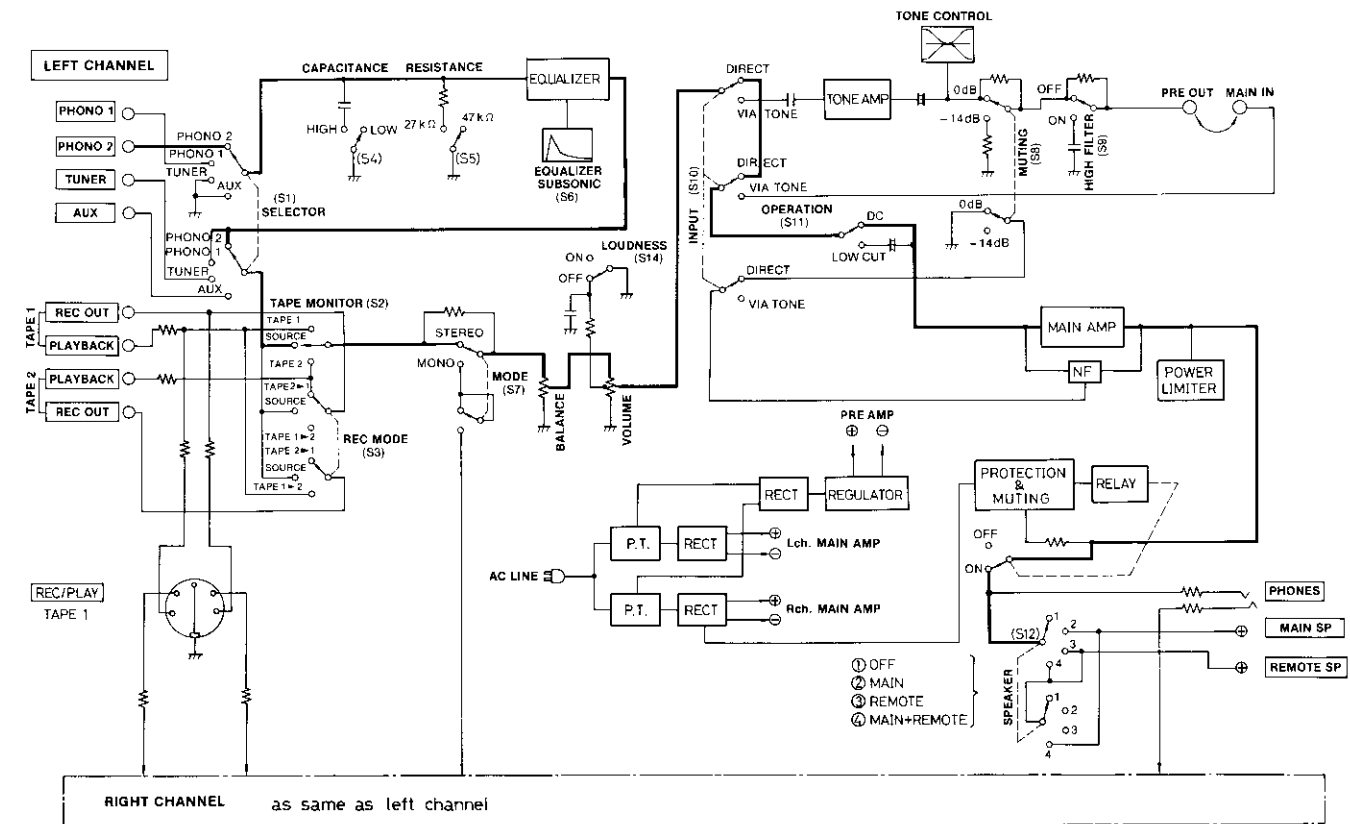
⑥ SPEAKERS TERMINAL PRINTED CIRCUIT BOARD



⑦ POWER LIMITER PRINTED CIRCUIT BOARD (left or right channel)

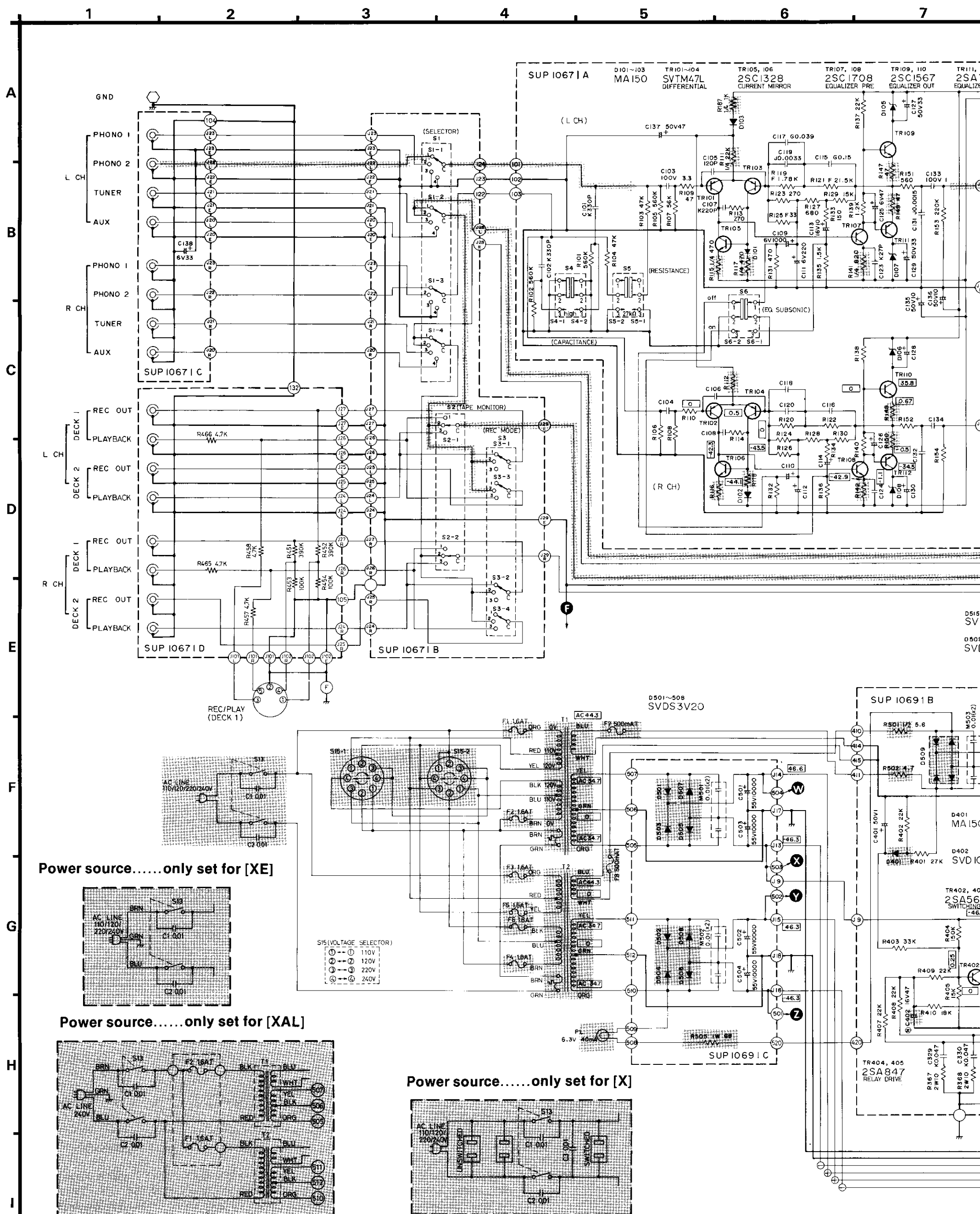


■ BLOCK DIAGRAM



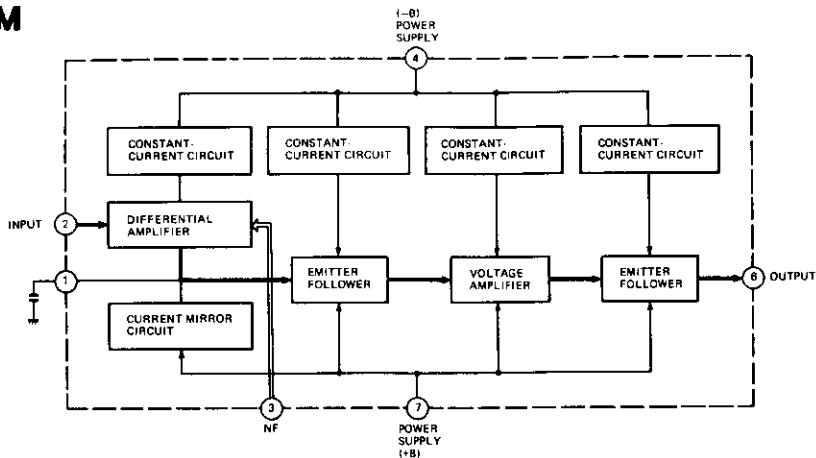
Schematic Diagram Model SU-8080

(This schematic diagram may be modified at any time with the development of new technology.)

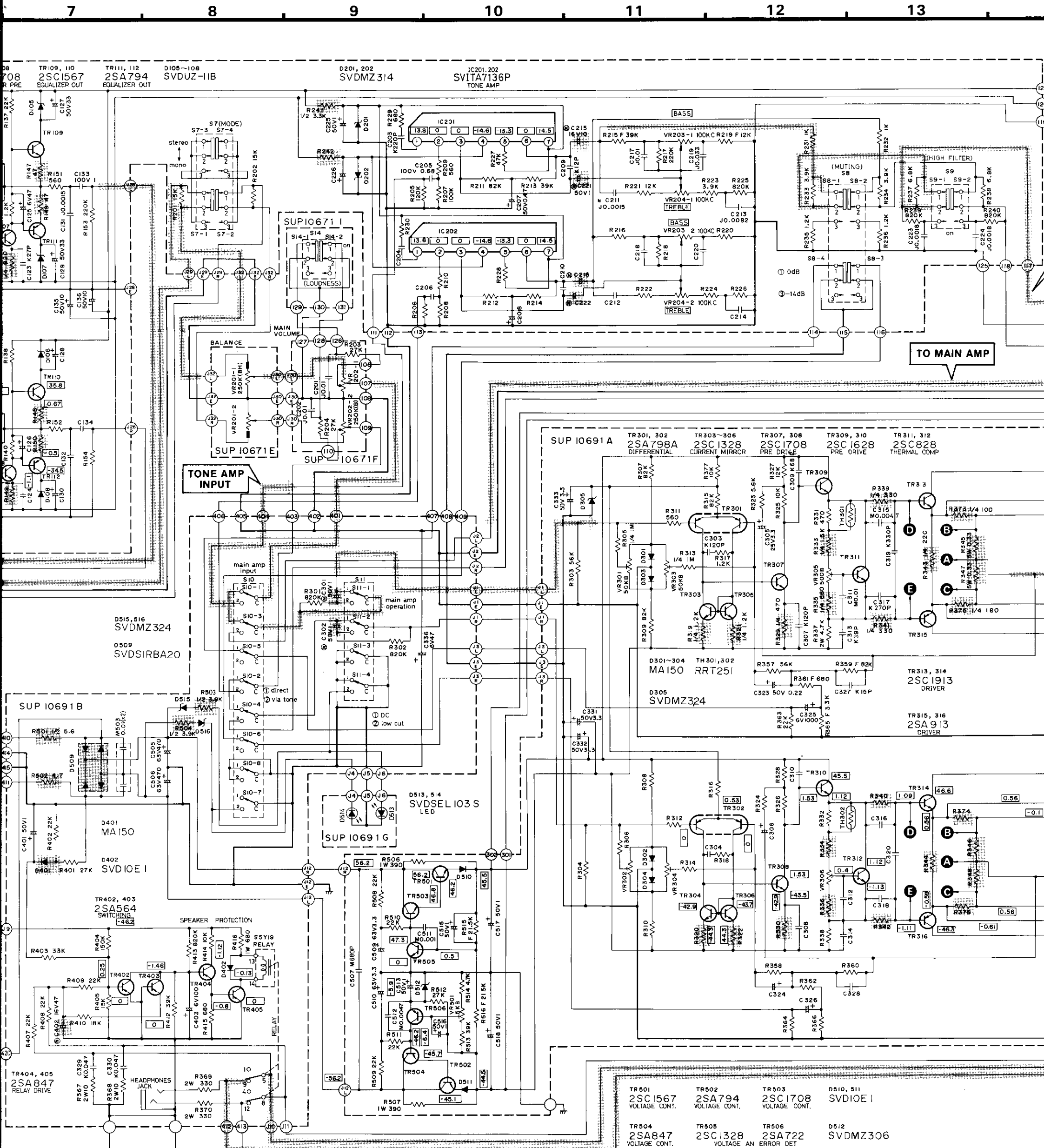
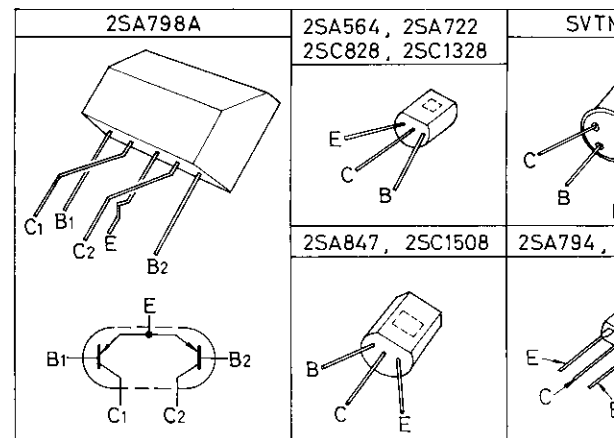


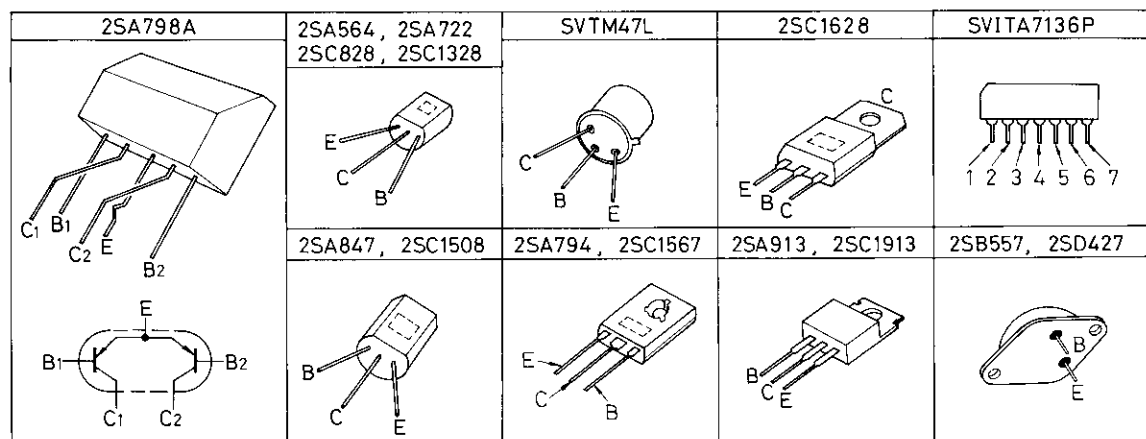
BLOCK DIAGRAM

IC101, IC102
(SVTA7136P)



TERMINAL GUIDE





12

13

14

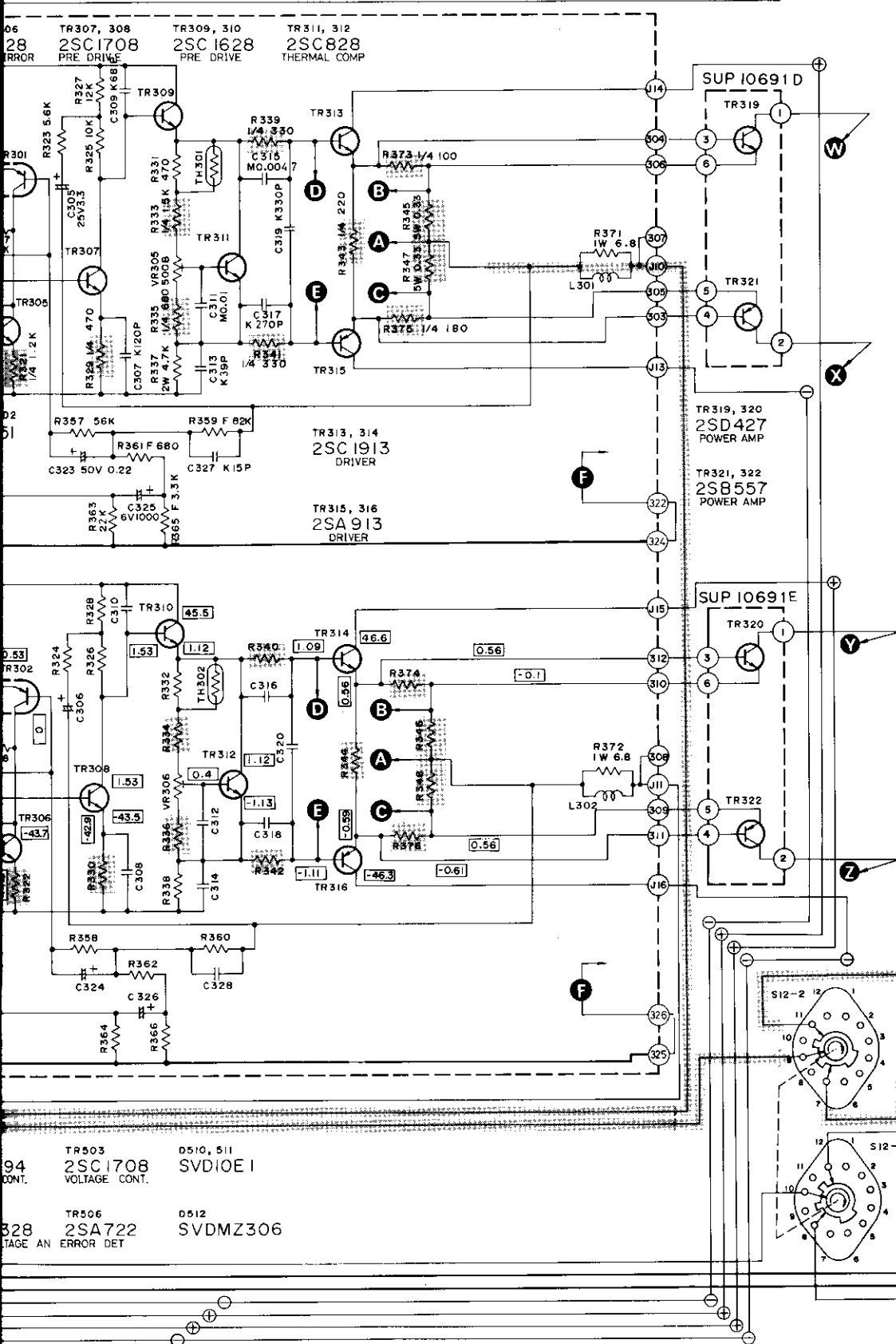
15

IMPORTANT SAFETY NOTICE
THE SHADED AREA ON THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR SAFETY. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURER'S SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SHADED AREAS OF THE SCHEMATIC.

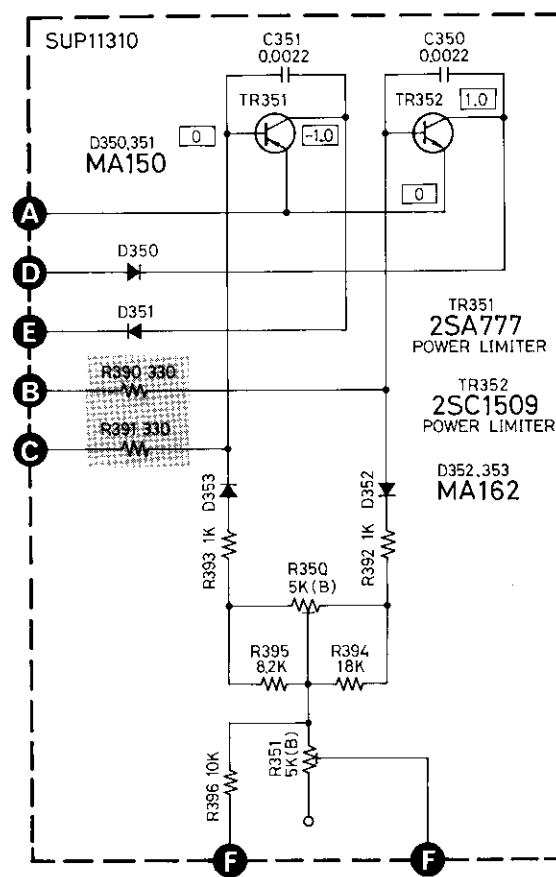
Notes:

- S1-1 ~ S1-4: Input selector switch in "phono 2" position.
① phono 2 → ② phono 1 → ③ tuner → ④ aux
 - S2-1 ~ S2-2: Tape monitor switch in "source" position.
① tape 1 → ② source → ③ tape 2
 - S3-1 ~ S3-4: Recording mode switch in "tape 2 ▶ 1" position.
① tape 2 ▶ 1 → ② source → ③ tape 1 ▶ 2
 - S4-1 S4-2: Phono impedance (capacitor) switch in "low" position.
① low → ③ high
 - S5-1, S5-2: Phono impedance (resistance) switch in "47kΩ" position.
① 47kΩ → ③ 27kΩ
 - S6-1, S6-2: Equalizer subsonic filter switch in "off" position.
① off → ③ on
 - S7-1 ~ S7-4: Mode switch in "stereo" position.
① stereo → ③ mono
 - S8-1 ~ S8-4: Muting switch in "0dB" position.
① 0 dB → ③ -14 dB
 - S9-1 ~ S9-2: High filter switch in "off" position.
① off → ③ on
 - S10-1 ~ S10-7: Main amplifier input switch in "direct" position.
① direct → ② via tone
 - S11-1 ~ S11-4: Main amplifier operation switch in "DC" position.
① DC → ② low cut (2 Hz)
 - S12-1, S12-2: Speaker selector switch in "off" position.
off → main → remote → main + remote
 - S13: Power source switch in "off" position.
 - S14-1, S14-2: Loudness switch in "off" position.
① on → ③ off
 - S15-1, S15-2: Voltage selector switch in "240V" position.
① 110V → ② 120V → ③ 220V → ④ 240V
16. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high impedance) with the chassis taken as standard.
Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

PHONO 2 SIGNAL LINE



POWER LIMITER



■ BEFORE STARTING THE REPAIRING

- For repairing this unit, be particularly careful about the following points.

Since 4 capacitors of large capacity at $1000\mu\text{F}$ are employed for power source, charged voltage remains for a long period of time once the power supply is turned on, with danger of electric shock if the (+) and (−) power voltage line is touched with hands. Therefore, before repairing, be sure to short-circuit opposite poles of the $10000\mu\text{F}$ capacitor (C501 ~ C504) with a resistor approximately of “ 15Ω 10W” for discharging the charged voltage. Short-circuiting with a screw driver and the like is not only dangerous, but may destroy transistors and diodes, and should therefore be avoided.

■ TO REMOVE EQUALIZER AND TONE AMPLIFIER PRINTED CIRCUIT BOARD

- * For repairing the printed circuit board for the equalizer • tone amplifier printed circuit board, and the relay circuit and the tape monitor circuit at its lower stage (bottom board side), remove the equalizer • tone amplifier printed circuit board to the following procedure.

1. Remove the cabinet.
2. Discharge the charged voltage of the power source capacitor in the manner as shown in “Before starting the repairing”.
3. Remove the screws ① and ② at the upper surface of the front panel, as shown in fig. 2.
4. Pull off the knobs for “bass” and “treble” from the front panel.
5. Remove the nuts ① and ②, taking care not to scratch the front panel, with a thin cloth or the like applied to the tip of a 8mm nut driver, and then remove the equalizer and tone amplifier printed circuit board from the chassis.

- * For removing other printed circuit board, such printed circuit boards are detachable when each of the knobs is pulled off, with the nuts fixed to the front panel being removed.

For removing the lever switches of the “main amp.” and “power” switches, remove the screws secured to the chassis after the front panel has been detached.

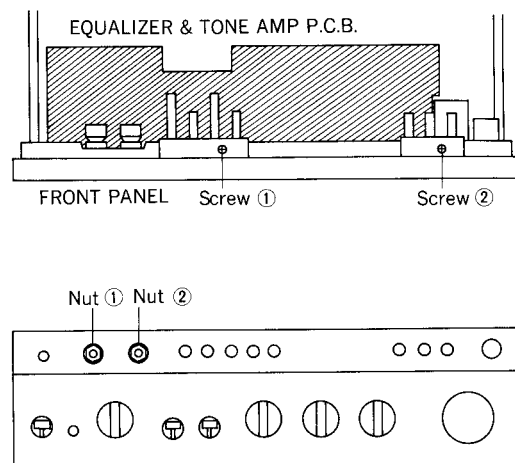


Fig. 2

■ ALIGNMENT INSTRUCTIONS

• Instruments to be used

1. DC electronic voltmeter.
2. 8Ω load resistance (to be connected to the speaker terminals only during DC balance adjustment)

• Conditions of the set

1. Turn the sound volume to minimum (Condition for all adjustments)
2. Other conditions should be in agreement with those for each adjustment.

1. ADJUSTMENT OF (−B) VOLTAGE (NEGATIVE POWER SUPPLY)

Connection of DC voltmeter	Conditions	Portions to be adjusted	Adjusting procedures
To be connected between 119 and 120 terminals.	None	VR501	To be adjusted to $-44.5\text{V} \pm 0.1\text{V}$

2. ADJUSTMENT OF SPEAKER TERMINAL DC BALANCE

Connection of DC voltmeter and 8Ω load resistance	Conditions	Portions to be adjusted	Adjusting procedures
For left and right channels of the speaker, connect the voltmeter in parallel with resistor.	1 Set the operation change-over to “DC”. 2 Set the input change-over to “via tone”. 3 Short-circuit the “MAIN IN” terminals.	VR303 (left ch.) VR304 (right ch.)	Adjust to 0mV at as small a range as possible.
	1 Set the operation change-over to “low cut”. 2 Set the input change-over to “via tone”. 3 Short-circuit the “MAIN IN” terminal.	VR301 (left ch.) VR302 (right ch.)	Adjust to 0mV at as small a range as possible.

3. I_{cQ} (IDLING OF POWER TRANSISTOR) ADJUSTMENT

Conndtion of DC voltmeter	Conditions	Portions to be adjusted	Adjusting procedures
(left ch.) .. Connect between 305 and 307 terminals. (right ch.) .. Connect between 308 and 310 terminals.	Make adjustment over 5 minutes after turning “ON” the power source.	VR305 (left ch.) .. VR306 (right ch.)	Adjust to 15mV.

In the case where ICQ adjustment is made through current adjustment by the circuit tester (In this case, the DC voltmeter is not required.)

- Note:**
- 1 For using the circuit tester, be sure to turn the power source "OFF" for discharging the charge voltage as in "Before starting the repairing".
 - 2 Subsequently, connect the circuit tester perfectly so as not to be disengaged.
 - 3 After adjustments also, the lead wires should be perfectly soldered as in the original state, only after turning "OFF" of the power source.
 - 4 Adjustments should be made about 5 minutes after turning "ON" of the power source.

● In the case of left channel

- ① With the rear panel of the set removed, disconnect the lead wire of 504 terminal soldered to the power supply printed circuit board for the main amplifier, and connect the circuit tester in the DC current measuring range as in fig. 3.
- ② Adjust VR305 to reach 25 ~ 30mA (may differ to a certain extent depending on internal impedances of the circuit tester)

(In the case of right channel)

- 1. Disconnect the lead wire of 502 terminal in the similar manner as in left channel., and connect the circuit tester.
- 2. Adjust VR306 to obtain 25~30 mA.

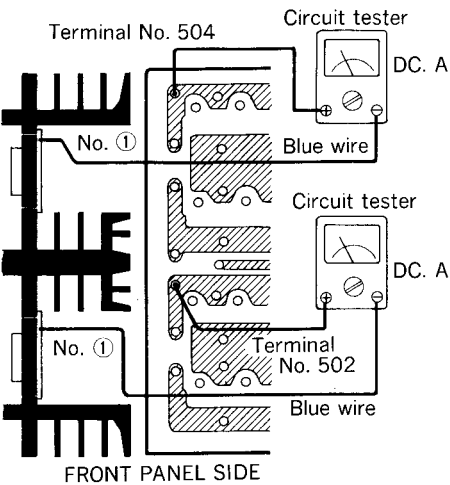


Fig. 3 (Abb. 3)

4. ADJUSTMENT OF POWER LIMITER

Adjustments by strain gauge	Adjustment by oscilloscope
① Connect the strain gauge to the speaker terminals with the volume control turned to maximum.	① Connect the oscilloscope to the speaker terminals with the volume control turned to maximum.
② Keep R351 of the power limiter circuit fully turned to the left.	② Keep R351 of the power limiter circuit fully turned to the left.
③ Apply 1 kHz signal to the set so that the output is clipped to 5% strain.	③ Apply 1 kHz signal to the set that the output reaches the clip point.
④ Adjust R350 so that the output strain is reduced to minimum.	④ Adjust R350 so that the waveform becomes vertically symmetrical. (Fig. 4)
⑤ Adjust R351 so that the output strain becomes 5.5%.	⑤ Adjust R351 so that the upper and lower portions of the waveform are clipped to a slight extent (Fig. 5).

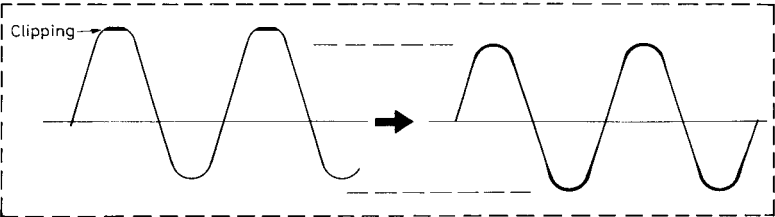


Fig. 4 (Abb. 4)

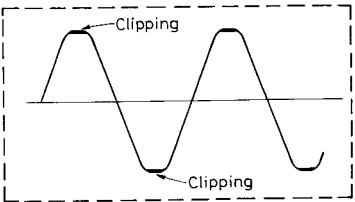


Fig. 5 (Abb. 5)

■ DIAGRAM FOR PORTIONS TO BE ADJUSTED

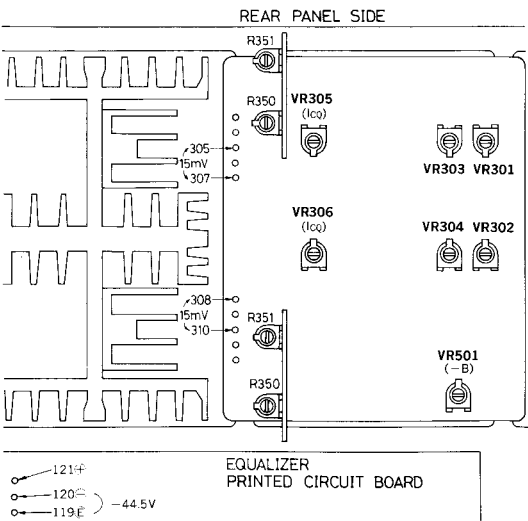


Fig. 6 (Abb. 6)

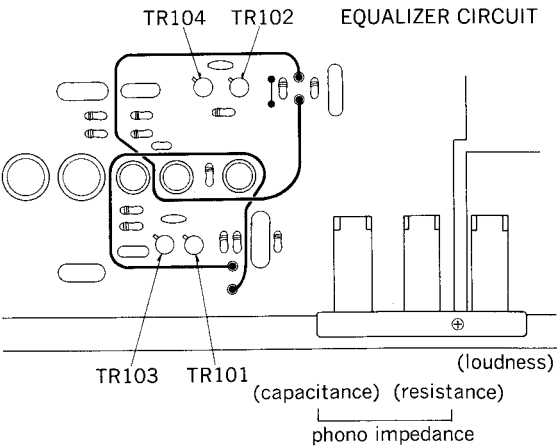


Fig. 7 (Abb. 7)

■ ARRANGEMENTS OF WIRING AFTER REPAIRING

S/N for the equalizer circuit is delicately affected by the location of wirings. After repairing the circuit, form the lead wires into a loop shape as shown in fig. 7. By this arrangement, effect for offsetting the hum noise can be obtained. Additionally, the wires led from the print base (lower stage) of the relay circuit should be bundled together with the wires to the speaker terminals to avoid approaching to the tone amplifier print base at the upper stage. If these wires are brought close to the tone amplifier section, residual noises may be increased.

■ ABGLEICHANWEISUNGEN

● Diagramm für die abzustimmenden Teile (Abb. 6)

- Zu verwendende Instrumente

 1. Gleichstrom-Voltmeter
 2. 8 Ω Belastungswiderstand (ist nur an die Lautsprecheranschlüsse während der Gleichstrom-Balance-Abstimmung anzuschließen.)
- Bedingung des Gerätes

 1. Den Lautstärkeregler in seine Minimalstellung drehen. (Bedingung für alle Justierungen)
 2. Die anderen Bedingungen sollten mit denen für jede Abstimmung Übereinstimmen.

1. ABSTIMMEN DER (–B) –SPANNUNG

Anschluß eines Gleichstrom-Voltmeters	Bedingung	Abzustimmende Teile	Abstimmungs-vorgang
Zwischen den Punkten 119 und 120 anschließen.	Keine	VR501	Auf –44, 5V ±0,1V abstimmen

2. ABSTIMMEN DER LAUTSPRECHERANSCHLU -WECHSELSTROMBALANCE

Anschluß eines Gleichstrom-Voltmeters und 8Ω Belastungswiderstand	Bedingungen	Abzustimmende Teile	Abstimmungs-vorgang
Für linken- und rechten-Kanäle der Lautsprecher, den Voltmeter zum Resistor parallelschalten.	1 Den Funktionsumschalter auf "DC" stellen. 2 Den Eingangswahlschalter auf "via tone" stellen. 3 Die "MAIN IN"-Anschlüsse kurzschalten.	(VR303 linken-K.) VR304 (rechten-K.)	Auf 0 mV abstimmen, mit geringstmöglichem Bereich.
	1 Den Funktionsumschalter auf "low cut" stellen. 2 Den Eingangswahlschalter auf "via tone" stellen. 3 Die "MAIN-IN"-Anschlüsse kurzschalten.	VR301 (linken-K.) VR302 (rechten-K.)	Auf 0 mV abstimmen, mit geringstmöglichem Bereich.

3. ABSTIMMEN DES ICQ

Anschluß eines Gleichstrom-Voltmeters	Bedingungen	Abzustimmende Teile	Abstimmungs-Vorgang
(linken- K.) Zwischen den Stellen 305 und 307 anschließen. (rechten-K.) Zwischen den Stellen 308 und 310 anschließen.	Die Abstimmungen mindestens 5 Min. nach Einschalten des Netzschalter vornehmen.	VR305 (linken-K.) VR306 (rechten-K.)	Auf 15 mV abstimmen.

Falls die ICQ-Abstimmung durch Abstimmen des Stromes mittels des Prüfgerätes vorgenommen wird. (In diesem Falle ist der Gleichstrom-Voltmeter nicht erforderlich.)

- Anmerkung:**
- 1 Beim Benutzen des Prüfgerätes muß der Netzschalter zum Entladen der vorhandenes Spannung ausgeschaltet werden, wie im Abschnitt "Vor dem Beginn der Reparatur". (Befor starting the repairing)
 - 2 Anschließen das Prüfgerät so anschließen, daß sich die Kontakte nicht lösen können.
 - 3 Nach dem Abstimmen sollten die Zuleitungen gleich, wie vorher gelötet werden, aber erst, nachdem der Netzschalter ausgeschaltet worden ist.
 - 4 Die Abstimmungen sollten etwa 5 Minuten nach dem Einschalten des Netzschalters durchgeführt werden.

(Linker Kanal)

- 1 Die Geräterückseite abnehmen und den Leitungsdraht vom Anschluß 504, der an die Stromanschluß-Schaltungstafel für den Hauptverstärker führt, unterbrechen, und das Prüfgerät im Gleichstromme bereich, wie in Abb. 3 gezeigt, anschließen.
- 2 VR 305 so abstimmen, bis er 25 ~ 30 mA erreicht. (Dies kann zu einem gewissen Grad differieren, je nach den internen Impedanzen des Prüfgerätes.)

(Rechter Kanal)

1. Den Leitungsdraht des Anschlusses 502 auf gleiche Weise unterbrechen, Wie beim linken Kanal, und das Prüfgerät anschließen.
2. VR306 auf 25~ 30 mA abgleichen.

4. BEGRENZER ABGLEICHUNG

Abgleichung mit Spannungsmesser	Abgleichung mit Oszilloskop
1 Den Spannungsmesser an die Lautsprecheranschlüsse anschließen, und den Lautstärkeregler in die Maximalposition stellen. 2 R351 der Begrenzerschaltung ganz nach links gedreht belassen. 3 1 kHz-Signal dem Gerät zuleiten, sodaß die Ausgangsleistung auf 5% Verformung beschnitten wird. 4 R350 so abgleichen, daß die Ausgangsverformung auf das Minimum reduziert wird. 5 R351 abgleichen, sodaß die Ausgangsverformung 5.5% beträgt.	1 Das Oszilloskop an die Lautsprecheranschlüsse anschließen, und den Lautstärkeregler in die Maximalposition stellen. 2 R351 der Begrenzerschaltung ganz nach links gedreht belassen. 3 1 kHz-Signal dem Gerät zuleiten, sodaß die Ausgangsleistung den Begrenzungspunkt erreicht. 4 R350 so abgleichen, daß die Wellenform vertikal symmetrisch wird. (Abb. 4) 5 R351 so abgleichen, daß die oberen und unteren Anteile der Wellenform zu einem geringen Maß beschnitten werden. (Abb. 5)

■ ANORDNUNG DER VERDRAHTUNG NACH DER REPARATUR

Der Fremdspannungsabstand der Entzerrerschaltung kann von der Anordnung der Verdrahtung leicht beeinflußt werden. Nach der Reparatur, den Zuleitungsdraht zu einer Schlaufe biegen, wie in Abb. 7 gezeigt. Durch diese Anordnung wird ein Effekt zur Aufhebung des Brummens erzielt.

Außerdem sollten die Drähte von der gedruckten Schaltung (unters Stufe) der Relais-Schaltung mit den Leitungen zu den Lautsprecheranschlüssen gebündelt werden, um zu verhindern, daß sie in die Nähe der gedruckten Tonverstärker-Schaltung bei der oberen Stufe gelangen. Falls diese Drähte in die Nähe des Tonverstärkertails gelangen, könnten dadurch die Eigengeräusche verstärkt werden.

■ INSTRUCTIONS D'ALIGNEMENT ET DE REGLAGE

• Diagramme des sections devant être réglées (Fig. 6)

• Appareils à utiliser

1. Voltmètre à courant continu
2. Résistance de charge de $8\ \Omega$ (à brancher aux bornes du haut-parleur, seulement pendant un réglage d'équilibre).

• Conditions de l'ensemble

1. Tourner le volume sonore sur la position minimum (condition pour toutes les mises au point).
2. Les autres conditions devront être en rapport avec chaque réglage.

1. MISE AU POINT D'UNE TENSION (—B)

Branchement du voltètre à C.C.	Conditions	Sections à régler	Mode de mise au point
Doit être branché entre les bornes 119 et 120.	Aucune	VR501	Doit être réglé à $-44,5V \pm 0,1V$.

2. MISE AU POINT DE L'ÉQUILIBRAGE C.C. DES BORNES DU HAUT-PARLEUR

Branchement du voltmètre C.C. et de la résistance de charge de $8\ \Omega$.	Conditions	Sections à régler	Mode de mise au point
Pour amener les canaux droits du haut-parleur, brancher le voltmètre parallèlement avec la résistance.	1 Régler la commutation de manœuvre sur "DC" (C.C.) 2 Régler la commutation d'entrée sur "via tone" (tonalité de transit). 3 Court-circuiter les bornes "MAIN IN" (entrée principale).	VR303 (canal gauche) VR304 (canal droit)	Régler sur 0 mV, sur une bande aussi petite que possible.
	1 Régler la commutation de manœuvre sur "low cut" (coupure de gammes basses). 2 Régler la commutation d'entrée sur "via tone" (tonalité de transit). 3 Court-circuiter les bornes "MAIN IN" (entrée principale).	VR301 (canal gauche) VR302 (canal droit)	Régler sur 0 mV, sur une bande aussi petite que possible.

3. MISE AU POINT DE ICQ (TEMPS MORT DU TRANSISTOR DE PUISSANCE)

Branchement du voltmètre à C.C.	Conditions	Sections à régler	Mode de mise au point
(Canal gauche) . . . Brancher entre les bornes 305 et 307. (Canal droit) Brancher entre les bornes 308 et 310.	Faire la mise au point plus de 5 minutes après la mise en marche ("ON") de l'alimentation.	VR305 (Canal gauche) VR306 (Canal droit)	Régler sur 15 mV.

Dans le cas où la mise au point de ICQ est faite à travers un réglage de courant par le dispositif d'essai. (Dans ce cas, un voltmètre C.C. n'est pas nécessaire).

- Nota:**
- 1 Pour utiliser le dispositif d'essai, s'assurer de couper l'alimentation ("OFF") pour le déchargement de la tension chargée, comme dans le paragraphe "Avant de commencer une réparation". (Befor starting the repairing)
 - 2 Par la suite, brancher parfaitement le dispositif d'essai, de façon qu'il ne risque pas de se dégager.
 - 3 Après la mise au point, les fils de jonction devront être aussi parfaitement soudés que dans la condition originale mais ceci seulement après avoir coupé l'alimentation.
 - 4 Les réglages devront être faits à peu près 5 minutes après avoir coupé l'alimentation.

(Dans le cas du canal gauche)

- 1 Après avoir retiré le panneau arrière de l'appareil, déconnecter le fil de jonction de la borne 504, soudé à la base imprimée de l'alimentation pour l'amplificateur principal et brancher le dispositif d'essai dans une gamme de mesure de courant C.C., comme indiqué sur la Fig. 3.
- 2 Régler VR305 de façon à atteindre 25 ~ 30mA (cela pouvant différer jusqu'à une certaine importance, selon les impédances internes du dispositif d'essai).

(Dans le cas du canal droit)

- 1 Déconnecter le fil de jonction de la borne 502, de la même façon que pour le canal gauche et brancher le dispositif d'essai.
- 2 Régler VR306 pour obtenir 25 ~ 30mA.

4. ALIGNMENT DE LIMITATION DE PUISSANCE

Réglages par extensomètre	Réglages par oscilloscope
1 Brancher l'extensomètre aux bornes du haut-parleur, avec le réglage de volume tourné au maximum. 2 Laisser R351 du circuit de limitation de puissance, complètement tourné vers la gauche. 3 Appliquer un signal de 1 kHz à l'appareillage, de façon à ce que la puissance de sortie soit coupée à une tension de 5%. 4 Régler R350, de façon à ce que la contrainte de sortie soit réduite au minimum. 5 Régler R351, de façon à ce que la contrainte de sortie devienne de 5.5%.	1 Brancher l'oscilloscope aux bornes du haut-parleur, avec le réglage de volume tourné au maximum. 2 Laisser R351 du circuit de limitation de puissance, complètement tourné vers la gauche. 3 Appliquer un signal de 1 kHz à l'appareillage, de façon à ce que la puissance de sortie atteigne le point d'écrêtage. 4 Régler R350, de façon à ce que la forme d'onde devienne verticalement symétrique. (Fig. 4). 5 Régler R351, de façon à ce que les sections supérieure et inférieure de la forme d'onde soient coupées sur une légère portée. (Fig. 5).

■ DISPOSITION DU CABLAGE APRÈS RÉPARATION

Le Signal/Bruit pour le circuit de compensation est sensiblement affecté par la position des connexions. Après réparation du circuit, façonner les fils de jonction en forme de boucles, comme il est montré à la Fig. 7. De cette manière, un effet de décalage du bruit de ronflement peut être obtenu.

En outre, le raccord des fils de la base imprimée (étage inférieur) du circuit relais devra être relié en même temps que les fils, aux bornes du haut-parleur. Ceci pour éviter la proximité de la base imprimée de l'amplificateur de tonalité, à l'étage supérieur. Si ces fils sont amenés trop près de la section de l'amplificateur de tonalité, des bruits résiduels peuvent augmenter.

■ REPLACEMENT PARTS LIST

Important Safety Notice
Components identified by shaded area have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

NOTE: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.				
Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
INTEGRATED CIRCUITS				
IC 201, 202	SV1TA7136PM	IC, Tone Amplifier	2	
TRANSISTORS				
TR101, 102, 103, 104	SVTM47L	Transistor, Differential Amplifier (Use in ranks S, T or U)	4	O
TR105, 106	2SC1328-T	Transistor, Currentmirror (Use in ranks S, T or U)	2	
TR107, 108, 307, 308, 503	2SC1708-G	Transistor, Equalizer & Pre Drive Amplifier (Use in ranks F or G)	5	
T109, 110	2SC1567-Q	Transistor, Equalizer Output Amplifier (Use in ranks Q or R)	2	
TR111, 112	2SA794-Q	Transistor, Equalizer Output Amplifier (Use in ranks Q or R)	2	
TR301, 302	2SA798A-G2	Transistor, Differential Amplifier (Use in ranks F2 or G2)	2	
TR303, 304, 305, 306, 505	2SC1328-T	Transistor, Currentmirror (Use in ranks S, T or U)	5	
TR 309, 310	2SC1628-Y	Transistor, Pre Drive Amplifier (Use in ranks O or Y)	2	
TR311, 312	2SC828 A-R	Transistor, Thermal Compensation	2	
TR313, 314	2SC1913-R	Transistor, Drive Amplifier (Use in ranks Q,R or S)	2	
TR315, 316	2SA913-R	Transistor, Drive Amplifier (Use in ranks Q,R or S)	2	
TR319, 320	2SD427-0	Transistor, Power Amplifier (Use in ranks O or R)	2	
TR321, 322	2SB557-0	Transistor, Power Amplifier (Use in ranks O or R)	2	
TR351 (X2)	2SA777-Q	Transistor, Power Limiter (Use in ranks Q or R)	2	
TR352 (X2)	2SC1509F-Q	Transistor, Power Limiter (Use in ranks Q or R)	2	
TR402, 403	2SA666A-I-R	Transistor, Switching (Use in ranks F or G)	2	
TR404, 405, 504	2SA847 G	Transistor, Relay Drive Amplifier (Use in ranks F or G)	3	
TR501	2SC1567-Q	Transistor, Voltage Control Amplifier (Use in ranks Q,R or S)	1	
TR502	2SA794-Q	Transistor, Voltage Control Amplifier (Use in ranks Q,R or S)	1	
TR506	2SA902S-F	Transistor, Voltage Error Det	1	
DIODES				
D101, 102, 103, 301, 302, 303, 304, 350 (X2), 351 (X2), 401, D105, 106, 107, 108	MA150	Diode, Switching	12	
	SVD0UZ-11B	Zener Diode	4	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
D201, 202	SVDMZ314C	Zener Diode, 14V	2	○
D305, 515, 516	SVDMZ324	Zener Diode, 24V	3	○
D352(X2), 353(X2)	MA162	Diode, Switching,	4	
D402, 510, 511	SVD10E1	Diode	3	
D501, 502, 503	SVDS3V20	Rectifier	8	○
504, 505, 506				
507, 508				
D509	SVDS1RBA20	Rectifier	1	○
D512	SVDMZ306	Zener Diode, 6V	1	
D513, 514	SVDSEL103S	Light Emitting Diode	2	
COILS and TRANSFORMERS				
L301, 302	SLQY15G-1U	Coil, Compensation	2	
T1, 2	SLT5P91	Power Transformer (Except set for [XAL, X])	2	○
T1, 2 [XAL] only	SLT5P95	Power Transformer	2	○
T1, 2 [X] only	SLT5P121	Power Transformer	2	○
THERMISTERS				
TH301, 302	RRT251	Thermister	2	
RESISTORS				
R101	ERD25TJ564	Carbon, 560k Ω , 1/4W, $\pm$ 5%	1	
R102	ERD25TJ564	Carbon, 560k Ω , 1/4W, $\pm$ 5%	1	
R103	ERD25TJ473	Carbon, 47k Ω , 1/4W, $\pm$ 5%	1	
R104	ERD25TJ473	Carbon, 47k Ω , 1/4W, $\pm$ 5%	1	
R105	ERD25TJ564	Carbon, 560k Ω , 1/4W, $\pm$ 5%	1	
R106	ERD25TJ564	Carbon, 560k Ω , 1/4W, $\pm$ 5%	1	
R107	ERD25TJ563	Carbon, 56k Ω , 1/4W, $\pm$ 5%	1	
R108	ERD25TJ563	Carbon, 56k Ω , 1/4W, $\pm$ 5%	1	
R109	ERD25TJ470	Carbon, 47 Ω , 1/4W, $\pm$ 5%	1	
R110	ERD25TJ470	Carbon, 47 Ω , 1/4W, $\pm$ 5%	1	
R111	ERD14FJ223	Carbon, 22k Ω , 1/4W, $\pm$ 5%	1	
R112	ERD14FJ223	Carbon, 22k Ω , 1/4W, $\pm$ 5%	1	
R113	ERD25TJ271	Carbon, 270 Ω , 1/4W, $\pm$ 5%	1	
R114	ERD25TJ271	Carbon, 270 Ω , 1/4W, $\pm$ 5%	1	
R115	ERD14FJ471	Carbon, 470 Ω , 1/4W, $\pm$ 5%	1	
R116	ERD14FJ471	Carbon, 470 Ω , 1/4W, $\pm$ 5%	1	
R117	ERD14FJ471	Carbon, 470 Ω , 1/4W, $\pm$ 5%	1	
R118	ERD14FJ471	Carbon, 470 Ω , 1/4W, $\pm$ 5%	1	
R119	ERO25CKF1781	Metal Film, 1.78k Ω , 1/4W, $\pm$ 1%	1	
R120	ERO25CKF1781	Metal Film, 1.78k Ω , 1/4W, $\pm$ 1%	1	
R121	ERO25CKF2152	Metal Film, 21.5k Ω , 1/4W, $\pm$ 1%	1	
R122	ERO25CKF2152	Metal Film, 21.5k Ω , 1/4W, $\pm$ 1%	1	
R123	ERD25TJ271	Carbon, 270 Ω , 1/4W, $\pm$ 5%	1	
R124	ERD25TJ271	Carbon, 270 Ω , 1/4W, $\pm$ 5%	1	
R125	ERO25CKF33RO	Metal Film, 33 Ω , 1/4W, $\pm$ 1%	1	
R126	ERO25CKF33RO	Metal Film, 33 Ω , 1/4W, $\pm$ 1%	1	
R127	ERD25TJ681	Carbon, 680 Ω , 1/4W, $\pm$ 5%	1	
R128	ERD25TJ681	Carbon, 680 Ω , 1/4W, $\pm$ 5%	1	
R129	ERD25TJ153	Carbon, 15k Ω , 1/4W, $\pm$ 5%	1	
R130	ERD25TJ153	Carbon, 15k Ω , 1/4W, $\pm$ 5%	1	
R131	ERD25TJ471	Carbon, 470 Ω , 1/4W, $\pm$ 5%	1	
R132	ERD25TJ471	Carbon, 470 Ω , 1/4W, $\pm$ 5%	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
R133	ERD25TJ151	Carbon, 150 Ω , 1/4W, $\pm$ 5%	1	
R134	ERD25TJ151	Carbon, 150 Ω , 1/4W, $\pm$ 5%	1	
R135	ERD25TJ152	Carbon, 1.5k Ω , 1/4W, $\pm$ 5%	1	
R136	ERD25TJ152	Carbon, 1.5k Ω , 1/4W, $\pm$ 5%	1	
R137	ERD25TJ223	Carbon, 22k Ω , 1/4W, $\pm$ 5%	1	
R138	ERD25TJ223	Carbon, 22k Ω , 1/4W, $\pm$ 5%	1	
R139	ERD25TJ122	Carbon, 1.2k Ω , 1/4W, $\pm$ 5%	1	
R140	ERD25TJ122	Carbon, 1.2k Ω , 1/4W, $\pm$ 5%	1	
R141	ERD14FJ821	Carbon, 820 Ω , 1/4W, $\pm$ 5%	1	
R142	ERD14FJ821	Carbon, 820 Ω , 1/4W, $\pm$ 5%	1	
R147	ERD14FJ470	Carbon, 47 Ω , 1/4W, $\pm$ 5%	1	
R148	ERD14FJ470	Carbon, 47 Ω , 1/4W, $\pm$ 5%	1	
R149	ERD14FJ470	Carbon, 47 Ω , 1/4W, $\pm$ 5%	1	
R150	ERD14FJ470	Carbon, 47 Ω , 1/4W, $\pm$ 5%	1	
R151	ERD25TJ561	Carbon, 560 Ω , 1/4W, $\pm$ 5%	1	
R152	ERD25TJ561	Carbon, 560 Ω , 1/4W, $\pm$ 5%	1	
R153	ERD25TJ224	Carbon, 220k Ω , 1/4W, $\pm$ 5%	1	
R154	ERD25TJ224	Carbon, 220k Ω , 1/4W, $\pm$ 5%	1	
R187	ERD14FJ102	Carbon, 1k Ω , 1/4W, $\pm$ 5%	1	
R201	ERD25TJ153	Carbon, 15k Ω , 1/4W, $\pm$ 5%	1	
R202	ERD25TJ153	Carbon, 15k Ω , 1/4W, $\pm$ 5%	1	
R203	ERD25TJ273	Carbon, 27k Ω , 1/4W, $\pm$ 5%	1	
R204	ERD25TJ273	Carbon, 27k Ω , 1/4W, $\pm$ 5%	1	
R205	ERD25TJ124	Carbon, 120k Ω , 1/4W, $\pm$ 5%	1	
R206	ERD25TJ124	Carbon, 120k Ω , 1/4W, $\pm$ 5%	1	
R207	ERD25TJ104	Carbon, 100k Ω , 1/4W, $\pm$ 5%	1	
R208	ERD25TJ104	Carbon, 100k Ω , 1/4W, $\pm$ 5%	1	
R209	ERD25TJ561	Carbon, 560 Ω , 1/4W, $\pm$ 5%	1	
R210	ERD25TJ561	Carbon, 560 Ω , 1/4W, $\pm$ 5%	1	
R211	ERD25TJ823	Carbon, 82k Ω , 1/4W, $\pm$ 5%	1	
R212	ERD25TJ823	Carbon, 82k Ω , 1/4W, $\pm$ 5%	1	
R213	ERD25TJ393	Carbon, 39k Ω , 1/4W, $\pm$ 5%	1	
R214	ERD25TJ393	Carbon, 39k Ω , 1/4W, $\pm$ 5%	1	
R215	ERO25CKF3902	Metal Film, 39k Ω , 1/4W, $\pm$ 1%	1	
R216	ERO25CKF3902	Metal Film, 39k Ω , 1/4W, $\pm$ 1%	1	
R217	ERD25TJ224	Carbon, 220k Ω , 1/4W, $\pm$ 5%	1	
R218	ERD25TJ224	Carbon, 220k Ω , 1/4W, $\pm$ 5%	1	
R219	ERO25CKF1202	Metal Film, 12k Ω , 1/4W, $\pm$ 1%	1	
R220	ERO25CKF1202	Metal Film, 12k Ω , 1/4W, $\pm$ 1%	1	
R221	ERD25TJ123	Carbon, 12k Ω , 1/4W, $\pm$ 5%	1	
R222	ERD25TJ123	Carbon, 12k Ω , 1/4W, $\pm$ 5%	1	
R223	ERD25TJ392	Carbon, 3.9k Ω , 1/4W, $\pm$ 5%	1	
R224	ERD25TJ392	Carbon, 3.9k Ω , 1/4W, $\pm$ 5%	1	
R225	ERD25TJ824	Carbon, 820k Ω , 1/4W, $\pm$ 5%	1	
R226	ERD25TJ824	Carbon, 820k Ω , 1/4W, $\pm$ 5%	1	
R227	ERD25TJ473	Carbon, 47k Ω , 1/4W, $\pm$ 5%	1	
R228	ERD25TJ473	Carbon, 47k Ω , 1/4W, $\pm$ 5%	1	
R229	ERD25TJ681	Carbon, 680 Ω , 1/4W, $\pm$ 5%	1	
R230	ERD25TJ681	Carbon, 680 Ω , 1/4W, $\pm$ 5%	1	
R231	ERD25TJ102	Carbon, 1k Ω , 1/4W, $\pm$ 5%	1	
R232	ERD25TJ102	Carbon, 1k Ω , 1/4W, $\pm$ 5%	1	
R233	ERD25TJ392	Carbon, 3.9k Ω , 1/4W, $\pm$ 5%	1	
R234	ERD25TJ392	Carbon, 3.9k Ω , 1/4W, $\pm$ 5%	1	
R235	ERD25TJ122	Carbon, 1.2k Ω , 1/4W, $\pm$ 5%	1	
R236	ERD25TJ122	Carbon, 1.2k Ω , 1/4W, $\pm$ 5%	1	

Ref. No.	Part No.	Part Name & Description				Per Set	Remarks
R237	ERD25TJ682	Carbon,	6.8kΩ,	1/4W,	± 5%	1	
R238	ERD25TJ682	Carbon,	6.8kΩ,	1/4W,	± 5%	1	
R239	ERD25TJ824	Carbon,	820kΩ,	1/4W,	± 5%	1	
R240	ERD25TJ824	Carbon,	820kΩ,	1/4W,	± 5%	1	
R241	ERD12FJ332	Carbon,	3.3kΩ,	1/2W,	± 5%	1	
R242	ERD12FJ332	Carbon,	3.3kΩ,	1/2W,	± 5%	1	
R301	ERD25TJ824	Carbon,	820kΩ,	1/4W,	± 5%	1	
R302	ERD25TJ824	Carbon,	820kΩ,	1/4W,	± 5%	1	
R303	ERD25TJ563	Carbon,	56kΩ,	1/4W,	± 5%	1	
R304	ERD25TJ563	Carbon,	56kΩ,	1/4W,	± 5%	1	
R305	ERD25TJ105	Carbon,	1MΩ,	1/4W,	± 5%	1	
R306	ERD25TJ105	Carbon,	1MΩ,	1/4W,	± 5%	1	
R307	ERD25TJ823	Carbon,	82kΩ,	1/4W,	± 5%	1	
R308	ERD25TJ823	Carbon,	82kΩ,	1/4W,	± 5%	1	
R309	ERD25TJ823	Carbon,	82kΩ,	1/4W,	± 5%	1	
R310	ERD25TJ823	Carbon,	82kΩ,	1/4W,	± 5%	1	
R311	ERD25TJ561	Carbon,	560Ω,	1/4W,	± 5%	1	
R312	ERD25TJ561	Carbon,	560Ω,	1/4W,	± 5%	1	
R313	ERD25TJ105	Carbon,	1MΩ,	1/4W,	± 5%	1	
R314	ERD25TJ105	Carbon,	1MΩ,	1/4W,	± 5%	1	
R315	ERD25TJ823	Carbon,	82kΩ,	1/4W,	± 5%	1	
R316	ERD25TJ823	Carbon,	82kΩ,	1/4W,	± 5%	1	
R317	ERD25TJ122	Carbon,	1.2kΩ,	1/4W,	± 5%	1	
R318	ERD25TJ122	Carbon,	1.2kΩ,	1/4W,	± 5%	1	
R319	ERD14FJ122	Carbon,	1.2kΩ,	1/4W,	± 5%	1	
R320	ERD14FJ122	Carbon,	1.2kΩ,	1/4W,	± 5%	1	
R321	ERD14FJ122	Carbon,	1.2kΩ,	1/4W,	± 5%	1	
R322	ERD14FJ122	Carbon,	1.2kΩ,	1/4W,	± 5%	1	
R323	ERD25TJ562	Carbon,	5.6kΩ,	1/4W,	± 5%	1	
R324	ERD25TJ562	Carbon,	5.6kΩ,	1/4W,	± 5%	1	
R325	ERD25TJ103	Carbon,	10kΩ,	1/4W,	± 5%	1	
R326	ERD25TJ103	Carbon,	10kΩ,	1/4W,	± 5%	1	
R327	ERD25TJ123	Carbon,	12kΩ,	1/4W,	± 5%	1	
R328	ERD25TJ123	Carbon,	12kΩ,	1/4W,	± 5%	1	
R329	ERD14FJ471	Carbon,	470Ω,	1/4W,	± 5%	1	
R330	ERD14FJ471	Carbon,	470Ω,	1/4W,	± 5%	1	
R331	ERD25TJ471	Carbon,	470Ω,	1/4W,	± 5%	1	
R332	ERD25TJ471	Carbon,	470Ω,	1/4W,	± 5%	1	
R333	ERD14FJ152	Carbon,	1.5kΩ,	1/4W,	± 5%	1	
R334	ERD14FJ152	Carbon,	1.5kΩ,	1/4W,	± 5%	1	
R335	ERD14FJ681	Carbon,	680Ω,	1/4W,	± 5%	1	
R336	ERD14FJ681	Carbon,	680Ω,	1/4W,	± 5%	1	
R337	ERG2ANJ472	Metal Film,	4.7kΩ,	2W,	± 5%	1	
R338	ERG2ANJ472	Metal Film,	4.7kΩ,	2W,	± 5%	1	
R339	ERD14FJ331	Carbon,	330Ω,	1/4W,	± 5%	1	
R340	ERD14FJ331	Carbon,	330Ω,	1/4W,	± 5%	1	
R341	ERD14FJ331	Carbon,	330Ω,	1/4W,	± 5%	1	
R342	ERD14FJ331	Carbon,	330Ω,	1/4W,	± 5%	1	
R343	ERD14FJ221	Carbon,	220Ω,	1/4W,	± 5%	1	
R344	ERD14FJ221	Carbon,	220Ω,	1/4W,	± 5%	1	
R345	ERF5AKR33	Non-Flammable,	0.33Ω,	5W,	±10%	1	
R346	ERF5AKR33	Non-Flammable,	0.33Ω,	5W,	±10%	1	

Ref. No.	Part No.	Part Name & Description				Per Set	Remarks
R347	ERF5AKR33	Non-Flammable,	0.33Ω,	5W,	±10%	1	
R348	ERF5AKR33	Non-Flammable,	0.33Ω,	5W,	±10%	1	
R357	ERD25TJ563	Carbon,	56kΩ,	1/4W,	± 5%	1	
R358	ERD25TJ563	Carbon,	56kΩ,	1/4W,	± 5%	1	
R359	ERO25CKF8202	Metal Film,	82kΩ,	1/4W,	± 1%	1	
R360	ERO25CKF8202	Metal Film,	82kΩ,	1/4W,	± 1%	1	
R361	ERO25CKF6800	Metal Film,	680Ω,	1/4W,	± 1%	1	
R362	ERO25CKF6800	Metal Film,	680Ω,	1/4W,	± 1%	1	
R363	ERD25TJ223	Carbon,	22kΩ,	1/4W,	± 5%	1	
R364	ERD25TJ223	Carbon,	22kΩ,	1/4W,	± 5%	1	
R365	ERO25CKF3301	Metal Film,	3.3kΩ,	1/4W,	± 1%	1	
R366	ERO25CKF3301	Metal Film,	3.3kΩ,	1/4W,	± 1%	1	
R367	ERX2ANJ100	Metal Film,	10Ω,	2W,	± 5%	1	
R368	ERX2ANJ100	Metal Film,	10Ω,	2W,	± 5%	1	
R369	ERG2ANJ331	Metal Film,	330Ω,	2W,	± 5%	1	
R370	ERG2ANJ331	Metal Film,	330Ω,	2W,	± 5%	1	
R371	ERX1ANJ6R8	Metal Film,	6.8Ω,	1W,	± 5%	1	
R372	ERX1ANJ6R8	Metal Film,	6.8Ω,	1W,	± 5%	1	
R373	ERD14FJ101	Carbon,	100Ω,	1/4W,	± 5%	1	
R374	ERD14FJ101	Carbon,	100Ω,	1/4W,	± 5%	1	
R375	ERD14FJ181	Carbon,	180Ω,	1/4W,	± 5%	1	
R376	ERD14FJ181	Carbon,	180Ω,	1/4W,	± 5%	1	
R377	ERD25TJ103	Carbon,	10kΩ,	1/4W,	± 5%	1	
R390 (X2)	ERD18FJ331	Carbon,	330Ω,	1/8W,	± 5%	2	
R391 (X2)	ERD18FJ331	Carbon,	330Ω,	1/8W,	± 5%	2	
R392 (X2)	ERD25TJ102	Carbon,	1kΩ,	1/4W,	± 5%	2	
R393 (X2)	ERD25TJ102	Carbon,	1kΩ,	1/4W,	± 5%	2	
R394 (X2)	ERD25TJ183	Carbon,	18kΩ,	1/4W,	± 5%	2	
R395 (X2)	ERD25TJ822	Carbon,	8.2kΩ,	1/4W,	± 5%	2	
R396 (X2)	ERD25TJ103	Carbon,	10kΩ,	1/4W,	± 5%	2	
R401	ERD25TJ273	Carbon,	27kΩ,	1/4W,	± 5%	1	
R402	ERD25TJ223	Carbon,	22kΩ,	1/4W,	± 5%	1	
R403	ERD25TJ333	Carbon,	33kΩ,	1/4W,	± 5%	1	
R404	ERD25TJ154	Carbon,	150kΩ,	1/4W,	± 5%	1	
R405	ERD25TJ153	Carbon,	15kΩ,	1/4W,	± 5%	1	
R407	ERD25TJ223	Carbon,	22kΩ,	1/4W,	± 5%	1	
R408	ERD25TJ223	Carbon,	22kΩ,	1/4W,	± 5%	1	
R409	ERD25TJ223	Carbon,	22kΩ,	1/4W,	± 5%	1	
R410	ERD25TJ183	Carbon,	18kΩ,	1/4W,	± 5%	1	
R412	ERD25TJ393	Carbon,	39kΩ,	1/4W,	± 5%	1	
R413	ERD25TJ824	Carbon,	820kΩ,	1/4W,	± 5%	1	
R414	ERD25TJ103	Carbon,	10kΩ,	1/4W,	± 5%	1	
R415	ERD25TJ681	Carbon,	680Ω,	1/4W,	± 5%	1	
R416	ERG1ANJ681	Metal Film,	680Ω,	1W,	± 5%	1	
R451	ERD25TJ394	Carbon,	390kΩ,	1/4W,	± 5%	1	
R452	ERD25TJ394	Carbon,	390kΩ,	1/4W,	± 5%	1	
R453	ERD25TJ104	Carbon,	100kΩ,	1/4W,	± 5%	1	
R454	ERD25TJ104	Carbon,	100kΩ,	1/4W,	± 5%	1	
R457	ERD25TJ472	Carbon,	4.7kΩ,	1/4W,	± 5%	1	
R458	ERD25TJ472	Carbon,	4.7kΩ,	1/4W,	± 5%	1	
R465	ERD25TJ472	Carbon,	4.7kΩ,	1/4W,	± 5%	1	
R466	ERD25TJ472	Carbon,	4.7kΩ,	1/4W,	± 5%	1	

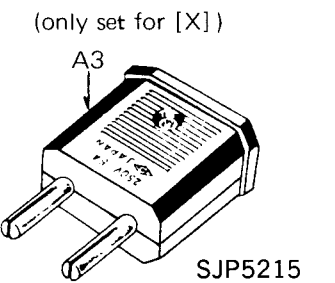
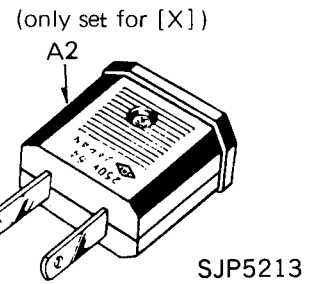
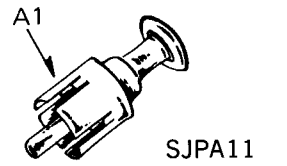
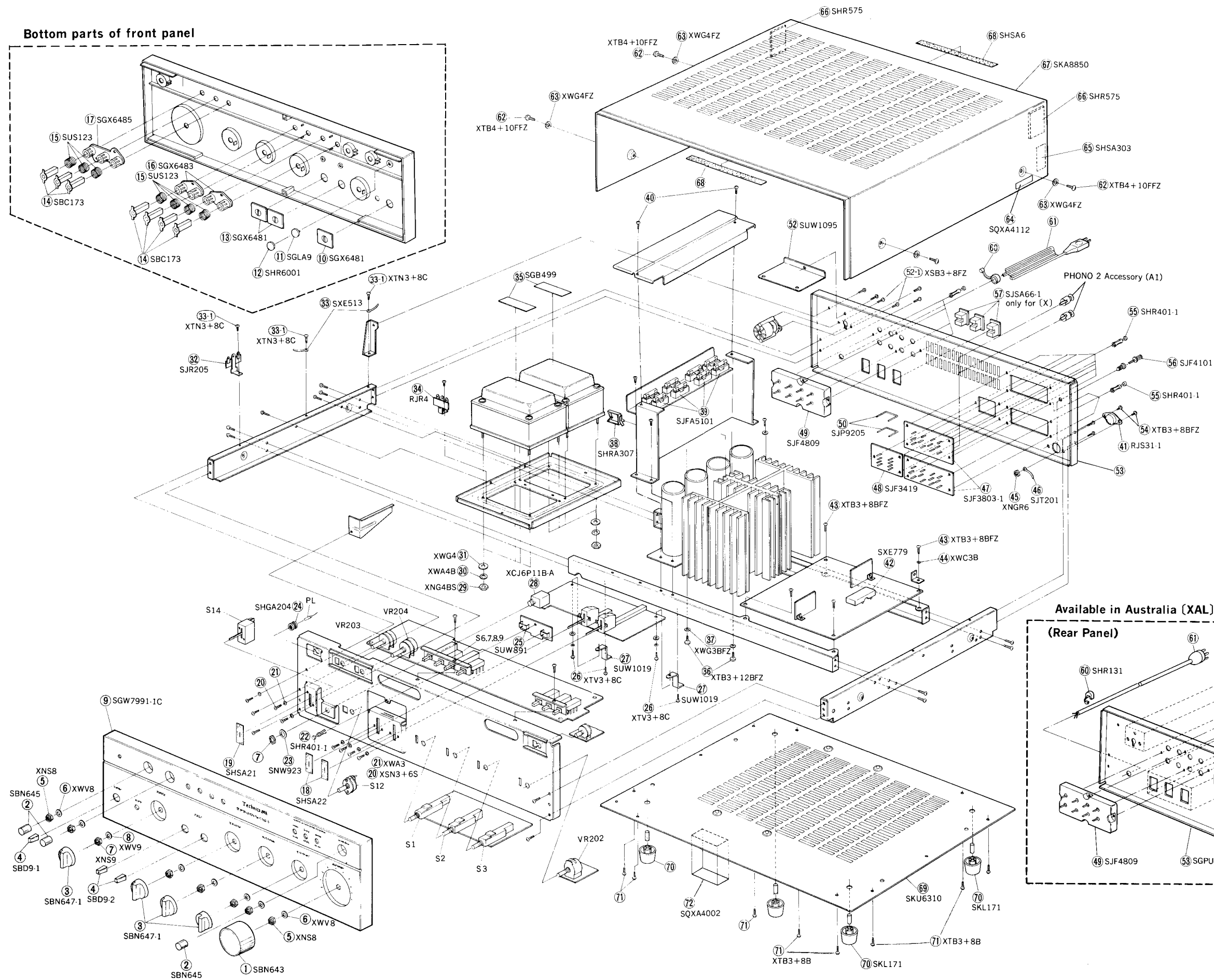
Ref. No.	Part No.	Part Name & Description				Per Set	Remarks
R501	ERQ12HJ5R6	Fuse Type Metallic,	5.6Ω,	1/2W,	± 5%	1	
R502	ERD18FJ497	Carbon,	4.7Ω,	1/8W,	± 5%	1	
R503	ERD12FJ392	Carbon,	3.9kΩ,	1/2W,	± 5%	1	
R504	ERD12FJ392	Carbon,	3.9kΩ,	1/2W,	± 5%	1	
R505	ERG1ANJ680	Metal Film,	68Ω,	1W,	± 5%	1	
R506	ERG1ANJ391	Metal Film,	390Ω,	1W,	± 5%	1	
R507	ERG1ANJ391	Metal Film,	390Ω,	1W,	± 5%	1	
R508	ERD25TJ223	Carbon,	22kΩ,	1/4W,	± 5%	1	
R509	ERD25TJ223	Carbon,	22kΩ,	1/4W,	± 5%	1	
R510	ERD25TJ223	Carbon,	22kΩ,	1/4W,	± 5%	1	
R511	ERD25TJ223	Carbon,	22kΩ,	1/4W,	± 5%	1	
R512	ERD25TJ273	Carbon,	27kΩ,	1/4W,	± 5%	1	
R513	ERD25TJ393	Carbon,	39kΩ,	1/4W,	± 5%	1	
R514	ERD25TJ472	Carbon,	4.7kΩ,	1/4W,	± 5%	1	
R515	ERO25CKF2152	Metal Film,	21.5kΩ,	1/4W,	± 1%	1	
R516	ERO25CKF2152	Metal Film,	21.5kΩ,	1/4W,	± 1%	1	
VARIABLE RESISTORS							
VR201	EWKE6A029252	Balance Control,	250kΩ (BH)			1	○
VR202	EWKF77A031BF5	Volume Control,	250kΩ (B)			1	○
VR203	EWKF4XA063C15	Bass Control,	100kΩ (C)			1	○
VR204	EWKF3XA063C15	Treble Control,	100kΩ (C)			1	○
VR301, 302, 303, 304	EVTS3MA00B54	DC Balance Adjustment,	50kΩ (B)			4	
VR305, 306	EVLS3AA00B52	ICQ Adjustment,	500Ω (B)			2	
VR350(X2), 351(X2)	EVLS0AA00B53	Power Limiter Adjustment,	5kΩ (B)			4	
VR501	EVLS3AA00B53	Voltage Control Adjustment,	5kΩ (B)			1	
CAPACITORS							
C1	ECNC4A103M	Paper,	0.01μF,	450V.AC	±20%	1	
C2	ECNC4A103M	Paper,	0.01μF,	450V.AC	±20%	1	
C3[X] only	ECNC4A103M	Paper,	0.01μF,	450V.AC	±20%	1	
C101	ECKD1H331KB	Ceramic,	330pF,	50V,	±10%	1	
C102	ECKD1H331KB	Ceramic,	330pF,	50V,	±10%	1	
C103	ECQE1335KZ	Polyester,	3.3μF,	125V,	±10%	1	
C104	ECQE1335KZ	Polyester,	3.3μF,	125V,	±10%	1	
C105	ECCD1H121K	Ceramic,	120pF,	50V,	±10%	1	
C106	ECCD1H121K	Ceramic,	120pF,	50V,	±10%	1	
C107	ECCD1H221K	Ceramic,	220pF,	50V,	±10%	1	
C108	ECCD1H221K	Ceramic,	220pF,	50V,	±10%	1	
C109	ECEA10V1000V	Electrolytic,	1000μF,	10V		1	
C110	ECEA10V1000V	Electrolytic,	1000μF,	10V		1	
C111	ECEA6V220V	Electrolytic,	220μF,	6.3V		1	
C112	ECEA6V220V	Electrolytic,	220μF,	6.3V		1	
C113	ECEA16V10	Electrolytic,	10μF,	16V		1	
C114	ECEA16V10	Electrolytic,	10μF,	16V		1	
C115	ECQF05154GZN	Polypropylene,	0.15μF,	50V,	± 2%	1	
C116	ECQF05154GZN	Polypropylene,	0.15μF,	50V,	± 2%	1	
C117	ECQF1393GZN	Polypropylene,	0.039μF,	125V,	± 2%	1	
C118	ECQF1393GZN	Polypropylene,	0.039μF,	125V,	± 2%	1	
C119	ECQM1H332JZ	Polyester,	0.0033μF,	50V,	± 5%	1	
C120	ECQM1H332JZ	Polyester,	0.0033μF,	50V,	± 5%	1	
C123	ECCD1H270K	Ceramic,	27pF,	50V,	±10%	1	
C124	ECCD1H270K	Ceramic,	27pF,	50V,	±10%	1	
C125	ECEA6V47	Electrolytic,	47μF,	6.3V		1	

Ref. No.	Part No.	Part Name & Description				Per Set	Remarks
C126	ECEA6V47	Electrolytic,	47μF,	6.3V		1	
C127	ECEA63V33V	Electrolytic,	33μF,	63V		1	
C128	ECEA63V33V	Electrolytic,	33μF,	63V		1	
C129	ECEA63V33V	Electrolytic,	33μF,	63V		1	
C130	ECEA63V33V	Electrolytic,	33μF,	63V		1	
C131	ECQMIH152JZ	Polyester,	0.0015μF,	50V,	± 5%	1	
C132	ECQMIH152JZ	Polyester,	0.0015μF,	50V,	± 5%	1	
C133	ECQE1105KZ	Polyester,	1μF,	125V,	±10%	1	
C134	ECQE1105KZ	Polyester,	1μF,	125V,	±10%	1	
C135	ECEA50V10	Electrolytic,	10μF,	50V		1	
C136	ECEA50V10	Electrolytic,	10μF,	50V		1	
C137	ECEA50V47V	Electrolytic,	47μF,	50V		1	
C138	ECEA6V33	Electrolytic,	33μF,	6.3V		1	
C201	ECQM1H103KZ	Polyester,	0.01μF,	50V,	±10%	1	
C202	ECQM1H103KZ	Polyester,	0.01μF,	50V,	±10%	1	
C203	ECCD1H221K	Ceramic,	220pF,	50V,	±10%	1	
C204	ECCD1H221K	Ceramic,	220pF,	50V,	±10%	1	
C205	ECQE1684KZ	Polyester,	0.68μF,	125V,	±10%	1	
C206	ECQE1684KZ	Polyester,	0.68μF,	125V,	±10%	1	
C207	ECEA50VR47	Electrolytic,	0.47μF,	50V		1	
C208	ECEA50VR47	Electrolytic,	0.47μF,	50V		1	
C209	ECCD1H120K	Ceramic,	12pF,	50V,	±10%	1	
C210	ECCD1H120K	Ceramic,	12pF,	50V,	±10%	1	
C211	ECQM1H152KZ	Polyester,	0.0015μF,	50V,	±10%	1	
C212	ECQM1H152KZ	Polyester,	0.0015μF,	50V,	±10%	1	
C213	ECQM1H822KZ	Polyester,	0.0082μF,	50V,	±10%	1	
C214	ECQM1H822KZ	Polyester,	0.0082μF,	50V,	± 5%	1	
C215	ECEA16N10	Non-Polar Electrolytic,	10μF,	16V		1	
C216	ECEA16N10	Non-Polar Electrolytic,	10μF,	16V		1	
C217	ECQM1H103KZ	Polyester,	0.01μF,	50V,	±10%	1	
C218	ECQM1H103KZ	Polyester,	0.01μF,	50V,	±10%	1	
C219	ECQM1H333KZ	Polyester,	0.033μF,	50V,	±10%	1	
C220	ECQM1H333KZ	Polyester,	0.033μF,	50V,	±10%	1	
C221	ECEA50N1	Non-Polar Electrolytic,	1μF,	50V		1	
C222	ECEA50N1	Non-Polar Electrolytic,	1μF,	50V		1	
C223	ECQM1H182KZ	Polyester,	0.0018μF,	50V,	±10%	1	
C224	ECQM1H182KZ	Polyester,	0.0018μF,	50V,	±10%	1	
C225	ECEA50V1	Electrolytic,	1μF,	50V		1	
C226	ECEA50V1	Electrolytic,	1μF,	50V		1	
C227	ECEA6V33	Electrolytic,	33μF,	6.3V		1	
C301	ECEA50N1	Non-Polar Electrolytic,	1μF,	50V		1	
C302	ECEA50N1	Non-Polar Electrolytic,	1μF,	50V		1	
C303	ECCD2H121K	Ceramic,	120pF,	500V,	±10%	1	
C304	ECCD2H121K	Ceramic,	120pF,	500V,	±10%	1	
C305	ECEA25V3R3	Electrolytic,	3.3μF,	25V		1	
C306	ECEA25V3R3	Electrolytic,	3.3μF,	25V		1	
C307	ECCD2H121K	Ceramic,	120pF,	500V,	±10%	1	
C308	ECCD2H121K	Ceramic,	120pF,	500V,	±10%	1	
C309	ECCD2H680K	Ceramic,	68pF,	500V,	±10%	1	
C310	ECCD2H680K	Ceramic,	68pF,	500V,	±10%	1	
C311	ECKD1H103PF	Ceramic,	0.01μF,	50V,	+100% -0%	1	
C312	ECKD1H103PF	Ceramic,	0.01μF,	50V,	+100% -0%	1	
C313	ECCD2H390K	Ceramic,	39pF,	500V,	±10%	1	
C314	ECCD2H390K	Ceramic,	39pF,	500V,	± 1%	1	
C315	ECKD1H472PF	Ceramic,	0.0047μF,	50V,	+100% -0%	1	
C316	ECKD1H472PF	Ceramic,	0.0047μF,	50V,	+100% -0%	1	

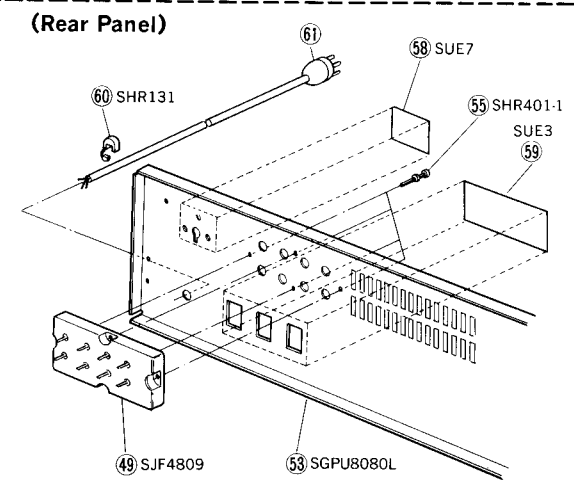
EXPLODED VIEWS

ACCESSORIES

Bottom parts of front panel



Available in Australia (XAL) only



Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
C317	ECCD1H271K	Ceramic, 270pF, 50V, ±10%	1	
C318	ECCD1H271K	Ceramic, 270pF, 50V, ±10%	1	
C319	ECKD1H331K	Ceramic, 330pF, 50V, ±10%	1	
C320	ECKD1H331K	Ceramic, 330pF, 50V, ±10%	1	
C323	ECEA50MR22	Electrolytic, 0.22μF, 50V	1	
C324	ECEA50MR22	Electrolytic, 0.22μF, 50V	1	
C325	ECEA10V1000V	Electrolytic, 1000μF, 10V	1	
C326	ECEA10V1000V	Electrolytic, 1000μF, 10V	1	
C327	ECCD1H150K	Ceramic, 15pF, 50V, ±10%	1	
C328	ECCD1H150K	Ceramic, 15pF, 50V, ±10%	1	
C329	ECQM1473KZ	Polyester, 0.047μF, 125V, ±10%	1	
C330	ECQM1473KZ	Polyester, 0.047μF, 125V, ±10%	1	
C331	ECEA50V3R3	Electrolytic, 3.3μF, 50V	1	
C332	ECEA50V3R3	Electrolytic, 3.3μF, 50V	1	
C333	ECEA50V3R3	Electrolytic, 3.3μF, 50V	1	
C336	ECEA6V47	Electrolytic, 47μF, 6.3V	1	
C350 (X2)	ECKD1H222PF	Ceramic, 0.0022μF, 50V, ±100%	2	
C351 (X2)	ECKD1H222PF	Ceramic, 0.0022μF, 50V, ±100%	2	
C401	ECEA50V1	Electrolytic, 1μF, 50V	1	
C402	ECEA16N47	Non-Polar Electrolytic, 47μF, 16V	1	
C403	ECEA6V100V	Electrolytic, 100μF, 6.3V	1	
C501	ECET55R103Y	Electrolytic, 10000μF, 55V	1	
C502	ECET55R103Y	Electrolytic, 10000μF, 55V	1	
C503	ECET55R103Y	Electrolytic, 10000μF, 55V	1	
C504	ECET55R103Y	Electrolytic, 10000μF, 55V	1	
C505	ECEA63V470V	Electrolytic, 470μF, 63V	1	
C506	ECEA63V470V	Electrolytic, 470μF, 63V	1	
C507	ECKD2H681KB	Ceramic, 680pF, 500V, ±10%	1	
C509	ECEA63V3R3	Electrolytic, 3.3μF, 63V	1	
C510	ECEA63V3R3	Electrolytic, 3.3μF, 63V	1	
C511	ECKD1H102PF	Ceramic, 0.001μF, 50V, ±100%	1	
C512	ECKD1H472PF	Ceramic, 0.0047μF, 50V, ±100%	1	
C513	ECEA50V1	Electrolytic, 1μF, 50V	1	
C515	ECEA50V1	Electrolytic, 1μF, 50V	1	
C516	ECEA50V1	Electrolytic, 1μF, 50V	1	
C517	ECEA50V1	Electrolytic, 1μF, 50V	1	
C518	ECEA50V1	Electrolytic, 1μF, 50V	1	
PILOT LAMP				
PL	XAMR21S350C	Power Indicator, 6.3V 40mA	1	
FUSES				
F1, 2	XBA2C16TRO	Fuse, 1.6AT (250V), Power Source	2	○
F3, 4, 5, 6	XBA2C16TRO	Fuse, 1.6AT (250V), Power Source (Except set for [XAL])	4	○
F7, 8	XBA2C05TRO	Fuse, 500mA (250V), Power Source	2	
SWITCHES				
S1	SSR65	Switch, Selector	1	○
S2, 3	SSR43	Switch, Tape Monitor & Rec Mode	2	
S4, 5, 14	SSH333S	Switch, Capacitance, Resistance & Loudness	1	○
S6, 7, 8, 9	SSH411S	Switch, EQ Subsonic, Mode, Muting & High Filter	1	○

Ref. No.	Part No.	Part Name & Description	Par Set	Remarks
S10	SSL33S	Switch, Direct	1	○
S11	SSL31S	Switch, Operation	1	○
S12	ESRC124F25B	Switch, Speaker	1	
S13	SSL43-1S	Switch, Power Source	1	○
S15	SSR53S	Switch, Voltage Selector (Except set for [XAL])	1	
RELAY				
RELAY	SSY19	Relay, Speakers Protection & Muting	1	
COMPONENT COMBINATIONS				
M501, 502, 503	RXAF103P22HD	Component Combination, 0.01μF, (X2)	3	
CABINET and CHASSIS PARTS				
1	SBN643	Knob, Volume Control	1	○
2	SBN645	Knob, Bass, Treble & Balance Control	3	○
3	SBN647-1	Knob, Speakers, Rec Mode, Tape Monitor & Selector	4	○
4	SBD9-2	Knob, Power Switch, Operation & Input	3	○
5	XNS8	Nut, Volume, Bass, Treble, Balance Volume & Selector	7	
6	XWV8	Washer (Spring)	7	
7	XNS9	Nut, Headphones & Speaker Switch	2	
8	XWV9	Washer (Spring), Speaker Switch	1	
9	SGW7991-1C	Panel, Front	1	○
10	SGX6481	Sleeve, Push Switch Button	1	○
11	SGLA9	Panel Light, Orange	1	* ○
12	SHR6001	Shading Cloth, Panel Light	1	○
13	SGX6481	Sleeve, Push Switch Buttons	2	○
14	SBC173	Button, Push Switch	7	○
15	SUS123	Spring, Push Switch Button	7	
16	SGX6483	Sleeve, Push Switch Buttons	2	○
17	SGX6485	Sleeve, Push Switch Buttons	1	○
18	SHSA22	Shading Cloth	2	
19	SHSA21	Shading Cloth	1	
20	XSN3+6S	Screw, Power Source & Push Switch M'tg	6	
21	XWA3	Washer (Spring), Power Source & Push Switch Screw	6	
22	SHR401-1	Latch, LED Bracket	1	
23	SNW923	Washer, Headphones Jack	1	
24	SHGA204	Bracket, Lamp	1	
25	SUW891	Bracket, LED	2	*
26	XTV3+8C	Screw, Printed Circuit Board Ass'y M'tg	4	
27	SUW1019	Bracket, Printed Circuit Board Ass'y	2	* ○
28	XCJ6P11B-A	Jack, Headphones	1	
29	XNG4BS	Nut, Power Transformer	8	
30	XWA4B	Washer (Spring), Power Transformer	8	
31	XWG4	Washer, Power Transformer	8	
32	SJR205	Terminal Board (Except set for [X])	1	
33	SXE513	Lead Clamp	1	
33-1	XTV3+8C	Screw, Terminal Board & Lead Clamp M'tg	3	
34	RJR4B	Terminal Board	1	
35	SGB499	Label, Technics	2	* ○

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
36	XTB3+12BFZ	Screw, Heat Sink M'tg	2	
37	XWG3BFZ	Washer, Heat Sink Screw	2	
38	SHRA307	Lead Clamp	1	
39	SJFA5101	Holder, Fuse	8	
40	XTB3+8BFZ	Screw, Fuse Cover Bracket M'tg	2	
41	RJS31-1	Socket, Tape Deck Connection (DIN)	1	
42	SXE779	Shield Case	1	○
43	XTB3+8BFZ	Screw, Printed Circuit Board Ass'y M'tg	2	
44	XWC3B	Washer, Printed Circuit Board Ass'y	1	
45	XNGR6	Nut, Ground Terminal	1	
46	SJT201	Lug, Ground	1	
47	SJF3803-1	Terminal, Input	2	
48	SJF3419	Terminal, Pre Out & Main In	1	
49	SJF4809	Terminal Board, Speaker	1	○
50	SJP9205	Short Pin, Pre & Main Amplifier	2	
52	SUW1095	Bracket, Voltage Selector Switch (Except set for [XAL])	1	* ○
52-1	XSB3+8FZS	Screw, Voltage Selector Switch M'tg (Except set for [XAL])	2	
53 [X]	SGP490-2B	Rear Panel	1	○
53 [XAL]	SGPU8080L	Rear Panel, SGP490-3A with Name Plate (SGT14070)	1	○
53 [XG, XGH, XGF]	SGP490-2A	Rear Panel	1	○
53 [XSD, XSW]	SGPU8080D	Rear Panel SGP490-2A with Name Plate (SGT14050)	1	○
53 [XE]	SGPU8080E	Rear Panel SGP490-3A with Label, (SGT14930)	1	○
54	XTB3+8BFZ	Screw, DIN Socket M'tg	2	
55	SHR401-1	Latch, Input, Antenna & Speaker Terminals	15	
56	SJF4101	Terminal, Ground	1	
57 [X] only	SJSA66-1	Socket, AC Outlet	3	
58 [XAL] only	SUE7	Cover, Rear Panel Hole	1	
59	SUE3	Cover, Rear Panel Hole (Except set for [X])	1	
60	SHR127	Bushing, AC Cord (Except set for [XAL], [XE])	1	
60 [XAL, XE] only	SHR131	Bushing, AC Cord	1	
61 [X, XG, XGF]	SJA97	AC Cord, with Plug	1	
61 [XAL]	SJA79	AC Cord, with Plug	1	
61 [XGH, XSD]	SJA81	AC Cord, with Plug	1	
61 [XSW]	SJA68	AC Cord, with Plug	1	
61 [XE]	SJA73	AC Cord	1	
62	XTB4+10FFZ	Screw, Cabinet M'tg	4	
63	XWG4FZ	Washer, Cabinet Screw	4	
64	SQXA4112	Caution Label, Cabinet Screw	1	
65	SHSA303	Shading Cloth	2	
66	SHR575	Shading Cloth	2	
67	SKA8850	Cabinet, Black Wooden	1	○
68	SHSA6	Shading Cloth	2	
69	SKU6310	Bottom Board	1	* ○
70	SKL171	Foot, Set	4	
71	XTB3+8B	Screw, Bottom Board M'tg	10	
72	SQXA4002	Caution Label, Bottom Board	1	
ACCESSORIES				
A1	SJPA11	Short Pin, Phono 2 input terminal	2	
A2[X] only	SJP5213	Plug Adapter, Power	1	
A3[X] only	SJP5215	Plug Adapter, Power	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
PACKING PARTS				
P1	SPP511	Soft Cover	1	
P2	SPS801-1	Pad, Left Side	1	
P3	SPS803-1	Pad, Right Side	1	
P4 [X] only	SPS1017	Pad, Front Panel	1	○
P5 [XE] only	SPS1013	Pad, Bottom Side	1	○
P5	SPS1015	Pad, Bottom Side (Except set for [XE])	1	○
P6 [X]	SPN5213	Carton Box	1	○
P6 [XG, XSW, XGH, XSD, XAL]	SPG1047	Carton Box	1	○
P6 [XGF]	SPG1049	Carton Box	1	○
P6 [XE]	SPG1051	Carton Box	1	○
P7	SQF1583	Instructions Book, Printed Matter (Except set for [XAL])	1	○
P7 [XAL] only	SQF1585	Instructions Book, Printed Matter	1	○
Notes: The model [X] is available in Asia, Latin America, Middle East and Africa only. The model [XAL] is available in Australia only. The model [XG] is available in European only. The model [XGH] is available in Holland only. The model [XSD] is available in Scandinavia only. The model [XSW] is available in Switzerland only. The model [XE] is available in England only. The model [XGF] is available in France only.				

PACKINGS

