

Service Manual

Stereo Integrated Amplifier

SU-7600

(X), (XG), (XGH), (XE)



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

AMPLIFIER SECTION

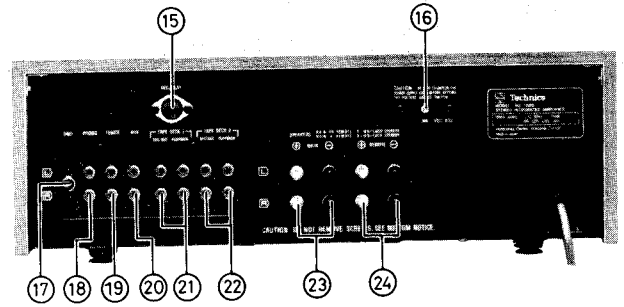
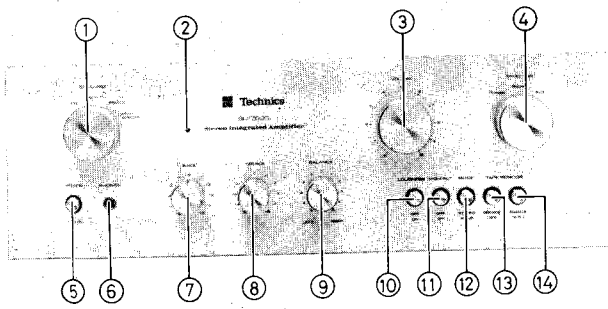
1kHz continuous power:	both channels driven	55W + 55W (4Ω) 43W + 43W (8Ω)	PHONO maximum input voltage (1kHz RMS):	120mV
40Hz~20kHz continuous power:	both channels driven	50W + 50W (4Ω) 41W + 41W (8Ω)	Signal to noise ratio (IHF, A):	PHONO 72dB TUNER, AUX 92dB
Total harmonic distortion:		0.2%	Frequency response:	PHONO RIAA standard curve ±0.5dB TUNER, AUX 7Hz~75kHz, +0dB, -3dB
Intermodulation distortion:		0.2%	Tone controls:	BASS 50Hz, +13dB~-13dB TREBLE 20kHz, +13dB~-13dB
Power bandwidth (both channels driven at 8Ω):		5Hz~65kHz, -3dB	Loudness control (volume at -30dB):	100Hz, +8dB
Residual hum and noise:		0.6mV	High filter:	7kHz, -6dB/oct.
Damping factor:		40 (8Ω), 20 (4Ω)	Output voltage:	REC OUT 150mV REC/PLAY output 30mV
Load impedance:	MAIN or REMOTE	4~16Ω	GENERAL	
Input sensitivity and impedance:	MAIN + REMOTE	8~16Ω	Power consumption:	350W
	PHONO	2mV/47kΩ	Power supply:	50/60Hz, 110/120/220/240V
	TUNER, AUX	150mV/47kΩ	Dimensions (W×H×D):	410×140×332mm (16 1/8"×5 1/2"×13 1/8")
	PLAYBACK, REC/PLAY input	150mV/47kΩ	Weight:	7.5kg (16.53lb.)

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

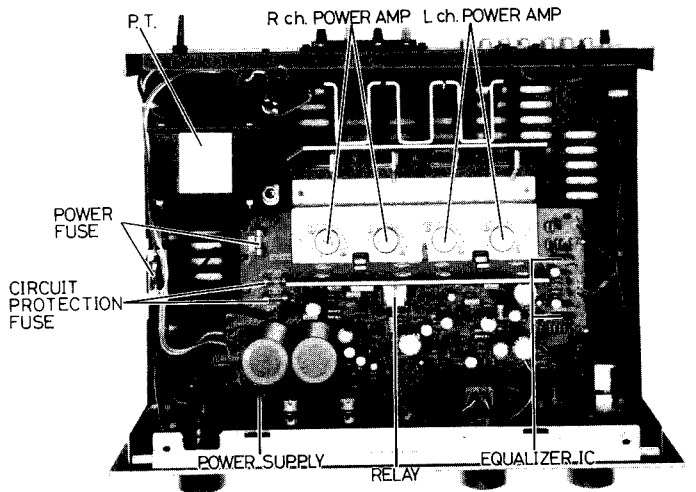
VERSTÄRKERTEIL

RMS-Dauerleistung bei 1kHz:	beide Kanäle zusammen angesteuert	2×55W (4Ω) 2×43W (8Ω)	Fremdspannungsabstand:	Nennleistung PHONO 60dB AUX 80dB 50mW Ausgangsleistung PHONO 55dB AUX 58dB
RMS-Dauerleistung bei 40Hz~20kHz:	beide Kanäle zusammen angesteuert	2×50W (4Ω) 2×41W (8Ω)	Eingangsempfindlichkeit & Impedanz:	PHONO 2mV/47kΩ AUX, TUNER 150mV/47kΩ PLAYBACK, REC/PLAY Wiedergabe 150mV/47kΩ
Leistungsbandbreite (beide Kanäle zusammen angesteuert bei 4Ω):		5Hz~65kHz, -3dB	PHONO Maximale Eingangsspannungen (1kHz RMS):	120mV
Intermodulationsverzerrung:			Frequenzgang:	PHONO RIAA Standardkurve ±0.5dB AUX, TUNER 7Hz~75kHz, +0dB, -3dB
Nennleistung bei 250Hz: 8000Hz -4: 1, 4Ω		0.2%	Klangregler:	BÄSSE 50Hz, +13dB, -13dB HÖHEN 20kHz, +13dB, -13dB
Hum & Noise:		0.6mV	Gehörgerechte Lautstärkekorrektur (Lautstärke -30dB):	100Hz, +8dB
Harmonische Verzerrungen:			Hochtonfilter:	7kHz, -6dB/oct.
Nennleistung bei 1kHz, 4Ω		0.2%	Ausgangsspannungen:	TAPE REC OUT 150mV REC/PLAY Aufnahme 30mV
Nennleistung bei 40Hz~16000Hz, 4Ω		0.2%	ALLGEMEINE DATEN	
Dämpfungsfaktor:		40 (8Ω), 20 (4Ω)	Leistungsaufnahme:	350W
Endimpedanz:	MAIN oder REMOTE	4~16Ω	Netzspannung umschaltbar:	50/60Hz, 110/120/220/240V
	MAIN + REMOTE	8~16Ω	Abmessungen (B×H×T):	410×140×332mm
Frequenzgang:		7Hz~75kHz, +0dB, -3dB	Gewicht:	7.5kg

LOCATION OF CONTROLS



- ① SPEAKERS SELECTOR SWITCH
- ② POWER INDICATOR
- ③ VOLUME CONTROL
- ④ SELECTOR SWITCH
- ⑤ POWER PUSH SWITCH
- ⑥ HEADPHONES JACK
- ⑦ BASS CONTROL
- ⑧ TREBLE CONTROL
- ⑨ BALANCE CONTROL
- ⑩ LOUDNESS PUSH SWITCH
- ⑪ HIGH FILTER PUSH SWITCH
- ⑫ MODE PUSH SWITCH
- ⑬ TAPE MONITOR (TAPE 1) PUSH SWITCH
- ⑭ TAPE MONITOR (TAPE 2) PUSH SWITCH
- ⑮ TAPE DECK CONNECTION SOCKET (REC/PLAY)
- ⑯ VOLTAGE SELECTOR SWITCH
- ⑰ GROUND TERMINAL
- ⑱ PHONO INPUT TERMINALS
- ⑲ TUNER INPUT TERMINALS
- ⑳ AUX INPUT TERMINALS
- ㉑ TAPE DECK 1 CONNECTION TERMINALS
- ㉒ TAPE DECK 2 CONNECTION TERMINALS
- ㉓ MAIN SPEAKER TERMINALS
- ㉔ REMOTE SPEAKER TERMINALS

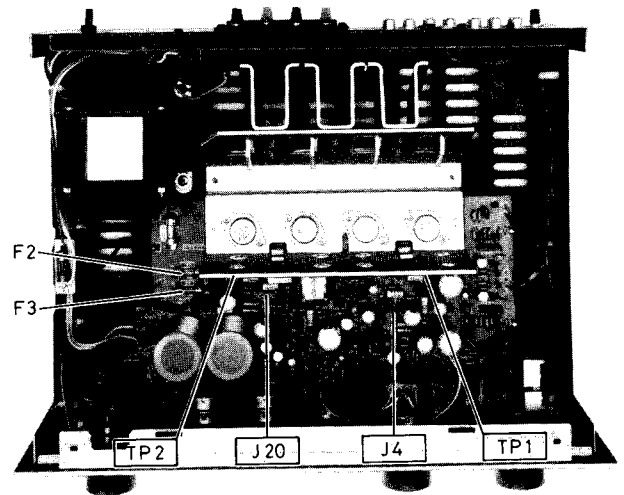


ALIGNMENT INSTRUCTIONS

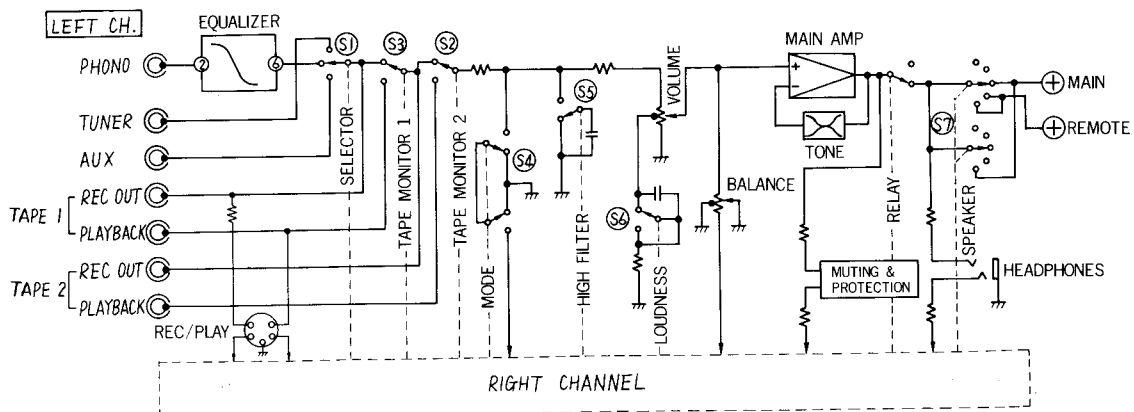
The circuit protection fuses are included in set. F2 is protection fuse of left channel and F3 is protection fuse of right channel as shown in right photo.

- **Ico alignment** Note: () indicates in right channel.

- (1) Speakers switch to MAIN position.
- (2) Connect \ominus terminal of DC voltmeter to Lch. speaker \oplus terminal (Rch. speaker \oplus terminal), and \oplus terminal of DC voltmeter to test point TP₁ (TP₂).
- (3) If indication on DC VTVM becomes over 35mV when passing over 5 minutes after setting the power switch to the ON position, remove the jumper wires J4 (J20).



BLOCK DIAGRAM



■ TO REMOVE CABINET

- (1) Remove four (4) cabinet mounting screws (side Nos 1~4, as shown in fig. 1.
- (2) Remove metal fitting of cabinet from holes A and B of front panel in arrow direction ①, as shown in fig. 1.
- (3) Remove cabinet from chassis in arrow direction ②, as shown in fig. 1.
- (4) To reassemble, reverse above procedure.

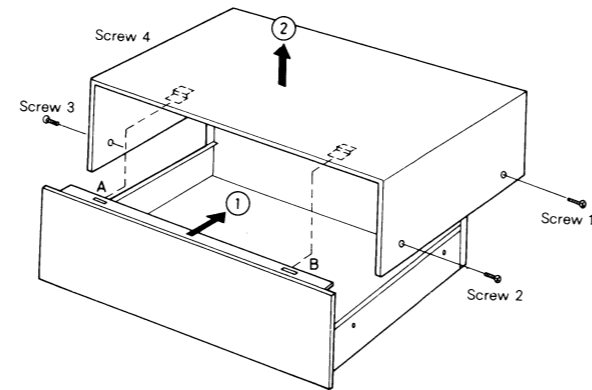


Fig. 1

■ TO REMOVE PC BOARD

Note: When checking the circuit and replacing the parts, follow these steps.

Be sure to turn off the power when a printed circuit board is removed or installed. When a continuity test is made with the printed circuit board dismantled from the chassis, "short" the heat-radiation plate and the chassis by using a lead wire with clips.

- (1) Remove the cabinet.
- (2) Loosen two screws ① and ② holding the front panel.
- (3) Loosen two screws ③ and ④ holding the heat sink as shown in fig. 2.
- (4) Remove the P.C.B. with panel.
- (5) When installing the front panel, insert the bottom chassis into groove of panel, and tighten screws after checking to fit the headphone jack and push switch button to hole of panel as shown in fig. 3.

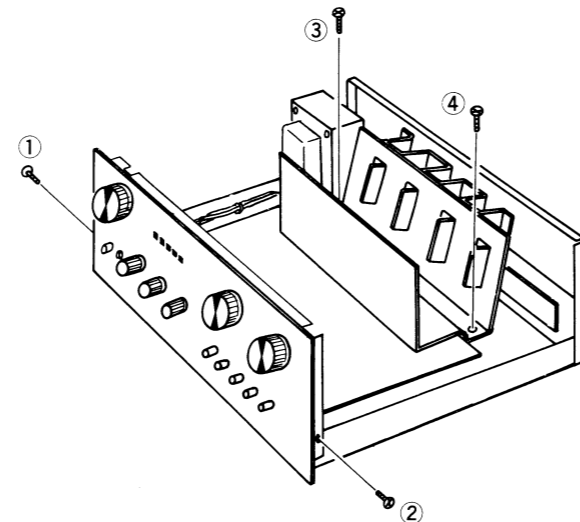


Fig. 2

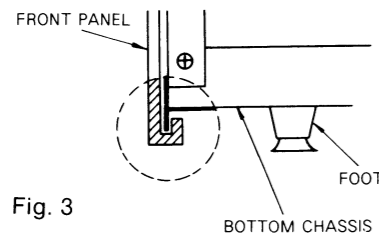


Fig. 3

■ SERVICE AID

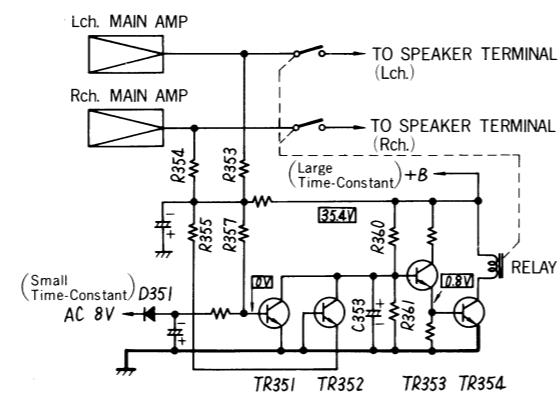
Muting circuitry ("shock" sound prevention)

(a) When power is turned ON

The small negative voltage of the time-constant which passed through D351 is applied to the base of TR351, and, because the bias of TR351 is reversed, it does not operate. On the other hand, the large time-constant +B voltage for the main amplifier passes through R360 and charges C353, and the voltage (voltage at both ends of the capacitor) is increased between the base of TR353 and the earth. Bias is soon applied to TR353 and it becomes in the operating condition. Bias is also applied by the emitter current to TR354, and the relay becomes "on" (contact points connect). This unit is constructed so that approximately 6 seconds will elapse between the time that power is activated and the relay begin to operate, although there may be some slight difference resulting from non-uniformity of components.

(b) When power is turned off

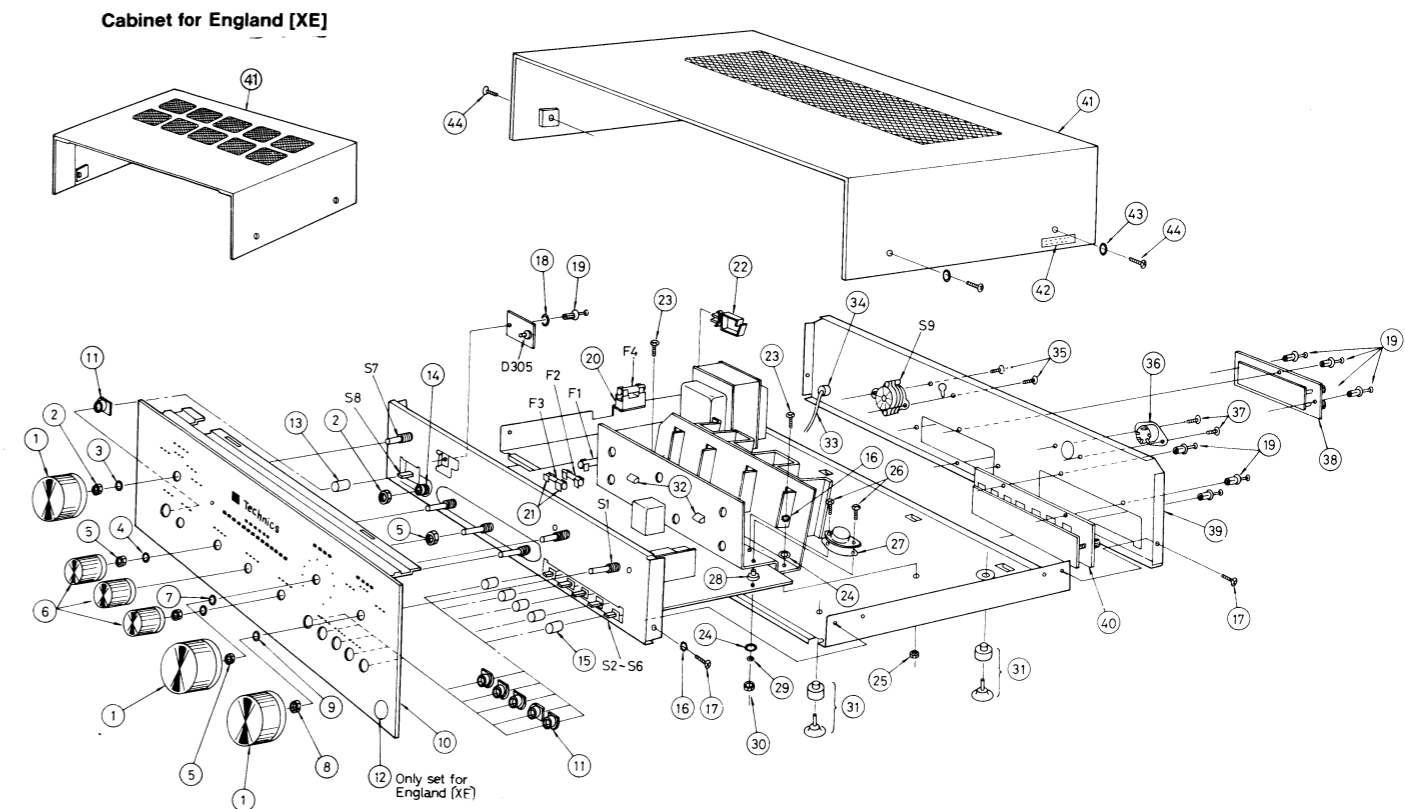
Normally, the negative and positive voltages are balanced, and there is 0V at the base of TR351. However, because the small time-constant negative voltage decreases soon after the power is turned off, bias is applied to TR351. As a result, the base of TR353 is earthed and cut off, TR354, operation stops and, because current no longer flows to the relay, the output of the main amplifier becomes "open" at the same time that power is turned off.



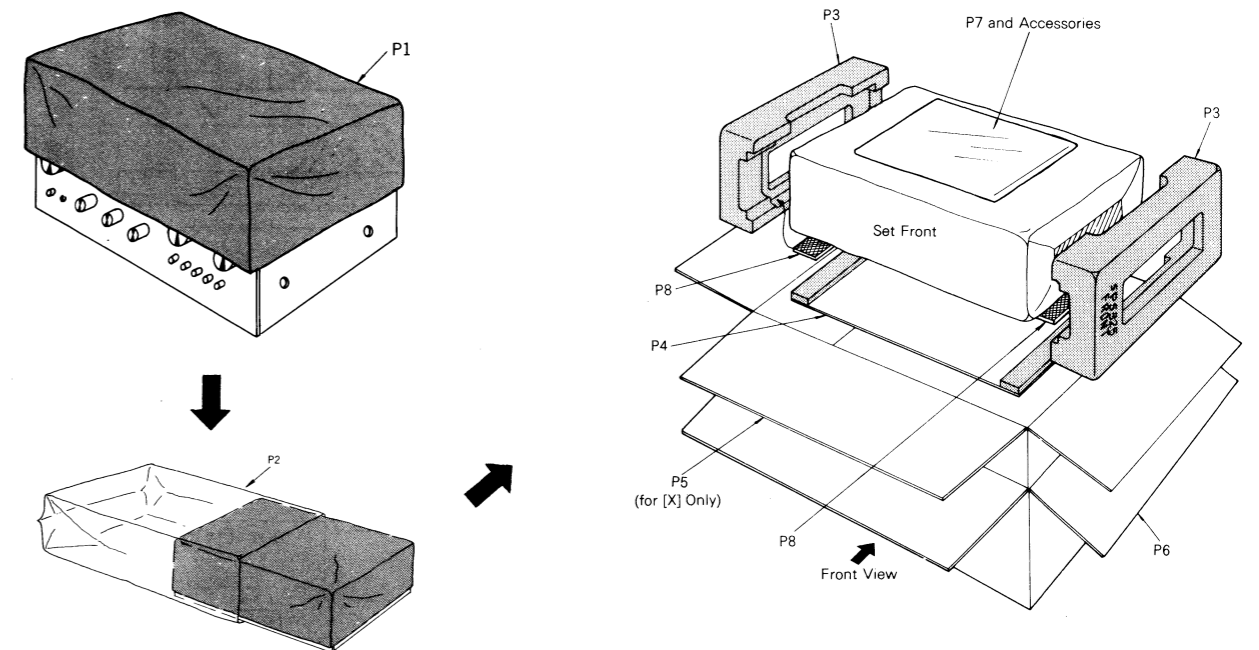
(Muting and Speaker Protection Circuit)

Fig. 4

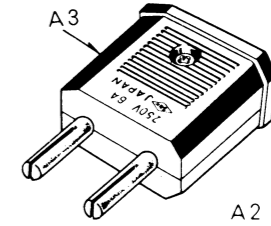
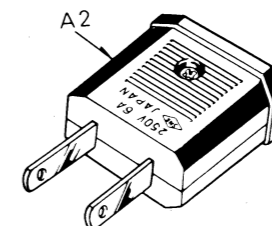
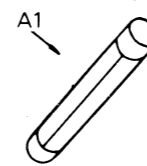
■ CABINET & CHASSIS PARTS LOCATION



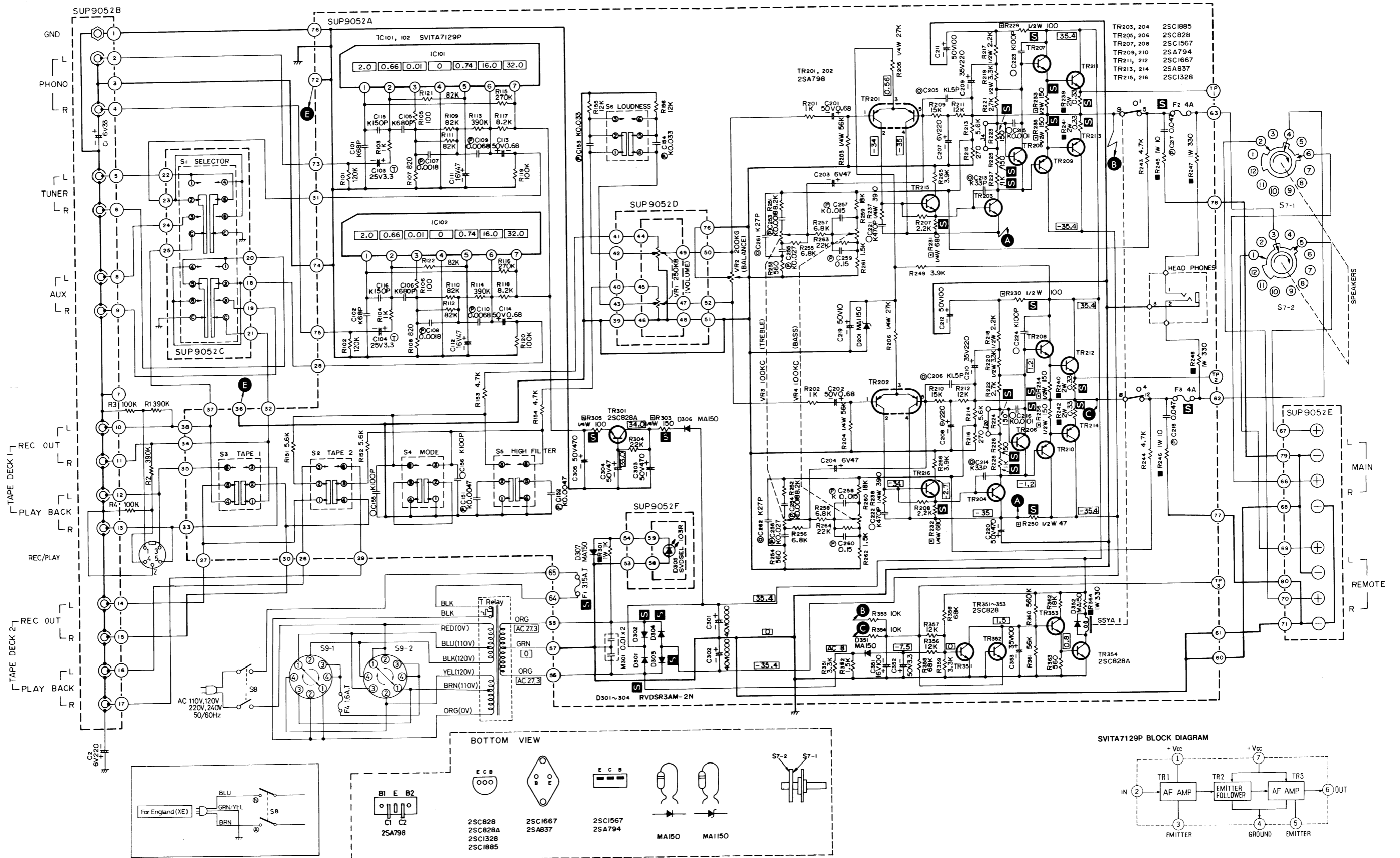
■ PACKING PARTS



■ ACCESSORIES



Schematic Diagram.....Model SU-7600 (This schematic diagram may be modified at any time with the development of new technology.)



- [Notes]**
- S1: Selector switch in "PHONO" position.
 ① TUNER ↔ ② PHONO ↔ ③ AUX
 - S2: Tape monitor (TAPE 2) switch in "SOURCE" position.
 ① SOURCE ↔ ③ TAPE 2
 - S3: Tape monitor (TAPE 1) switch in "SOURCE" position.
 ① SOURCE ↔ ③ TAPE 1

- S4: Mode switch in "STEREO" position. ① STEREO ↔ ③ MODE
- S5: High filter switch in "OFF" position. ① OFF ↔ ③ ON
- S6: Loudness switch in "OFF" position. ① OFF ↔ ③ ON
- S7-1, S7-2: Speakers selector switch in "MAIN" position.
 OFF ↔ MAIN ↔ REMOTE ↔ MAIN + REMOTE

- S8: Power switch in "OFF" position.
 - S9-1, S9-2: Voltage selector switch in "110V" position.
 ① 110V ↔ ② 120V ↔ ③ 220V ↔ ④ 240V
10. DC voltage measurements are taken with DC voltmeter from chassis ground.

Circuit Board Wiring View.....Model SU-7600

