

# Service Manual

FM/AM STEREO RECEIVER

## SA-5170

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

## SA-5170K

(XGF), (XSW), (XG), (XGH)  
(XSD)

\* This photo shows only the products for [XA] and [XAL].



\* This photo shows the products for other destinations except [XA] and [XAL].  
\* SA-5170K is different in appearance and colour-tone.  
\* Cabinet colour differs according to area.

\* The model SA-5170 (XA) is available in Asia, Latin America, Middle East and Africa only.  
\* The model SA-5170 (XAL) is available in Australia only.  
\* The model SA-5170 (XE) is available in England only.  
\* The model SA-5170/K (XGF) is available in France only.  
\* The model SA-5170/K (XSW) is available in Switzerland only.  
\* The model SA-5170/K (XG) is available in European only.  
\* The model SA-5170/K (XGH) is available in Holland only.  
\* The model SA-5170/K (XSD) is available in Scandinavia only.

### TECHNICAL SPECIFICATIONS

Specifications are subject to change without notice for further improvement.

[DIN 45 500]

#### AMPLIFIER SECTION

1 kHz continuous power both channels driven	2 x 30 W (4Ω), 2 x 27 W (8Ω)
20 Hz ~ 20 kHz continuous power both channels driven	2 x 26 W (4Ω), 2 x 25 W (8Ω)
40 Hz ~ 16 kHz continuous power both channels driven	2 x 26 W (4Ω), 2 x 25 W (8Ω)
Power bandwidth both channels driven at 4Ω, 8Ω	7 Hz ~ 50 kHz, -3 dB
Total harmonic distortion	
rated power at 1 kHz	0.5% (4Ω, 8Ω)
rated power at 20 Hz ~ 20 kHz	0.5% (4Ω, 8Ω)
rated power at 40 Hz ~ 16 kHz	0.5% (4Ω, 8Ω)
-26 dB rated power at 1 kHz	0.25% (4Ω)
50 mW power at 1 kHz	0.25% (4Ω)
Intermodulation distortion	
rated power at 250 Hz: 8000 Hz = 4:1, 4Ω	0.5%
rated power at 60 Hz: 7 kHz = 4:1, SMPTE, 8Ω	0.5%
Damping factor	16 (4Ω), 32 (8Ω)

#### Input sensitivity and impedance

PHONO	2.5 mV/47 kΩ
AUX	150 mV/33 kΩ
PLAYBACK, REC/PLAY input	180 mV/39 kΩ
PHONO maximum input voltage (1 kHz, RMS)	130 mV

#### S/N

rated power	PHONO	65 dB (IHF, A: 78 dB)
	AUX	80 dB (IHF, A: 95 dB)
-26 dB rated power	PHONO	55 dB, AUX 55 dB
50 mW power output	PHONO	55 dB, AUX 55 dB
Frequency response	PHONO	RIAA standard curve ± 0.5 dB
	AUX	20 Hz ~ 20 kHz, ± 0.5 dB
		10 Hz ~ 35 kHz, -1 dB

Tone controls	BASS	50 Hz, +10 dB ~ -10 dB
	TREBLE	10 kHz, +10 dB ~ -10 dB

Loudness control (volume at -30 dB)	50 Hz, +10 dB
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Output voltage	REC OUT	150 mV
	REC/PLAY output	30 mV

Channel balance (250 Hz ~ 6300 Hz)	±2.0 dB
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Channel separation at 1 kHz	55 dB
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Headphones level and output impedance	380 mV/330Ω
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Load impedance	MAIN or REMOTE	4 ~ 16Ω
	MAIN + REMOTE	8 ~ 16Ω

## FM TUNER SECTION

Frequency range	88 ~ 108 MHz		
Antenna impedance	300Ω (balanced), 75Ω (unbalanced)		
Sensitivity (±40kHz deviation)	1.9μV (IHF: usable)		
	20μV (IHF, S/N 46 dB, 75Ω, STEREO)		
	1.9μV (S/N 30 dB, 300Ω)		
	1.7μV (S/N 26 dB, 300Ω)		
	1.5μV (S/N 20 dB, 300Ω)		
	1.3μV (S/N 30 dB, 75Ω)		
	1.2μV (S/N 26 dB, 75Ω)		
	0.9μV (S/N 20 dB, 75Ω)		
Total harmonic distortion	MONO	0.15%	
	STEREO	0.3%	
S/N (±40kHz deviation)	MONO	58 dB (IHF: 75 dB)	
	STEREO	55 dB (IHF: 70 dB)	
Frequency response	20 Hz ~ 14 kHz, ±1.5 dB		
Alternate channel selectivity (400 kHz)	65 dB		
Capture ratio	1.0 dB		
Image rejection at 98 MHz	65 dB		
IF rejection at 98 MHz	80 dB		
Spurious response rejection at 98 MHz	80 dB		
AM suppression	55 dB		
Stereo separation	1 kHz	42 dB,	10 kHz 35 dB
Leak carrier	19 kHz	-35 dB,	38 kHz -45 dB

Limiting point	1.2μV
Bandwidth IF amplifier	250 kHz
	FM demodulator 1000 kHz
Channel balance (250 Hz ~ 6300 Hz)	±1.5 dB

## AM TUNER SECTION

Frequency range	525 ~ 1605 kHz
Sensitivity	30μV, 300μV/m
Selectivity	30 dB
Image rejection at 1000 kHz	45 dB
IF rejection at 1000 kHz	40 dB

## GENERAL

Power consumption	300 W
Power supply (50 Hz/60Hz)	110 V/120 V/220 V/240V
	220V/240V (For United Kingdom)
	240V only (For Australia)
Dimensions (W x H x D) for [XA, XAL]	458 x 147 x 295 mm (18 1/2" x 5 3/4" x 11 3/8")
Dimensions (W x H x D) Except for [XA, XAL]	420 x 142 x 295 mm (16 1/2" x 5 1/2" x 11 3/8")
Weight for [XA, XAL]	7.8 kg (17.2 lb.)
Weight, Except for [XA, XAL]	7.4 kg (16.3 lb.)

## TECHNISCHE DATEN [DIN 45 500]

Spezifikationen können infolge von Verbesserungen ohne Ankündigung geändert werden.

### VERSTÄRKERTEIL

RMS-Dauerleistung bei 1 kHz	2 x 30 W (4Ω)	
beide Kanäle zusammen angesteuert	2 x 27 W (8Ω)	
RMS-Dauerleistung bei 20 Hz ~ 20 kHz	2 x 26 W (4Ω)	
beide Kanäle zusammen angesteuert	2 x 25 W (8Ω)	
RMS-Dauerleistung bei 40 Hz ~ 16 kHz	2 x 26 W (4Ω)	
beide Kanäle zusammen angesteuert	2 x 25 W (8Ω)	
Leistungsbandbreite	7 Hz ~ 50 kHz, -3 dB	
beide Kanäle angesteuert bei 4Ω, 8Ω		
Harmonische Verzerrungen		
Nennleistung bei 1 kHz	0.5% (4Ω, 8Ω)	
Nennleistung bei 20 Hz ~ 20 kHz	0.5% (4Ω, 8Ω)	
Nennleistung bei 40 Hz ~ 16 kHz	0.5% (4Ω, 8Ω)	
-26 dB Ausgangsleistung bei 1 kHz	0.25% (4Ω)	
50 mW Ausgangsleistung bei 1 kHz	0.25% (4Ω)	
Intermodulationsverzerrung		
Nennleistung bei 250 Hz: 8000 Hz=4:1, 4Ω	0.5%	
Nennleistung bei 60 Hz: 7 kHz=4:1, 8Ω	0.5%	
Dämpfungsfaktor	16 (4Ω), 32 (8Ω)	
Eingangsempfindlichkeit & Impedanz		
PHONO	2.5 mV/47 kΩ	
AUX	150 mV/33 kΩ	
PLAYBACK, REC/PLAY Eingang	180 mV/39 kΩ	
PHONO Maximale Eingangsspannungen (1 kHz RMS)	130 mV	
Fremdspannungsabstand		
Nennleistung PHONO	65 dB (IHF, A: 78 dB)	
AUX	80 dB (IHF, A: 95 dB)	
-26 dB Ausgangsleistung	PHONO, AUX 55 dB	
50 mW Ausgangsleistung	PHONO, AUX 55 dB	
Frequenzgang PHONO	RIAA Standardkurve ±0.5 dB	
AUX	20 Hz ~ 20 kHz, ±0.5 dB	
	10 Hz ~ 35 kHz, -1 dB	
Klangregler BÄSSE	50 Hz, +10 dB ~ -10 dB	
HÖHEN	10 kHz, +10 dB ~ -10 dB	
Gehörgerechte Lautstärkekorrektur (Lautstärke bei -30 dB)	50 Hz, +10 dB	
Ausgangsspannungen REC OUT	150 mV	
REC/PLAY Aufnahme	30 mV	
Kanalabweichung (250 Hz ~ 6300 Hz)	±2.0 dB	
Kanaltrennung bei 1 kHz	55 dB	
Kopfhörerpegel und Ausgangsimpedanz	380 mV/330Ω	
Endimpedanz MAIN oder REMOTE	4 ~ 16Ω	
MAIN und REMOTE	8 ~ 16Ω	

### UKW-TUNERTEIL

Empfangsbereich	88 ~ 108 MHz	
Antennenanschluss	300Ω (symmetrisch), 75Ω (asymmetrisch)	
Empfindlichkeit (±40 kHz Hub)	1.9μV (IHF)	
	20μV (IHF, 46 dB Fremdspannungsabstand, 75Ω, STEREO)	
	1.9μV (30 dB Fremdspannungsabstand, 300Ω)	
	1.7μV (26 dB Fremdspannungsabstand, 300Ω)	
	1.5μV (20 dB Fremdspannungsabstand, 300Ω)	
	1.3μV (30 dB Fremdspannungsabstand, 75Ω)	
	1.2μV (26 dB Fremdspannungsabstand, 75Ω)	
	0.9μV (20 dB Fremdspannungsabstand, 75Ω)	
Harmonische Verzerrung	MONO	0.15%
	STEREO	0.3%
Fremdspannungsabstand (±40 kHz Hub)	MONO	58 dB (IHF: 75 dB)
	STEREO	55 dB (IHF: 70 dB)
Frequenzgang	20 Hz ~ 14 kHz, ±1.5 dB	
Selektivität (400 kHz)	65 dB	
Gleichwellen-Selektion	1.0 dB	
Spiegelselektion bei 98 MHz	65 dB	
ZF-Festigkeit bei 98 MHz	80 dB	
Unselektivitätsfestigkeit bei 98 MHz	80 dB	
AM-Unterdrückung	55 dB	
Stereo Übersprechdämpfung	1 kHz	42 dB, 10 kHz 35 dB
Trägerrest	19 kHz	-35 dB, 38 kHz -45 dB
Begrenzung, Einsatzpunkt	1.2μV	
Bandbreite ZF-Verstärker	250 kHz	
UKW-Demodulator	1000 kHz	
Kanalabweichung (250 Hz ~ 6300 Hz)	±1.5 dB	

### MW-TUNERTEIL

Empfangsbereich	525 ~ 1605 kHz
Empfindlichkeit	30μV, 300μV/m
Selektivität	30 dB
Spiegelselektion bei 1000 kHz	45 dB
ZF-Festigkeit bei 1000 kHz	40 dB

### ALLGEMEINE DATEN

Leistungsaufnahme	300 W
Netzspannung umschaltbar (50 Hz/60Hz)	110 V/120 V/220 V/240 V
Abmessungen (B x H x T)	420 x 142 x 295 mm
Gewicht	7.4 kg

## CARACTERISTICS TECHIQUES [DIN 45 500]

Sujet à changement sans préavis.

### SECTION AMPLIFICATEUR

Puissance RMS (continue) de 1 kHz	2 x 30 W (4Ω)	
pour l'ensemble des canaux excités	2 x 27 W (8Ω)	
Puissance RMS (continue) de 20 Hz à 20 kHz	2 x 26 W (4Ω)	
pour l'ensemble des canaux excités	2 x 25 W (8Ω)	
Puissance RMS (continue) de 40 Hz à 16 kHz	2 x 26 W (4Ω)	
pour l'ensemble des canaux excités	2 x 25 W (8Ω)	

Largueur de bande de puissance pour l'ensemble des canaux excités 4Ω, 8Ω	7 Hz ~ 50 kHz, -3 dB	
Distorsion harmonique totale		
pour la puissance mesurée à 1 kHz	0.5% (4Ω, 8Ω)	
pour la puissance mesurée à 20 Hz ~ 20 kHz	0.5% (4Ω, 8Ω)	
pour la puissance mesurée à 40 Hz ~ 16 kHz	0.5% (4Ω, 8Ω)	
pour une puissance mesurée de -26 dB, 1 kHz	0.25% (4Ω)	
pour une puissance mesurée de 50 mW, 1 kHz	0.25% (4Ω)	
Distorsion d'intermodulation		
pour la puissance mesurée à 250 Hz: 8 kHz = 4:1, 4Ω	0.5%	
pour la puissance mesurée à 60 Hz: 7 kHz = 4:1, 8Ω	0.5%	
Facteur d'amortissement	16 (4Ω), 32 (8Ω)	

**Sensibilité & impédance d'entrée**

PHONO	2.5 mV/47 kΩ
AUX	150 mV/33 kΩ
PLAYBACK, REC/PLAY entrée	180 mV/39 kΩ
Voltage d'entrée maximum (PHONO, 1 kHz, RMS)	130 mV

**Signal/bruit**

Pour la puissance nominale	PHONO	65 dB (IHF, A: 78 dB)
	AUX	80 dB (IHF, A: 95 dB)
Pour une sortie de -26dB pour une sortie de 50 mW	PHONO, AUX	55 dB
	PHONO, AUX	55 dB

**Réponse de fréquence**

PHONO	Courbe standard RIAA ±0.5 dB
AUX	20 Hz ~ 20 kHz, ±0.5 dB 10 Hz ~ 35 kHz, -1 dB

**Réglage de la tonalité**

BASS (graves)	50 Hz, +10 dB ~ -10 dB
TREBLE (aigus)	10 kHz, +10 dB ~ -10 dB

Contrôle d'intensité sonore (volume à -30 dB) 50 Hz, +10 dB

Tension de sortie REC OUT 150 mV

REC/PLAY (sortie) 30 mV

Equilibrage de canaux (250 Hz ~ 6300 Hz) ±2.0 dB

Ecart canaux à 1 kHz 55 dB

Niveau des écouteurs et impédance de sortie 380 mV/330Ω

Impédance de charge PRINCIPALE ou ELOIGNEE 4 ~ 16Ω

PRINCIPALE + ELOIGNEE 8 ~ 16Ω

**SECTION TUNER FM**

Gamme de fréquences 88 ~ 108 MHz

Impédance d'antenne 300Ω (symétrique) 75Ω (asymétrique)

Sensibilité (±40 kHz déviation) 1.9μV (IHF, utilisable)

20μV (IHF, signal/bruit 46 dB, 75Ω, STEREO)

1.9μV (Signal/bruit 30 dB, 300Ω)

1.7μV (Signal/bruit 26 dB, 300Ω)

1.5μV (Signal/bruit 20 dB, 300Ω)

1.3μV (Signal/bruit 30 dB, 75Ω)

1.2μV (Signal/bruit 26 dB, 75Ω)

0.9μV (Signal/bruit 20 dB, 75Ω)

**Distorsion harmonique totale**

MONO	0.15%
STEREO	0.3%

**Signal/bruit (±40 kHz déviation)**

MONO	58 dB (IHF: 75 dB)
STEREO	55 dB (IHF: 70 dB)

**Réponse de fréquence**

20 Hz ~ 14 kHz, ±1.5 dB

Sélectivité alternée par canal (400 kHz) 65 dB

Taux de capture 1,0 dB

Rejet d'image (à 98 MHz) 65 dB

Rejet FI (à 98 MHz) 80 dB

Rejet de réponse parasite (à 98 MHz) 80 dB

Suppression AM 55 dB

Séparation stéréophonique 1 kHz 42 dB, 10 kHz 35 dB

Courant porteur de dispersion 19 kHz -35 dB, 38 kHz, -45 dB

Point limite 1.2μV

Largeur de bande Amplificateur FI 250 kHz

Démodulateur FM 1000 kHz

Equilibrage de canaux (250 Hz ~ 6300 Hz) ±1.5 dB

**SECTION TUNER AM**

Gamme de fréquence

525 ~ 1605 kHz

Sensibilité 30μV, 300μV/m

Sélectivité 30 dB

Rejet d'image (à 1000 kHz) 45 dB

Rejet FI (à 1000 kHz) 40 dB

**GENERALITES**

Consommation

300 W

Alimentation (50 Hz/60Hz)

110 V/120 V/220 V/240 V

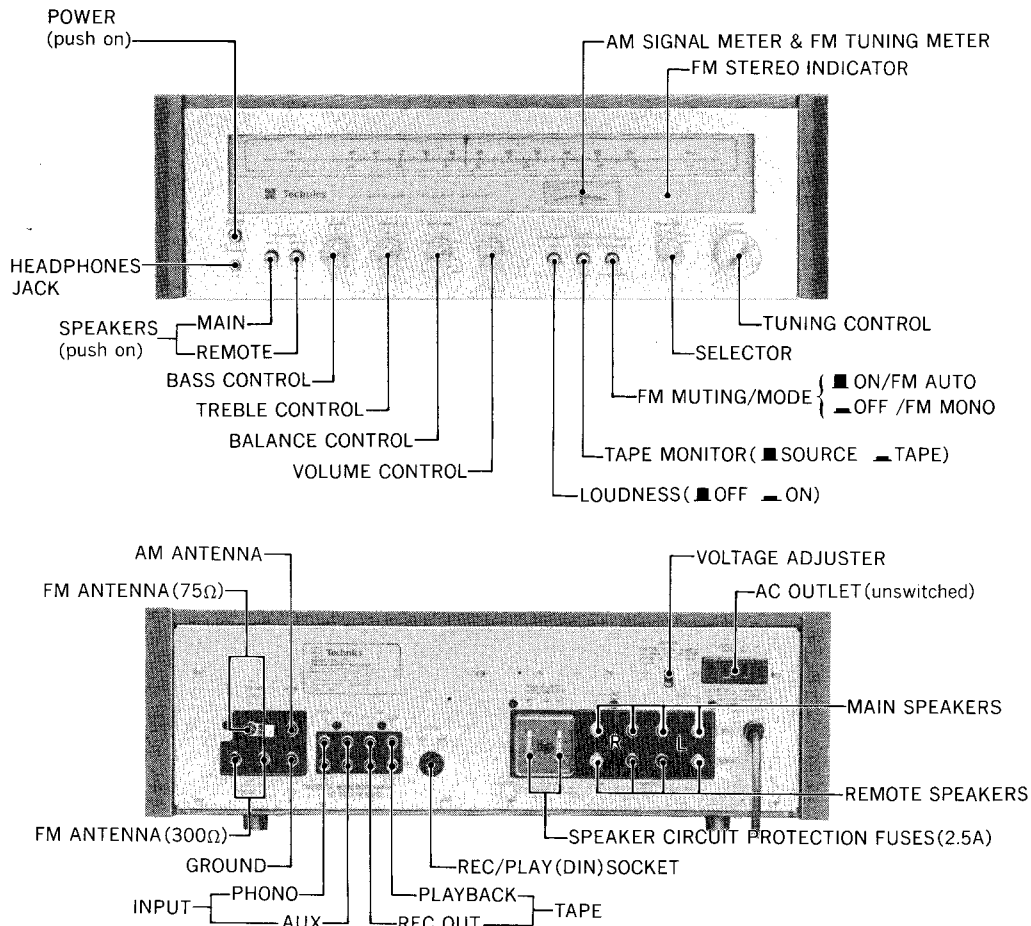
Dimensions (L x H x Pr)

420 x 142 x 295 mm

Poids

7.4 kg

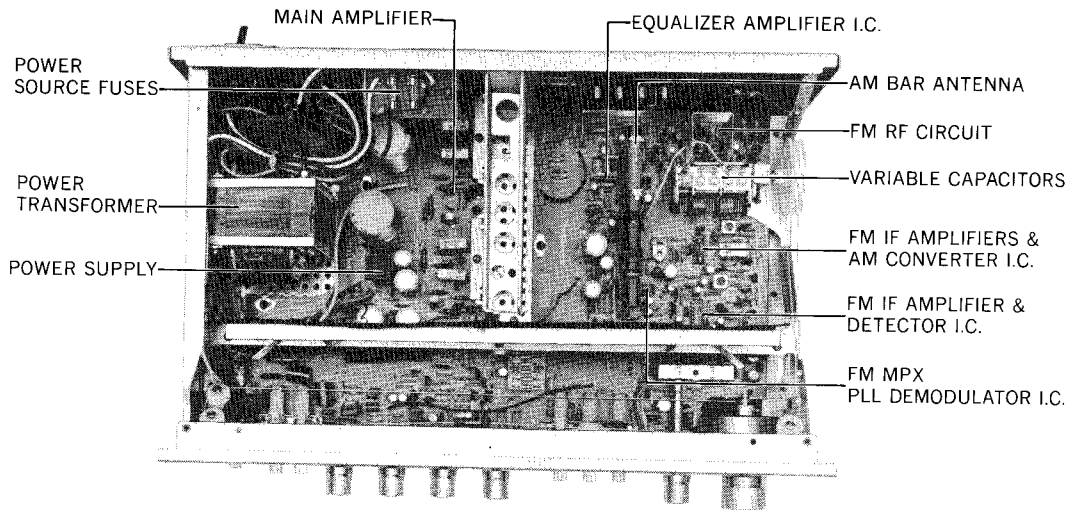
**LOCATION OF CONTROLS**



\* This photo shows only the products for [XA].

\* The products for other destinations except [XA] are not equipped with AC outlet.

\* For further remark, the products for [XAL] are not provided with voltage adjuster and AC outlet.



## ■ SPEAKER CIRCUIT PROTECTION FUSES

The unit is provided with the speaker circuit protection fuses at the right and left channels respectively. The fuse is to prevent the power transistor from destruction, should the speaker terminals be short-circuited.

Accordingly, if the unit fails to function upon completion of the speaker connections, check the speaker protection fuses first of all for possible blowing.

## ■ ALIGNMENT POINTS

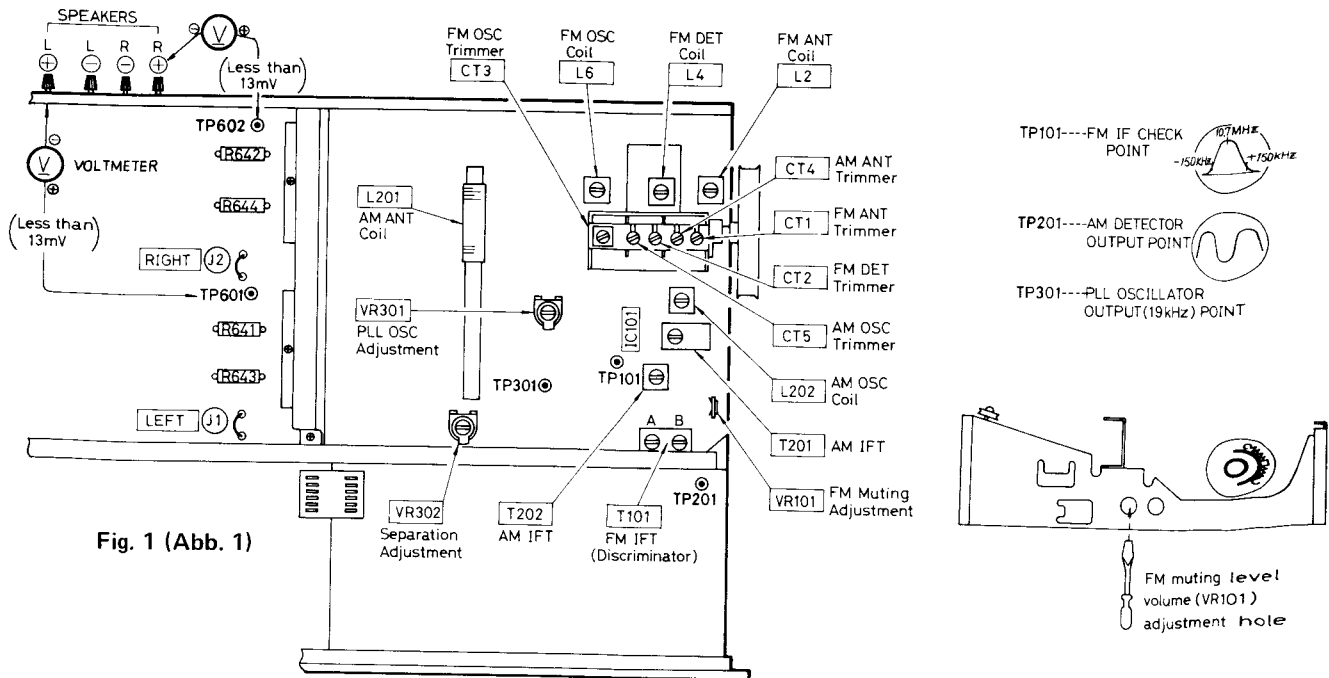


Fig. 1 (Abb. 1)

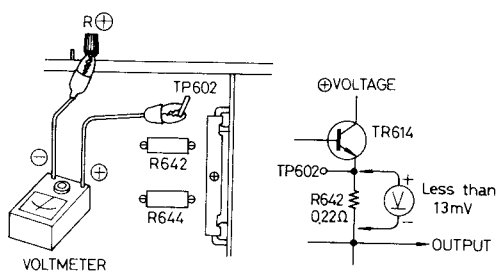


Fig. 2 (Abb. 2)

Voltage check method  
(Stromspannung-prüfmethode)  
Méthode de vérification  
de tension

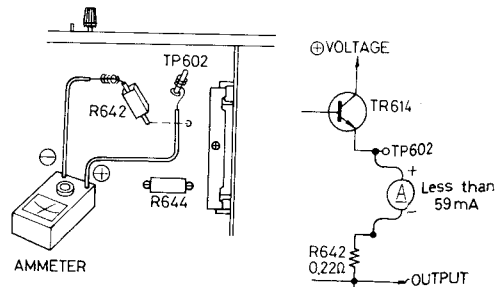


Fig. 3 (Abb. 3)

Current check method  
(Stromstärke-Prüfmethode)  
Méthode de vérification  
de courant

## ■ TO REMOVE CABINET

(Products for [XA] and [XAL] only)

1. Remove four (4) cabinet-mounting screws (① ~ ④), as shown in fig. 4.
2. Remove cabinet from chassis.
3. When installing the front panel, insert the cabinet edge into groove of front panel as shown in fig. 5.

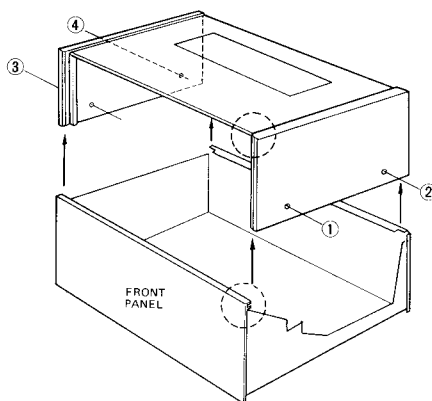


Fig. 4

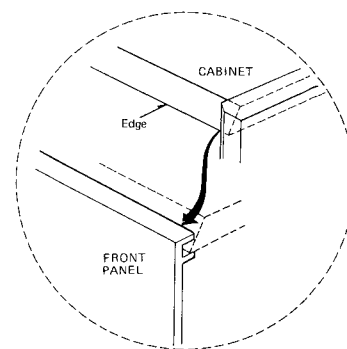


Fig. 5

## ■ TO REMOVE BOTTOM BOARD

1. Remove eight (8) bottom board-mounting screws (① ~ ⑧), as shown in fig. 6.
2. When the bottom board is to be removed for repair, never remove any screws other than set screws for the bottom board. Energization of the unit with screws other than the bottom board set screws removed may result in troubles in the circuit.

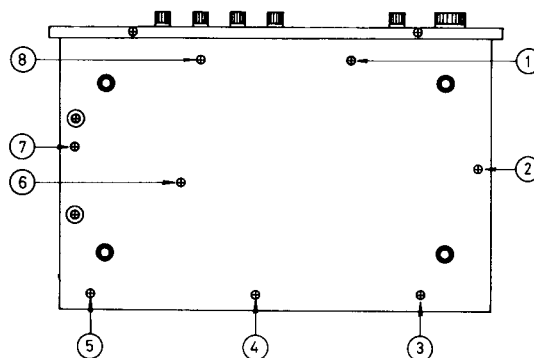


Fig. 6

## ■ ALIGNMENT INSTRUCTIONS... MAIN AMPLIFIER CIRCUIT

- When the power transistor is replaced, be sure to apply silicone compound (or equivalent thermal diffusion agent) onto the mica plate, and at the same time confirm the idling current of the power transistor. (measure voltage across the emitter resistance)

### Ⓐ For adjustment with DC voltmeter

1. Turn the speaker switch "OFF".
2. Connect the DC voltmeter as shown in "Alignment Points".
3. If the reading is under 13mV approximately several minutes after turning ON the power supply, the circuit is "OK". On the other hand, if the reading is over 13mV, cut off the lead wire for (J1) in the case of left channel (The lead wire for (J2) in the case of right channel).
4. Should the reading not fall under 13mV even when the lead wire has been cut off, there is something wrong with the circuit, and therefore, check the power source circuit or main amplifier circuit.

NOTE: When cutting off the lead wire, cut off the same at the root.

### Ⓑ Current should be checked only when adjustment is made with a tester. (measuring instrument incapable of measuring voltage in mV unit.)

1. Turn OFF the power supply for the set.
2. Connect the ammeter as shown in Fig. 3 (Case of right channel).
3. After ensuring that the ammeter will not come off, turn ON the power supply.
4. If the reading is under 59mA after several minutes (But, when nothing resistance of internal resistor by ammeter) the circuit is "OK". If over 59mA, cut off the lead wire for (J1) in the case of left channel (The lead wire for (J2) in the case of right channel).
5. If the reading does not fall under 59mA, there is something wrong with the circuit.

NOTE: The adjustment may be made either by Ⓐ or by Ⓑ method. (We recommend the method Ⓐ where possible). Figs. 2 and 3 are related to the case of right channel.

# ■ ALIGNMENT INSTRUCTIONS ... FM AND AM TUNER CIRCUIT

**NOTE** For adjustment, proceed with the bottom board attached as it is.

Notes:						
1. Selector switch	..... {AM (AM Alignment) FM (FM Alignment)}	5. Speakers switch	..... MAIN and REMOTE to ON			
2. FM Muting / mode switch	..... on/FM auto	6. Volume control	..... Variable			
3. Maintain line voltage at rated voltage.		7. Output of signal generator should be no higher than necessary to obtain an output reading.				
4. Tape monitor switch	..... Source	8. 300Ω FM dummy antenna	..... Refer to fig. 7.			
AM/FM SIGNAL GENERATOR		DIAL SETTING	INDICATOR (VTVM or SCOPE) (DISTORTION METER)	ADJUSTMENT POINTS	REMARKS	
CONNECTION	FREQUENCY					
<b>AM ALIGNMENT</b>						
1	AM signal generator high side through 0.001μF to AM antenna trimmer terminal.	455kHz (30% Mod. with 400Hz) [Set for England to 470kHz]	Point of non-interference	Connect VTVM or scope to speaker terminal(L or R) or TP201 of set.	T201 (1st IFT) T202 (2nd IFT) Adjust for maximum output.	
2	Fashion loop of several turns of wire and radiate signal into loop of receiver.	600kHz (30% Mod. with 400Hz)	600kHz	Connect VTVM or scope to speaker terminal(L or R) or TP201 of set.	L202 (OSC Coil) L201 (ANT Coil) Adjust for maximum output. Adjust L201 by moving coil bobbin along ferrite core.	
3	Fashion loop of several turns of wire and radiate signal into loop of receiver.	1500kHz (30% Mod. with 400Hz)	1500kHz	Connect VTVM or scope to speaker terminal (L or R) or TP201 of set.	CT5 (OSC Trimmer) CT4 (ANT Trimmer) Adjust for maximum output. Repeat steps (2) and (3).	
<b>FM IF ALIGNMENT</b>						
4		No signal	Point of non-interference	FM Tuning meter of set	T101 (Discr IFT) Primary [A] Adjust for center of tuning meter indication.	
<b>FM RF ALIGNMENT</b>						
5	Connect FM signal generator to 300Ω FM antenna terminals through FM dummy antenna.	90MHz (100% Mod. with 400Hz)	90MHz	Connect VTVM or scope to speaker terminal(L or R) or TP101 of set.	L6 (OSC Coil) L4 (DET Coil) L1 (ANT Coil) Adjust for maximum output.	
6	Connect FM signal generator to 300Ω FM antenna terminals through FM dummy antenna.	106MHz (100% Mod. with 400Hz)	106MHz	Connect VTVM or scope to speaker terminal(L or R) or TP101 of set.	CT3 (OSC Trimmer) CT2 (DET Trimmer) CT1 (ANT Trimmer) Adjust for maximum output. Repeat steps (5) and (6).	
<b>FM MONO DISTORTION ALIGNMENT</b>						
7	Connect FM signal generator to 300Ω FM antenna terminals through FM dummy antenna.	100MHz (100% Mod. with 400Hz)	100MHz	Connect distortion meter to speaker terminal (L) of set.	T101 (Discr IFT) Secondary [B] Tuning at 100MHz and adjust for minimum distortion. Repeat steps (4) and (7).	
<b>FM MUTING LEVEL ALIGNMENT</b>						
8	Connect FM signal generator to 300Ω FM antenna terminals through FM dummy antenna. Apply 16dB (6.3μV) to set. SG indication are 28dB(IHF)	100MHz (100% Mod. with 400Hz)	100MHz	Connect VTVM or scope to speaker (L or R) terminal of set.	VR101 Muting switch to "on" Adjust so that output can be obtained.	
<b>FM MPX PILOT ALIGNMENT</b>						
Using a frequency counter			Using alternate system			
9	1. 98MHz Non-modulated mono signal applied to set. 2. FM Muting/Mode switch to "on/FM auto". 3. Connect frequency counter to <b>TP301</b> through resistor (100 kΩ). 4. Adjust <b>VR301</b> to 19kHz ±30Hz.			1. Apply stereo signal from generator or stereo station to receiver. 2. Adjust <b>VR301</b> until stereo indicator lights up. Cement arm of <b>VR301</b> as shown in fig. 8.		
<b>STEREO SEPARATION ALIGNMENT</b>						
Notes:						
1. Stereo modulator		..... •Connect stereo modulator output to EXT. MOD. terminal of signal generator. • Internal OSC ..... 1kHz •Pilot signal modulation ..... 10%				
2. FM signal generator		..... •Frequency approximately 98MHz. •Output level to 72dB (IHF) •Modulation mode to FM				
3. Band selector switch		..... FM		4. FM Muting / mode switch ..... on/FM auto		
FM SIGNAL GENERATOR CONNECTION	STEREO MODULATOR MODE AND MOD. RATE	INDICATOR (VTVM or SCOPE)	ADJUSTMENT POINT	REMARK		
10	300Ω FM antenna terminals through FM dummy antenna	L (and R) 30% Modulation	VR302	Connect VTVM or scope to output terminals through low pass filter. Refer to fig. 9. Adjust for minimum right (and left) output		

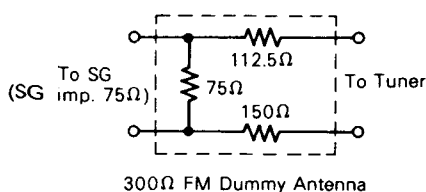
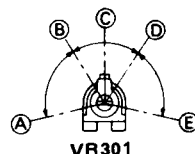
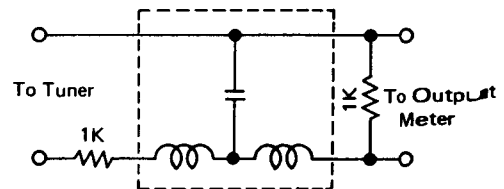


Fig. 7 (Abb. 7)



A - B, D - E: Stereo OFF Position  
B - D: Stereo ON Position (Indicator Lighting)  
C: Adjust Point of Pilot Circuit.

Fig. 8 (Abb. 8)



LOW PASS FILTER  
( $f_c = 15\text{kHz} \sim 19\text{kHz}$ )

Fig. 9 (Abb. 9)

## ■ ABGLEICHANWEISUNGEN (Verstärker teil)

- Wenn der Netztransistor ersetzt wird, ist zu beachten, daß eine Siliziumverbindung (oder ähnliches Thermodiffusionsmittel) auf die Glimmerplatte gegeben wird, und zur gleichen Zeit der Blindstrom des Netztransistors festgestellt wird. (Die Spannung über den Emitterwiderstand messen.)

### Ⓐ Zum Justieren mit dem Gleichstrom-Voltmeter

1. Drehen Sie den Lautsprecherschalter auf "OFF".
2. Schließen Sie den Gleichstrom-Voltmeter an, wie in Abb. 7 des Justierpunkte-Diagramms gezeigt.
3. Falls die Anzeige weniger als ca. 13 mV beträgt, so ist die Schaltung in Ordnung. Falls aber die Anzeige mehr als 25 mV beträgt, schneiden Sie den Leitungsdraht für ① im Falle des linken Kanals weg (oder den Leitungsdraht für ② im Falle des rechten Kanals).
4. Falls die Anzeige auch nach Unterbrechen des Leitungsdrahtes nicht unter 13 mV fällt, so ist die Schaltung nicht in Ordnung, und die Stromquellschaltung und die Hauptverstärkerschaltung müssen überprüft werden.

ANMERKUNG: Falls das Wegschneiden des Leitungsdrahtes nötig ist, schneiden Sie diesen nahe am Anschlußpunkt weg.

### Ⓑ Die Stromstärke sollte nur geprüft werden, wenn die Justierung mit einem Prüfgerät vorgenommen wird. (Mit dem Meßinstrument kann die Spannung nicht in mV gemessen werden.)

1. Schalten Sie die Stromzufuhr zum Gerät aus.
2. Schließen Sie das Ammeter an, wie in Abb. 3 gezeigt.
3. Nachdem Sie sich vergewissert haben, daß das Ammeter solide befestigt ist, schalten Sie die Stromzufuhr ein.
4. Falls die Anzeige einige Minuten nach dem Einschalten weniger als 59 mA beträgt, so ist die Schaltung in Ordnung. Liegt die Anzeige über 59 mA, schneiden Sie den Leitungsdraht für ① im Falle des linken Kanals weg. (oder den Leitungsdraht für ② im Falle des rechten Kanals).
5. Falls die Anzeige auch dann nicht unter 59 mA fällt, so ist die Schaltung defekt.

ANMERKUNG: Die Justierung kann entweder nach Methode Ⓐ oder Ⓑ vorgenommen werden. (Wo möglich, empfehlen wir Methode Ⓐ. Die Abbildungen 2 und 3 beziehen sich auf den linken Kanal.)

## ■ INSTRUCTIONS D'ALIGNEMENT (Partie amplificateur)

- Lorsque le transistor de puissance est remplacé, s'assurer d'appliquer le composé de silicone (ou un agent de diffusion thermique équivalent) sur la plaque de mica et confirmer en même temps le courant dé Watté du transistor de puissance. (Mesurer la tension à travers la résistance de l'émetteur).

### Ⓐ Pour la mise au point avec un voltmètre C.C.

1. Tourner le commutateur de haut-parleur sur "OFF".
2. Connecter le voltmètre C.C. comme dans la Fig. 1 du schéma des endroits de vérification.
3. Si la lecture est approximativement inférieure à 13 mV plusieurs minutes après la mise en marche de l'alimentation, le circuit fonctionne correctement. Par contre, si la lecture est au-delà de 13 mV, couper le fil de jonction pour ① dans le cas du canal Gauche [L], (le fil de jonction pour ②, dans le cas du canal Droite [R]).
4. Si la lecture ne descend pas au-dessous de 25 mV même lorsque le fil de jonction a été coupé, cela signifie qu'il y a quelque chose d'incorrect dans le circuit et par conséquent, il sera nécessaire de vérifier le circuit d'alimentation ou le circuit d'amplification principal.

REMARQUE: Lorsqu'on coupe le fil de jonction, le couper à l'extrémité de sa racine.

### Ⓑ Le courant ne devra être vérifié seulement que lorsque la mise au point est faite avec un appareil contrôleur. (Appareil de mesure incapable d'une tension de mesure dans un appareillage de mV).

1. Couper l'alimentation de l'appareillage.
2. Brancher l'ampèremètre, comme il est montré à la Fig. 3.
3. Après s'être assuré que l'ampèremètre n'est pas débranché, mettre en marche l'alimentation.
4. Si la lecture est inférieure à 59 mA après plusieurs minutes, le circuit fonctionne correctement. Si par contre la lecture va au-delà de 59 mA, couper le fil de jonction pour ① dans le cas du canal Gauche [L], (le fil de jonction pour ②, dans le cas du canal Droite [R]).
5. Si la lecture ne descend pas au-dessous de 59 mA, cela signifie qu'il y a quelque chose de défectueux dans le circuit.

REMARQUE: La mise au point doit être faite soit avec la méthode Ⓐ, soit avec la méthode Ⓑ. (Si c'est possible, nous recommandons la méthode Ⓐ. Les Figures 2 et 3 se rapportent au cas du canal Gauche [L].)

## ■ ABGLEICHANWEISUNGEN (FM/AM Tunerteil)

(Für Deutschland)

ANMERKUNGEN:		SKALENZEIGEREIN- STELLUNG DES TUNER		ANZEIGE (Röhrevoltmeter oder Oszillograph oder Klirrfaktor- Meßgerät)	ABGLEICH- PUNKTE	BEMERKUNGEN
ANSCHLUSS	FREQUENZ					
<b>AM-ABGLEICH</b> 1. Heißes Ende des Meßsender über einen 0,001µF Kondensator an den AM Antenneneingang schließen. Kaltes Ende an Masse.						
455kHz (400Hz Modulat., 100%)	Kein Empfang			Röhrevoltmeter oder Oszillograph	T201 (1. IFT) T202 (2. IFT)	Auf max. Ausgang abgleichen.
2. Das Meßsendersignal induktiv in den Tuner speisen. Hierzu behelfsmäßig eine Rahmenantenne fertigen und an den Eingang schließen.						
600kHz (400Hz Modulat., 30%)	600kHz			Röhrevoltmeter oder Oszillograph über den Lautsprecher schließen.	L202 (Osc. Spule) L201 (Ant. Spule)	Auf max. Ausgang abgleichen. L201 wird abgeglichen, indem die Spule am Ferritstab entlanggeschoben wird.
3. Das Meßsendersignal induktiv in den Tuner speisen. Hierzu behelfsmäßig eine Rahmenantenne fertigen und an den Eingang schließen.						
1500kHz (400Hz Modulat., 30%)	1500kHz			Röhrevoltmeter oder Oszillograph über den Lautsprecher schließen.	CT5 (Osc. Trimmer) CT4 (Ant. Trimmer)	Auf max. Ausgang abgleichen. Schritte (2) und (3) sind zu wiederholen.
<b>UKW ZF-ABGLEICH</b> 4. Kein Signal. Kein Empfang. Abstimmmanzeige. T101 (Diskriminator IFT) [A]. Den Abstimmungsanzeiger auf den zentrum Wert einstellen.						
<b>UKW HF-ABGLEICH</b> 5. Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.						
87,5MHz (400Hz Modulat., 100%)	87,5MHz (Frequenz min.)			Röhrevoltmeter oder Oszillograph über den Lautsprecher schließen.	L6 (Osc. Spule)	Auf max. Ausgang abgleichen.
6. Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.						
90MHz (400Hz Modulat., 100%)	90MHz			Röhrevoltmeter oder Oszillograph über den Lautsprecher schließen.	L4 (Det. Spule) L2 (Ant. Spule)	Auf max. Ausgang abgleichen.
7. Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.						
106MHz (400Hz Modulat., 100%)	106MHz			Röhrevoltmeter oder Oszillograph über den Lautsprecher schließen.	CT3 (Osc. Trimmer) CT2 (Det. Trimmer) CT1 (Ant. Trimmer)	Auf max. Ausgang abgleichen. Schritte (5), (6) und (7) sind zu wiederholen.
<b>ABGLEICH AUF MIN. VERZERRUNG IN STELLUNG UKW-MONO</b> 8. Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.						
100MHz (400Hz Modulat., 100%)	100MHz			Klirrfaktor-Meßbrücke über den Lautsprecher schließen.	T101 (Diskriminator IFT) [B]	Auf min. Verzerrung auf der Klirrfaktor-Meßbrücke abgleichen. Schritt (4) und (8) sind zu wiederholen.
<b>UKW-MUTING-ABGLEICH</b> 9. Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. Meßsender auf 16 dB (6,3µV) einstellen.						
100 MHz (400 Hz Modulat., 100%)	100 MHz			Röhrevoltmeter oder Oszillograph über den Lautsprecher schließen.	VR101	Muting Schalter auf "on". So einstellen, daß ein Ausgang zu vernehmen ist.
<b>UKW-STEREO-DEKODER-ABGLEICH</b> Unter Verwendung eines Zählers 1. Unmoduliertes Mono-Signal 100 MHz in das Gerät speisen. 2. FM Muting-Schalter auf "on/FM auto" stellen. 3. Zähler über einen Widerstand 100K ohm an TP301 schließen. 4. VR301 auf 19kHz ±30Hz einstellen. Alternativ-Meßmethode 1. Stereosignal entweder von einem Stereogenerator oder einem Sender einspeisen. 2. VR301 so einstellen, bis die Stereolampe auf leuchtet. Schleifer von VR301 sichern, wie in Abb. 8 gezeigt.						
<b>KANALTRENNUNG-ABGLEICH</b> ANMERKUNGEN: 1. Stereo-Modulator . . . . . Ausgang des Stereo-Modulators an den Eingang EXT MOD des Meßsenders schließen. Eingebauter Oszillator . . . . . 1kHz / Pilotton-Modulation . . . . . 10% 2. UKW Meßsender . . . . . Auf etwa 100MHz einstellen. Ausgangspegel 72dB (IHF). Modulation FM 3. Bereichsschalter . . . . . FM 4. Muting/ Mode-Schalter . . . . . on/FM auto						
ANSCHLUSS DES UKW MESSENDERS	STEREO MODULATOR MODE oder MOD. RATE			ANZEIGE (Röhrevoltmeter oder Oszillograph)	ABGLEICH- PUNKTE	ANMERKUNGEN
Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	L (und R) Modulation 30%			Röhrevoltmeter oder Oszillograph über Tiefpassfilter an den Tuner-Ausgang schließen. Vgl. Abb. 9.	VR302	Auf min. Ausgang rechter (und linker) abgleichen.

# ABGLEICHANWEISUNGEN (FM/AM Tunerteil)

(Für Deutschland)

AM/UKW MESSENDER oder WOBELGENERATOR		SKALENZEIGEREIN- STELLUNG DES TUNER	ANZEIGE (Röhrenvoltmeter oder Oszillograph oder Klirrfaktor- Meßgerät)	ABGLEICH- PUNKTE	BEMERKUNGEN	
<b>AM-ABGLEICH</b>						
1	Heißes Ende des Meßsender über einen 0,001µF Kondensator an den AM Antenneneingang schließen. Kaltes Ende an Masse	455kHz (400Hz Modul., 100%)	Kein Empfang	Röhrenvoltmeter oder Oszillograph	T201 (1. IFT) T202 (2. IFT)	Auf max. Ausgang abgleichen.
2	Das Meßsendersignal induktiv in den Tuner speisen. Hierzu behelfsmäßig eine Rahmenantenne fertigen und an den Eingang schließen.	600kHz (400Hz Modul., 30%)	600kHz	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	L202 (Osc. Spule) L201 (Ant. Spule)	Auf max. Ausgang abgleichen. L201 wird abgeglichen, indem die Spule am Ferritstab entlanggeschoben wird.
3	Das Meßsendersignal induktiv in den Tuner speisen. Hierzu behelfsmäßig eine Rahmenantenne fertigen und an den Eingang schließen.	1500kHz (400Hz Modul., 30%)	1500kHz	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	CT5 (Osc. Trimmer) CT4 (Ant. Trimmer)	Auf max. Ausgang abgleichen. Schritte (2) und (3) sind zu wiederholen.
<b>UKW ZF-ABGLEICH</b>						
4		Kein Signal	Kein Empfang	Abstimmmanzeige.	T101 (Diskriminator IFT) [A]	Den Abstimmungsanzeiger auf den zentrum Wert einstellen.
<b>UKW HF-ABGLEICH</b>						
5	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	87,5MHz (400Hz Modul., 100%)	87,5MHz (Frequenz min.)	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	L6 (Osc. Spule)	Auf max. Ausgang abgleichen.
6	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	90MHz (400Hz Modul., 100%)	90MHz	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	L4 (Det. Spule) L2 (Ant. Spule)	Auf max. Ausgang abgleichen.
7	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	106MHz (400Hz Modul., 100%)	106MHz	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	CT3 (Osc. Trimmer) CT2 (Det. Trimmer) CT1 (Ant. Trimmer)	Auf max. Ausgang abgleichen Schritte(5), (6) und (7) sind zu wiederholen.
<b>ABGLEICH AUF MIN. VERZERRUNG IN STELLUNG UKW-MONO</b>						
8	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	100MHz (400Hz Modul., 100%)	100MHz	Klirrfaktor-Meßbrücke über den Lautsprecher schließen.	T101 (Diskriminator IFT) [B]	Auf min. Verzerrung auf der Klirrfaktor-Meßbrücke abgleichen Schritt (4) und (8) sind zu wiederholen.
<b>UKW-MUTING-ABGLEICH</b>						
9	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. Meßsender auf 16 dB (6,3µV) einstellen.	100 MHz (400 Hz Modul., 100%)	100 MHz	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	VR101	Muting Schalter auf "on". So einstellen, daß ein Ausgang zu vernehmen ist.
<b>UKW-STEREO-DEKODER-ABGLEICH</b>						
Unter Verwendung eines Zählers			Alternativ-Meßmethode			
10	1. Unmoduliertes Mono-Signal 100 MHz in das Gerät speisen. 2. FM Muting-Schalter auf "on/FM auto" stellen. 3. Zähler über einen Widerstand 100k ohm an TP301 schließen. 4. VR301 auf 19kHz ±30Hz einstellen.			1. Stereosignal entweder von einem Stereogenerator oder einem Sender einspeisen. 2. VR301 so einstellen, bis die Stereolampe auf leuchtet. Schleifer von VR301 sichern, wie in Abb. 8 gezeigt.		
<b>KANALTRENNUNG-ABGLEICH</b>						
Anmerkungen: 1. Stereo-Modulator . . . . . Ausgang des Stereo-Modulators an den Eingang EXT MOD des Meßsenders schließen. Eingebauter Oszillator . . . . . 1kHz / Pilotton-Modulation . . . . . 10% 2. UKW Meßsender . . . . . Auf etwa 100MHz einstellen. Ausgangspegel 72dB (IHF). Modulation FM 3. Bereichsschalter . . . . . FM 4. Muting/ Mode-Schalter . . . . . on/FM auto						
11	ANSCHLUSS DES UKW MESSENDERS	STEREO MODULATOR MODE oder MOD. RATE	ANZEIGE (Röhrenvoltmeter oder Oszillograph)	ABGLEICH- PUNKTE	ANMERKUNGEN	
	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	L (und R) Modulation 30%	Röhrenvoltmeter oder Oszillograph über Tiefpassfilter an den Tuner-Ausgang schließen. Vgl. Abb. 9.	VR302	Auf min. Ausgang rechter (und linker) abgleichen.	

# INSTRUCTIONS DAIGNEMENT (Partie tuner FM/AM)

AM/FM GENERATEUR		AIGUILLE SUR LE CADRAN	INDICATEUR (VOLTMETRE ELECTRONIQUE OSCILSCOPE OU DISTORSIONMETRE)	POINTS DE REGLAGE	OBSERVATIONS	
<b>ALIGNEMENT AM</b>						
1	Côté chaud, à travers 0,001µF, sur le trimmer de l'antenne AM, commutateur an shâssis	455kHz (modulé à 30% par 400Hz)	Point sans signal	T201 (1 transfo FI) T202 (2 transfo FI)	Régler au maximum de signal de sortie.	
2	Faire une boucle de quelques tours et rayonner le signal dans le cadre de l'ampli-tuner.	600kHz (modulé à 30% par 400Hz)	600kHz	L202 (bobine OSC) L201 (bobine ANT)	Régler au maximum de signal de sortie. Régler L201 en déplaçant la bobine le long du noyau de ferrite.	
3	Faire une boucle de quelques tours et rayonner le signal dans le cadre de l'ampli-tuner.	1500kHz (modulé à 30% par 400Hz)	1500kHz	CT5 (trimmer OSC) CT4 (trimmer ANT)	Régler au maximum de signal de sortie. Recommencez les étapes (2) et (3).	
<b>ALIGNEMENT FI-FM</b>						
4		Sans signal	point sans signal	Indicateur d'accord de l'appareil	T101 (Transfo FI discr.) [A]	Régler pour atteindre position médiane sur l'indicateur d'accord.
<b>ALIGNEMENT RF-FM</b>						
5	Branchez sur la prise d'antenne FM à travers une antenne fictive FM.	90MHz (modulé à 100% par 400Hz)	90MHz	Branchez un voltmètre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	L6 (bobine OSC) L4 (bobine DET) L2 (bobine ANT)	Régler au maximum de signal de sortie.
6	Branchez sur la prise d'antenne FM à travers une antenne fictive FM.	106MHz (modulé à 100% par 400Hz)	106MHz	Branchez un voltmètre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	CT3 (trimmer OSC) CT2 (trimmer DET) CT1 (trimmer ANT)	Régler au maximum de signal de sortie. Recommencez les étapes (5) et (6).
<b>REGLAGE DE LA DISTORSION FM EN MONO</b>						
7	Branchez sur la prise d'antenne FM à travers une antenne fictive FM.	100MHz (modulé à 100% par 400Hz)	100MHz	Branchez un distorsio mètre sur les bornes de haut-parleur de l'appareil.	T101 (Transfo FI discr.) [B]	Régler au minimum d'indication du distorsio-mètre. Recommencez les étapes (4) et (7).
<b>REGLAGE DU SEUIL DU SILENCIEUX D'ACCORD</b>						
8	Branchez sur la prise d'antenne FM à travers une antenne fictive FM. Niveau de sortie du générateur 16 dB (6,3µV).	100 MHz (modulé à 100% par 400Hz)	100 MHz	Branchez un voltmètre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	VR101	Commutateur de silencieux sur "on". Régler pour obtenir une lecture en sortie.
<b>ALIGNEMENT DU PILOTE MULTIPLEX FM</b>						
Avec un fréquencemètre			Par un autre système			
9	1. Signal mono 100MHz non modulé appliqué à l'appareil. 2. Commutateur de silencieux sur "on/FM auto". 3. Branchez le fréquencemètre sur TP301 à travers une résistance de 100kΩ. 4. Régler VR301 sur 19kHz ± 30Hz.			1. Appliquez à l'appareil un signal stéréo provenant d'un générateur ou de la réception d'un émetteur. 2. Régler VR301 jusqu'à ce que l'indicateur de stéréophonie s'allume. Collez le curseur de VR301 comme indiqué sur la fig. 11.		
<b>REGLAGE DE LA SEPARATION DES CANAUX</b>						
Notes: 1. Modulateur stéréo. . . . . Branchez sa sortie sur la prise EXT. MOD. du générateur. OSC interne . . . . . 1kHz Modulation du signal pilote . . . . . 10% 2. Générateur de signal . . . . . Fréquence env. 100MHz, niveau de sortie 72dB (IHF), genre de modulation sur FM. 3. Commutateur de gamme . . . . . FM 4. Commutateur de silencieux . . . . . on /FM auto						
10	BRANCHEMENT DU GENERATEUR DE SIGNAL	MODE DU MODULATEUR STEREO ET TAUX DE MODULATION	INDICATEUR (VOLTMETRE ELECTRONIQUE OU OSCILSCOPE)	POINTS DE REGLAGE	OBSERVATIONS	
	Borne d'antenne FM à travers antenne fictive.	Gauche (et droite) à 30% de modulation.	Sur les bornes de haut-parleur à travers un filtre passe-bas, voir fig. 12.	VR302	Régler au minimum de sortie droite(et gauche)	

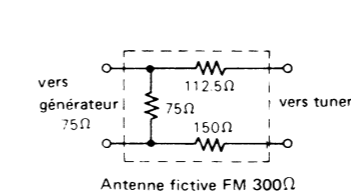


Fig. 10

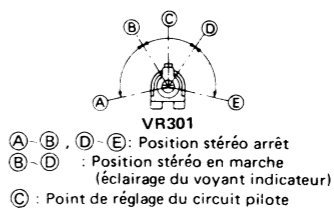


Fig. 11

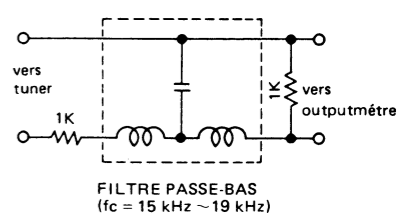
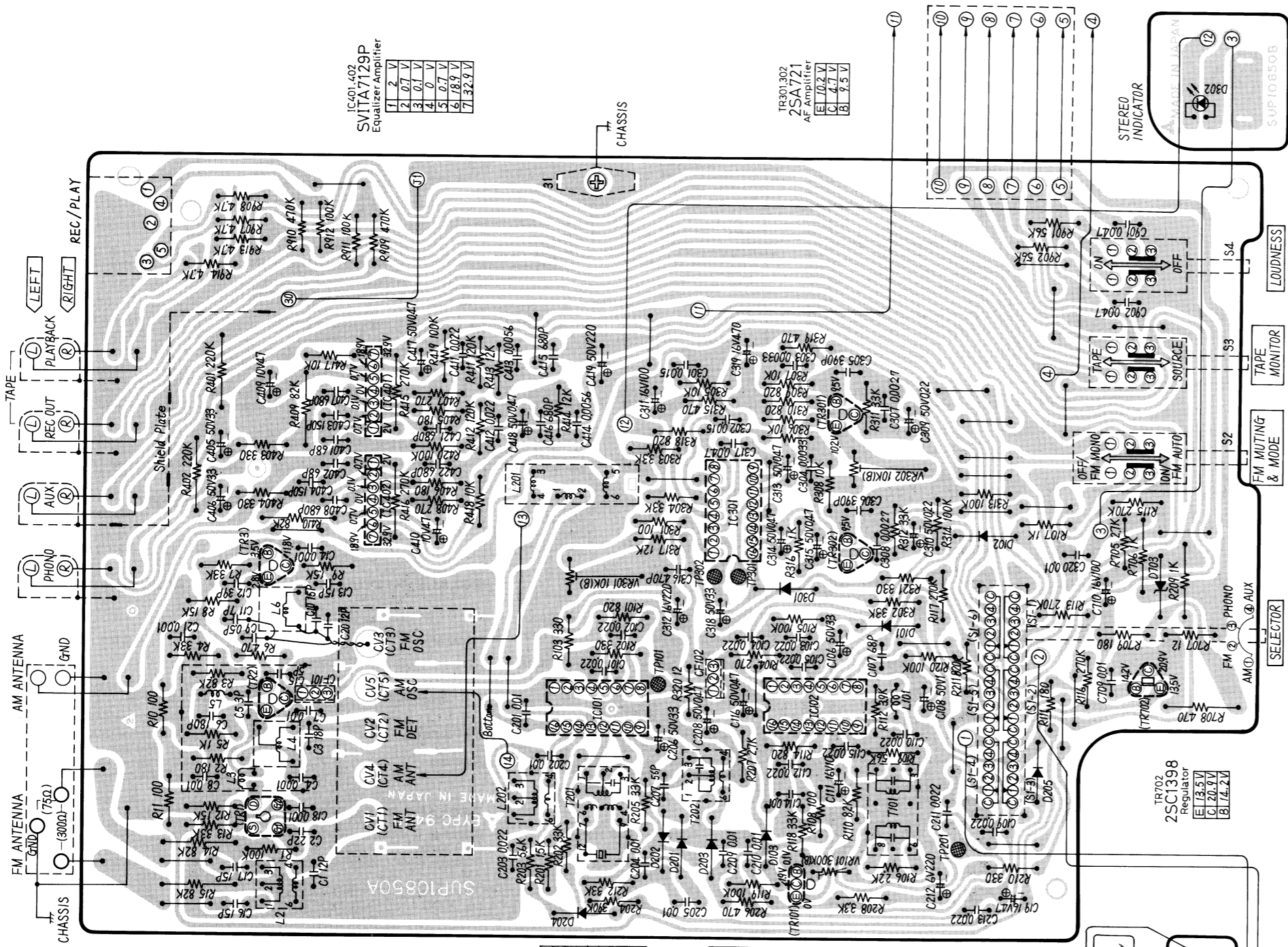


Fig. 12



# Printed Circuit Board ... FM/AM Tuner & Equalizer Circuit

1 2 3 4 5 6



TR1	
D	0.65V
S	0.0V
B1	4.1V
B2	0.0V

3SK40  
FM RF Amplifier

TR2	
E	1.5V
C	1.1V
B	2.1V

2SC1047  
FM Mixer

TR3	
E	2.8V
C	1.18V
B	3.5V

2SC1675  
FM Oscillator

IC401.402	
SV1TA7129P	
Equalizer Amplifier	
1	2.0V
2	0.7V
3	0.1V
4	0.0V
5	0.7V
6	1.8V
7	3.2V

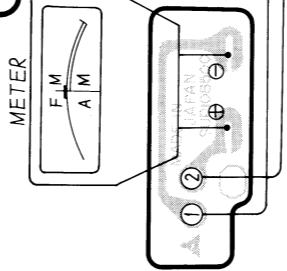
IC101	
AN217	
FM 1st.2nd Amplifier	
FM	AM
1	0.0V
2	0.0V
3	0.5V
4	8.2V
5	1.1V
6	1.1V
7	1.1V
8	7.9V

IC102	
AN377	
FM IF Amp & FM Detector	
MUT	MUT
OFF	ON
1	2.1V
2	2.1V
3	2.1V
4	0.0V
5	5.8V
6	5.8V
7	6.0V
8	5.8V

IC301	
AN363	
FM MPX	
FM	FM
MONO	STEREO
1	1.3V
2	3.1V
3	3.1V
4	0.5V
5	7.5V
6	7.03V
7	0.0V
8	1.4V

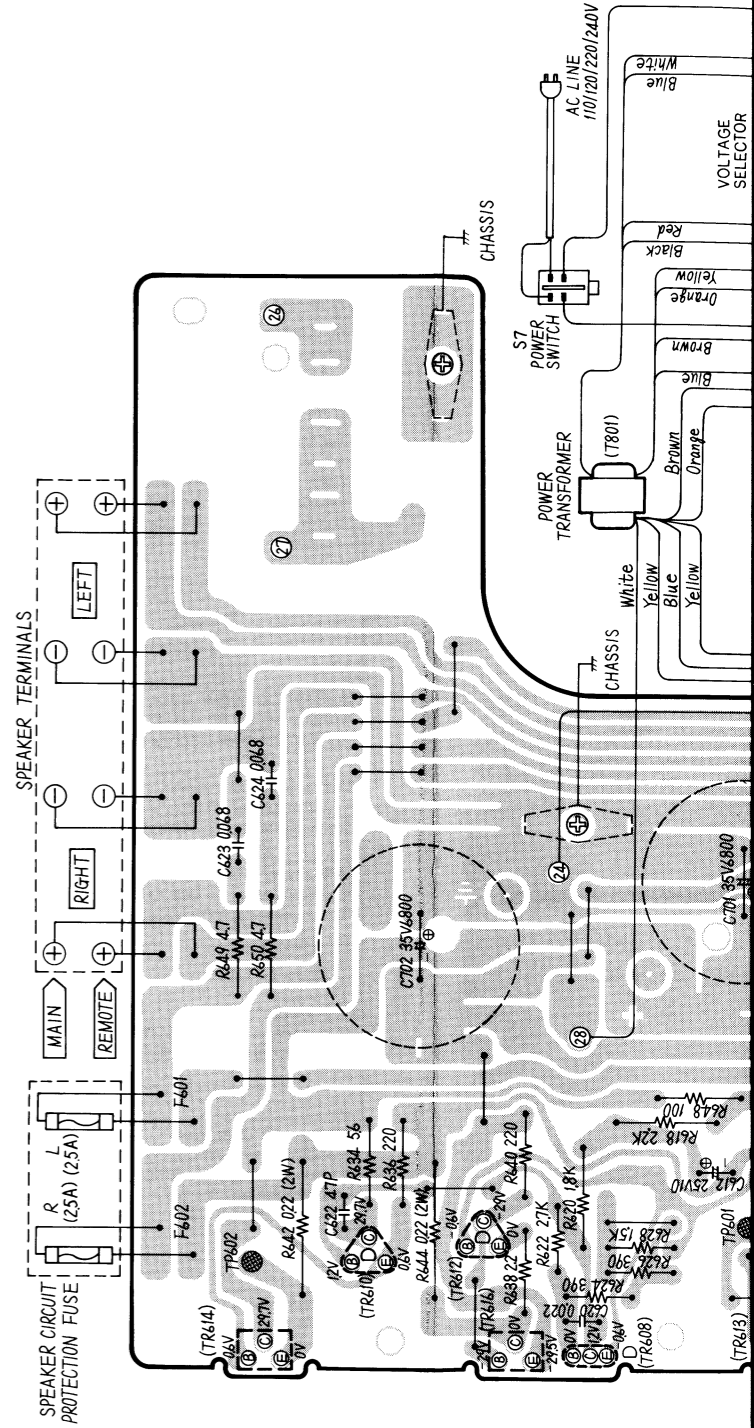
TR101	
2SC828	
Switching	
MUT	ON
OFF	ON
E	0.0V
C	4.9V
B	0.1V

TR301.302	
2SA721	
AF Amplifier	
E	0.2V
C	4.7V
B	9.3V



# Printed Circuit Board ... Tone Control, Main Amplifier & Power Supply Circuit

1 2 3 4 5 6



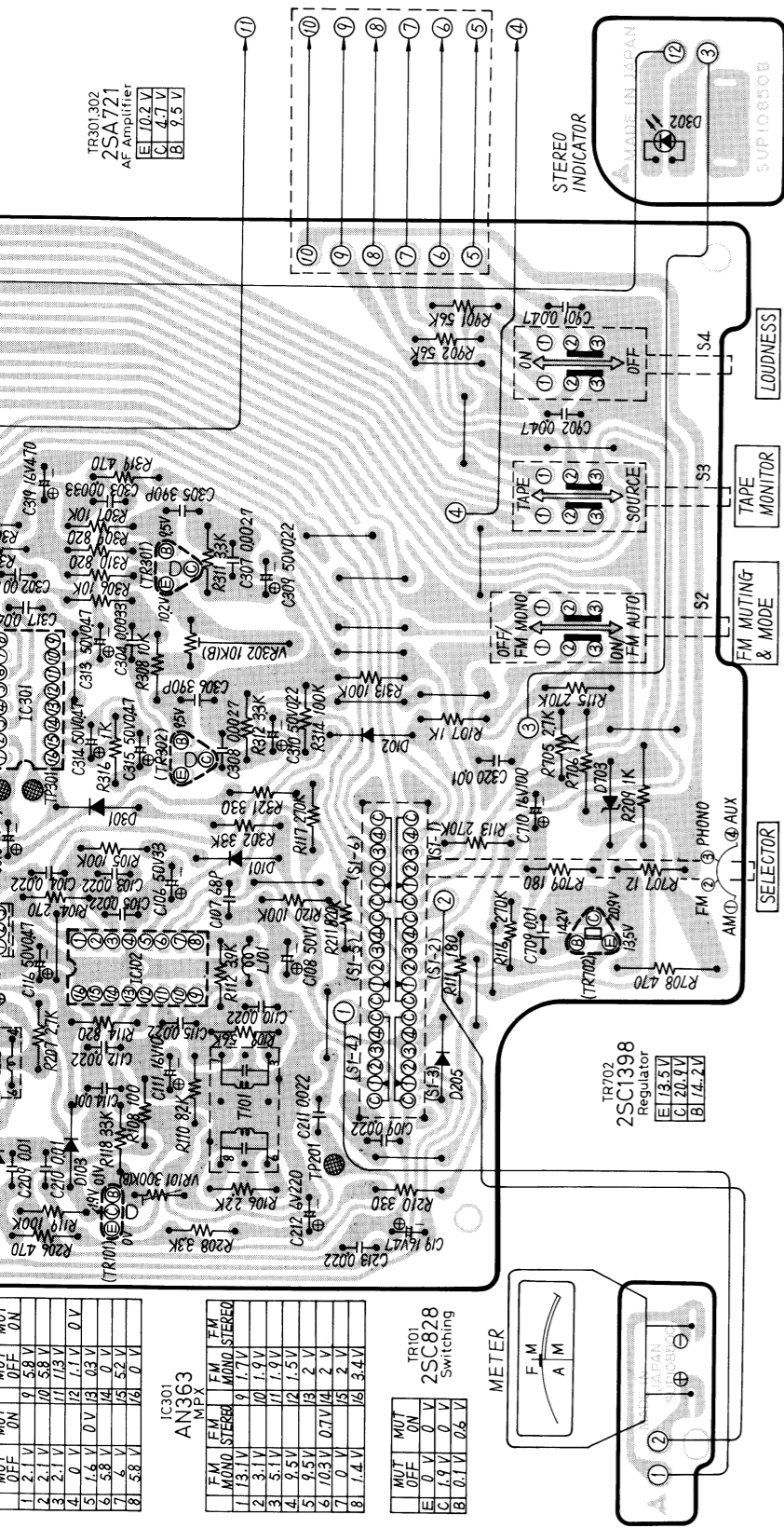
TR615.616  
2SD586  
Power

TR616.617  
2SD586  
Power

TR611.612  
2SA954  
Drive

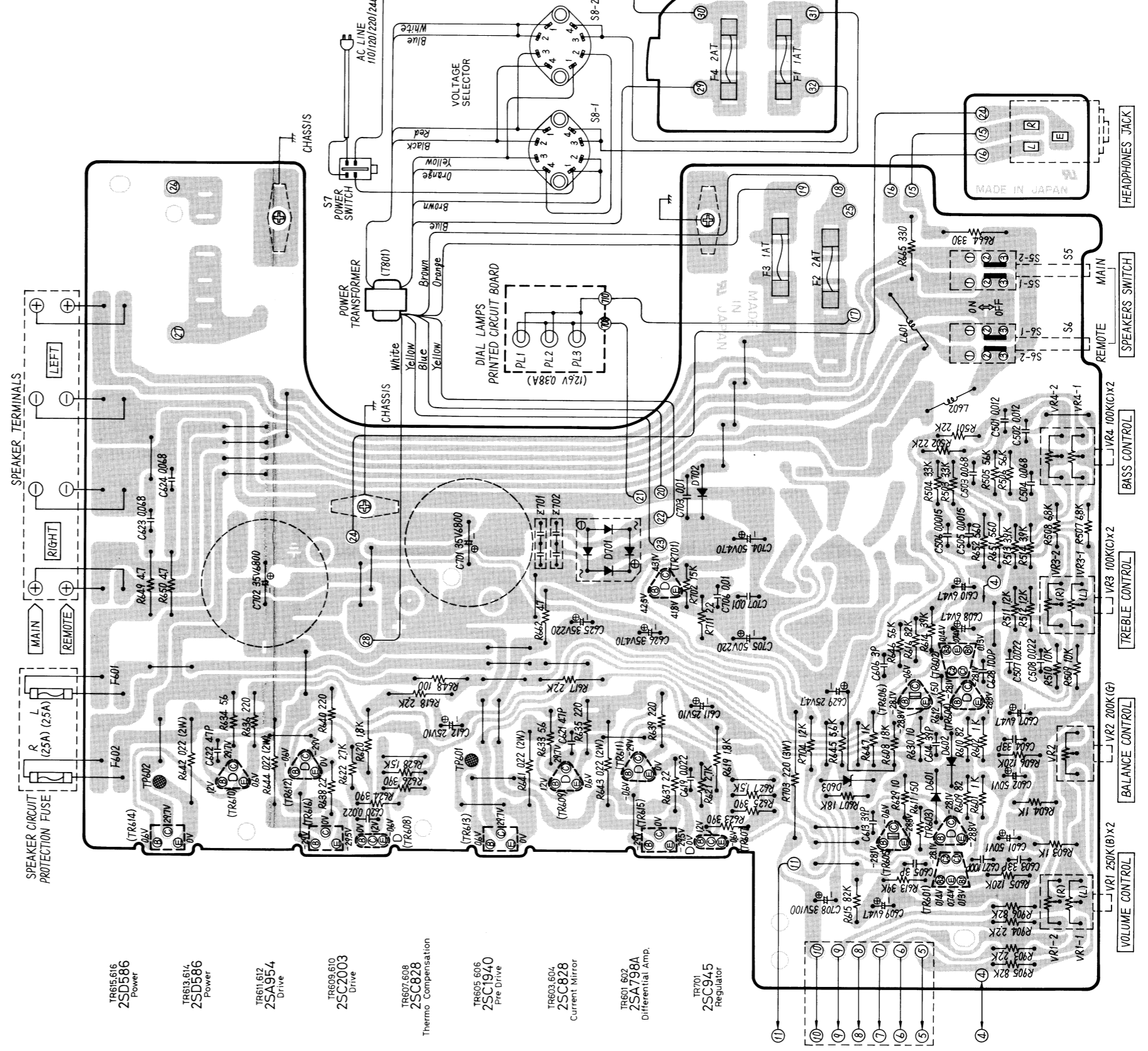
TR609.610  
2SC2003  
Drive

TR607.608  
2SC828  
Thermo Compensation



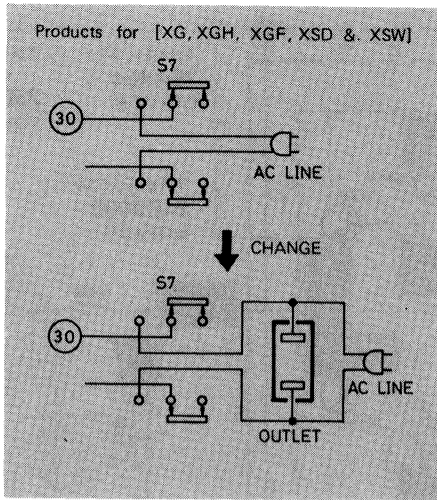
# Printed Circuit Board ... Tone Control, Main Amplifier & Power Supply Circuit

1 2 3 4 5 6

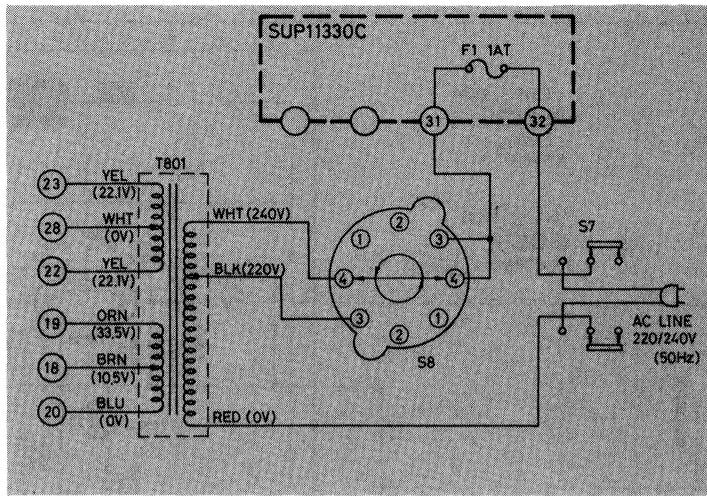


■ POWER SOURCE CIRCUIT OF OTHER PRODUCTS FOR (XG, XGH, XGF, XSD, XSW)

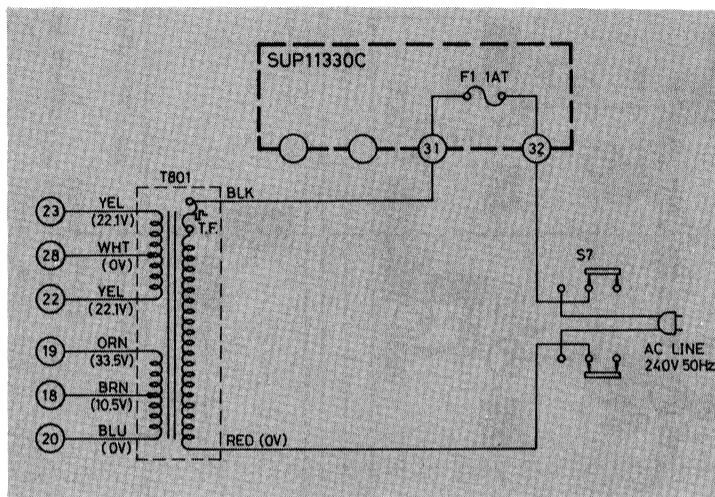
• Product for [XA]



• Product for England [XE]

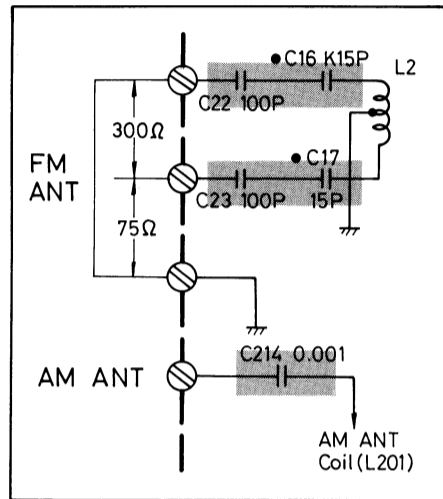


• Product for Australia [XAL]



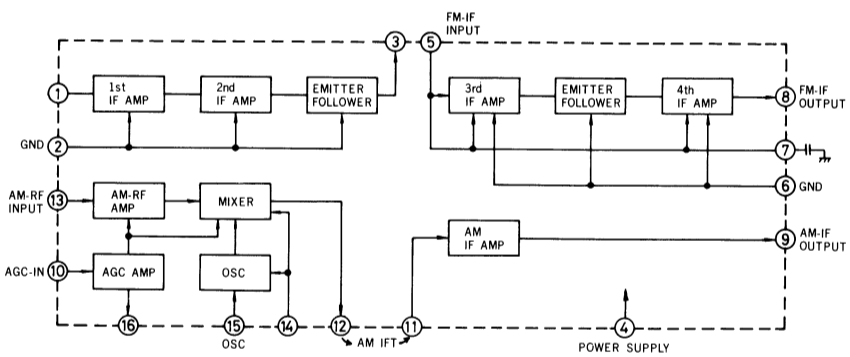
■ ANTENNA CUPPLING CAPACITORS

• Products for Australia [XAL]

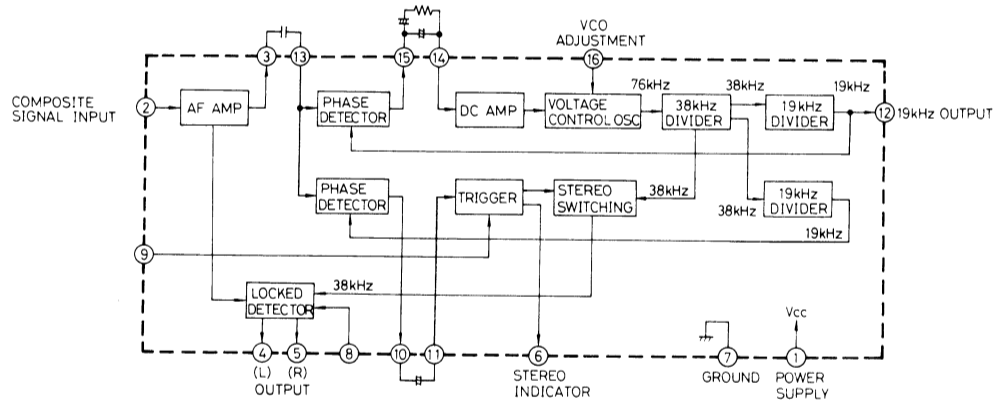


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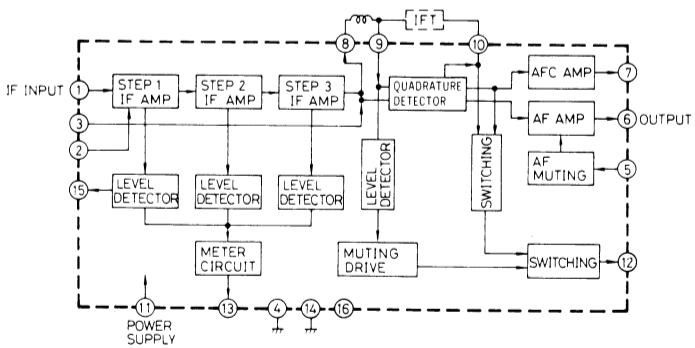
■ BLOCK DIAGRAMS OF INTEGRATED CIRCUITS



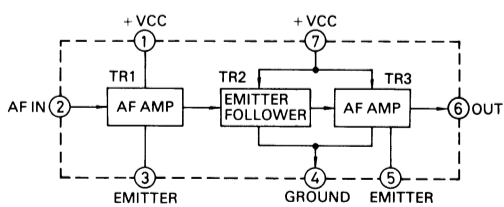
IC101 (AN217)  
FM 2 STEPS IF AMPLIFIER & AM CIRCUIT



IC301 (AN363)  
PLL FM MULTIPLEX CIRCUIT



IC102 (AN377)  
FM IF AMPLIFIER & DETECTOR CIRCUIT



IC401, 402 (SVITA7129P)  
EQUALIZER AMPLIFIER CIRCUIT

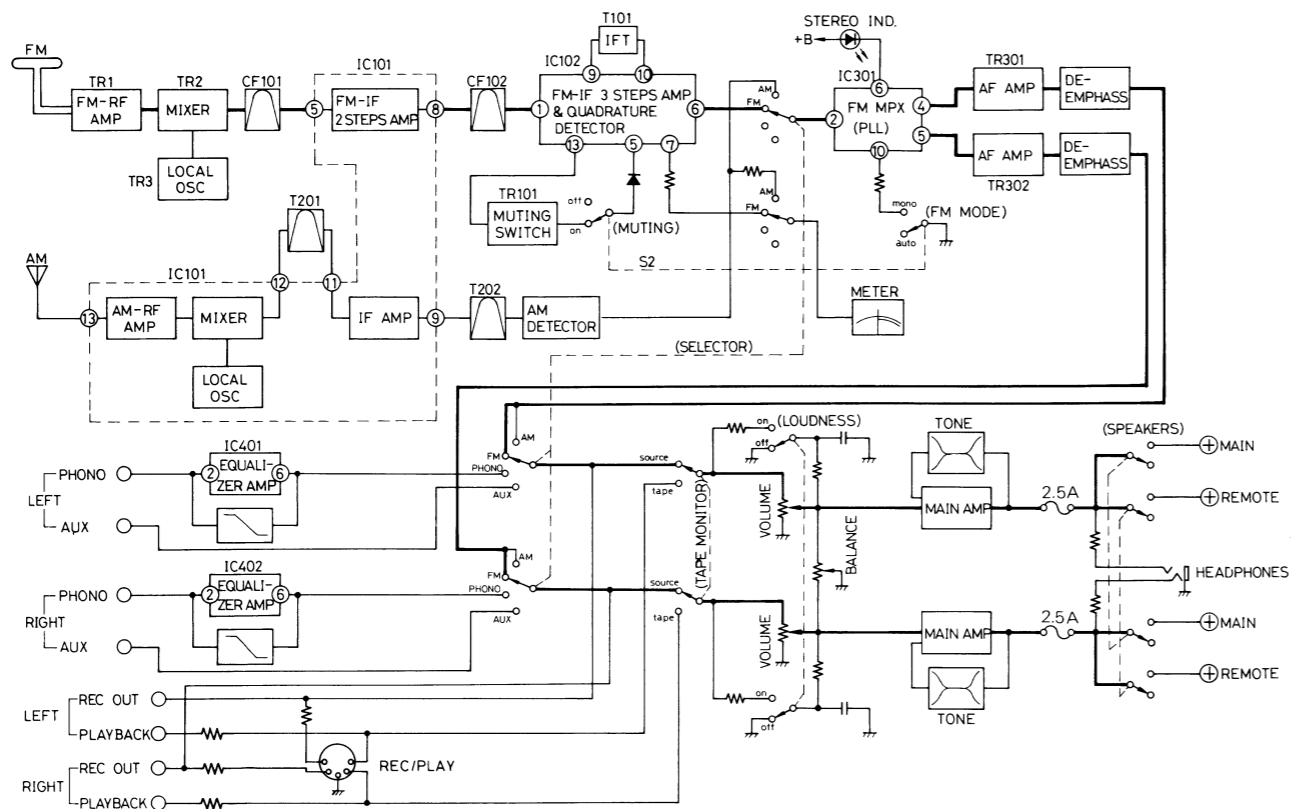
■ TERMINAL GUIDE

25A798A 	25A721, 25A954 25C828, 25C2003 25C1047, 25C1675 25C945 	25D586 	25C1398 
	25C1940	SVITA7129P 	
AN217, AN377, AN363	3SK40 	LN26D 	

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■ BLOCK DIAGRAM

## ■ BLOCK DIAGRAM



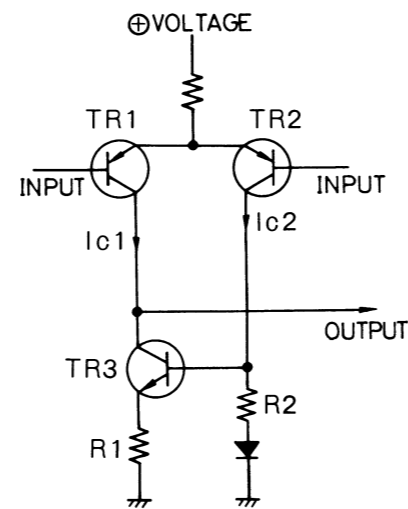
## ■ SERVICE AID

At the initial stage of the main amplifier of this unit, the differential amplifier of current mirror load is employed.

This is a circuit for obtaining the gain higher than that in the conventional circuits, with current in the differential amplifier stage kept constant. when  $I_{c1}$  is increased through variation of base voltage of the differential amplifier TR1,  $I_{c2}$  at TR2 is reduced with consequent decrease in the voltage drop at R2, thus resulting in rise of  $V_{BE}$  for TR3 and consequent increase of  $I_{c1}$ . As the characteristics of the differential amplifier,  $I_{c2}$  is reduced as  $I_{c1}$  is increased. In this way,  $I_{c1}$  and  $I_{c2}$  are kept constant at all times through functioning of TR3.

Constant current means that high impedance is connected to the differential amplifier circuit, and thus large voltage gain can be obtained. Another cause for increasing the voltage gain is the push-pull circuit formed by TR1 and TR3. In the differential amplifier, signal of opposite phase is obtained at the collector of TR1 with respect to the input signal, while in the collector of TR2, signal of the phase as the input is obtained to be further applied to the base of TR3.

Accordingly, signal of opposite phase to the input is developed at the collector of TR3, thus consequently forming the push-pull circuit of TR1 and TR3. In other words, since the amount of NF can be increased with the rise of the gain, improvements in the distortion factor and S/N ratio can be achieved.



(CURRENT MIRROR CIRCUIT)

Fig. 1

## ■ 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.

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
<b>INTEGRATED CIRCUITS</b>				
IC101	AN217-BB	IC, FM IF Amplifier & AM Circuit	1	
IC102	AN377	IC, FM IF Amplifier & Detector	1	
IC301	AN363A	IC, PLL Type FM Multiplex	1	
IC401, 402	SV1TA1729P	IC, Equalizer Amplifier	2	
<b>TRANSISTORS</b>				
TR1	3SK40-M	Transistor (FET), FM RF Amplifier	1	
TR2	2SC1047-C	Transistor, FM Mix (Use in ranks C or D)	1	
TR3	2SC1675-L1	Transistor, FM Oscillator	1	
TR101	2SC1328-T	Transistor, Muting Switch (Use in ranks S, T or U)	1	
TR301, 302	2SA902S-F	Transistor, AF Amplifier (Use in ranks F or G)	2	
TR601, 602	2SA798A-G2	Transistor, Differential Amplifier (Use in ranks F2 or G2)	2	
TR603, 604	2SC1328-T	Transistor, Current Mirror (Use in ranks S, T or U)	2	
TR605, 606	2SC1940-K	Transistor, Pre Drive Amplifier (Use in ranks K or L)	2	
TR607, 608	2SC828A-R	Transistor, Thermo Compensation	2	
TR609, 610	2SC2003-L	Transistor, Drive Amplifier (Use in ranks L or M)	2	
TR611, 612	2SA954-L	Transistor, Drive Amplifier (Use in ranks L or M)	4	Use pair ranks
TR613, 614	2SD586-R	Transistor, Power Amplifier (Use in ranks Q, R or S)	1	
615, 616	2SC945-R	Transistor, Regulator (Use in ranks R, P2, Q1 or Q2)	1	
TR701	2SC1398-Q	Transistor, Regulator (Use in ranks P, Q or R)	1	
TR702				
<b>DIODES</b>				
D101, 103, 204, 205, 301, 601, 602	MA150	Diode, AGC Detector & Current Mirror	7	
D102, 201, 202, 203	2-0A99	Diode, Switching & Detector	4	
D302	LN26D	Light Emitting Diode, Stereo Indicator	1	
D603	SVDMZ322	Zener Diode, 22V	1	
D701	SVDS4VB10	Rectifier	1	
D702	SVD10E1	Rectifier	1	
D703	SVDMZ314	Zener Diode, 14V	1	
<b>COILS and TRANSFORMERS</b>				
L2	SLA4P25	Antenna Coil, FM	1	
L3	RLQY25S2	Coil, Choke	1	
L4	SLD4P13	Coil, Collector (TR1)	1	
L5	RLQY15G5	Coil, Choke	1	
L6	SLO4P31	Oscillator Coil, FM	1	
L101	SLQX180-1	Coil, Choke	1	
L201	SLF2D41	Ferrite Antenna Coil, AM	1	
L202	SLO2C3P	Oscillator Coil, AM	1	
<b>CERAMIC FILTERS</b>				
CF101	SVFE107MS8A	Ceramic Filter, 10.7MHz, Red	each	
	SVFE107MS8B	Ceramic Filter, 10.67MHz, Blue	each	
	SVFE107MS8C	Ceramic Filter, 10.73MHz, Orange	each	
	SVFE107MS8D	Ceramic Filter, 10.64MHz, Black	each	
	SVFE107MS8E	Ceramic Filter, 10.76MHz, White	each	
	SVFE107MA8A	Ceramic Filter, 10.67MHz, Red	each	
	SVFE107MA8B	Ceramic Filter, 10.67MHz, Blue	each	
	SVFE107MA8C	Ceramic Filter, 10.73MHz, Orange	each	
	SVFE107MA8D	Ceramic Filter, 10.64MHz, Black	each	
	SVFE107MA8E	Ceramic Filter, 10.76MHz, White	each	
<b>RESISTORS</b>				
R1	ERD25TJ104	100kΩ, 1/4W, ±5%	1	
R2	ERD25TJ181	180Ω, 1/4W, ±5%	1	
R3	ERD25TJ822	8.2kΩ, 1/4W, ±5%	1	
R4	ERD25TJ333	33kΩ, 1/4W, ±5%	1	
R5	ERD25TJ102	1kΩ, 1/4W, ±5%	1	
R6	ERD25TJ471	470Ω, 1/4W, ±5%	1	
R7	ERD25TJ333	33kΩ, 1/4W, ±5%	1	
R8	ERD25TJ333	33kΩ, 1/4W, ±5%	1	
R9	ERD25TJ152	15kΩ, 1/4W, ±5%	1	
R10	ERD25TJ101	100Ω, 1/4W, ±5%	1	
R11	ERD25TJ101	100Ω, 1/4W, ±5%	1	
R12	ERD25TJ153	15kΩ, 1/4W, ±5%	1	
R13	ERD25TJ333	33kΩ, 1/4W, ±5%	1	
R14	ERD12TSJ823	82kΩ, 1/2W, ±5%	1	
R15	ERD12TSJ823	82kΩ, 1/2W, ±5%	1	
R101	ERD25TJ821	820Ω, 1/4W, ±5%	1	
R102	ERD25TJ181	180Ω, 1/4W, ±5%	1	
R103	ERD25TJ331	330Ω, 1/4W, ±5%	1	
R104	ERD25TJ271	270Ω, 1/4W, ±5%	1	
R105	ERD25TJ104	100kΩ, 1/4W, ±5%	1	
R106	ERD25TJ102	2.2kΩ, 1/4W, ±5%	1	
R107	ERD25TJ222	2.2kΩ, 1/4W, ±5%	1	
R108	ERD25TJ101	100Ω, 1/4W, ±5%	1	
R109	ERD25TJ562	5.6kΩ, 1/4W, ±5%	1	
R110	ERD25TJ822	8.2kΩ, 1/4W, ±5%	1	
R111	ERD25TJ181	180Ω, 1/4W, ±5%	1	
R112	ERD25TJ392	3.9kΩ, 1/4W, ±5%	1	
R113	ERD25TJ274	270kΩ, 1/4W, ±5%	1	
R114	ERD25TJ821	820Ω, 1/4W, ±5%	1	
R115	ERD25TJ274	270kΩ, 1/4W, ±5%	1	

# Schematic Diagram ..... Model SA-5170 / SA-5170K

1 2 3 4 5 6 7

A

B

C

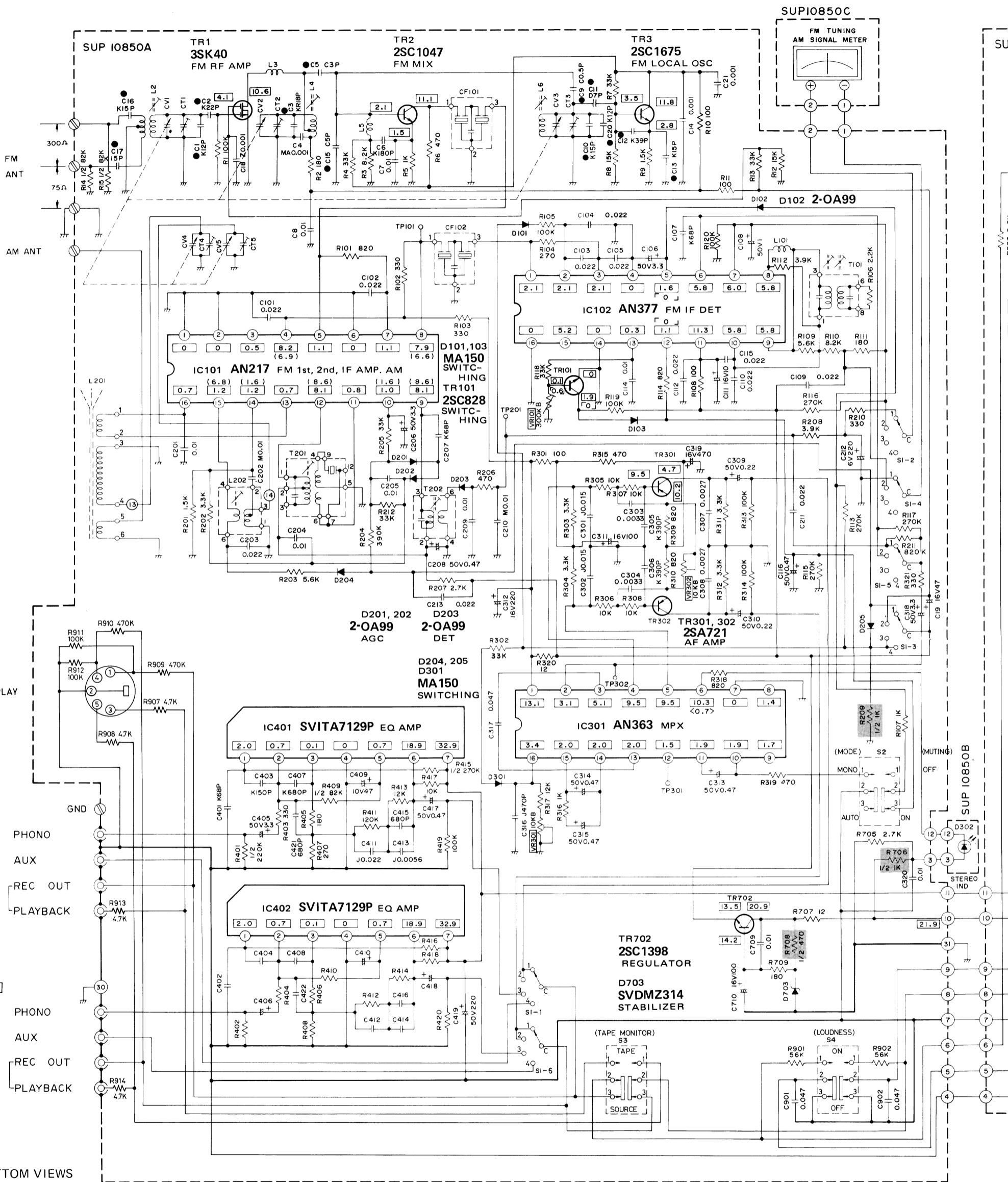
D

E

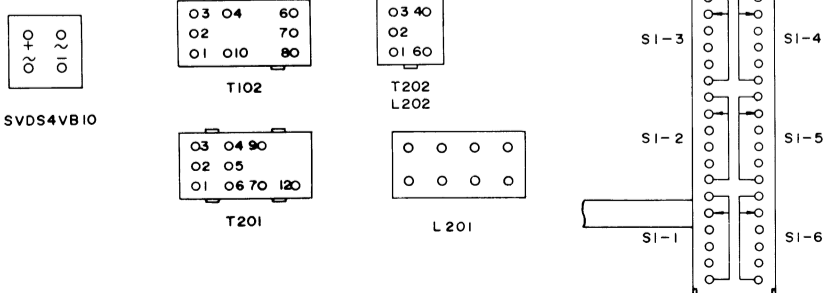
F

G

H



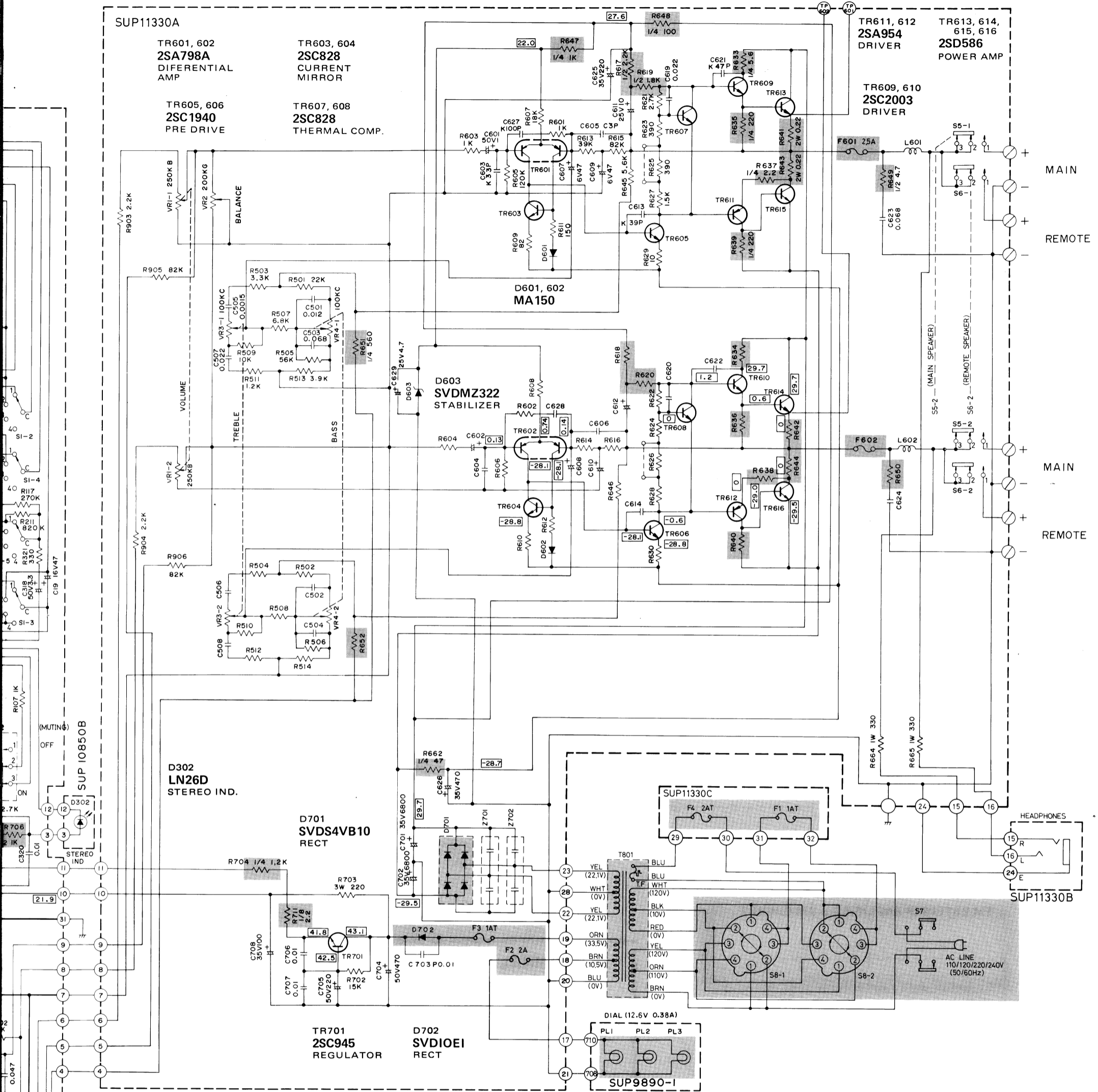
BOTTOM VIEWS



**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.

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- NOTES:**
- S1-1 ~ S1-6: Selector switch in "AM" position  
 ① AM ↔ ② FM ↔ ③ PHONO ↔ ④ AUX
  - S2: FM muting/FM mode switch in "ON/FM AUTO" position.
  - S3: Tape monitor switch in "SOURCE" position.
  - S4: Loudness switch in "OFF" position
  - S5-1, S5-2: Main speaker switch in "OFF" position.
  - S6-1, S6-2: Remote speaker switch in "OFF" position.
  - S7: Power source switch in "OFF" position.
  - S8-1, S8-2: Voltage selector switch in "110V" position  
 ① 110V ↔ ② 120V ↔ ③ 220V ↔ ④ 240V

- 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.
  - FM monoral signal reception
  - ( ) AM position.
  - < > FM stereo signal reception
  - └─┘ FM muting circuit operating position
- This schematic diagram may be modified at any time with the development of new technology.

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
R116	ERD25TJ274	Carbon, 270kΩ, 1/4W, ±5%	1	
R117	ERD25TJ274	Carbon, 270kΩ, 1/4W, ±5%	1	
R118	ERD25TJ333	Carbon, 33kΩ, 1/4W, ±5%	1	
R119	ERD25TJ104	Carbon, 100kΩ, 1/4W, ±5%	1	
R120	ERD25TJ104	Carbon, 100kΩ, 1/4W, ±5%	1	
R201	ERD25TJ152	Carbon, 1.5kΩ, 1/4W, ±5%	1	
R202	ERD25TJ332	Carbon, 3.3kΩ, 1/4W, ±5%	1	
R203	ERD25TJ562	Carbon, 5.6kΩ, 1/4W, ±5%	1	
R204	ERD25TJ394	Carbon, 390kΩ, 1/4W, ±5%	1	
R205	ERD25TJ333	Carbon, 33kΩ, 1/4W, ±5%	1	
R206	ERD25TJ471	Carbon, 470Ω, 1/4W, ±5%	1	
R207	ERD25TJ272	Carbon, 2.7kΩ, 1/4W, ±5%	1	
R208	ERD25TJ332	Carbon, 3.3kΩ, 1/4W, ±5%	1	
R209	ERD12FJ102	Carbon, 1kΩ, 1/2W, ±5%	1	
R210	ERD25TJ331	Carbon, 330Ω, 1/4W, ±5%	1	
R211	ERD25TJ824	Carbon, 820kΩ, 1/4W, ±5%	1	
R212	ERD25TJ333	Carbon, 33kΩ, 1/4W, ±5%	1	
R301	ERD25TJ101	Carbon, 100Ω, 1/4W, ±5%	1	
R302	ERD25TJ333	Carbon, 33kΩ, 1/4W, ±5%	1	
R303	ERD25TJ332	Carbon, 3.3kΩ, 1/4W, ±5%	1	
R304	ERD25TJ332	Carbon, 3.3kΩ, 1/4W, ±5%	1	
R305	ERD25TJ103	Carbon, 10kΩ, 1/4W, ±5%	1	
R306	ERD25TJ103	Carbon, 10kΩ, 1/4W, ±5%	1	
R307	ERD25TJ103	Carbon, 10kΩ, 1/4W, ±5%	1	
R308	ERD25TJ103	Carbon, 10kΩ, 1/4W, ±5%	1	
R309	ERD25TJ821	Carbon, 820Ω, 1/4W, ±5%	1	
R310	ERD25TJ821	Carbon, 820Ω, 1/4W, ±5%	1	
R311	ERD25TJ332	Carbon, 3.3kΩ, 1/4W, ±5%	1	
R312	ERD25TJ332	Carbon, 3.3kΩ, 1/4W, ±5%	1	
R313	ERD25TJ104	Carbon, 100kΩ, 1/4W, ±5%	1	
R314	ERD25TJ104	Carbon, 100kΩ, 1/4W, ±5%	1	
R315	ERD25TJ471	Carbon, 470Ω, 1/4W, ±5%	1	
R316	ERD25TJ102	Carbon, 1kΩ, 1/4W, ±5%	1	
R317	ERD25TJ123	Carbon, 12kΩ, 1/4W, ±5%	1	
R318	ERD25TJ821	Carbon, 820Ω, 1/4W, ±5%	1	
R319	ERD25TJ471	Carbon, 470Ω, 1/4W, ±5%	1	
R320	ERD25TJ120	Carbon, 12Ω, 1/4W, ±5%	1	
R321	ERD25TJ331	Carbon, 330Ω, 1/4W, ±5%	1	
R401	ERD12TSJ224	Carbon, 220kΩ, 1/2W, ±5%	1	
R402	ERD12TSJ224	Carbon, 220kΩ, 1/2W, ±5%	1	
R403	ERD25TJ331	Carbon, 330Ω, 1/4W, ±5%	1	
R404	ERD25TJ331	Carbon, 330Ω, 1/4W, ±5%	1	
R405	ERD25TJ181	Carbon, 180Ω, 1/4W, ±5%	1	
R406	ERD25TJ181	Carbon, 180Ω, 1/4W, ±5%	1	
R407	ERD25TJ271	Carbon, 270Ω, 1/4W, ±5%	1	
R408	ERD25TJ271	Carbon, 270Ω, 1/4W, ±5%	1	
R409	ERD12TSJ823	Carbon, 82kΩ, 1/2W, ±5%	1	
R410	ERD12TSJ823	Carbon, 82kΩ, 1/2W, ±5%	1	
R411	ERD25TJ124	Carbon, 120kΩ, 1/4W, ±5%	1	
R412	ERD25TJ124	Carbon, 120kΩ, 1/4W, ±5%	1	
R413	ERD25TJ123	Carbon, 12kΩ, 1/4W, ±5%	1	
R414	ERD25TJ123	Carbon, 12kΩ, 1/4W, ±5%	1	
R415	ERD12TSJ274	Carbon, 270kΩ, 1/2W, ±5%	1	
R416	ERD12TSJ274	Carbon, 270kΩ, 1/2W, ±5%	1	
R417	ERD25TJ103	Carbon, 10kΩ, 1/4W, ±5%	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
R418	ERD25TJ103	Carbon, 10kΩ, 1/4W, ±5%	1	
R419	ERD25TJ104	Carbon, 100kΩ, 1/4W, ±5%	1	
R420	ERD25TJ104	Carbon, 100kΩ, 1/4W, ±5%	1	
R501	ERD25TJ223	Carbon, 22kΩ, 1/4W, ±5%	1	
R502	ERD25TJ223	Carbon, 22kΩ, 1/4W, ±5%	1	
R503	ERD25TJ332	Carbon, 3.3kΩ, 1/4W, ±5%	1	
R504	ERD25TJ332	Carbon, 3.3kΩ, 1/4W, ±5%	1	
R505	ERD25TJ563	Carbon, 56kΩ, 1/4W, ±5%	1	
R506	ERD25TJ563	Carbon, 56kΩ, 1/4W, ±5%	1	
R507	ERD25TJ682	Carbon, 6.8kΩ, 1/4W, ±5%	1	
R508	ERD25TJ682	Carbon, 6.8kΩ, 1/4W, ±5%	1	
R509	ERD25TJ103	Carbon, 10kΩ, 1/4W, ±5%	1	
R510	ERD25TJ103	Carbon, 10kΩ, 1/4W, ±5%	1	
R511	ERD25TJ122	Carbon, 1.2kΩ, 1/4W, ±5%	1	
R512	ERD25TJ122	Carbon, 1.2kΩ, 1/4W, ±5%	1	
R513	ERD25TJ392	Carbon, 3.9kΩ, 1/4W, ±5%	1	
R514	ERD25TJ392	Carbon, 3.9kΩ, 1/4W, ±5%	1	
R601	ERD25TJ102	Carbon, 1kΩ, 1/4W, ±5%	1	
R602	ERD25TJ102	Carbon, 1kΩ, 1/4W, ±5%	1	
R603	ERD25TJ102	Carbon, 1kΩ, 1/4W, ±5%	1	
R604	ERD25TJ102	Carbon, 1kΩ, 1/4W, ±5%	1	
R605	ERD25TJ124	Carbon, 120kΩ, 1/4W, ±5%	1	
R606	ERD25TJ124	Carbon, 120kΩ, 1/4W, ±5%	1	
R607	ERD25TJ183	Carbon, 18kΩ, 1/4W, ±5%	1	
R608	ERD25TJ183	Carbon, 18kΩ, 1/4W, ±5%	1	
R609	ERD25TJ820	Carbon, 82Ω, 1/4W, ±5%	1	
R610	ERD25TJ820	Carbon, 82Ω, 1/4W, ±5%	1	
R611	ERD25TJ151	Carbon, 150Ω, 1/4W, ±5%	1	
R612	ERD25TJ151	Carbon, 150Ω, 1/4W, ±5%	1	
R613	ERD25TJ393	Carbon, 39kΩ, 1/4W, ±5%	1	
R614	ERD25TJ393	Carbon, 39kΩ, 1/4W, ±5%	1	
R615	ERD25TJ823	Carbon, 82kΩ, 1/4W, ±5%	1	
R616	ERD25TJ823	Carbon, 82kΩ, 1/4W, ±5%	1	
R617	ERD12FJ222	Carbon, 2.2kΩ, 1/2W, ±5%	1	
R618	ERD12FJ222	Carbon, 2.2kΩ, 1/2W, ±5%	1	
R619	ERD12FJ182	Carbon, 1.8kΩ, 1/2W, ±5%	1	
R620	ERD12FJ182	Carbon, 1.8kΩ, 1/2W, ±5%	1	
R621	ERD25TJ272	Carbon, 2.7kΩ, 1/4W, ±5%	1	
R622	ERD25TJ272	Carbon, 2.7kΩ, 1/4W, ±5%	1	
R623	ERD25TJ391	Carbon, 390Ω, 1/4W, ±5%	1	
R624	ERD25TJ391	Carbon, 390Ω, 1/4W, ±5%	1	
R625	ERD25TJ391	Carbon, 390Ω, 1/4W, ±5%	1	
R626	ERD25TJ391	Carbon, 390Ω, 1/4W, ±5%	1	
R627	ERD25TJ152	Carbon, 1.5kΩ, 1/4W, ±5%	1	
R628	ERD25TJ152	Carbon, 1.5kΩ, 1/4W, ±5%	1	
R629	ERD25TJ100	Carbon, 10Ω, 1/4W, ±5%	1	
R630	ERD25TJ100	Carbon, 10Ω, 1/4W, ±5%	1	
R633	ERD14FJ5R6	Carbon, 5.6Ω, 1/4W, ±5%	1	
R634	ERD14FJ5R6	Carbon, 5.6Ω, 1/4W, ±5%	1	
R635	ERD14FJ221	Carbon, 220Ω, 1/4W, ±5%	1	
R636	ERD14FJ221	Carbon, 220Ω, 1/4W, ±5%	1	
R637	ERD14FJ2R2	Carbon, 2.2Ω, 1/4W, ±5%	1	
R638	ERD14FJ2R2	Carbon, 2.2Ω, 1/4W, ±5%	1	
R639	ERD14FJ221	Carbon, 220Ω, 1/4W, ±5%	1	
R640	ERD14FJ221	Carbon, 220Ω, 1/4W, ±5%	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
R641	ERF2AKR22	Non-Flammable Wire, 0.22Ω, 2W, ±10%	1	
R642	ERF2AKR22	Non-Flammable Wire, 0.22Ω, 2W, ±10%	1	
R643	ERF2AKR22	Non-Flammable Wire, 0.22Ω, 2W, ±10%	1	
R644	ERF2AKR22	Non-Flammable Wire, 0.22Ω, 2W, ±10%	1	
R645	ERD25TJ562	Carbon, 5.6kΩ, 1/4W, ±5%	1	
R646	ERD25TJ562	Carbon, 5.6kΩ, 1/4W, ±5%	1	
R647	ERD14FJ102	Carbon, 1kΩ, 1/4W, ±5%	1	
R648	ERD14FJ101	Carbon, 100Ω, 1/4W, ±5%	1	
R649	ERD12FJ4R7	Carbon, 4.7Ω, 1/2W, ±5%	1	
R650	ERD12FJ4R7	Carbon, 4.7Ω, 1/2W, ±5%	1	
R651	ERD14FJ561	Carbon, 560Ω, 1/4W, ±5%	1	
R652	ERD14FJ561	Carbon, 560Ω, 1/4W, ±5%	1	
R662	ERD14FJ470	Carbon, 470Ω, 1/4W, ±5%	1	
R664	ERG1ANJ331	Metal Film, 330Ω, 1W, ±5%	1	
R665	ERG1ANJ331	Metal Film, 330Ω, 1W, ±5%	1	
R702	ERD25TJ153	Carbon, 15kΩ, 1/4W, ±5%	1	
R703	ERG3ANJ221	Metal Film, 220Ω, 3W, ±5%	1	
R704	ERD14FJ122	Carbon, 1.2kΩ, 1/4W, ±5%	1	
R705	ERD25TJ272	Carbon, 2.7kΩ, 1/4W, ±5%	1	
R706	ERD12FJ102	Carbon, 1kΩ, 1/2W, ±5%	1	
R707	ERD25TJ120	Carbon, 12Ω, 1/4W, ±5%	1	
R708	ERD12FJ471	Carbon, 470Ω, 1/2W, ±5%	1	
R709	ERD25TJ181	Carbon, 180Ω, 1/4W, ±5%	1	
R711	ERD18FJ2R2	Carbon, 2.2Ω, 1/8W, ±5%	1	
R901	ERD25TJ563	Carbon, 56kΩ, 1/4W, ±5%	1	
R902	ERD25TJ563	Carbon, 56kΩ, 1/4W, ±5%	1	
R903	ERD25TJ222	Carbon, 2.2kΩ, 1/4W, ±5%	1	
R904	ERD25TJ222	Carbon, 2.2kΩ, 1/4W, ±5%	1	
R905	ERD25TJ823	Carbon, 82kΩ, 1/4W, ±5%	1	
R906	ERD25TJ823	Carbon, 82kΩ, 1/4W, ±5%	1	
R907	ERD25TJ472	Ceramic, 4.7kΩ, 1/4W, ±5%	1	
R908	ERD25TJ472	Ceramic, 4.7kΩ, 1/4W, ±5%	1	
R909	ERD25TJ474	Ceramic, 470kΩ, 1/4W, ±5%	1	
R910	ERD25TJ474	Ceramic, 470kΩ, 1/4W, ±5%	1	
R911	ERD25TJ104	Ceramic, 100kΩ, 1/4W, ±5%	1	
R912	ERD25TJ104	Ceramic, 100kΩ, 1/4W, ±5%	1	
R913	ERD25TJ472	Ceramic, 4.7kΩ, 1/4W, ±5%	1	
R914	ERD25TJ472	Ceramic, 4.7kΩ, 1/4W, ±5%	1	
<b>VARIABLE RESISTORS</b>				
VR1	EWKBJAF25BF5	Volume Control, 250kΩ (B)	1	
VR2	EVHGPAF25G25	Balance Control, 200kΩ (G)	1	
VR3, 4	EWKB9AF25C15	Bass & Treble Control, 100kΩ (C)	2	○
VR101	EVLTOAA00B35	Muting Level Adjustment, 300kΩ (B)	1	
VR301	EVT3MA00B14	PLL VCO Adjustment, 10kΩ (B)	1	
VR302	EVT3MA00B14	Separation Adjustment, 10kΩ (B)	1	
<b>CAPACITORS</b>				
C1	ECCD1H120KC	Ceramic, 12pF, 50V, ±10%	1	
C2	ECCD1H220KC	Ceramic, 22pF, 50V, ±10%	1	
C3	ECCD1H180KR	Ceramic, 18pF, 50V, ±10%	1	
C4	ECKD1H102MDA	Ceramic, 0.001μF, 50V, ±20%	1	
C5	ECCD1H030CC	Ceramic, 3pF, 50V, ±0.25pF	1	
C6	ECCD1H181K	Ceramic, 180pF, 50V, ±10%	1	
C7	ECKD1H103ZF	Ceramic, 0.01μF, 50V, ±10%	1	
C8	ECKD1H103ZF	Ceramic, 0.01μF, 50V, ±10%	1	

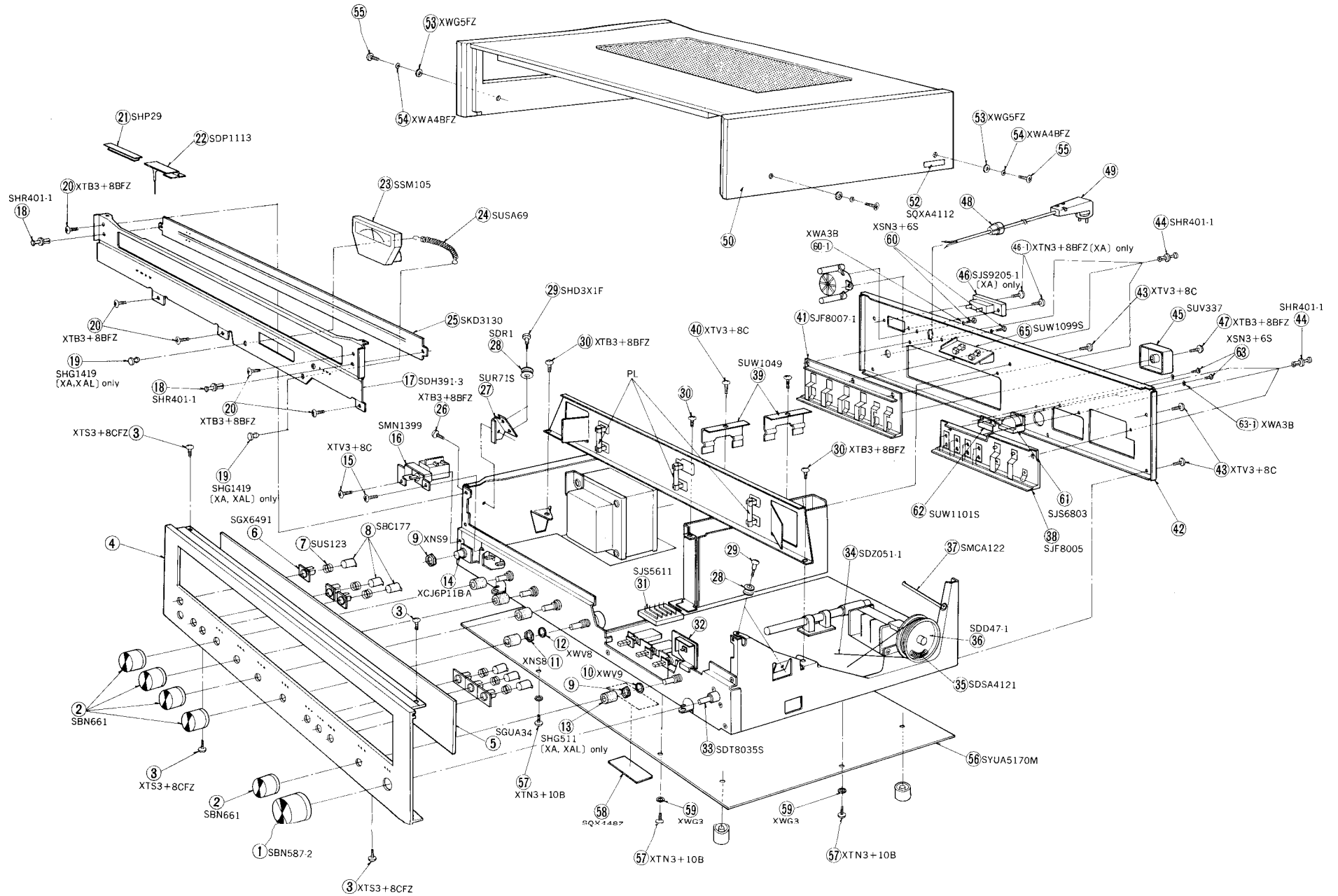
Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
C9	ECCD1H0R5CC	Ceramic, 0.5pF, 50V, ±0.25pF	1	
C10	ECCD1H150KS	Ceramic, 15pF, 50V, ±10%	1	
C11	ECCD1H070DC	Ceramic, 7pF, 50V, ±0.5pF	1	
C12	ECCD1H390KC	Ceramic, 39pF, 50V, ±10%	1	
C13	ECCD1H150KC	Ceramic, 15pF, 50V, ±10%	1	
C14	ECKD1H102PF	Ceramic, 0.001μF, 50V, ±10%	1	
C15	ECCD1H050CC	Ceramic, 5pF, 50V, ±0.25pF	1	
C16	ECCD1H150KC	Ceramic, 15pF, 50V, ±10%	1	
C17	ECCD1H150KC	Ceramic, 15pF, 50V, ±10%	1	
C18	ECKD1H102PF	Ceramic, 0.001μF, 50V, ±10%	1	
C19	ECEA16V47	Electrolytic, 47μF, 16V	1	
C20	ECCD1H120KC	Ceramic, 12pF, 50V, ±10%	1	
C21	ECKD1H102PF	Ceramic, 0.001μF, 50V, ±10%	1	
C22 [XAL] only	ECKDHS101MB	Ceramic, 100pF, 400VAC, ±20%	1	
C23 [XAL] only	ECKDHS101MB	Ceramic, 100pF, 400VAC, ±20%	1	
C101	ECKD1H223PF	Ceramic, 0.022μF, 50V, ±10%	1	
C102	ECKD1H223PF	Ceramic, 0.022μF, 50V, ±10%	1	
C103	ECKD1H223PF	Ceramic, 0.022μF, 50V, ±10%	1	
C104	ECKD1H223PF	Ceramic, 0.022μF, 50V, ±10%	1	
C105	ECKD1H223PF	Ceramic, 0.022μF, 50V, ±10%	1	
C106	ECEA50V3R3	Electrolytic, 3.3μF, 50V	1	
C107	ECCD1H680K	Ceramic, 68pF, 50V, ±10%	1	
C108	ECEA50V1	Electrolytic, 1μF, 50V	1	
C109	ECKD1H223PF	Ceramic, 0.022μF, 50V, ±10%	1	
C110	ECKD1H223PF	Ceramic, 0.022μF, 50V, ±10%	1	
C111	ECEA16V10	Electrolytic, 10μF, 16V	1	
C112	ECKD1H223PF	Ceramic, 0.022μF, 50V, ±10%	1	
C114	ECKD1H103PF	Ceramic, 0.01μF, 50V, ±10%	1	
C115	ECKD1H223PF	Ceramic, 0.022μF, 50V, ±10%	1	
C116	ECEA50VR47	Electrolytic, 0.47μF, 50V	1	
C201	ECKD1H103PF	Ceramic, 0.01μF, 50V, ±10%	1	
C202	ECKD1H103MD	Ceramic, 0.01μF, 50V, ±20%	1	
C203	ECKD1H223PF	Ceramic, 0.022μF, 50V, ±10%	1	
C204	ECKD1H103PF	Ceramic, 0.01μF, 50V, ±10%	1	
C205	ECKD1H103PF	Ceramic, 0.01μF, 50V, ±10%	1	
C206	ECEA50V3R3	Electrolytic, 3.3μF, 50V	1	
C207	ECCD1H560K	Ceramic, 56pF, 50V, ±10%	1	
C208	ECEA50VR47	Electrolytic, 0.47μF, 50V	1	
C209	ECKD1H103PF	Ceramic, 0.01μF, 50V, ±10%	1	
C210	ECKD1H103MD	Ceramic, 0.01μF, 50V, ±20%	1	
C211	ECOM1H223KZ	Polyester, 0.022μF, 50V, ±10%	1	
C212	ECEA6V220V	Electrolytic, 220μF, 6.3V	1	
C213	ECKD1H223PF	Ceramic, 0.022μF, 50V, ±10%	1	
C214 [XAL] only	ECKDHS102MD	Ceramic, 0.001μF, 400VAC, ±20%	1	
C301	ECQM1H153JZ	Polyester, 0.015μF, 50V, ±5%	1	
C302	ECQM1H153JZ	Polyester, 0.015μF, 50V, ±5%	1	
C303	ECQM1H332KZ	Polyester, 0.0033μF, 50V, ±10%	1	
C304	ECQM1H332KZ	Polyester, 0.0033μF, 50V, ±10%	1	
C305	ECKD1H391KB	Ceramic, 390pF, 50V, ±10%	1	
C306	ECKD1H391KB	Ceramic, 390pF, 50V, ±10%	1	
C307	ECQM1H272KZ	Polyester, 0.0027μF, 50V, ±10%	1	
C308	ECQM1H272KZ	Polyester, 0.0027μF, 50V, ±10%	1	
C309	ECEA50ZR22	Electrolytic, 0.22μF, 50V	1	
C310	ECEA50ZR22	Electrolytic, 0.22μF, 50V	1	



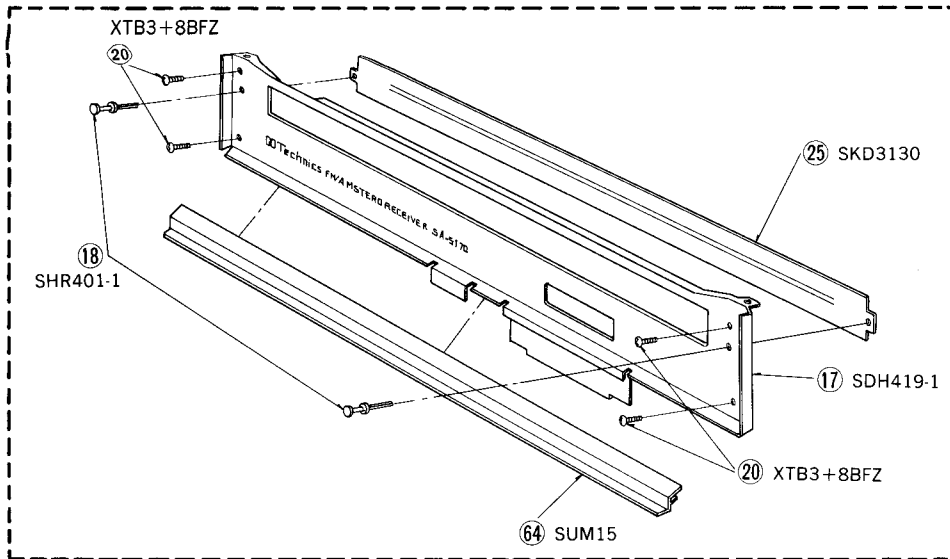
Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
C311	<b>ECEA16V100V</b>	Electrolytic, 100 $\mu$ F, 16V	1	
C312	<b>ECEA16V220V</b>	Electrolytic, 220 $\mu$ F, 16V	1	
C313	ECEA50MR47R	Electrolytic, 0.47 $\mu$ F, 50V	1	
C314	ECEA50VR47	Electrolytic, 0.47 $\mu$ F, 50V	1	
C315	ECEA50VR47	Electrolytic, 0.47 $\mu$ F, 50V	1	
C316	ECQS05471JZ	Polystyrene, 470pF, 50V, $\pm$ 5%	1	
C317	ECQM1H473KZ	Polyester, 0.047 $\mu$ F, 50V, $\pm$ 10%	1	
C318	ECEA50V3R3	Electrolytic, 3.3 $\mu$ F, 50V	1	
C319	<b>ECEA16V470V</b>	Electrolytic, 470 $\mu$ F, 16V	1	
C320	ECKD1H103PF	Ceramic, 0.01 $\mu$ F, 50V, $\pm$ 100%	1	
C401	ECCD1H680K	Ceramic, 68pF, 50V, $\pm$ 10%	1	
C402	ECCD1H680K	Ceramic, 68pF, 50V, $\pm$ 10%	1	
C403	ECCD1H151K	Ceramic, 150pF, 50V, $\pm$ 10%	1	
C404	ECCD1H151K	Ceramic, 150pF, 50V, $\pm$ 10%	1	
C405	ECEA50M3R3R	Electrolytic, 3.3 $\mu$ F, 50V	1	
C406	ECEA50M3R3R	Electrolytic, 3.3 $\mu$ F, 50V	1	
C407	ECKD1H681KB	Ceramic, 680pF, 50V, $\pm$ 10%	1	
C408	ECKD1H681KB	Ceramic, 680pF, 50V, $\pm$ 10%	1	
C409	ECEA10V47	Electrolytic, 47 $\mu$ F, 10V	1	
C410	ECEA10V47	Electrolytic, 47 $\mu$ F, 10V	1	
C411	ECQM1H223JZ	Polyester, 0.022 $\mu$ F, 50V, $\pm$ 5%	1	
C412	ECQM1H223JZ	Polyester, 0.022 $\mu$ F, 50V, $\pm$ 5%	1	
C413	ECQM1H562JZ	Polyester, 0.0056 $\mu$ F, 50V, $\pm$ 5%	1	
C414	ECQM1H562JZ	Polyester, 0.0056 $\mu$ F, 50V, $\pm$ 5%	1	
C415	ECKD1H681KB	Ceramic, 680pF, 50V, $\pm$ 10%	1	
C416	ECKD1H681KB	Ceramic, 680pF, 50V, $\pm$ 10%	1	
C417	ECEA50MR47R	Electrolytic, 0.47 $\mu$ F, 50V	1	
C418	ECEA50MR47R	Electrolytic, 0.47 $\mu$ F, 50V	1	
C419	<b>ECEA50V220V</b>	Electrolytic, 220 $\mu$ F, 50V	1	
C421	ECKD1H681KB	Ceramic, 680pF, 50V, $\pm$ 10%	1	
C422	ECKD1H681KB	Ceramic, 680pF, 50V, $\pm$ 10%	1	
C501	ECQM1H123KZ	Polyester, 0.012 $\mu$ F, 50V, $\pm$ 10%	1	
C502	ECQM1H123KZ	Polyester, 0.012 $\mu$ F, 50V, $\pm$ 10%	1	
C503	ECQM1H683KZ	Polyester, 0.068 $\mu$ F, 50V, $\pm$ 10%	1	
C504	ECQM1H683KZ	Polyester, 0.068 $\mu$ F, 50V, $\pm$ 10%	1	
C505	ECQM1H152KZ	Polyester, 0.0015 $\mu$ F, 50V, $\pm$ 10%	1	
C506	ECQM1H152KZ	Polyester, 0.0015 $\mu$ F, 50V, $\pm$ 10%	1	
C507	ECQM1H223KZ	Polyester, 0.022 $\mu$ F, 50V, $\pm$ 10%	1	
C508	ECQM1H223KZ	Polyester, 0.022 $\mu$ F, 50V, $\pm$ 10%	1	
C601	ECEA50M1R	Electrolytic, 1 $\mu$ F, 50V	1	
C602	ECEA50M1R	Electrolytic, 1 $\mu$ F, 50V	1	
C603	ECCD1H330K	Ceramic, 33pF, 50V, $\pm$ 10%	1	
C604	ECCD1H330K	Ceramic, 33pF, 50V, $\pm$ 10%	1	
C605	ECCD1H030C	Ceramic, 3pF, 50V, $\pm$ 0.25pF	1	
C606	ECCD1H030C	Ceramic, 3pF, 50V, $\pm$ 0.25pF	1	
C607	ECEA6V47	Electrolytic, 47 $\mu$ F, 6.3V	1	
C608	ECEA6V47	Electrolytic, 47 $\mu$ F, 6.3V	1	
C609	ECEA6V47	Electrolytic, 47 $\mu$ F, 6.3V	1	
C610	ECEA6V47	Electrolytic, 47 $\mu$ F, 6.3V	1	
C611	ECEA25V10	Electrolytic, 10 $\mu$ F, 25V	1	
C612	ECEA25V10	Electrolytic, 10 $\mu$ F, 25V	1	
C613	ECCD2H390K	Ceramic, 39pF, 500V, $\pm$ 10%	1	
C614	ECCD2H390K	Ceramic, 39pF, 500V, $\pm$ 10%	1	
C619	ECKD1H223PF	Ceramic, 0.022 $\mu$ F, 50V, $\pm$ 100%	1	
C620	ECKD1H223PF	Ceramic, 0.022 $\mu$ F, 50V, $\pm$ 100%	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
C621	ECCD2H470K	Ceramic, 47pF, 500V, $\pm$ 10%	1	
C622	ECCD2H470K	Ceramic, 47pF, 500V, $\pm$ 10%	1	
C623	ECQM1H683KZ	Polyester, 0.068 $\mu$ F, 50V, $\pm$ 10%	1	
C624	ECQM1H683KZ	Polyester, 0.068 $\mu$ F, 50V, $\pm$ 10%	1	
C625	<b>ECEA35V220V</b>	Electrolytic, 220 $\mu$ F, 35V	1	
C626	<b>ECEA35V220V</b>	Electrolytic, 220 $\mu$ F, 35V	1	
C627	ECCD1H101K	Ceramic, 100pF, 50V, $\pm$ 10%	1	
C628	ECCD1H101K	Ceramic, 100pF, 50V, $\pm$ 10%	1	
C629	ECEA25V4R7	Electrolytic, 4.7 $\mu$ F, 25V	1	
C701	ECET35R6800S	Electrolytic, 6800 $\mu$ F, 35V	1	
C702	ECET35R6800S	Electrolytic, 6800 $\mu$ F, 35V	1	
C703	ECKD2H103PF	Ceramic, 0.01 $\mu$ F, 500V, $\pm$ 100%	1	
C704	<b>ECEA50V470V</b>	Electrolytic, 470 $\mu$ F, 50V	1	
C705	<b>ECEA50V220V</b>	Electrolytic, 220 $\mu$ F, 50V	1	
C706	ECKD1H103PF	Ceramic, 0.01 $\mu$ F, 50V, $\pm$ 100%	1	
C707	ECKD1H103PF	Ceramic, 0.01 $\mu$ F, 50V, $\pm$ 100%	1	
C708	<b>ECEA35V100V</b>	Electrolytic, 100 $\mu$ F, 35V	1	
C709	ECKD1H103PF	Ceramic, 0.01 $\mu$ F, 50V, $\pm$ 100%	1	
C710	<b>ECEA16V100V</b>	Electrolytic, 100 $\mu$ F, 16V	1	
C901	ECQM1H473KZ	Polyester, 0.047 $\mu$ F, 50V, $\pm$ 10%	1	
C902	ECQM1H473KZ	Polyester, 0.047 $\mu$ F, 50V, $\pm$ 10%	1	
<b>VARIABLE CAPACITOR</b>				
CV1 ~ 5 (CT1 ~ 5)	ECVC751K144A	Tuning Capacitor with Trimmer	1	
<b>CABINET and CHASSIS PARTS</b>				
1	SBN587-2	Knob, Tuning Control	1	○
2	SBN661	Knob, Bass, Treble, Balance, Volume Control & Selector Switch	5	○
3	XTS3+8CFZ	Screw, Front Panel M'tg	4	
4 [XA, XAL]	SGW8210	Panel, Front	1	○
4	SGW90A	Panel, Front (Except set for [XA, XAL])	1	○
5	SGUA34	Glass Plate, Front Panel	1	
6	SGX6491	Escutcheon, Push Switch Button	6	○
7	SUS123	Spring, Push Switch Button	6	
8	SBC177	Button, Push Switch	6	○
9	XNS9	Nut, Headphones Jack & Selector Switch	2	
10	XWV9	Washer Spring, Selector Switch	1	
11	XNS8	Nut, Tone, Balance & Volume Control	4	
12	XWV8	Washer Spring, Tone, Balance, Volume Control	4	
13 [XA, XAL] only	SHG511	Bracket, Volume Shaft	5	
14	XCJ6P11B-A	Jack, Headphones	1	
15	XTV3+8C	Screw, Power Switch Bracket M'tg	2	
16	SMN1399	Bracket, Power Switch	1	*○
17 [XA, XAL]	SDH391-3	Plate, Dial Light	1	*○
17 [XG, XHG, XGF, XSD, XSW, XE]	SDH419-1	Plate, Dial Light (Except set for [XA, XAL])	1	*○
18	SHR401-1	Lock Pin, Dial Scale	2	
19 [XA, XAL] only	SHG1419	Clip, Meter Spring	2	○
20	XTB3+8BFZ	Screw, Dial Light Plate M'tg	5	

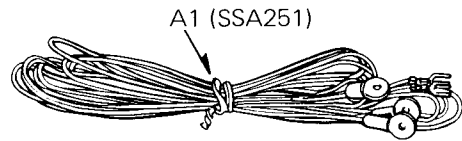
EXPLODED VIEWS



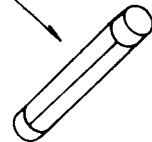
Available in [XG, XGH, XGF, XSD, XSW, XE]



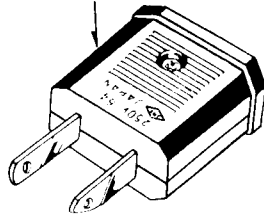
## ■ ACCESSORIES



A2 (XBA2C25SS0)



A3 (SJP5213)



(only set for [XA])

A4 (PJP5)

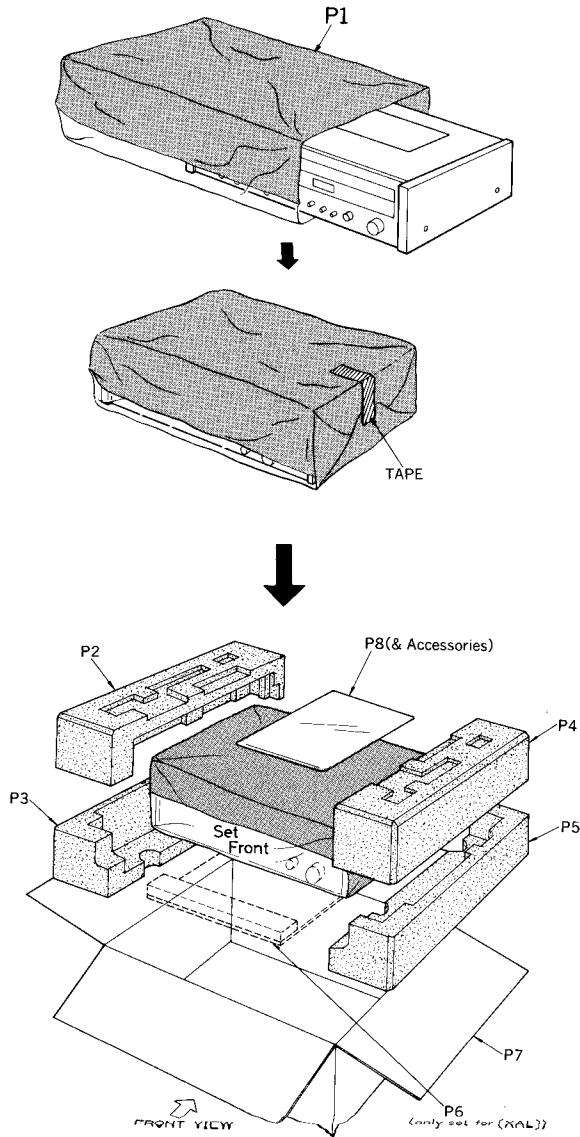


Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
21	SHP29	Paper, Pointer Slide	1	○
22	SDP1113	Pointer, Dial	1	*○
23	SSM105	Meter, FM Tuning & AM Signal	1	○
24	SUSA69	Spring, Meter	1	
25	SKD3130	Scale, Dial	1	*○
26	XTB3+8BFZ	Screw, Pulley Bracket M'tg	1	
27	SUR71S	Bracket, Pulley	1	
28	SDR1	Pulley, Dial	4	
29	SHD3X1F	Screw, Pulley M'tg	4	*○
30	XTB3+8BFZ	Screw, Reflector Plate M'tg	3	
31	SJS5611	Connector, 6 pin	1	
32	SMN1511	Bracket, LED (Except set for [XA, XAL])	1	*○
33 [XA, XAL]	SMN1401	Bracket, LED	1	*○
34	SDT8035S	Shaft, Tuning Control Ass'y	1	*○
35	SDZ051-1	Cord, Dial 70-15/16" (180cm)	1 roll	
36	SDSA4121	Spring, Dial Cord	1	
37	SDD47-1	Drum, Dial Cord	1	
38	SMCA122	Clamp, Lead Wire	1	*
39	SJF8005	Terminal, Inputs & Antennas	1	○
40	SUW1049	Bracket, Power Transistor	2	*○
41	XTV3+8C	Screw, Power Transistor Bracket M'tg	2	
42 [XA]	SJF8007-1	Terminal, Speaker	1	○
42 [XG, XGH, XGF]	SGP610-1A	Rear Panel	1	○
42 [XSD, XSW]	SGP810 A	Rear Panel	1	○
42 [XE]	SGPA5170D	Rear Panel, SGP810A with Name Plate (SGT13910)	1	○
42 [XAL]	SGPA5170E	Rear Panel, SGP810A with Name Plate (SGT13870)	1	○
43	SGPA5170L	Rear Panel, SGP610-2A with Name Plate (SGT13950)	1	○
44	XTV3+8C	Screw, Rear Panel M'tg	7	
45	SHR401-1	Lock Pin, Input, Antenna & Speaker Terminal	6	
46 [XA] only	SUV337	Cover, Circuit Protection Fuse	1	*
46-1 [XA] only	SJS9205-1	Socket, AC Outlet	1	
47	XTN3+8BFZ	Screw, AC Outlet Socket M'tg	2	
48 [XA, XG, XGH, XGF, XSD, XSW]	XTB3+8BFZ	Screw, Fuse Cover M'tg	1	
48 [XE]	SHR127	Bushing, AC Cord	1	
48 [XAL]	SHR129	Bushing, AC Cord	1	
49 [XA, XG, XGF]	SHR131	Bushing, AC Cord	1	
49 [XGH, XSD]	SJA95	AC Cord, with Plug	1	
49 [XSW]	SJA81	AC Cord, with Plug	1	
49 [XE]	SJA68	AC Cord, with Plug	1	
49 [XAL]	SJA99	AC Cord	1	
50 [XA, XAL]	SJA79	AC Cord, with Plug	1	
50 [XG, XGH, XGF, XSD, XSW]	SKA9050W	Cabinet, Brown Wooden	1	○
50 [XE]	SKA9331W	Cabinet Brown Wooden	1	○
50 [XG, XGH, XGF, XSD, XSW]	SKA9330W	Cabinet, Black	1	○
52	SQXA4112	Caution Label, Cabinet Screw (Except set for [XAL])	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
53	XWG5FZ	Washer, Cabinet Screw	4	
54	XWA4BFZ	Spring Washer, Cabinet Screw	4	
55	XTB4+12FFZ	Screw, Cabinet M'tg (Except set for [XA, XAL])	1	
55 [XA, XAL]	XTB4+35FFZ	Screw, Cabinet M'tg	4	
56	SYUA5170M	Bottom Board with feet Ass'y	1	*O
57	XTN3+10B	Screw, Bottom Board M'tg	8	
58	SQX4487	Caution Label, Bottom Board	1	
59	XWG3	Washer, Bottom Board	8	
60	XSN3+6S	Screw, Voltage Selector Switch M'tg (Except set for [XAL])	2	
60-1	XWA3B	Spring Washer, Voltage Selector Switch Screw (Except set for [XAL])	2	
61	SJS6803	Socket, Tape Deck Connection (DIN)	1	
62	SUW1101S	Bracket, Tape Deck Connection Socket	1	O
63	XSN3+6S	Screw, Tape Deck Connection Socket Bracket M'tg	2	
63-1	XWA3B	Spring Washer, DIN Socket. Bracket Screw	2	
64	SUM15	Cover, Dial Light Plate (Except set for [XA, XAL])	1	O
65	SUW1099S	Bracket, Speaker Fuse Printed Circuit Board	1	
<b>LAMPS</b>				
PL1, 2, 3	XAMR54T	Lamp, Dial Light (12.6V 0.38A)	3	
<b>FUSES</b>				
F1	XBA2C10TRO	Fuse, 1AT (250V), Power Source	1	
F2	XBA2C20TRO	Fuse, 2AT (250V), Power Source	1	
F3	XBA2C10TRO	Fuse, 1AT (250V), Power Source	1	
F4	XBA2C20TRO	Fuse, 2AT (250V), Power Source (Except set for [XE, XAL])	1	
F601, 602	XBA2C25SSO	Fuse, 2.5A (250V), Circuit Protection	1	
<b>COMPONENT COMBINATIONS</b>				
Z701, 702	RXAF103P22HD	Component Combination, 0.01μF (X2)	2	
<b>SWITCHES</b>				
S1	SSR67	Switch, Selector	1	O
S2, 3, 4	SSH313S-V	Switch, Muting, Tape & Loudness	1	
S5, 6	SSH223S	Switch, Main & Remote Speaker	1	
S7	ESB7075	Switch, Power Source (Except set for [XAL])	1	
S7 [XAL] only	ESB7083	Switch, Power Source	1	
S8-1, 8-2	SSP53S	Switch, Voltage Selector (Except set for [XE, XAL])	1	
S8-1, 8-2 [XE] only	SSR53S-1S	Switch, Voltage Selector	1	
<b>ACCESSORIES</b>				
A1	SSA251	Cord, FM Feeder Antenna	1	
A2	XBA2C25SSO	Fuse, 2.5A (250V), Circuit Protection	2	
A3 [XA] only	SJP5213	Plug Adaptor, AC Power	1	
A4	RJP5	Pin Plug	4	
<b>PACKING PARTS</b>				
P1	SPP495	Soft Cover, (Except set for [XA, XAL])	1	
P1 [XA, XAL]	SPP511	Soft Cover	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
P2	SPS1039	Pad, Left Side, Upper (Except set for [XA, XAL])	1	O
P2 [XA, XAL]	SPS893	Pad, Left Side, Upper	1	O
P3 [XA, XAL]	SPS891	Pad, Left Side, Lower	1	O
P3 [XGH, XSD, XSW]	SPS1037	Pad, Left Side, Lower	1	O
P3 [XG, XGF, XE]	SPS1045	Pad, Left Side, Lower	1	O
P4	SPS1043	Pad, Right Side, Upper (Except set for [XA, XAL])	1	O
P4 [XA, XAL]	SPS897	Pad, Right Side, Upper	1	O
P5 [XA, XAL]	SPS895	Pad, Right Side, Lower	1	O
P5 [XG, XGF, XE]	SPS1047	Pad, Right Side, Lower	1	O
P5 [XGH, XSD, XSW]	SPS1041	Pad, Right Side, Lower	1	O
P6 [XAL] only	SPS1049	Pad, Bottom Side	1	O
P7 [XA]	SPG1101	Carton Box	1	O
P7 [XAL]	SPG1103	Carton Box	1	O
P7 [XG]	SPG1105	Carton Box	1	O
P7 [XGF]	SPG1107	Carton Box	1	O
P7 [XE]	SPG1109	Carton Box	1	O
P7 [XGH, XSD, XSW]	SPG1111	Carton Box	1	O
P8 [XG, XGH, XGF, XSD, XSW, XE]	SQF1599	Printed Matter, Instructions Book	1	O
P8 [XAL]	SQF1605	Printed Matter, Instructions Book	1	O
P8 [XA]	SQF1603	Printed Matter, Instructions Book	1	O
NOTE:				
<ul style="list-style-type: none"> <li>* The model [XA] is available in Asia, Latin America, Middle East and Africa.</li> <li>* The model [XAL] is available in Australia only.</li> <li>* The model [XG] is available in Europe only.</li> <li>* The model [XGH] is available in Holland only.</li> <li>* The model [XSD] is available in Scandinavia only.</li> <li>* The model [XSW] is available in Switzerland only.</li> <li>* The model [XE] is available in England only.</li> <li>* The model [XGF] is available in France only.</li> </ul>				

■ PACKINGS



# SA-5170K

(XG), (XGH), (XGF), (XSD), (XSW)

- \* This parts list includes only the changes of the SA-5170 (XG), (XGH), (XGF), (XSD), (XSW) parts list.
- \* When servicing model SA-5170K, this parts list and SA-5170 (XG), (XGH), (XGF), (XSD), (XSW) parts list should be used together.

■ CHANGE OF PARTS FROM SA-5170  
(XG, XGH, XGF, XSD and XSW)

Ref. No.	Change of Part No.		Part Name & Description	Per Set	Remarks	
	SA-5170	SA-5170K				
<b>Transformer</b>						
T801	SLT5P97-W SLT5P99-W SLT5P101-W	[XE] [XAL]	SLT5P97-W	Power Transformer	1	
<b>Switches</b>						
S7	ESB7075 ESB7083	[XAL]	ESB7075	Switch, Power Source	1	
S8-1,8-2	SSR53S SSR53-1S	[XE]	SSR53S	Switch, Voltage Selector	1	
<b>Cabinet and Chassis Parts</b>						
1	SBN587-2		SBN587-1	Knob, Tuning Control	1	○
2	SBN661		SBN589	Knob, Bass, Treble, Balance, Volume & Selector		○
4	SGW90A SGW8210	[XA, XAL]	SGW90B	Panel, Front	1	○
17	SDH419-1 SDH391-3	[XA, XAL]	SDH419-2	Plate, Dial Light	1	○
32	SMN1511 SMN1401	[XA, XAL]	SMN1511	Bracket, Light Emitting Diode	1	
42	SGP610-1A	[XA]	SGP810B [XG, XGF, XGH]	Rear Panel (Products for [XG], [XGH] and [XGF] only)	1	○
	SGP810A	[XG, XGH, XGF]				
	SGPA5170D	[XSD, XSW]	SGPA5170KD [XSD, XSW]	Rear Panel, SGP810B with Name Plate (SGT14790) (Products for [XG], [XGH] and [XGF] only)	1	○
	SGPA5170E	[XE]				
48	SHR127 SHR129 SHR131	[XE] [XAL]	SHR127	Bushing, AC Cord	1	
49	SJA95	[XA, XG, XGF]	SJA95 [XG, XGF]	AC Cord, Power Source (Products for [XG] and [XGF] only)	1	
	SJA81	[XGH, XSD]				
	<b>SJA68</b>	[XSW]	SJA81 [XGH, XSD]	AC Cord, Power Source (Products for [XGH], [XSD] only)	1	
	SJA99	[XE]				
	SJA79	[XAL]				
50	SKA9050W	[XA, XAL]	SKA9330W	Cabinet, Black	1	
	SKA9331W	[XE]				
	SKA9330W					

## ■ DIAL CORD INSTALLATION GUIDE

1. Dial cord length is 180cm (70-15/16").
2. Tuning gang is positioned at maximum capacity.  
(Frequency is minimum)
3. Arrow marks (1 ~ 9) indicated correct order and direction of stringing dial cord.

