

Service Manual

FM/AM STEREO RECEIVER

SA-300

(X), (XA), (XAL)
(XGH), (E)

- * The models SA-300(X) and SA-300(XA) are available in Asia, Latin America, Middle East and Africa only.
- * The model SA-300(XAL) is available in Australia only.
- * The model SA-300(XGH) is available in Holland only.
- * The model SA-300(E) is available in Scandinavia and European only.

TECHNICAL SPECIFICATIONS

Specifications are subject to change without notice for further improvement.

[DIN 45 500]

AMPLIFIER SECTION

1 kHz continuous power output	
both channels driven	2 x 40 W (4Ω), 2 x 38 W (8Ω)
40 Hz ~ 16 kHz continuous power output	
both channels driven	2 x 37 W (4Ω), 2 x 35 W (8Ω)
20 Hz ~ 20 kHz continuous power output	
both channels driven	2 x 35 W (8Ω)
Power bandwidth	
both channels driven, -3 dB	10 Hz ~ 25 kHz (4Ω)
Total harmonic distortion	
rated power at 1 kHz	0.04% (4Ω, 8Ω)
rated power at 40 Hz ~ 16 kHz	0.04% (4Ω, 8Ω)
rated power at 20 Hz ~ 20 kHz	0.04% (8Ω)
half power at 20 Hz ~ 20 kHz	0.025% (8Ω)
half power at 1 kHz	0.009% (8Ω)
-26 dB power at 1 kHz	0.04% (4Ω)
50 mW power at 1 kHz	0.2% (4Ω)
Intermodulation distortion	
rated power at 250 Hz: 8 kHz = 4:1, 4 Ω	0.04%
rated power at 60 Hz: 7 kHz = 4:1, SMPTE, 8Ω	0.04%
Residual hum & noise	0.6mV
Damping factor	16 (4Ω), 32 (8Ω)
Input sensitivity and impedance	
PHONO	2.5 mV/47 kΩ
AUX	150 mV/33 kΩ
PLAYBACK (TAPE 1), REC/PLAY input	180 mV/39 kΩ
PLAYBACK (TAPE 2)	150mV/33 kΩ
PHONO maximum input voltage (1 kHz, RMS)	130 mV
S/N	
rated power at 4Ω	PHONO 70 dB (IHF, A: 78 dB)
	AUX 88 dB (IHF, A: 95 dB)
-26 dB power at 4Ω	PHONO 68 dB, AUX 77 dB
50 mW power at 4Ω	PHONO 64 dB, AUX 65 dB
Frequency response	PHONO RIAA standard curve ±0.5 dB
	AUX 20 Hz ~ 20 kHz, ±0.5 dB
	10 Hz ~ 30 kHz, -1 dB
	50 Hz, +10 dB ~ -10 dB
	10 kHz, +10 dB ~ -10 dB
	7 kHz, -6 dB/oct.
Tone controls	BASS 50 Hz, +10 dB ~ -10 dB
	TREBLE 10 kHz, +10 dB ~ -10 dB
HIGH filter	50 Hz, +9 dB
Loudness control (volume at -30 dB)	150 mV
Output voltage	REC OUT (TAPE 1, 2) 30 mV
	REC/PLAY output ±1.0 dB
Channel balance (250 Hz ~ 6300 Hz), AUX	55 dB
Channel separation at 1 kHz, AUX	400mV/330Ω
Headphones output level and impedance	MAIN or REMOTE 4 ~ 16Ω
Load impedance	MAIN + REMOTE 8 ~ 16Ω

FM TUNER SECTION

Frequency range	88 ~ 108 MHz
Antenna impedance	300Ω (balanced), 75Ω (unbalanced)
Sensitivity (±40 kHz deviation)	
S/N 30 dB	1.9μV (300Ω), 1.3μV (75Ω)
S/N 26 dB	1.7μV (300Ω), 1.2μV (75Ω)
S/N 20 dB	1.5μV (300Ω), 0.9μV (75Ω)
IHF usable sensitivity	1.9μV (IHF '58)
IHF S/N 46 dB stereo quieting sensitivity	22μV (75Ω)
Total harmonic distortion	MONO 0.15%
	STEREO 0.3%
S/N (±40kHz deviation)	MONO 60 dB (IHF: 75 dB)
	STEREO 58 dB (IHF: 70 dB)
Frequency response	20Hz ~ 15 kHz, +1 dB
	20 Hz ~ 14 kHz, ±1.5 dB
Alternate channel selectivity	70 dB
Capture ratio	1.2 dB
Image rejection at 98 MHz	70 dB
IF rejection at 98 MHz	90 dB
Spurious response rejection at 98 MHz	80 dB
AM suppression	55 dB
Stereo separation	1 kHz 45 dB, 10 kHz 35 dB
Leak carrier	19 kHz -33 dB (-40 dB, IHF)
	38 kHz -48 dB (-50 dB, IHF)
Limiting point	1.2μV
Bandwidth	IF amplifier 180 kHz
	FM demodulator 1000 kHz
Channel balance (250 Hz ~ 6300 Hz)	±1.5 dB

AM TUNER SECTION

Frequency range	525 ~ 1605 kHz
Sensitivity (S/N 20 dB)	30μV, 300μV/m
Selectivity	30 dB
Image rejection at 1000 kHz	45 dB
IF rejection at 1000 kHz	40 dB

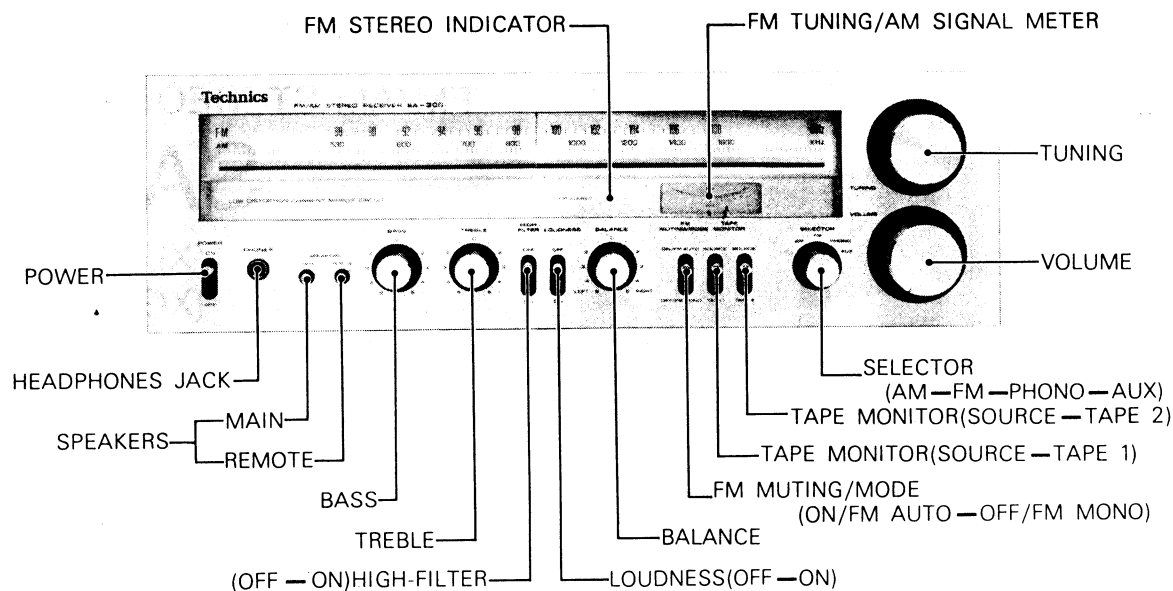
GENERAL

Power consumption	410 W
Power supply (50 Hz/60 Hz)	110V/120V/220V/240V
Dimensions (W x H x D)	430 x 145 x 260 mm
	(16 1/8" x 5 3/4" x 10 1/4")
Weight	7.7 kg (17 lb.)

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

■ LOCATION OF CONTROLS (Front Panel)



TECHNISCHE DATEN [DIN 45 500]

Spezifikationen können infolge von Verbesserungen ohne Ankündigung geändert werden.

VERSTÄRKERTEIL

RMS-Dauertonleistung bei 1 kHz beide Kanäle zusammen angesteuert	2 x 40 W (4Ω) 2 x 38 W (8Ω)
RMS-Dauertonleistung bei 40 Hz ~ 16 kHz beide Kanäle zusammen angesteuert	2 x 37 W (4Ω) 2 x 35 W (8Ω)
RMS-Dauertonleistung bei 20 Hz ~ 20 kHz beide Kanäle zusammen angesteuert	2 x 35 W (8Ω)
Leistungsbandsbreite beide Kanäle zusammen angesteuert, -3 dB	10 Hz ~ 25 kHz (4Ω)
Harmonische Verzerrungen	
Nennausgangsleistung bei 1 kHz	0.04% (4Ω, 8Ω)
Nennausgangsleistung bei 40 Hz ~ 16 kHz	0.04% (4Ω, 8Ω)
Nennausgangsleistung bei 20 Hz ~ 20 kHz	0.04% (8Ω)
Halber Ausgangsleistung bei 20 Hz ~ 20 kHz	0.025% (8Ω)
Halber Ausgangsleistung bei 1 kHz	0.009% (8Ω)
-26 dB Ausgangsleistung bei 1 kHz	0.04% (4Ω)
50 mW Ausgangsleistung bei 1 kHz	0.2% (4Ω)
Intermodulationsverzerrung	
Nennausgangsleistung bei 250 Hz: 8 kHz = 4:1, 4Ω	0.04%
Nennausgangsleistung bei 60 Hz: 7 kHz = 4:1, 8Ω	0.04%
Hum & Noise	0.6 mV
Dämpfungsfaktor	16 (4Ω), 32 (8Ω)
Eingangsempfindlichkeit & Impedanz	
PHONO	2.5 mV/47 kΩ
AUX	150 mV/33 kΩ
PLAYBACK (TAPE 1), REC/PLAY Eingang	180 mV/39 kΩ
PLAYBACK (TAPE 2)	150 mV/33 kΩ
PHONO Maximale Eingangsspannungen (1 kHz RMS)	130 mV
Fremdspannungsabstand	
Nennausgangsleistung bei 4Ω PHONO	70 dB (IHF, A: 78 dB)
AUX	88 dB (IHF, A: 95 dB)
-26 dB Ausgangsleistung bei 4Ω PHONO	68 dB
AUX	77 dB
50 mW Ausgangsleistung bei 4Ω PHONO	64 dB
AUX	65 dB
Frequenzgang PHONO	RIAA Standardkurve ±0.5 dB
AUX	20 Hz ~ 20 kHz, ±0.5 dB
Klangregler BÄSSE	10 Hz ~ 30 kHz, -1 dB
HÖHEN	50 Hz, +10 dB ~ -10 dB
Höhenfilter	7 kHz, -6 dB/oct.
Gehörgerechte Lautstärkekorrektur (Lautstärke bei -30 dB)	50 Hz, +9 dB
Ausgangsspannungen REC OUT (TAPE 1, 2)	150 mV
REC/PLAY Aufnahme	30 mV
Kanalabweichung (250 Hz ~ 6300 Hz), AUX	±1.0 dB
Kanaltrennung bei 1 kHz, AUX	55 dB
Kopfhörerpegel und Ausgangsimpedanz	400 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)	
30 dB Fremdspannungsabstand	1.9μV (300Ω), 1.3μV (75Ω)
26 dB Fremdspannungsabstand	1.7μV (300Ω), 1.2μV (75Ω)
20 dB Fremdspannungsabstand	1.5μV (300Ω), 0.9μV (75Ω)
IHF Empfindlichkeit	1.9μV (IHF '58)
46 dB Fremdspannungsabstand	Empfindlichkeit, IHF
	22μV (75Ω), STEREO
Harmonische Verzerrung	MONO 0.15%
	STEREO 0.3%
Fremdspannungsabstand (±40 kHz Hub)	
MONO	60 dB (IHF: 75 dB)
STEREO	58 dB (IHF: 70 dB)
Frequenzgang	20 Hz ~ 15 kHz, +1 dB
	20 Hz ~ 14 kHz, ±1.5 dB
Selektivität	70 dB
Gleichwellen-Selektion	1.2 dB
Spiegelselektion bei 98 MHz	70 dB
ZF-Festigkeit bei 98 MHz	90 dB
Unselektivitätsfestigkeit bei 98 MHz	80 dB
AM-Unterdrückung	55 dB
Stereo Übersprechdämpfung	1 kHz 45 dB, 10 kHz 35 dB
Trägerrest	19 kHz -33 dB (-40 dB, IHF)
	38 kHz -48 dB (-50 dB, IHF)
Begrenzung, Einsatzzpunkt	1.2μV
Bandbreite ZF-Verstärker	180 kHz
UKW-Demodulator	1000 kHz
Kanalabweichung (250 Hz ~ 6300 Hz)	±1.5 dB

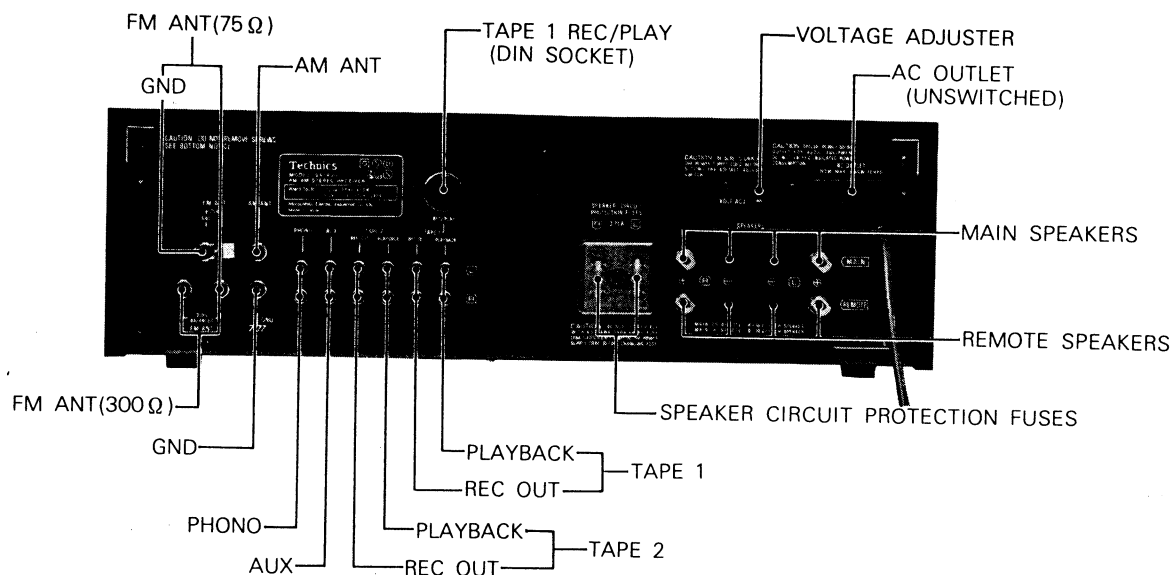
AM-TUNERTEIL

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

ALLGEMEINE DATEN

Leistungsaufnahme	410 W
Netzspannung umschaltbar (50 Hz/60 Hz)	110V/120V/220V/240V
Abmessungen (B x H x T)	430 x 145 x 260 mm
Gewicht	7.7 kg

■ LOCATION OF CONTROLS (Rear Panel)



* This photo shows only the products for (XA).

* The products for other destinations except (XA) are not equipped with AC outlet.

CARACTERISTIQUES TECHIQUES [DIN 45 500]

Sujet à changement sans préavis.

SECTION AMPLIFICATEUR

Puissance RMS (continue) à 1 kHz pour l'ensemble des canaux excités	2 x 40 W (4Ω) 2 x 38 W (8Ω)
Puissance RMS (continue) à 40 Hz ~ 16 kHz pour l'ensemble des canaux excités	2 x 37 W (4Ω) 2 x 35 W (8Ω)
Puissance RMS (continue) à 20 Hz ~ 20 kHz pour l'ensemble des canaux excités	2 x 35 W (8Ω)
Largeur de bande de puissance pour l'ensemble des canaux excités, -3 dB	10 Hz ~ 25 kHz (4Ω)
Distorsion harmonique totale pour la puissance mesurée à 1 kHz	0.04% (4Ω, 8Ω)
pour la puissance mesurée à 40 Hz ~ 16 kHz	0.04% (4Ω, 8Ω)
pour la puissance mesurée à 20 Hz ~ 20 kHz	0.04% (8Ω)
pour la demi-puissance mesurée à 20 Hz ~ 20 kHz	0.025% (8Ω)
pour la demi-puissance mesurée à 1 kHz	0.009% (8Ω)
pour une puissance mesurée de -26 dB, 1 kHz	0.04% (4Ω)
pour une puissance mesurée de 50 mW, 1 kHz	0.2% (4Ω)
Distorsion d'intermodulation pour la puissance mesurée à 250 Hz: 8 kHz=4:1, 4Ω	0.04%
pour la puissance mesurée à 60 Hz: 7 kHz=4:1, 8Ω	0.04%
Tension résiduelle de bruit	0.6mV
Facteur d'amortissement	16 (4Ω), 32 (8Ω)
Sensibilité & impédance d'entrée PHONO	2.5 mV/47 kΩ
AUX	150 mV/33 kΩ
PLAYBACK (TAPE 1), REC/PLAY entrée	180 mV/39 kΩ
PLAYBACK (TAPE 2)	150 mV/33 kΩ
Voltage d'entrée maximum (PHONO, 1 kHz, RMS)	130 mV
Rapport signal/bruit pour la puissance nominale, 4Ω	
PHONO	70 dB (IHF, A: 78 dB)
AUX	88 dB (IHF, A: 95 dB)
pour une sortie de -26 dB, 4Ω	PHONO 68 dB, AUX 77 dB
pour une sortie de 50 mW, 4Ω	PHONO 64 dB, AUX 65 dB
Réponse de fréquence PHONO	Courbe standard RIAA ±0.5 dB
AUX	20 Hz ~ 20 kHz, ±0.5 dB 10 Hz ~ 30 kHz, -1 dB
Régage de la tonalité BASS (graves)	50 Hz, +10 dB ~ -10 dB
TREBLE (aigus)	10 kHz, +10 dB ~ -10 dB
Filtre d'aigu	7 kHz, -6 dB/oct.
Correction physiologique (volume à -30 dB)	50 Hz, +9 dB
Tension de sortie REC OUT (TAPE 1, 2)	150 mV
REC/PLAY (sortie)	30 mV
Equilibrage de canaux (250 Hz ~ 6300 Hz), AUX	±1.0 dB

Ecarts canaux à 1 kHz, AUX	55 dB
Niveau des écouteurs et impédance de sortie	400 mV/330Ω
Impédance de charge PRINCIPALE ou ELOIGNEE	4 ~ 16Ω
PRINCIPALE + ELOIGNEE	8 ~ 16Ω

SECTION TUNER FM

Gamme reçue	88 ~ 108 MHz
Impédance d'antenne 300Ω (symétrique) 75Ω (asymétrique)	
Sensibilité (± 40 kHz déviation)	
Signal/bruit 30 dB	1.9μV (300Ω), 1.3μV (75Ω)
Signal/bruit 26 dB	1.7μV (300Ω), 1.2μV (75Ω)
Signal/bruit 20 dB	1.5μV (300Ω), 0.9μV (75Ω)
IHF Sensibilité	1.9μV (IHF '58)
IHF Sensibilité pour 46 dB	22μV (75Ω), STEREO
Distorsion harmonique totale MONO	0.15%
STEREO	0.3%
Signal/bruit(±40 kHz déviation) MONO	60 dB (IHF: 75 dB)
STEREO	58 dB (IHF: 70 dB)
Réponse de fréquence	20 Hz ~ 15 kHz, +1 dB 20 Hz ~ 14 kHz, ±1.5 dB
Sélectivité alternée par canal	70 dB
Taux de capture	1.2 dB
Réjection de fréquence image à 98 MHz	70 dB
Réjection FI à 98 MHz	90 dB
Réjection de réception non sélective à 98 MHz	80 dB
Suppression AM	55 dB
Séparation stéréophonique 1 kHz	45 dB, 10 kHz 35 dB
Courant porteur de dispersion 19 kHz	-33 dB (-40 dB, IHF)
38 kHz	-48 dB (-50 dB, IHF)
Point limite	1.2μV
Largeur de bande Amplificateur FI	180 kHz
Démodulateur FM	1000 kHz
Equilibrage de canaux (250 Hz ~ 6300 Hz)	±1.5 dB

SECTION TUNER AM

Gamme reçue	525 ~ 1605 kHz
Sensibilité (Rapport S/B 20 dB)	30μV, 300μV/m
Sélectivité	30 dB
Réjection de fréquence image à 1000 kHz	45 dB
Réjection FI à 1000 kHz	40 dB

GENERALITES

Consommation	410 W
Alimentation (50 Hz/60 Hz)	110V/120V/220V/240V
Dimensions (L x H x Pr)	430 x 145 x 260 mm
Poids	7.7 kg

Notes: 1. Loudness switch OFF 2. Band selector switch AM/FM (FM, RF FM-IF) 3. FM muting/mode switch OFF/FM MONO 4. Speaker switch ON 5. Tape monitor switch SOURCE			6. Filter switch OFF 7. Maintain line voltage at rated voltage. 8. Output of signal generator should be no higher than necessary to obtain an output reading.		
SIGNAL GENERATOR		DIAL SETTING	INDICATOR (AC VTVM or SCOPE) (DISTORTION METER)	ADJUSTMENT POINTS	REMARKS
CONNECTION	FREQUENCY				
* AM ALIGNMENT					
1 High side through 0.001 μ F to AM antenna trimmer terminal. Common to chassis.	455kHz (30% Mod. with 400Hz)	Point of non-interference	Connect VTVM or scope to TP201 through 0.1 μ F	T201 (1st IFT) Z201 (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 terminals of receiver.	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 terminals of receiver.	CT5 (OSC Trimmer) CT4 (ANT Trimmer)	● Adjust for maximum output. ● Repeat steps (2) and (3).
FM-IF ALIGNMENT					
	No Signal	Point of non-interference.	Tuning meter of set.	T101 (DISCRI IFT) (A) Orange Core	● FM muting/mode switch to ON/FM AUTO. ● Adjust for center position of tuning meter.
FM-RF ALIGNMENT					
5 Connect to FM 300 Ω antenna terminal through FM dummy antenna.	90MHz (100% Mod. with 400Hz)	90MHz	Connect scope to speaker terminals of receiver.	L5 (OSC Coil) L3 (RF-DET Coil) L1 (ANT Coil)	● FM muting/mode switch to OFF/FM MONO. ● Adjust for maximum amplitude and symmetrical curve. (Refer to fig. 4).
6 Connect to FM 300 Ω antenna terminal through FM dummy antenna.	106MHz (100% Mod. with 400Hz)	106MHz	Connect scope to speaker terminals of receiver.	CT3 (OSC Trimmer) CT2 (RF DET Trimmer) CT1 (ANT Trimmer)	● Adjust for maximum amplitude and symmetrical curve. ● Repeat steps (5) and (6).
FM MONO DISTORTION ALIGNMENT					
7 Connect to FM 300 Ω antenna terminal through FM dummy antenna. Apply 60 dB to set.	100MHz (100% Mod. with 400Hz)	100MHz	Connect distortion meter to speaker terminals of receiver.	T101 (DISCRI IFT) (B). Green Core	● Adjust for minimum distortion of left output. ● Repeat steps (4) and (7).
FM MUTING LEVEL ALIGNMENT					
8 Connect to FM 300 Ω antenna terminal through FM dummy antenna. Apply 16dB(6.3 μ V) to set.	100MHz (100% Mod. with 400Hz)	100MHz	Connect VTVM or scope to speaker terminals.	VR101	● FM muting/mode switch to "ON/FM AUTO". ● Adjust so that output can be obtained.
FM MPX PILOT ALIGNMENT					
Using a frequency counter			Using alternate system		
1 100MHz Non-modulated mono signal applied to set. (Apply 60dB) 2 FM muting/mode switch to "ON/FM AUTO" 3 Connect frequency counter to TP301 through resistor (100k Ω). 4 Adjust VR301 to 19kHz. $\pm$ 30Hz.			1 Apply stereo signal from generator or stereo station to receiver. 2 Adjust VR301 until stereo indicator lights up. Cement arm of VR301 as shown in fig. 5.		
Notes: 1. Stereo modulator ● Connect stereo modulator output to EXT MOD terminal of signal generator. 					

(Für Deutschland)

Anmerkungen:

1. Loudness-Schalter OFF
2. Bereichsschalter (AM (AM Abgleich)
FM (FM Abgleich))
3. FM Muting/mode-Schalter OFF/FM MONO
4. Lautsprecher-Schalter ON

5. Tape/Monitor-Umschalter SOURCE
6. Filter-Schalter OFF
7. Die Netzspannung auf ihren Sollwert einstellen.
8. Der Ausgang des Meßsenders darf nicht höher sein als unbedingt notwendig für eine gute Ablesung.

AM/UKW MESSENDER		SKALENZEIGEREIN-STELLUNG DES TUNER	ANZEIGE (Wechselstrom Röhrenvoltmeter oder Oszillograph bzw. Klirrfaktor-Meßgerät)	ABGLEICHSPUNKTE	BEMERKUNGEN
ANSCHLUSS	FREQUENZ				
AM-ABGLEICH					
Heißes Ende des Meßsenders über einen 0.001µF Kondensator an den AM Antenneneingang schließen. Kaltes Ende an Masse.	455kHz (400Hz Modul., 30%)	Kein Empfang	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	T201 (1. IFT) Z201 (2. IFT)	• Auf max. Ausgang abgleichen.
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.
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. • Schritt (2) und (3) sind zu wiederholen.
UKW ZF-ABGLEICH					
	Kein Signal	Kein Empfang	Abstimmmanzeige.	T101 (Diskriminator IFT) [A]	• FM Muting-Schalter auf ON stellen. • Den Abstimmungsanzeiger auf den zentrum Wert einstellen.
UKW HF-ABGLEICH					
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.	L5 (Osc. Spule)	• FM Muting-Schalter auf OFF stellen. • Auf max. Ausgang abgleichen.
Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	90MHz (400Hz Modul., 100%)	90MHz	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	L3 (Det. Spule) L1 (Ant. Spule)	• Auf max. Amplitude bei entsprechender Linearität abgleichen. (Vgl. Abb. 4)
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. Amplitude bei entsprechender Linearität abgleichen. (Vgl. Abb. 4) • Schritt (5), (6) und (7) sind zu wiederholen.
ABGLEICH AUF MIN. VERZERRUNG IN STELLUNG UKW-MONO					
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.
UKW-MUTING-ABGLEICH					
Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. Meßsender auf 16 dB (6.3µV) einstellen.	100MHz (400Hz Modul., 100%)	100MHz	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	VR101	• Muting Schalter auf "ON" stellen. • So einstellen, daß ein Ausgang zu vernehmen ist.
UKW-STEREO-DEKODER-ABGLEICH					
Unter Verwendung eines Zählers			Alternativ-Meßmethode		
1. Unmoduliertes Mono-Signal 100 MHz in das Gerät speisen.			1. Stereosignal entweder von einem Stereogenerator oder einem Sender einspeisen.		
2. FM Muting-Schalter auf "ON /FM AUTO" stellen.			2. VR301 so einstellen, bis die Stereolampe auf leuchtet.		
3. Zähler über einen Widerstand 100K ohm an TP301 schließen.			Schleifer von VR301 sichern, wie in Abb. 5 gezeigt.		
4. VR301 auf 19kHz ±30Hz einstellen.					
KANALTRENNUNG-ABGLEICH					
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 (Röhrenvoltmeter oder Oszillograph)		ABGLEICHSPUNKTE	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. 6.		VR302	• Auf min. Ausgang rechter (und linker) abgleichen.

Notes:					
1. Commutateur de physiologique (loudness) OFF		5. Commutateur de contrôle auditif SOURCE (relâché)			
2. Sélecteur de gamme { AM (Alignement AM) FM (Alignement FM)		6. Commutateur de filtre OFF			
3. Commutateur de silencieux OFF/FM MONO		7. Conserver la tension du secteur à la tension nominale.			
4. Commutateur d'enceintes ON		Le signal du générateur ne doit pas être plus élevé qu'il n'est nécessaire à obtenir une lecture en sortie.			
AM/FM GENERATEUR		AIGUILLE SUR LE CADRAN	INDICATEUR(C.A. VOLTMÈTRE ÉLECTRONIQUE OSCILLOSCOPE OU DISTORSIONMÈTRE).	POINTS DE REGLAGE	OBSERVATIONS
BRANCHMENT	FREQUENCE				
ALIGNEMENT AM					
Côté chaud, à travers 0.001µF, sur le trimmer de l'antenne AM, commun au schassis	455kHz (modulé à 30% par 400Hz)	Point sans signal	Branchez un voltmètre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	T201 (1 transfo FI) Z201 (2 transfo FI)	• Réglez au maximum de signal de sortie.
Faire une boucle de quelques tours et rayonner le signal dans le cadre de l'ampli-tuner	600kHz (modulé à 30% par 400Hz)	600kHz	Branchez un voltmètre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	L202 (bobine OSC) L201 (bobine ANT)	• Réglez au maximum de signal de sortie. Réglez L201 en déplaçant la bobine le long du noyau de ferrite.
Faire une boucle de quelques tours et rayonner le signal dans le cadre de l'ampli-tuner.	1500kHz (modulé à 30% par 400Hz)	1500kHz	Branchez un voltmètre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	CT5 (trimmer OSC) CT4 (trimmer ANT)	• Réglez au maximum de signal de sortie. • Recommencez les étapes (2) et (3).
ALIGNEMENT FI-FM					
	Sans signal	point sans signal	Indicateur d'accord de l'appareil	T101 (Transfo FI discr.) [A]	• Commutateur de silencieux sur ON. • Réglez pour atteindre position médiane sur l'indicateur d'accord.
ALIGNEMENT RF-FM					
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	L5 (bobine OSC) L3 (bobine DET) L1 (bobine ANT)	• Commutateur de silencieux sur OFF. • Régler au maximum d'amplitude et de symétrie. (Voir fig. 1)
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 d'amplitude et de symétrie. (Voir fig. 1) • Recommencez les étapes (5) et (6)
REGLAGE DE LA DISTORSION FM EN MONO					
Branchez sur la prise d'antenne FM à travers une antenne fictive FM.	100MHz (modulé à 100% par 400Hz)	100MHz	Branchez un distorsionmètre sur les bornes de haut-parleur de l'appareil.	T101 (Transfo FI discr.) [B]	• Réglez au minimum d'indication du distorsionmètre. Recommencez les étapes (4) et (7).
REGLAGE DU SEUIL DU SILENCIEUX D'ACCORD					
Branchez sur la prise d'antenne FM à travers une antenne fictive FM. Niveau de sortie du générateur 16 dB (-6.3µV).	100MHz (modulé à 100% par 400Hz)	100MHz	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.
ALIGNEMENT DU PILOTE MULTIPLEX FM					
Avec un fréquencemètre			Par un autre système		
1. Signal mono 100 MHz non modulé appliqué à l'appareil.			1. Appliquez à l'appareil un signal stéréo provenant d'un générateur ou de la réception d'un émetteur.		
2. Commutateur de silencieux sur "ON/FM AUTO"			2. Réglez VR301 jusqu'à ce que l'indicateur de stéréophonie s'allume. Collez le curseur de VR301 comme indiqué sur la fig. 2.		
3. Branchez le fréquencemètre sur TP301 à travers une résistance de 100kΩ.					
4. Réglez VR301 sur 19kHz ±30Hz.					
REGLAGE DE LA SEPARATION DES CANAUX					
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					
BRANCHEMENT DU GÉNÉRATEUR DE SIGNAL	MODE DU MODULEUR STÉRÉO ET TAUX DE MODULATION	INDICATEUR (VOLTMÈTRE ÉLECTRONIQUE OU OSCILLOSCOPE)	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. 3.	VR302	• Réglez au minimum de sortie droite (et gauche)	

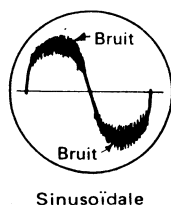


Fig. 1

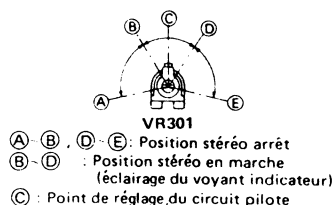


Fig. 2

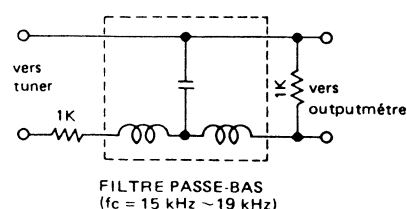
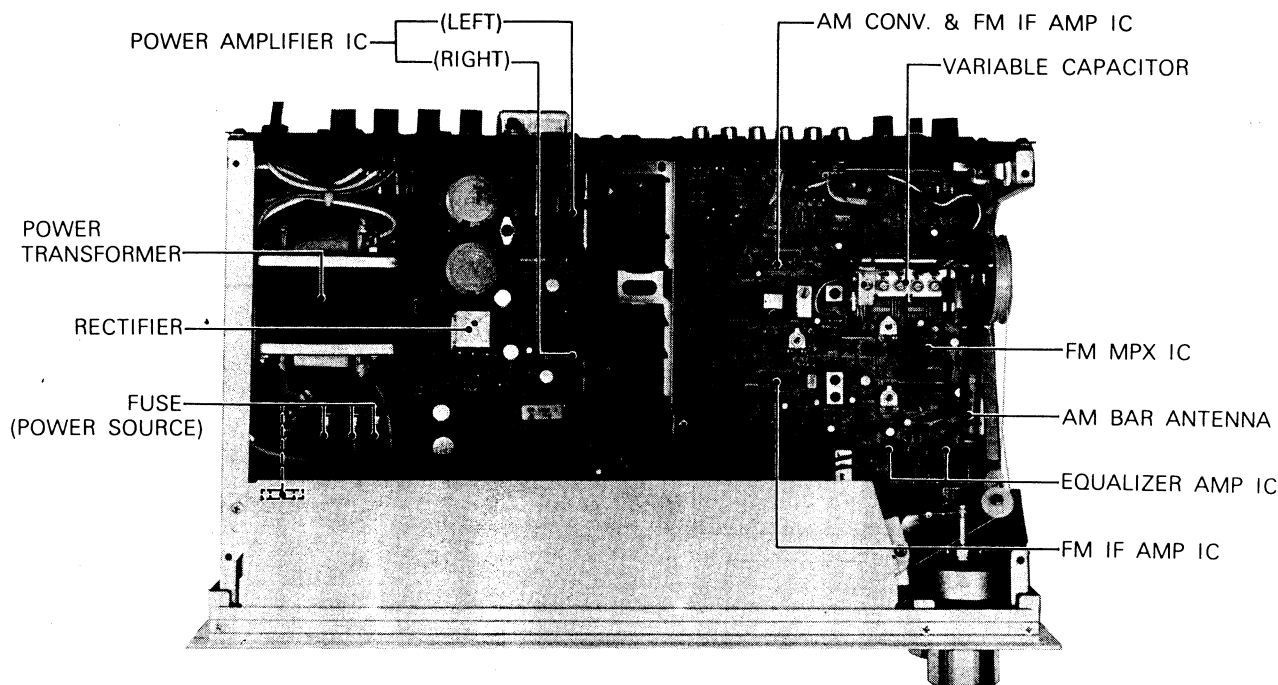


Fig. 3

PRINTED CIRCUIT BOARD VIEW



NOTE

The unit is provided with the speaker circuit protection fuses at the right and left channels respectively. The fuse is to prevent the power IC 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 circuit protection fuses first of all for possible blowing.

ALIGNMENT POINTS

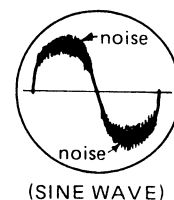
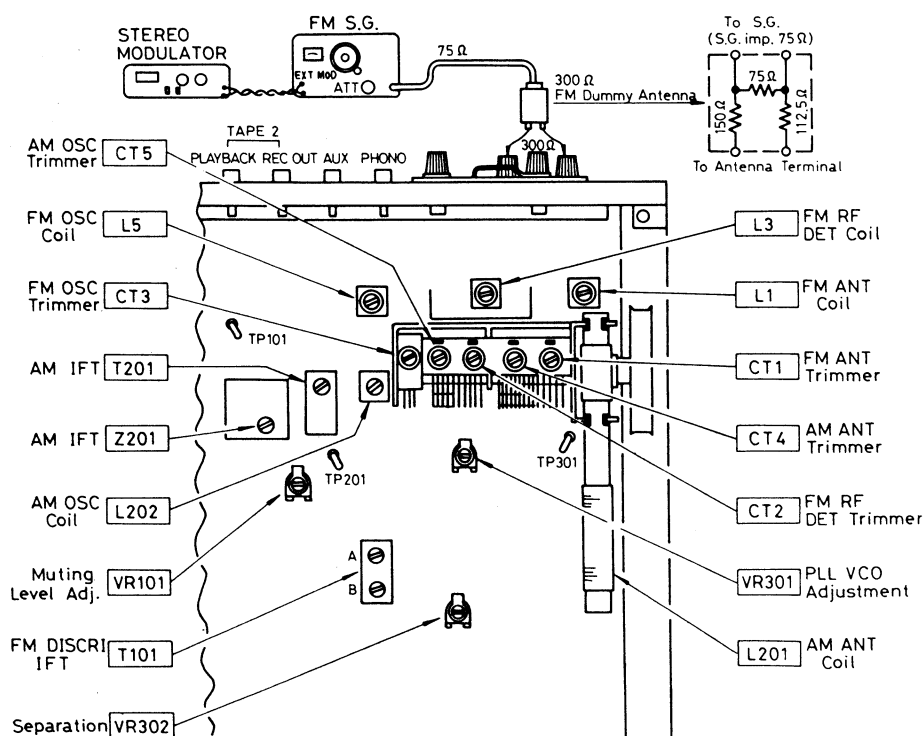


Fig. 4 (Abb. 4)

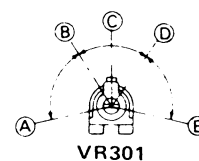


Fig. 5 (Abb. 5)

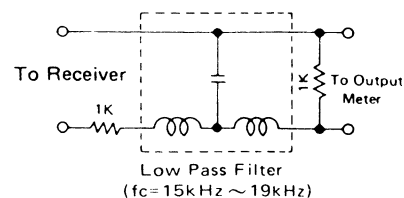
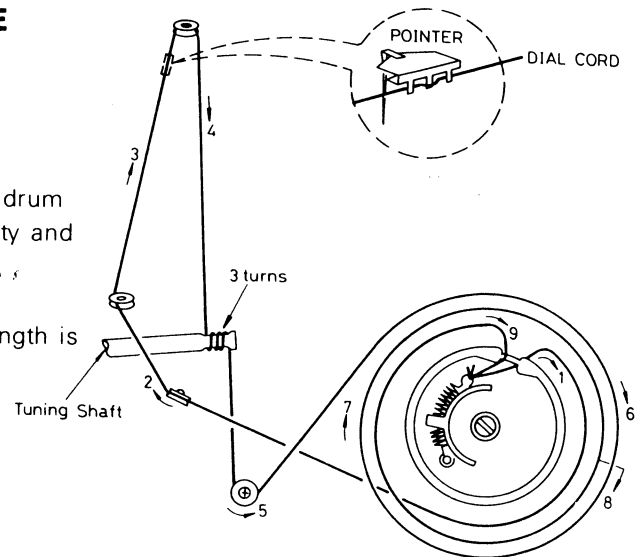


Fig. 6 (Abb. 6)

■ DIAL CORD INSTALLATION GUIDE

- For threading a fresh cord, proceed as follows.
 1. Prepare a fresh cord more than 200cm(78-3/4") in length.
 2. Bring the variable capacitor into a state where the drum is completely turned to the right (maximum capacity and lowest frequency for the variable capacitor).
 3. Direct the cord in the order from 1 to 9.
 4. Stretch the cord in such a tension as the spring length is elongated by 1.5 times that of the original state.
 5. Fix the knot of the cord with the bond.



■ TO REMOVE CABINET

1. Remove the four cabinet mounting screws (nos 1 ~ 4 screws in fig. 7).
2. Sliding it toward (A) direction and lifting it upward (B) direction as shown in fig. 7.
3. When the cabinet is installed, insert the metal fitting of cabinet (as shown in fig. 8) into the space between the front panel and light reflector.

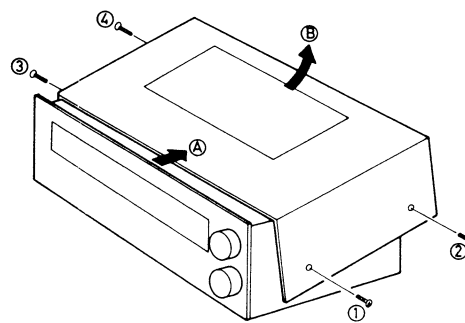


Fig. 7

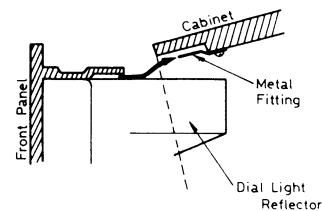
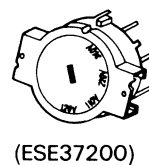


Fig. 8

■ THE UNIT CAN USE TWO DIFFERENT PARTS IN VOLTAGE ADJUSTER

1. When using the part number ESE37200, connect as shown in fig. 9.
2. When using the part number SSR53S, connect as shown in fig. 10.



(ESE37200)

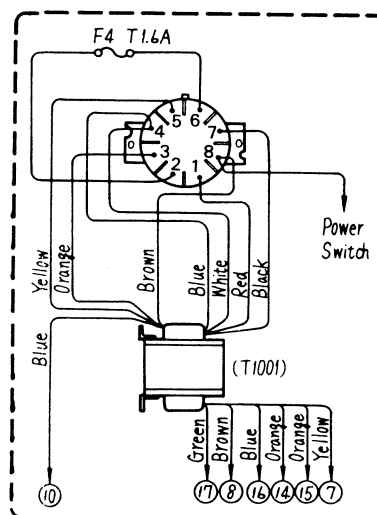
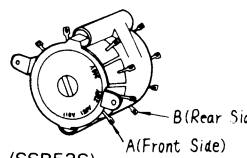


Fig. 9



(SSR53S)

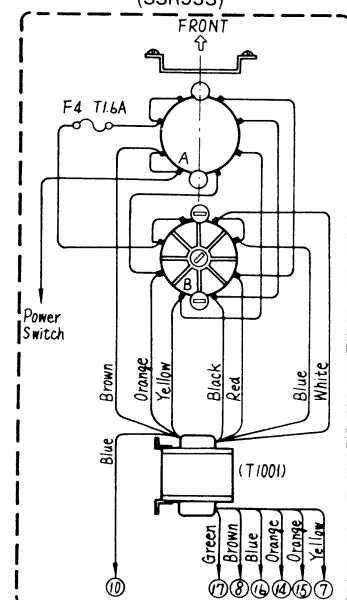
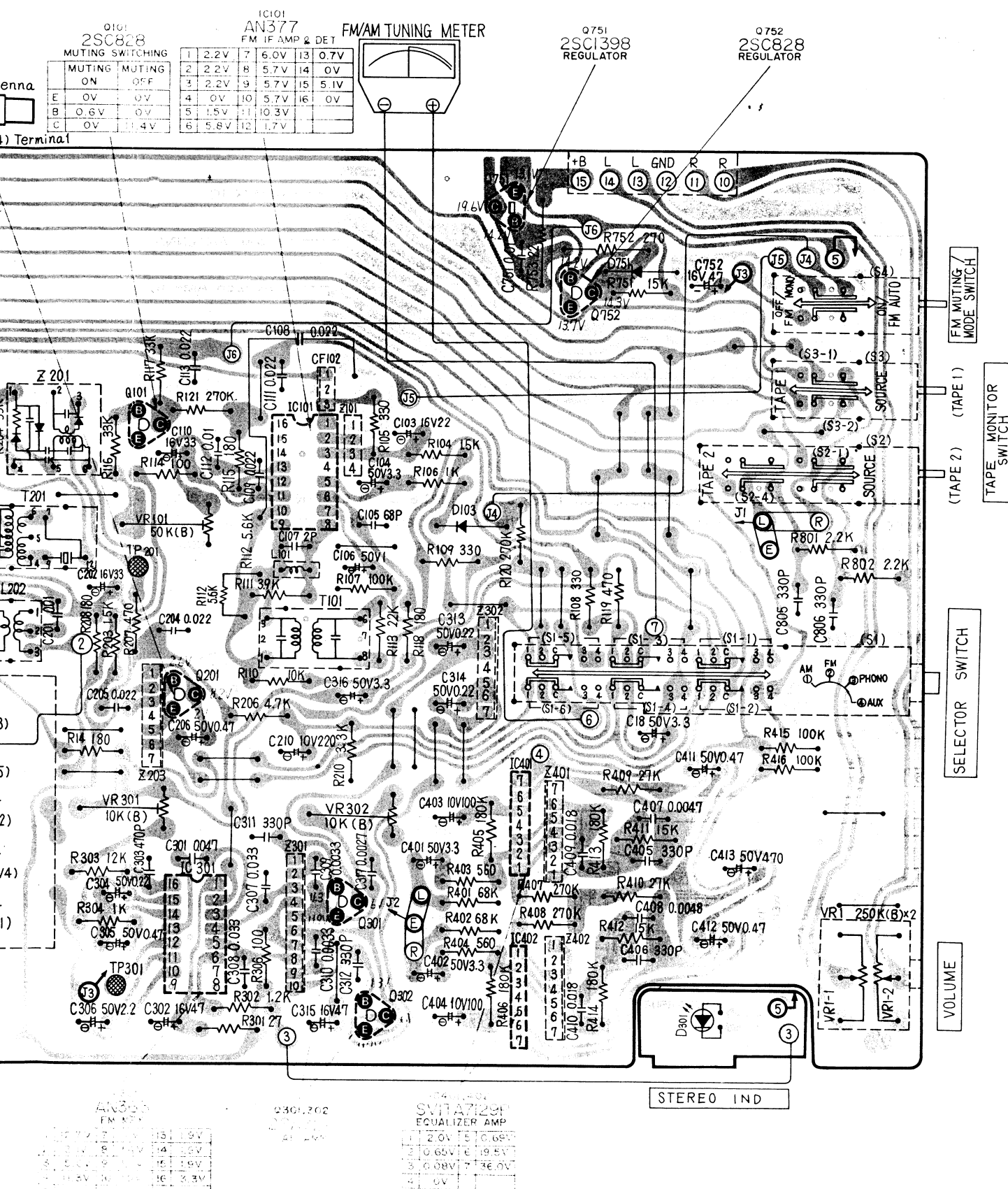


Fig. 10



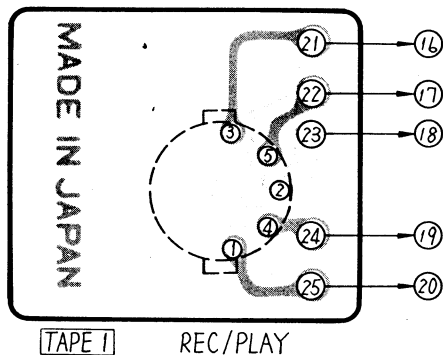
FM/AM TUNER AND EQUALIZER CIRCUIT BOARD

	FM	AM		FM	AM
1	0V	0V	9	0.8V	7.3V
2	0V	0V	10	0.5V	1.5V
3	0.4V	0V	11	0.7V	0.8V
4	6.2V	0V	12	0.8V	7.3V
5	1.1V	0V	13	0.5V	0.7V
6	0V	0V	14	0.6V	1.1V
7	1.1V	0V	15	0.8V	7.3V
8	5.9V	0V	16	0.5V	0.7V

IC201
AN217
AM CONV B
FM 1ST, 2ND IF AMP

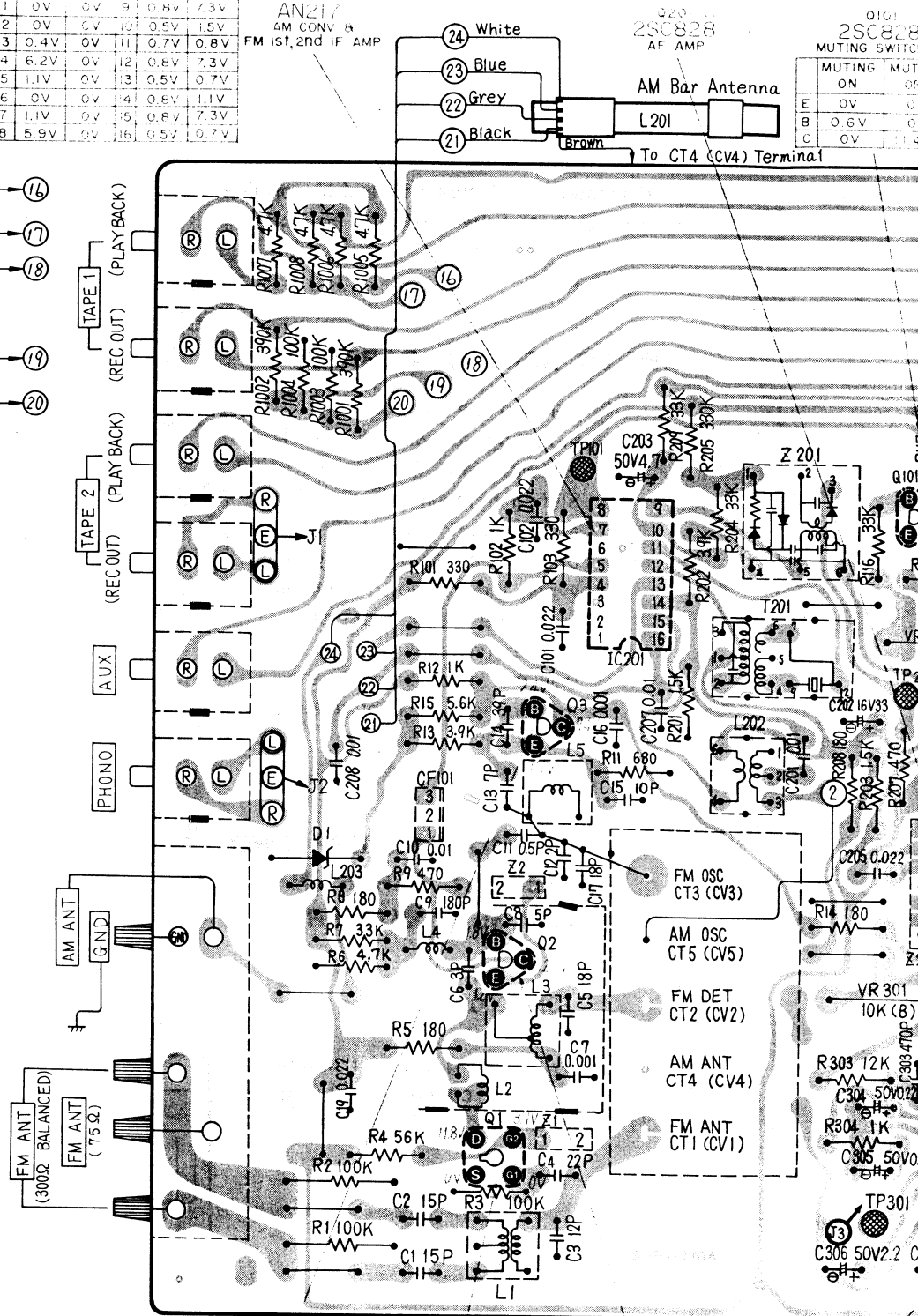
Q201
2SC828
AF AMP

Q101
2SC828
MUTING SWITCH

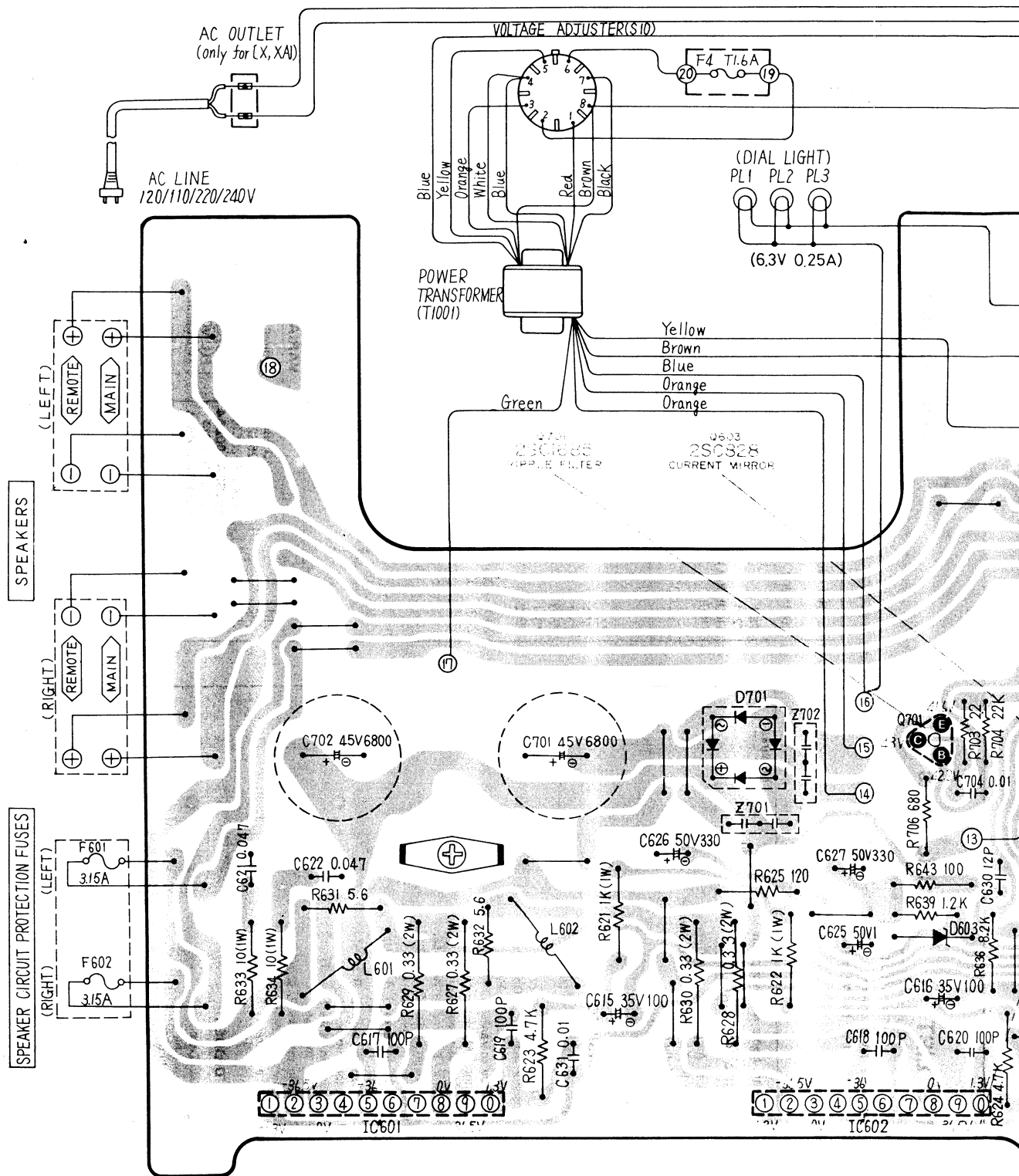


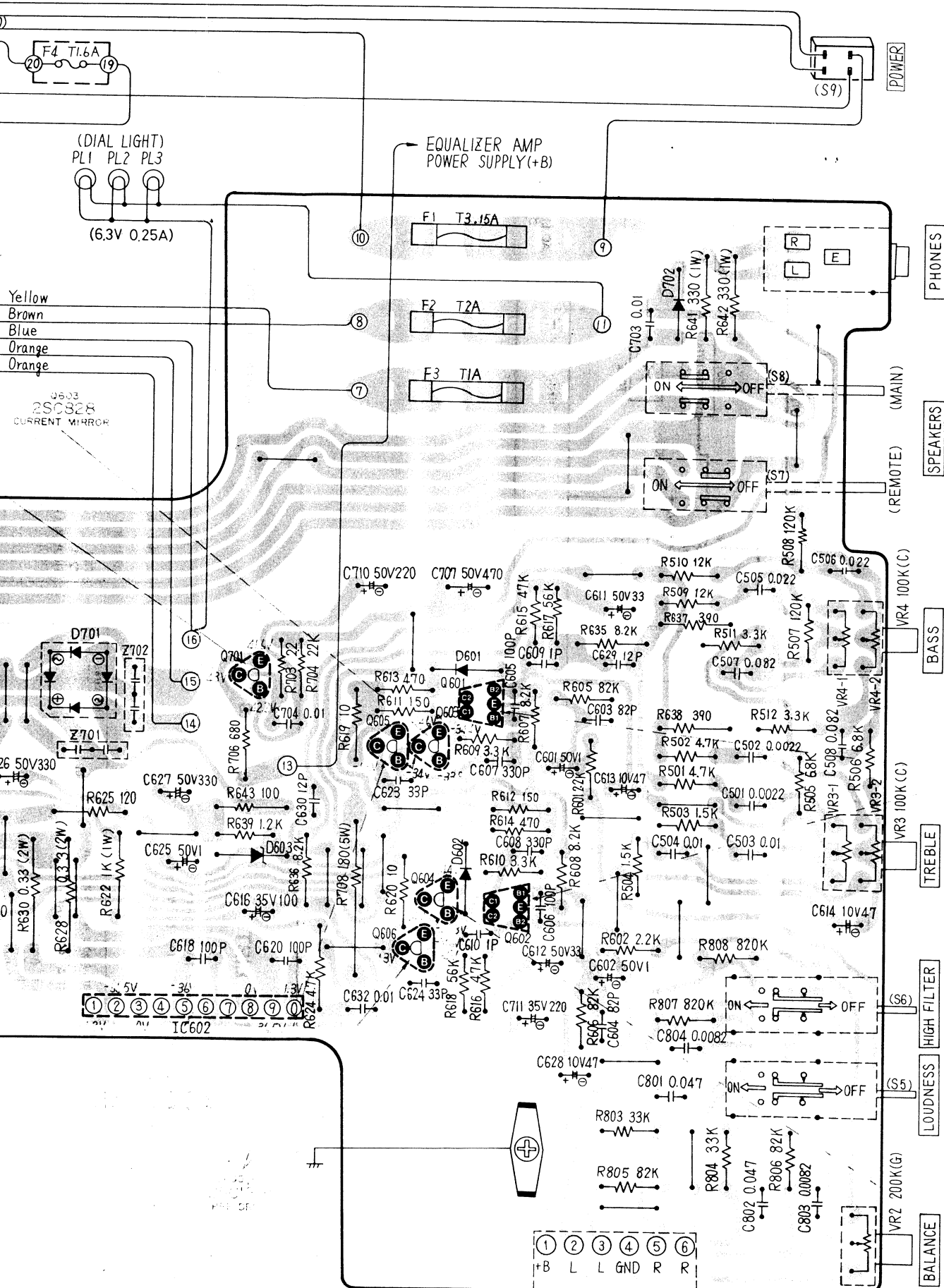
TERMINAL GUIDE OF TRANSISTOR AND IC

2SA798A	2SA721, 2SC828 2SC1047, 2SC1675 2SC1685, 2SC1885
AN217, AN363, AN377	3SK40
SVISTK0039U	2SC1398
SVITA7129P	



■ TONE, MAIN AMPLIFIER AND POWER SUPPLY CIRCUIT BOARD







be used for safety.

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
L601, 602	SLQY15G-3P	Coil, Power Amplifier Output	2	

REPLACEMENT PARTS LIST Electric Parts

- NOTES: 1. Part numbers are indicated on most mechanical parts.
Please use this part number for parts orders.
2. ■ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
INTEGRATED CIRCUIT				
IC101	AN377	IC, FM IF Amplifier & FM Detector	1	
IC201	AN217-BB	IC, FM IF Amplifier & AM Converter	1	
IC301	AN363	IC, FM Multiplex	1	
IC401, 402	SVTA7129P	IC, Equalizer Amplifier	2	
IC601, 602	SVISTK0039U	IC, Power Amplifier	2	○
TRANSISTORS				
Q1	3SK40-M	Transistor, FM RF Amplifier	1	
Q2	2SC1047-C	Transistor, FM Mixer (Use in ranks C or D)	1	
Q3	2SC1675-L1	Transistor, FM Local Oscillator	1	
Q101, 201	2SC1328-T	Transistor, Muting & AM AF Amplifier (Use in ranks S, T or U)	2	
Q301, 302	2SA902S-F	Transistor, FM AF Amplifier (Use in ranks F or G)	2	
Q601, 602	2SA798A-G2	Transistor, Differential Amplifier (Use in ranks F2 or G2)	2	
Q603, 604	2SC1328-T	Transistor, Current Mirror (Use in ranks S, T or U)	2	
Q605, 606	2SC1885-Q	Transistor, Pre Driver (Use in ranks Q, R or S)	2	
Q701	2SC1685-T	Transistor, Ripple Filter (Use in ranks S or T)	1	○
Q751	2SC1398-Q	Transistor, Regulator (Use in ranks P, Q or R)	1	
Q752	2SC1328-T	Transistor, Regulator (Use in ranks S, T or U)	1	
DIODES				
D1	SVDMZ303BM	Diode, 3V Zener	1	○
D103	OA99	Diode, Switching	1	
D301	LN25RP	Light Emitting Diode, Stereo Indicator	1	
D601, 602	MA27B	Diode, Current Mirror	2	○
D603	SVDMZ314	Diode, 14V Zener	1	
D701	SVDS4VB10	Rectifier	1	■
D702	SM112	Rectifier	1	■
D751	SVDMZ414	Diode, 14V Zener	1	
COILS and TRANSFORMERS				
L1	SLA4P25	Coil, FM Antenna	1	
L2	RLQY25S2	Coil, Choke	1	
L3	SLD4P13	Coil, FM RF Detector	1	
L4	RLQY15G5	Coil, Choke	1	
L5	SLQ4P31	Coil, FM Local Oscillator	1	
L101	SLQX180-2	Coil, Choke	1	
L201	SLE2C11	Coil, AM Bar Antenna	1	
L202	SLQ2C3-P	Coil, AM Local Oscillator	1	
L203	SLQX101-2D	Coil, Choke	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
L601, 602	SLQY15G-3P	Coil, Power Amplifier Output	2	
T101	SLI4D513-3	Transformer, FM IF Detector	1	
T201	SLI7D101-M	Transformer, AM IF	1	○
T1001 (XAL) only	SLT5P147-W	Transformer, Power Source	1	○
T1001	SLT5P145-W	Transformer, Power Source	1	○
COMPONENT COMBINATION				
Z1	EXRP102Z223S	Component Combination, 22k Ω & 0.001 μ F	1	
Z2	EXRP103P102S	Component Combination, 1k Ω & 0.01 μ F	1	○
Z101	EXF3SLQ4C	Component Combination, 0.01 μ F (X3)	1	○
Z201	SLI9T101-Z	Component Combination, AM Detector	1	
Z203	EXB8H5005K	Component Combination, Resistors	1	○
Z301	EXB8H8007K	Component Combination, Resistors	1	○
Z302	EXA6YD04C	Component Combination, 3.9k Ω (X2), 100k Ω (X2), 820pF (X2)	1	○
Z401, 402	EXA6SD01C	Component Combination, Equalizer	2	○
Z701, 702	EXRFS203ZS	Component Combination, 0.01 μ F (X2)	2	○
CERAMIC FILTERS				
CF101, 102	SVFE107MS8-A SVFE107MS8-B SVFE107MS8-C SVFE107MS8-D SVFE107MS8-E	Ceramic Filter, Red, 10.7MHz Ceramic Filter, Blue, 10.67MHz Ceramic Filter, Orange, 10.73MHz Ceramic Filter, Black, 10.64MHz Ceramic Filter, White, 10.76MHz (Use pair ranks as same as CF101 and CF102.)	each 2	
VARIABLE RESISTORS				
VR1	EWFMKA031BF5	Volume Control, 250k Ω (B)	1	○
VR2	EVHGPAF25G25	Balance Control, 200k Ω (C)	1	○
VR3, 4	EWKB9AF25C15	Bass & Treble Control, 100k Ω (C)	2	○
VR101	EVLS3AA00B54	Muting Level Adjustment, 50k Ω (B)	1	
VR301	EVTSS3MA00B14	PLL VCO Adjustment, 10k Ω (B)	1	
VR302	EVLS3AA00B14	Separation Adjustment, 10k Ω (B)	1	
VARIABLE CAPACITORS				
CV1~CV5 (CT1~CT5)	ECVC751K144A	Variable Capacitor, with Trimmer	1	
LAMPS				
PL1, 2, 3	XAMR62S	Lamp, Dial (6.3V 0.25A)	3	
FUSES				
F1	XBA2C31TRO	Fuse, 3.15A T(250V) Power Source	1	
F2	XBA2C20TRO	Fuse, 2A T(250V) Power Source	1	
F3	XBA2C10TRO	Fuse, 1A T(250V) Power Source	1	
F4	XBA2C16TRO	Fuse, 1.6A T(250V) Power Source	1	
F601, 602	XBA2C31SSO	Fuse, 3.15A(250V) Power Speaker Circuit	2	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
SWITCHES				
S1	ESRM164F25E	Switch, Selector	1	○
S2	SSL125	Switch, Tape Monitor 2	1	○
S3	SSL121	Switch, Tape Monitor 1	1	○
S4	SSL123	Switch, FM Muting/Mode	1	○
S5, 6	SSL123	Switch, Loudness & High-Filter	2	○
S7, 8	SSH223S	Switch, Speakers	2	○
S9	ESL21191	Switch, Power Source	1	○
S10	ESE37200	Switch, Voltage Adjustment(See page 8)	1	
S10	SSR53S	Switch, Voltage Adjustment(See page 8)	1	

NOTES:

Guide letters of Resistor and Capacitor indicate.

Resistors

ERD Carbon ERG Metal oxide ECK Ceramic
 ERO Metal film ERX Polyester ECOS Polystyrene
 ERF Non-flammable ECE Electrolytic

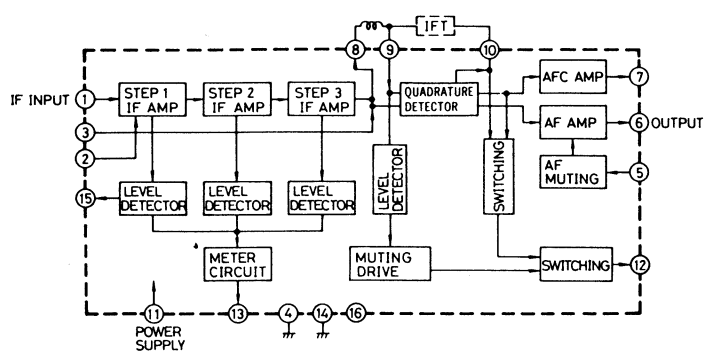
Capacitors

Ref. No.	Part No.	Ref. No.	Part No.
RESISTORS			
R1 2 Except for (XAL)	ERD50TJ104	R207	ERD25TJ471
R3	ERD25TJ104	R208	ERD25TJ181
R4	ERD25TJ563	R209	ERD25TJ333
R5	ERD25TJ181	R210	ERD25TJ332
R6	ERD25TJ472	R301	ERD25TJ270
R7	ERD25TJ333	R302	ERD25TJ122
R8	ERD25TJ181	R303	ERD25TJ123
R9	ERD25TJ471	R304	ERD25TJ102
R11, 12	ERD25TJ102	R306	ERD25TJ101
R13	ERD25TJ392	R401, 402	ERD25CKG6802
R14	ERD25TJ181	R403, 404	ERD25TJ561
R15	ERD25TJ562	R405, 406	ERD25CKG1803
R101	ERD25TJ331	R407, 408	ERD25CKG2703
R102	ERD25TJ102	R409, 410	ERD25TJ273
R103	ERD25TJ331	R411, 412	ERD25TJ153
R104	ERD25TJ153	R413, 414	ERD25TJ184
R105	ERD25TJ331	R415, 416	ERD25TJ104
R106	ERD25TJ102	R501, 502	ERD25TJ472
R107	ERD25TJ104		
R108 109	ERD25TJ331	R503, 504	ERD25TJ152
R110	ERD25TJ103	R505, 506	ERD25TJ682
R111	ERD25TJ392	R507, 508	ERD25TJ124
R112	ERD25TJ562	R509, 510	ERD25TJ123
R113	ERD25TJ222	R511, 512	ERD25TJ332
R114	ERD25TJ101	R601, 602	ERD25TJ222
R115	ERD25TJ181	R605, 606	ERD25TJ823
R116, 117	ERD25TJ333	R607, 608	ERD25TJ822
R118	ERD25TJ181	R609, 610	ERD25TJ332
R119	ERD25TJ471	R611, 612	ERD25TJ151
R120, 121	ERD25TJ274		
R201	ERD25TJ152	R613, 614	ERD25TJ471
R202	ERD25TJ392	R615, 616	ERD25TJ473
R203	ERD25TJ152	R617, 618	ERD25TJ563
R204	ERD25TJ333	R619, 620	ERD14FJ100
R205	ERD25TJ334	R621, 622	ERG1ANJ102
R206	ERD25TJ472	R623, 624	ERD12FJ472
		R625	ERD14FJ121
		R627, 628	ERX2ANJR33
		R629, 630	ERX2ANJR33
		R631, 632	ERD14FJ5R6

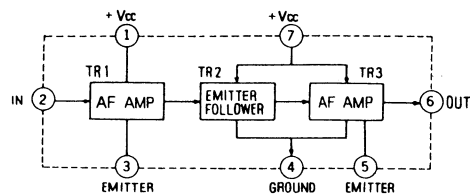
Ref. No.	Part No.	Ref. No.	Part No.
R633, 634	ERX1ANJ100	C203	ECEA1JS4R7
R635, 636	ERD14FJ822	C204, 205	ECQM1H223KZ
R637, 638	ERD14FJ391	C206	ECEA2ASR47
R639	ERD25TJ122	C207, 208	ECKD1H103ZF
R641, 642	ERG1ANJ331	C210	ECEA1AS221
R643	ERD14FJ101	C251 (XAL)only	ECKDHS102MD
R703	ERD18FAJ2R2	C301	ECQM1H473KZ
R704	ERD25TJ223	C302	ECEA1ES470
R706	ERD14FJ681	C303	ECQS05471JZ
R708	ERF5SJ181	C304	ECEA50ZR22
R751	ERD25TJ153	C305	ECEA50ZR47
R752	ERD12FJ271	C306	ECEA50M2R2R
R753	ERD12FJ220		
R801, 802	ERD25TJ222	C307, 308	ECQM1H333JZ
R803, 804	ERD25TJ333	C309, 310	ECQM1H332KZ
R805, 806	ERD25TJ823	C311, 312	ECKD1H331KB
R807, 808	ERD25TJ824	C313, 314	ECEA50ZR22
R1001, 1002	ERD25TJ394	C315	ECEA1HS470
R1003, 1004	ERD25TJ104	C316	ECEA2ASR33
R1005 ~1008	ERD25TJ472	C317	ECQM1H272KZ
		C401, 402	ECEA50M3R3R
		C403, 404	ECEA1AS101
		C405, 406	ECKD1H331KB

Ref. No.	Part No.	Ref. No.	Part No.
CAPACITORS			
C1, 2	ECOD1H150KC	C605, 606	ECCD1H101K
C3	ECOD1H120KC	C607, 608	ECKD1H331KB
C4	ECOD1H220KC	C609, 610	ECCD1H101K
C5	ECOD1H180KR	C611, 612	ECEA1JS330
C6	ECOD1H030CC	C613, 614	ECEA1AS470
C7	ECKD1H102MDA	C615, 616	ECEA1VS101
C8	ECOD1H050CC	C617, 618	ECCD2H101K
C9	ECOD1H181K	C619, 620	ECCD2H101K
C10	ECKD1H103ZF	C621, 622	ECQM1H473KZ
C11	ECOD1H0R5CC	C623, 624	ECCD2H330K
C12	ECOD1H020CC	C625	ECEA2AS010
C13	ECOD1H070DC	C626, 627	ECEA1HS331
C14	ECOD1H390KC	C628	ECEA1AS470
C15	ECOD1H100KC	C629, 630	ECOD1H120K
C16	ECKD1H102MDA	C631, 632	ECKD1H103ZF
C17	ECOD1H180KR	C701, 702	ECEA1HS471
C18	ECEA2AS3R3	C703, 704	ECEA1HS221
C19	ECKD1H223ZF	C707	ECEA1VS221
C51, 52 (XAL)only	ECKDHS101MB	C710	ECEA1VS221
C101, 102	ECKD1H223ZF	C711	ECKD1H103ZF
C103	ECEA1CS220	C751	ECEA1ES470
C104	ECEA2AS3R3	C752	ECQM1H473KZ
C105	ECOD1H680K	C801, 802	ECQM1H822KZ
C106	ECEA2AS010	C803, 804	ECKD1H331KB
C107	ECOD1H020CC	C805, 806	
C108, 109	ECKD1H223ZF		
C110	ECEA1CS330		
C111	ECKD1H223ZF		
C112	ECKD1H103ZF		
C113	ECKD1H223ZF		
C201	ECKD1H103MD		
C202	ECEA1CS330		

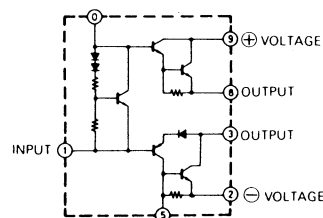
■ BLOCK DIAGRAM OF INTEGRATED CIRCUITS



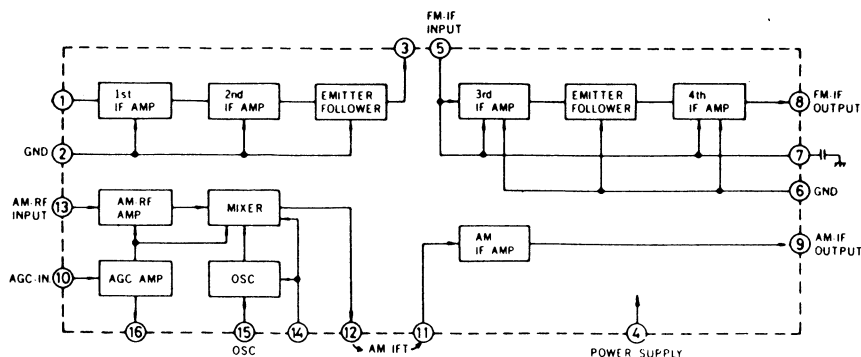
IC101 (AN377)
FM IF Amplifier & Detector



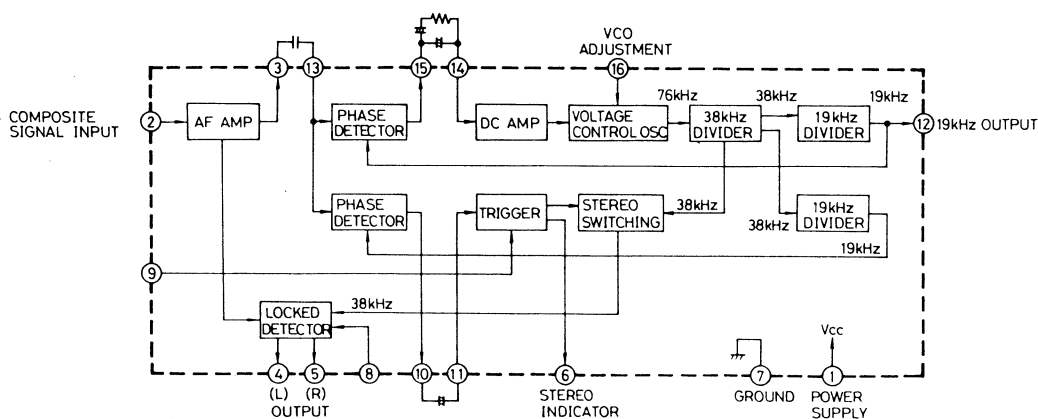
IC401, 402 (SVITA7129P)
Equalizer Amplifier



IC601, 602 (SVISTK0039U)
Power Amplifier



IC201 (AN217)
FM IF Amplifier & AM Converter



IC301 (AN363)
FM Multiplex

Schematic Diagram · Model SA-300 (X,XA)

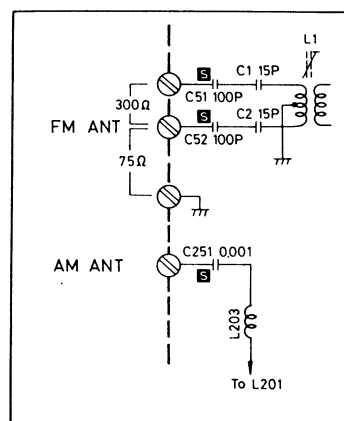
Notes:

- S1-1~S1-6:** Selector switch in "AM" position.
① AM ↔ ② FM ↔ ③ PHONO ↔ ④ AUX
- S2-1, S2-4:** Tape monitor 2 switch in "SOURCE" position.
- S3-1~S3-4:** Tape monitor 1 switch in "SOURCE" position.
- S4:** FM muting/mode switch in "ON/AUTO" position.
- S5-1, S5-2:** Loudness switch in "OFF" position.
- S6-1, S6-2:** High-filter switch in "OFF" position.
- S7-1, S7-2:** Remote speaker switch in "OFF" position.
- S8-1, S8-2:** Main speaker switch in "ON" position.
- S9:** Power source switch in "ON" position.
- S10:** Voltage adjustment switch in "240V" position.
120V ↔ 110V ↔ 220V ↔ 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.

Not apply signal to set and muting switch to OFF condition.
 AM signal reception.
 FM muting to ON condition.
 FM stereo signal reception.
- AF signal lines. → FM signal lines. → AM signal lines.
- S** indicates that only parts specified by the manufacturer be used for safety.
- This schematic diagram may be modified at any time with the development of new technology.

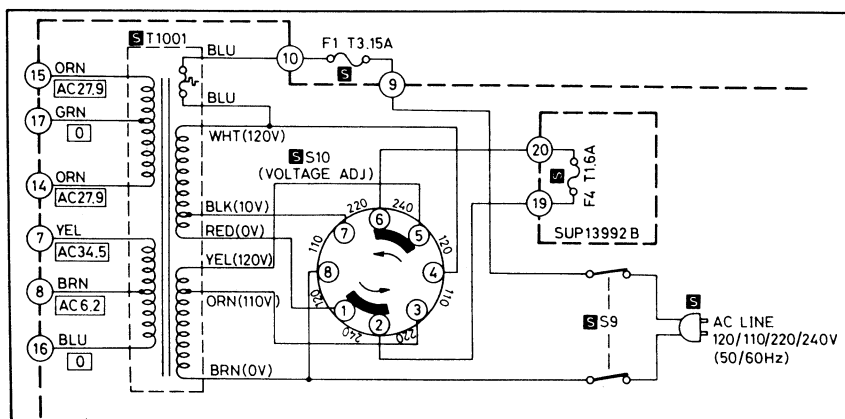
■ ANTENNA CAPACITORS

● Product for Australia(XAL) only

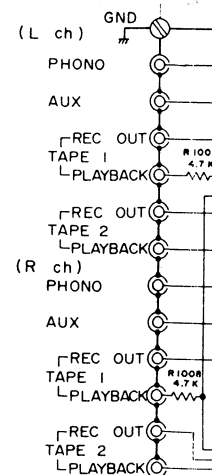
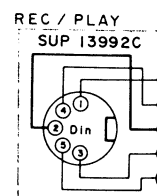
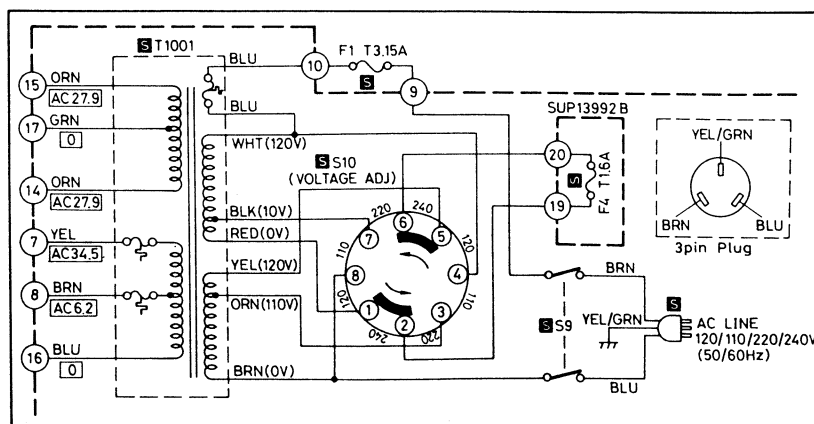


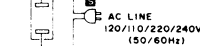
■ POWER SOURCE CIRCUITRY OF OTHER PRODUCTS

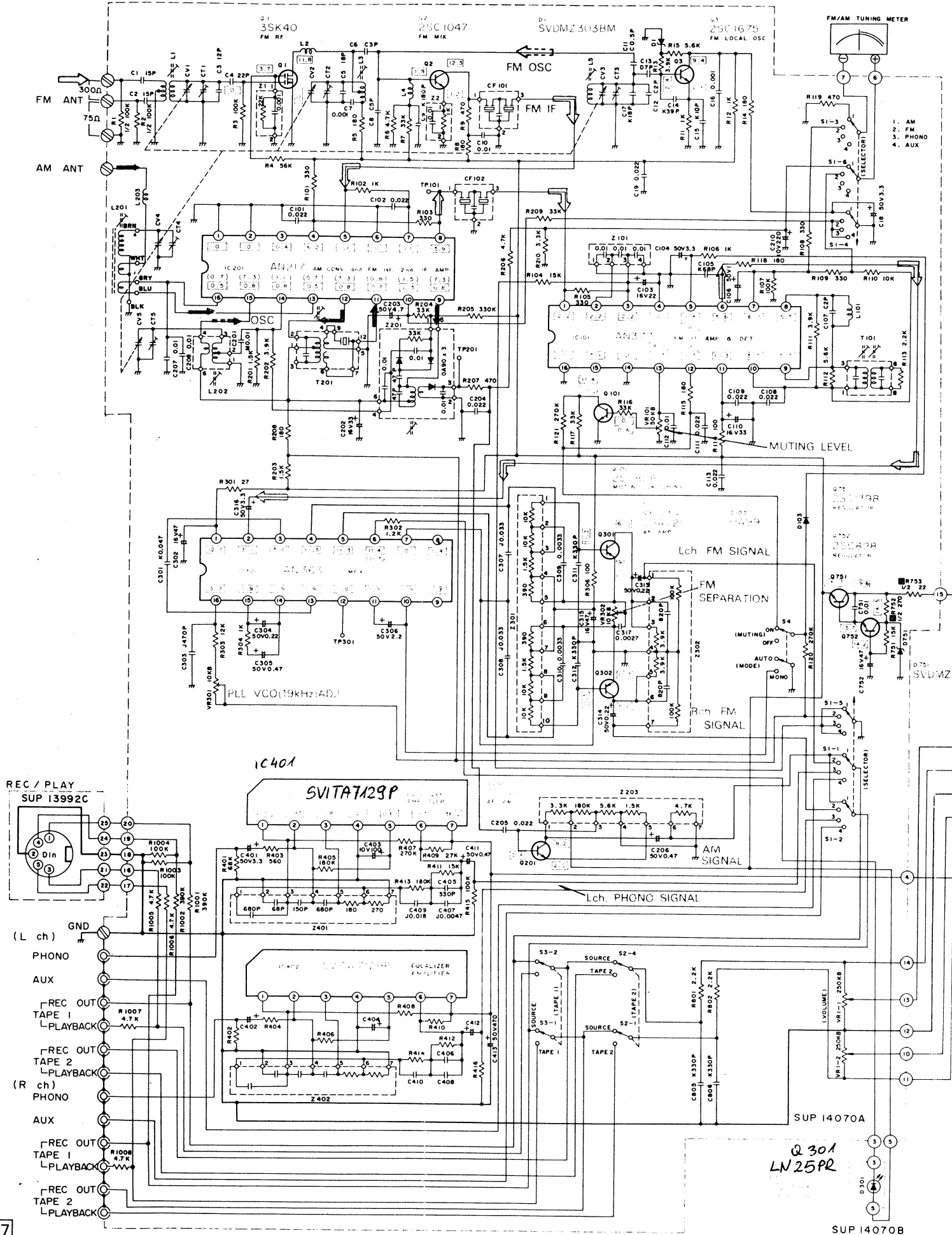
● Products for Scandinavia/European(E) and Holland(XGH) only



● Product for Australia(XAL) only





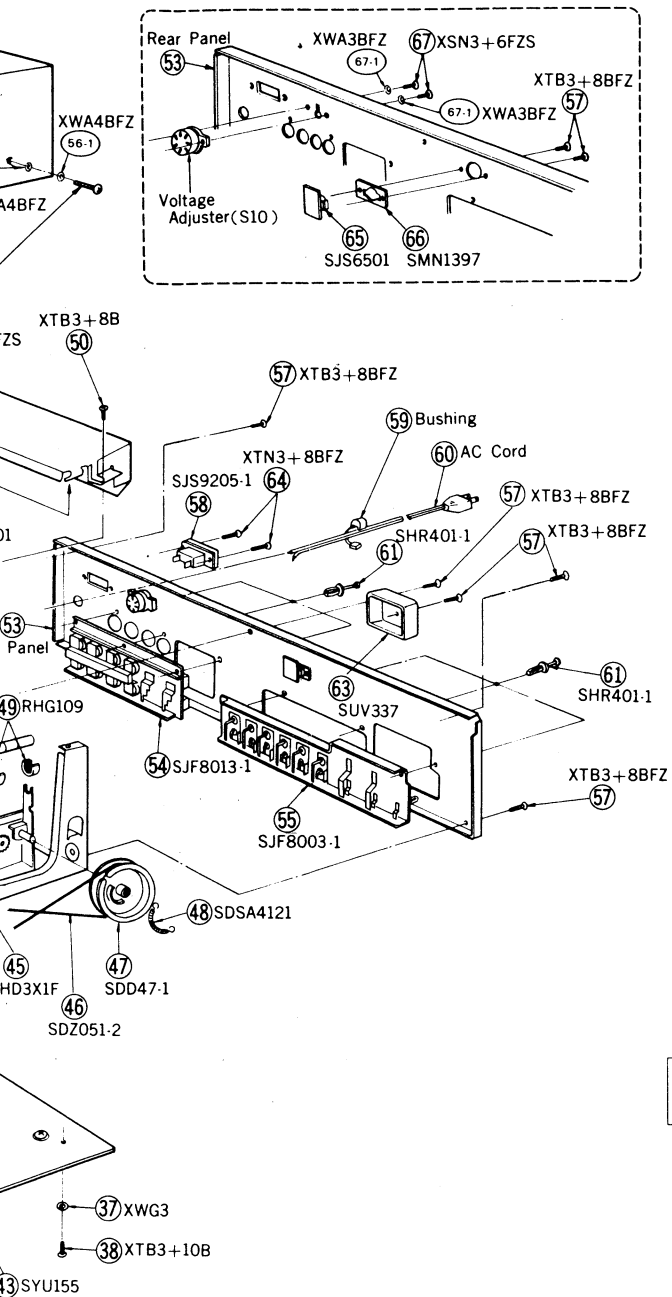




REPLACEMENT PARTS LIST

- NOTES:** 1. Part numbers are indicated on most mechanical parts.
Please use this part number for parts orders.
2. ■ indicates that only parts specified by the manufacturer be used for safety.

0170W



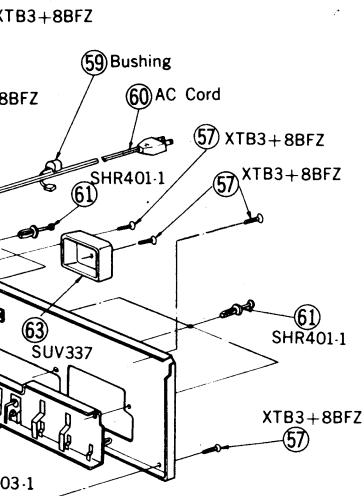
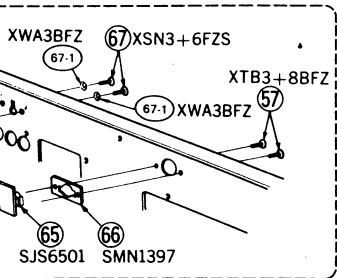
Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
CABINET and CHASSIS PARTS				
1	XTS3+8B	Screw, Front Panel M'tg	3	
2	SGWA300X	Panel, Front Ass'y	1	○
3	SBD7-2	Knob, Lever Switches	6	
4	XTB3+8B	Screw, Front Panel M'tg	2	○
5	SBN755	Knob, Bass, Treble, Balance & Selector	4	○
6	SBN757	Knob, Tuning	1	○
7	SBN753	Knob, Volume	1	○
8	SUS123-1	Spring, Speaker Push Switches	2	
9	SBC193	Button, Speaker Switches	2	○
10	SHR9383	Spacer, Tuning Knob	1	○
15	XNSS12	Nut, Headphones Jack M'tg	1	
16	SNE59-1	Washer, Headphones Jack	1	
17	XCJ6P21B-A	Jack, Headphones	1	
18	SHS187	Shading Cloth, Lever Switches	6	
19	XNS8	Nut, Volumes & Selector M'tg	5	
20	XWV8	Washer, Volumes & Selector	5	
21	XTN3+12B	Screw, Dial Scale Left Bracket M'tg	1	
22	XWG3	Washer, Left Bracket Screw	1	
23	XSB4+12FZS	Screw, Power Transformer M'tg	4	
23-1	XWG4FZ	Washer	4	
23-2	XWA4BFZ	Washer, Spring	4	
24	SGX6573	Bracket, Dial Scale Left Side	1	○
25	SKD3510	Scale, Dial	1	*○
25-1	SHR9395	Bracket, Dial Scale	1	○
26	SDH459A	Plate, Dial	1	*○
27	XTB3+8B	Screw, Meter Bracket M'tg	1	
28	SSM141	Meter, AM Signal & FM Tuning	1	○
29	SMM29	Bracket, Meter	1	*○
30	XTN3+8B	Screw, Dial Scale Right Bracket M'tg	1	
31	SGX6571	Bracket, Dial Scale Right Side	1	○
32	XWG3	Washer, Right Bracket Screw	1	
33	SDP1129	Pointer, Dial	1	*○
34	SHP33	Sheet, Pointer Slider	1	
35	SJS5611	Connector, 6pin	1	
36	SDT8043-2	Shaft, Tuning	1	*○
37	XWG3	Washer, Bottom Board Screw	7	
38	XTB3+10B	Screw, Bottom Board M'tg	7	
39	SKP59	Ventilation Plate	1	○
40	XTB3+10B	Screw, Feet M'tg	4	
41	XWG3	Washer, Feet Screw	4	
42	SKX245-1	Foot, Set	4	
43	SYU155	Bottom Board	1	*○
44	SDR1	Pulley, Dial Cord	4	
45	SHD3X1F	Screw, Pulley M'tg	4	*
46	SDZ051-2	Cord, Dial 200cm (78-3/4")	Troll	
47	SDD47-1	Drum, Variable Capacitor	1	
48	SDSA4121	Spring, Dial Cord	1	
49	RHG109	Rubber Cushion, AM Bar Antenna	2	
50	XTB3+8B	Screw, Reflection Cover M'tg	2	
51	SJS2101	Holder, Dial Lamp	3	○
52	SKA10170W	Cabinet, Black Wooden	1	○
53(XA,X)	SGP1350-1B	Rear Panel	1	○
53(XAL)	SGPA300L	Rear Panel, SGP1350-2B with Name Plate (SGT16690)	1	○
53(E,XGH)	SGPA300D	Rear Panel, SGP1350B with Name Plate (SGT16570)	1	○
54	SJF8013-1	Terminal, Speakers	1	
55	SJF8003-1	Terminal, Input & Antenna	1	
56	XSB4+12FZS	Screw, Cabinet M'tg	4	
56-1	XWA4BFZ	Washer, Spring	4	
56-2	XWG4FZ	Washer	4	
57	XTB3+8BFZ	Screw, Rear Panel & Fuse Cover M'tg	10	
58(XA,X)only	SJS9205-1	Socket, AC Outlet	1	■
59(XAL)only	SHR131	Bushing, AC Cord	1	
59	SHR127	Bushing, AC Cord	1	
60(XAL)only	QFC1207M	AC Cord, Power Source	1	■
60	SJA97	AC Cord, Power Source	1	■
61	SHR401-1	Latch, Speakers & Input Terminal M'tg	6	
63	SUV337	Cover, Speaker Fuses	1	*
64(XA,X)only	XTN3+8BFZ	Screw, AC Outlet M'tg	1	
65	SJS6501	Socket, DIN (TAPE DECK, REC/PLAY)	2	
66	SMN1397	Bracket, DIN Socket	1	*
67	XSN3+6FZS	Screw, Voltage Adjuster M'tg	1	
67-1	XWA3BFZ	Washer, Spring	2	



REPLACEMENT PARTS LIST

- NOTES:** 1. Part numbers are indicated on most mechanical parts.
Please use this part number for parts orders.
2. ■ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
CABINET and CHASSIS PARTS				
1	XTS3+8B	Screw, Front Panel M'tg	3	
2	SGWA300X	Panel, Front Ass'y	1	○
3	SBD7-2	Knob, Lever Switches	6	
4	XTB3+8B	Screw, Front Panel M'tg	2	○
5	SBN755	Knob, Bass, Treble, Balance & Selector	4	○
6	SBN757	Knob, Tuning	1	○
7	SBN753	Knob, Volume	1	○
8	SUS123-1	Spring, Speaker Push Switches	2	
9	SBC193	Button, Speaker Switches	2	○
10	SHR9383	Spacer, Tuning Knob	1	○
15	XNSS12	Nut, Headphones Jack M'tg	1	
16	SNE59-1	Washer, Headphones Jack	1	
17	XCJ6P21B-A	Jack, Headphones	1	
18	SHS187	Shading Cloth, Lever Switches	6	
19	XNS8	Nut, Volumes & Selector M'tg	5	
20	XWV8	Washer, Volumes & Selector	5	
21	XTN3+12B	Screw, Dial Scale Left Bracket M'tg	1	
22	XWG3	Washer, Left Bracket Screw	1	
23	XSB4+12FZS	Screw, Power Transformer M'tg	4	
23-1	XWG4FZ	Washer	4	
23-2	XWA4BFZ	Washer, Spring	4	
24	SGX6573	Bracket, Dial Scale Left Side	1	○
25	SKD3510	Scale, Dial	1	*○
25-1	SHR9395	Bracket, Dial Scale	1	○
26	SDH459A	Plate, Dial	1	*○
27	XTB3+8B	Screw, Meter Bracket M'tg	1	
28	SSM141	Meter, AM Signal & FM Tuning	1	○
29	SMM29	Bracket, Meter	1	*○
30	XTN3+8B	Screw, Dial Scale Right Bracket M'tg	1	
31	SGX6571	Bracket, Dial Scale Right Side	1	○
32	XWG3	Washer, Right Bracket Screw	1	
33	SDP1129	Pointer, Dial	1	*○
34	SHP33	Sheet, Pointer Slider	1	
35	SJS5611	Connector, 6pin	1	
36	SDT8043-2	Shaft, Tuning	1	*○
37	XWG3	Washer, Bottom Board Screw	7	
38	XTB3+10B	Screw, Bottom Board M'tg	7	
39	SKP59	Ventilation Plate	1	○
40	XTB3+10B	Screw, Feet M'tg	4	
41	XWG3	Washer, Feet Screw	4	
42	SKX245-1	Foot, Set	4	
43	SYU155	Bottom Board	1	*○
44	SDR1	Pulley, Dial Cord	4	
45	SHD3X1F	Screw, Pulley M'tg	4	*
46	SDZ051-2	Cord, Dial 200cm (78-3/4")	1roll	
47	SDD47-1	Drum, Variable Capacitor	1	
48	SDSA4121	Spring, Dial Cord	1	
49	RHG109	Rubber Cushion, AM Bar Antenna	2	
50	XTB3+8B	Screw, Reflection Cover M'tg	2	
51	SJS2101	Holder, Dial Lamp	3	○
52	SKA10170W	Cabinet, Black Wooden	1	○
53(XA,X)	SGP1350-1B	Rear Panel	1	○
53(XAL)	SGPA300L	Rear Panel, SGP1350-2B with Name Plate (SGT16690)	1	○
53(E,XGH)	SGPA300D	Rear Panel, SGP1350B with Name Plate (SGT16570)	1	○
54	SJF8013-1	Terminal, Speakers	1	
55	SJF8003-1	Terminal, Input & Antenna	1	
56	XSB4+12FZS	Screw, Cabinet M'tg	4	
56-1	XWA4BFZ	Washer, Spring	4	
56-2	XWG4FZ	Washer	4	
57	XTB3+8BFZ	Screw, Rear Panel & Fuse Cover M'tg	10	
58(XA,X)only	SJS9205-1	■ Socket, AC Outlet	1	
59(XAL)only	SHR131	Bushing, AC Cord	1	
59	SHR127	Bushing, AC Cord	1	
60(XAL)only	QFC1207M	■ AC Cord, Power Source	1	
60	SJA97	■ AC Cord, Power Source	1	
61	SHR401-1	Latch, Speakers & Input Terminal M'tg	6	
63	SUV337	Cover, Speaker Fuses	1	*
64(XA,X)only	XTN3+8BFZ	Screw, AC Outlet M'tg	1	
65	SJS6501	Socket, DIN (TAPE DECK, REC/PLAY)	2	
66	SMN1397	Bracket, DIN Socket	1	*
67	XSN3+6FZS	Screw, Voltage Adjuster M'tg	1	
67-1	XWA3BFZ	Washer, Spring	2	



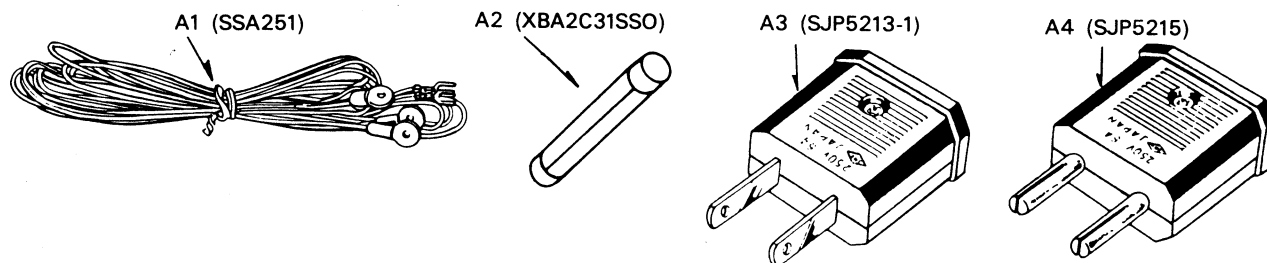
ACCESSORIES

PACKAGING

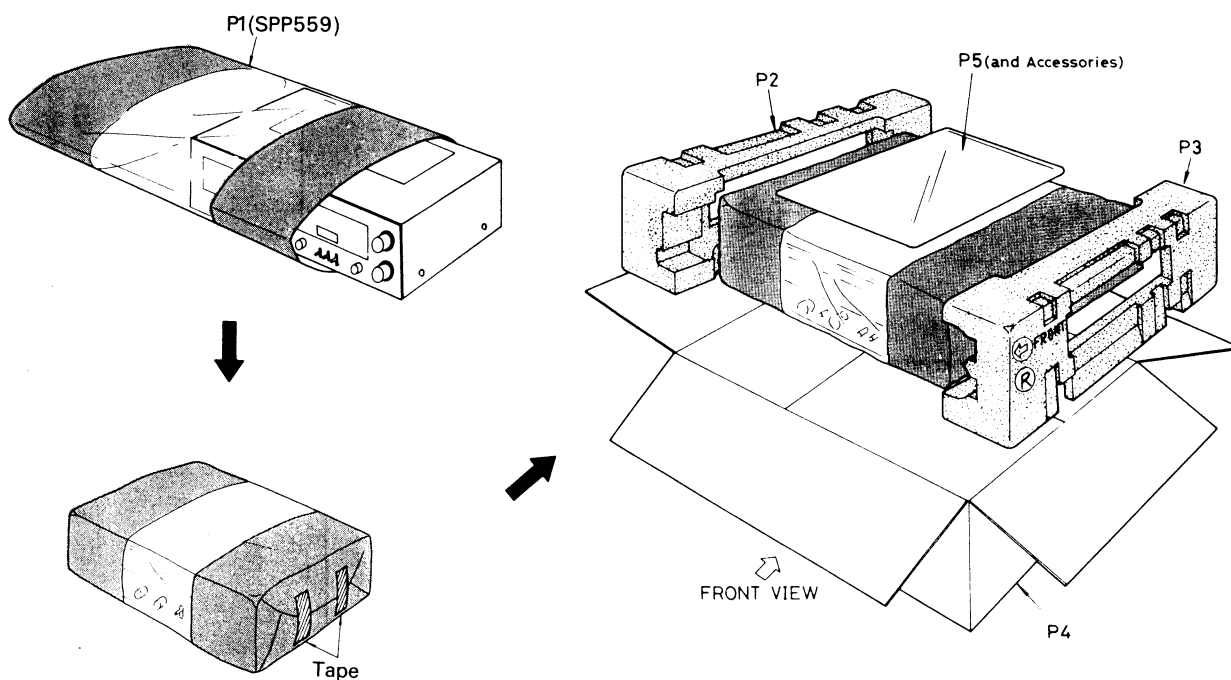
Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
ACCESSORIES				
A1	SSA251	Cord, FM Feeder	1	
A2	XBA2C31SSO	Fuse, 3.15A(250V) Speaker Circuit	2	
A3 (XA,X)only	SJP5213-1	Plug Adapter, AC Power	1	
A4 (XA,X)only	SJP5215	Plug Adapter, AC Power	1	
PACKING PARTS				
P1	SPP559	Polyethylene Bag	1	○
P2	SPS1591	Pad, Left Side	1	
P3	SPS1593	Pad, Right Side	1	
P4 (E)only	SPG1483	Carton Box	1	○
P4	SPG1485	Carton Box	1	○
P5(E,XGH)only	SQF1895	Instructions Book, Printed Matter	1	○
P5	SQF1897	Instructions Book, Printed Matter	1	○

Notes: * (X) and (XA) are available in Asia, Latin America, Middle East and Africa only.
 * (XAL) is available in Australia only.
 * (XGH) is available in Holland only.
 * (E) is available in Scandinavia and European only.

ACCESSORIES



PACKINGS



For additional information, please refer to the service manual for Model No. SA-300 (X, XA, XAL, XGH, E).

Notes: * This information included only the changes of the **SA-300 (X, XA, XAL, XGH, E)** service manual (ORDER NO. SD7804-1333).
 * When servicing model **SA-300**, this information and **SA-300 (X, XA, XAL, XGH, E)** (ORDER NO. SD7804-1333) service manual should be used together.

Modification-1

■ TO REMOVE CABINET (Page 8)

1. Remove the two cabinet mounting screws (nos ①, ② screws in fig. 7-1).
2. Remove the four cabinet mounting screws (nos ①~④ screws in fig. 7).
3. Sliding it toward **A** direction and lifting it upward **B** direction as shown in fig. 7.
4. When the cabinet is installed, insert the metal fitting of cabinet (as shown in fig. 8) into the space between the front panel and light reflector.

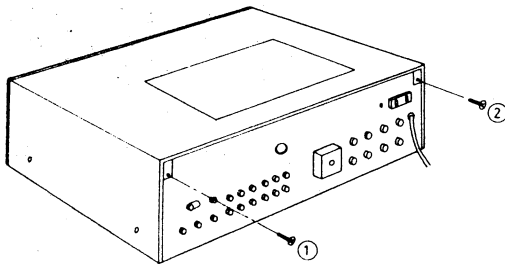


Fig. 7-1

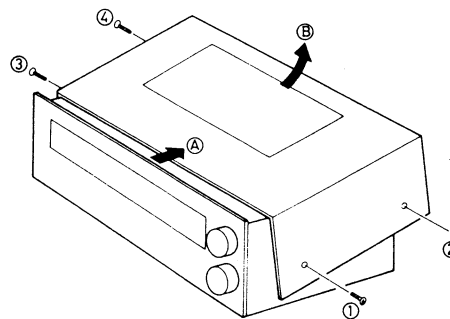


Fig. 7

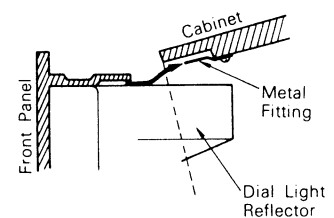


Fig. 8

Modification-2

■ REPLACEMENT PARTS LIST (Page 14, 15 & Page 21)

Ref. No.	Change of Part No.		Part Name & Description	Per Set	Remarks
	OLD	NEW			
RESISTORS					
R627~R630	ERX2ANJR33	ERQ2CKR33	Fuse Type Metallic, 0.33Ω, 2W, ±10%	4	
FUSES					
F601, 602 (XA,X)only	XBA2C31SSO	XBA2C31SSO	Fuse, 3.15A(250V) Speaker Circuit	2	
F601, 602 (other areas)	XBA2C31SSO	XBA2C25SSO	Fuse, 2.5A(250V) Speaker Circuit	2	
REAR PANEL					
53 (XAL)	SGPA300L	SGPA300L1	Rear Panel, SGP1350-2F with Name Plate(SGT16690)	1	○
53 (E, XGH)	SGPA300D	SGPA300D1	Rear Panel, SGP1350F with Name Plate(SGT16570)	1	○
ACCESSORIES					
A2 (XA,X)only	XBA2C31SSO	XBA2C31SSO	Fuse, 3.15A(250V) Speaker Circuit	2	
A2 (other areas)	XBA2C31SSO	XBA2C25SSO	Fuse, 2.5A(250V) Speaker Circuit	2	

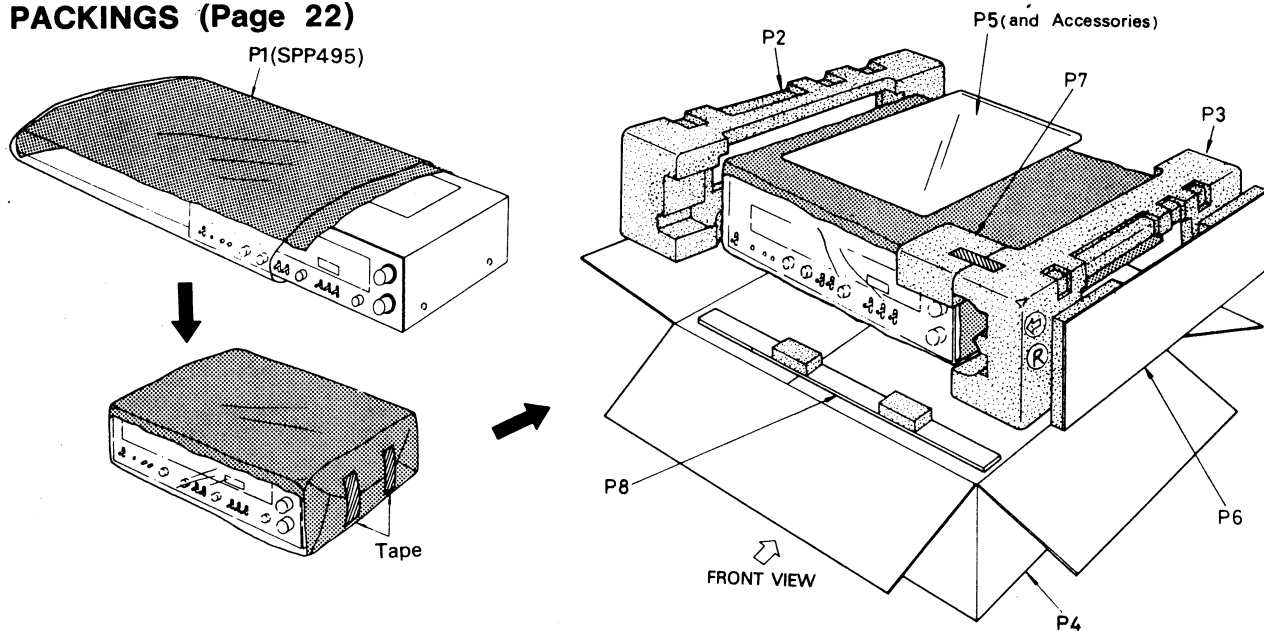
Modification-3

■ PACKING PARTS LIST (Page 22)

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
PACKING PARTS				
P1	SPP495	Polyethylene Bag	1	○○○○
P2	SPS1591	Pad, Left Side	1	
P3	SPS1593	Pad, Right Side	1	
P4(E)only	SPG1483	Carton Box	1	
P4	SPG1485	Carton Box	1	
P5(E,XGH)only	SQF1895-1	Instructions Book, Printed Matter	1	
P5	SQF1897-1	Instructions Book, Printed Matter	1	
P6	SPS1657	Pad, Right Side	1	
P7	SPS1653	Pad, Right Front Side	1	}
P8	SPS1651	Pad, Bottom Side	1	

Modification-4

■ PACKINGS (Page 22)



Modification-5

■ OTHERS

- Correction of dimensions (General of technical Specifications)

$$\left. \begin{matrix} 430(W) \times 145(H) \times 260(D) \text{ mm} \\ (16 \frac{15}{16}'' \times 5 \frac{23}{32}'' \times 10 \frac{1}{4}'') \end{matrix} \right\} \xrightarrow{\text{Correction}} \left\{ \begin{matrix} 430(W) \times 142(H) \times 300(D) \text{ mm} \\ (16 \frac{15}{16}'' \times 5 \frac{19}{32}'' \times 11 \frac{13}{16}'') \end{matrix} \right.$$
- Set for Scandinavia and European indicates **(D)** insted of **(E)**, this changes is from May, 1978.

$$\left. \begin{matrix} \text{The model SA-300 (E) is available in} \\ \text{Scandinavia and European only.} \end{matrix} \right\} \xrightarrow{\text{change}} \left\{ \begin{matrix} \text{The model SA-300 (D) is available in} \\ \text{Scandinavia and European only.} \end{matrix} \right.$$