ORDER NO. SD7804-1332

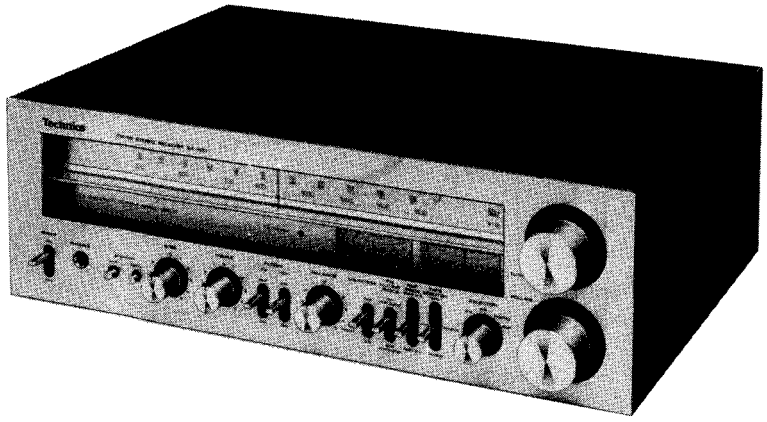
Service Manual

SA-400

FM/AM STEREO RECEIVER

SA-400

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



* Cabinet colour and configuration of ventilation holes differ according to area.

* The models SA-400(X) and SA-400(XA) are available in Asia, Latin America, Middle East and Africa only.
* The model SA-400(XAL) is available in Australia only.
* The model SA-400(XGH) is available in Holland only.
* The model SA-400(XG) is available in European only.
* The model SA-400(XSD) is available in Scandinavia only.
* The model SA-400(XSW) is available in Swiss only.
* The model SA-400(XGF) is available in France only.
* The model SA-400(XE) is available in United Kingdom 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 52 W (4Ω), 2 x 48 W (8Ω)
40 Hz ~ 16 kHz continuous power output		
both channels driven		2 x 45 W (4Ω), 2 x 45 W (8Ω)
20 Hz ~ 20 kHz continuous power output		
both channels driven		2 x 45W (8Ω)
Power bandwidth		
both channels driven, −3 dB		10 Hz ~ 30 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, 4Ω		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)		150 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	65 dB, AUX 75 dB
50 mW power at 4Ω	PHONO	60 dB, AUX 62 dB
Frequency response	PHONO	RIAA standard curve ±0.2 dB
	AUX	20 Hz ~ 20 kHz, ±0.5 dB
		10 Hz ~ 40 kHz, −1 dB
Tone controls	BASS	50 Hz, +10 dB ~ −10 dB
	TREBLE	10 kHz, +10 dB ~ −10 dB
LOW filter		100 Hz, −6 dB/oct.
HIGH filter		7 kHz, −6 dB/oct.
Loudness control (volume at −30 dB)		50 Hz, +9 dB
Output voltage REC OUT (TAPE 1, 2)		150 mV
REC/PLAY output		30 mV
Channel balance (250 Hz ~ 6300 Hz), AUX		±1.0 dB
Channel separation at 1 kHz, AUX		55 dB
Headphones output level and impedance		440 mV/330Ω
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 (±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	56 dB (IHF: 70 dB)
Frequency response		20Hz ~ 15 kHz, $^{+1}_{-2}$ 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 (−40dB, IHF)
	38 kHz	−48 dB (−50dB, 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

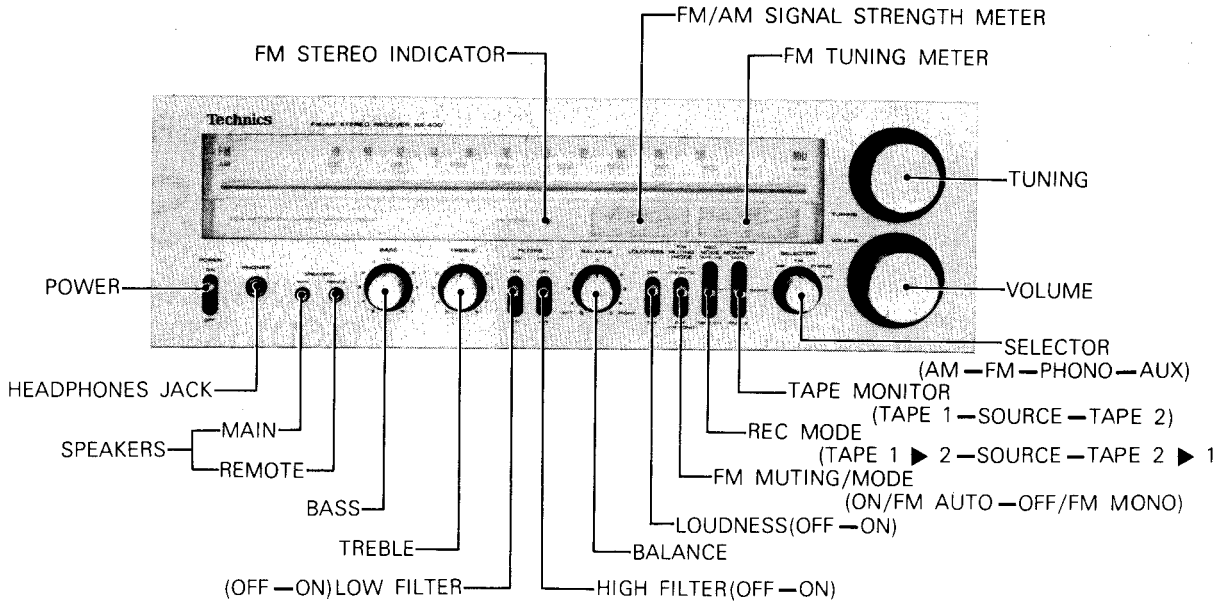
GENERAL

Power consumption	450 W
Power supply (50 Hz/60 Hz)	110V/120V/220V/240V
Dimensions (W x H x D)	430 x 145 x 260 mm
	(16 15/16" x 5 23/32" x 10 1/4")
Weight	8.2 kg (18.1 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 ausgesteuert	2 x 52 W (4Ω) 2 x 48 W (8Ω)
RMS-Dauertonleistung bei 40 Hz ~ 16 kHz	
beide Kanäle zusammen ausgesteuert	2 x 45 W (4Ω) 2 x 45 W (8Ω)
RMS-Dauertonleistung bei 20 Hz ~ 20 kHz	
beide Kanäle zusammen ausgesteuert	2 x 45W (8Ω)
Leistungsbandbreite	
beide Kanäle zusammen ausgesteuert, −3 dB	10 Hz ~ 30 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)	150mV
Fremdspannungsabstand	
Nennausgangsleistung bei 4Ω PHONO	70 dB (IHF, A: 78 dB)
AUX	88 dB (IHF, A: 95 dB)
−26 dB Ausgangsleistung bei 4Ω PHONO	65 dB
AUX	75 dB
50 mW Ausgangsleistung bei 4Ω PHONO	60 dB
AUX	62 dB
Frequenzgang PHONO	RIAA Standardkurve ±0,2 dB
AUX	20 Hz ~ 20 kHz, ±0,5 dB 10 Hz ~ 40 kHz, −1 dB
Klangregler BÄSSE	50 Hz, +10 dB ~ −10 dB
HÖHEN	10 kHz, +10 dB ~ −10 dB
Tiefenfilter	100 Hz, −6 dB/oct.
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 (250Hz ~ 6300Hz), AUX	±1,0 dB
Kanaltrennung bei 1 kHz, AUX	55 dB
Kopfhörerpegel und Ausgangsimpedanz	440 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	56 dB (IHF: 70 dB)
Frequenzgang	20 Hz ~ 14 KHz, $^{+1}_{-2}$ 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, Einsatzpunkt	1,2μV
Bandbreite ZF-Verstärker	180 kHz
UKW-Demodulator	1000 kHz
Kanalabweichung (250 Hz ~ 6300 Hz)	±1,5 dB

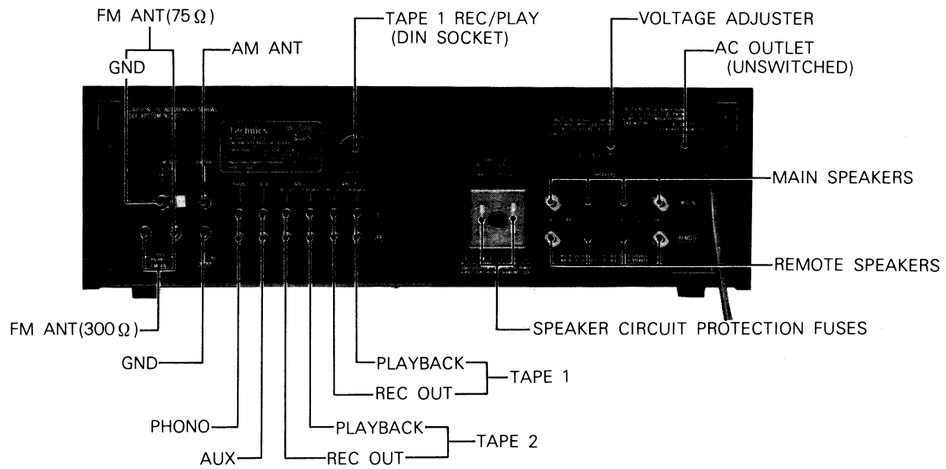
AM-TUNERTEIL

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	450 W
Netzspannung umschaltbar (50 Hz/60Hz)	110V/120V/220V/240V
Abmessungen (B x H x T)	430 x 145 x 260mm
Gewicht	8,2 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

Sujet à changement sans préaris.

[DIN 45 500]

SECTION AMPLIFICATEUR

Puissance RMS (continue) à 1 kHz
pour l'ensemble des canaux excités 2 x 52 W (4Ω), 2 x 48 W (8Ω)

Puissance RMS (continue) à 40 Hz ~16 kHz
pour l'ensemble des canaux excités 2 x 45 W (4Ω), 2 x 45 W (8Ω)

Puissance RMS (continue) à 20 Hz ~ 20 kHz
pour l'ensemble des canaux excités 2 x 45 W (8Ω)

Largeur de bande de puissance
pour l'ensemble des canaux excités, –3 dB 10 Hz ~ 30 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'enltrée
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) 150 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 65 dB **AUX** 75 dB
pour une sortie de 50 mW, 4Ω PHONO 60 dB **AUX** 62 dB

Réponse de fréquence
PHONO Courbe standard RIAA ±0,2 dB
AUX 20 Hz ~ 20 kHz, ±0.5 dB
10 Hz ~ 40 kHz, –1 dB

Réglage de la tonalité
BASS (graves) 50 Hz, +10 dB ~ –10 dB
TREBLE (aigus) 10 kHz, +10 dB ~ –10 dB

Filtre de grave 100 Hz, –6 dB/oct.
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

Ecart canaux à 1 kHz, AUX 55 dB
Niveau des écouteurs et impédance de sortie 440 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 56 dB (IHF: 70 dB)

Réponse de fréquence 20 Hz ~ 15 kHz, $^{+1}_{-2}$ dB
20 Hz ~ 14 kHz, ±1,5 dB

Sélectivite 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
Rélection FI à 1000 kHz 40 dB

GENERALITES

Consommation 450 W
Alimentation (50 Hz/60 Hz) 110V/120V/220V/240V
Dimensions (L x H x Pr) 430 x 145 x 260 mm
Poids 8,2 kg

■ ALIGNMENT INSTRUCTIONS ENGLISH

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 CONNECTION	SIGNAL GENERATOR FREQUENCY	DIAL SETTING	INDICATOR (AC VTVM or SCOPE) (DISTORTION METER)	ADJUSTMENT POINTS	REMARKS
	AM ALIGNMENT					
1	High side through 0.001μF to **AM** antenna trimmer terminal. Common to chassis.	455kHz (30% Mod. with 400Hz) (For United Kingdom to 470kHz)	Point of non-inter ference	Connect VTVM or scope to **TP201.** through 0.1μF	T201 (1st IFT) Z201 (2nd IFT)	●Adjust for maximum output.
2	Fashion loop of several turns of wire and rad·ate 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					
4		No Signal	Point of non-inter ference.	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 300Ω 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 300Ω 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 300Ω 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 300Ω antenna terminal through FM dummy antenna. Apply 16dB(6.3μV)to set.	100MHz (100%Mod. with 400Hz)	100MHz	Connect VTVM or scope to speaker terminals.	VR102	●FM muting/mode switch to "ON/FM AUTO. ●Adjust so that output can be obtained.
	FM SIGNAL METER ALIGNMENT					
9	**1** Apply 100MHz FM signal of 100dB (400Hz 30% modulation) to FM 300Ω antenna terminal through FM dummy antenna. **2** Tuning at 100MHz. **3** Adjust **VR101** for about 4.7 point of signal meter indication.					
	FM MPX PILOT ALIGNMENT					
	Using a frequency counter			Using alternate system		
10	**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 (100kΩ) **4** Adjust **VR301** to 19kHz, ±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. ● Pilot signal modulation to "10%"
2. FM signal generator ····· ● Frequency approximatery 100MHz/Output level to "72dB (IHF)" ● Modulation mode to "FM"
3. Selector switch to "FM" 4. FM muting/mode switch to "ON/FM AUTO"

	FM SIGNAL GENERATOR CONNECTION	STEREO MODULATOR MODE & MOD. RATE	INDICATOR (AC VTVM)	ADJUSTMENT POINT	REMARKS
	FM STEREO SEPARATION ALIGNMENT				
11	FM 300Ω antenna terminals through FM dummy antenna.	(1kHz 30% Modulation) MODE **L** (and R) Pilot signal to "ON"	Connect VTVM to speaker terminals through low pass filter. (Refer to fig. 6)	VR302	●Tuning at 100MHz. ●Make adjustment so that, when the antenna input is subjected to **L** modulation (or **R** modulation), **R** channel output (or **L** channel output) becomes minimum.

■ ABGLEICHANWEISUNGEN — DEUTSCH

(Für Deutshland)

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		SKALENZEIGEREINSTELLUNG DES TUNER	ANZEIGE (Wechselstrom Röhrenvoltmeter oder Oszillograph ozw. Klirrfaktor-Meßgerät	ABGLEICHSPUNKTE	BEMERKUNGEN
	ANSCHLUSS	FREQUENZ				
	AM-ABGLEICH					
1	Heißes Ende des Meßsenders über einen 0.001μF Kondensator an den AM Antenneneingang schließen. Kaltes Ende an Masse.	455kHz (400Hz Modulat., 30%)	Kein Empfang	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	T201 (1. IFT) Z201 (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	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 Modulat., 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					
4		Kein Signal	Kein Empfang	Abstimmanzeige.	T101 (Diskriminator IFT) [A]	• FM Muting-Schalter auf ON stellen. • Den Abstimmungsanzeiger auf den zentrum Wert einstellen.
	UKW HF-ABGLEICH					
5	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	87.5MHz (400Hz Modulat., 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.
6	Meßsender üder eine Kunstantenne an den UKW-Antenneneingang schließen.	90MHz (400Hz Modulat., 100%)	90MHz	Röhrenvoltmeter oder Oszilograph über den Lautsprecher schließen.	L3 (Det. Spule) L1 (Ant. Spule)	• Auf max. Amplitude bei entsprechender Linearität abgleichen. (Vgl. Abb. 4)
7	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	106MHz (400Hz Modulat., 100%)	106MHz	Röhrenvoltmeter oder Oscillograph über den Loutsprecher 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					
8	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	100MHz (400Hz Modulat., 100%)	100MHz	Klirrfaktor-Meßbrücke über den Lautsprecher schlieben.	T101 (Diskriminator IFT) [B]	• Auf min. Verzerrung auf der Klirrfaktor-Meßbürcke abgleichen. • Schritt (4) und (8) sind zu wiederholen.
	UKW-MUTING-ABGLEICH					
9	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. Meßsender auf 16 dB (6.3μV) einstellen.	100MHz (400Hz Modulat., 100%)	100MHz	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	VR102	• Muting Schalter auf "ON" stellen. • So einstellen, daß ein Ausgang zu vernehmen ist.
	UKW-FELDSTÄRKEANZEIGE-ABGLEICH					
10	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. Meßender für 100 dB (IHF) (ca. 100mV) einstellen.	100MHz (400Hz Modulat., 30%)	100MHz	Feldstärkenanzeige	VR101	• VR101 auf ca. "4.7" der Feldstärkean zeige einstellen.

UKW-STEREO-DEKODER-ABGLEICH

	Unter Verwendung eines Zählers	Alternativ-Meßmethode
11	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. 5 gezeigt.

KANALTRENNUNG-ABGLEICH

Anmerkungen:
1. Stereo-Modulator . . . . . Ansgang 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
12	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.

■ INSTRUCTIONS D'ALIGNEMENT — FRANÇAIS

Notes:
1. Commutateur de physiologique (loudness) . . . . . OFF
2. Sélecteur de gamme . . . . . { AM (Alignement AM) FM (Alignement FM)
3. Commutateur de silencieux . . . . . OFF/FM MONO
4. Commutateur d'enceintes . . . . . ON
5. Commutateur de contrôle auditif . . . . . SOURCE (relâchée)
6. Commutateur de filter . . . . . OFF
7. Conserver la tension du secteur à la tension nominale.
8. 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. VOLTMETRE ELECTRONIQUE OSCILLOSCOPE OU DISTORSIONMETRE)	POINTS DE REGLAGE	OBSERVATIONS
	BRANCHMENT	FREQUENCE				
	ALIGNEMENT AM					
1	Côté chaud, à travers 0.001μF, sur le trimmer de l'antenne AM, commum an shässis	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.
2	Faire une boucle de quelgues tours et rayonner le signal dans le cadre du l'ampli-tuner	600kHz (modué 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.
3	Faire une boucle de quelgues tours et rayonner le signal dans le cadre du 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					
4		Sans signal	point sans signal	Indicateur d'accord de l'appareil	T101 (Transfo FI discri.) [A]	• Commutateur de silencieux sur ON. • Réglez pour atteindre position médiane sur l'indicateur d'accord.
	ALIGNEMENT RF-FM					
5	Branchez sur la prise d'antenne FM à travers une antenne fictive FM.	90MHz (modulé à 100% par 400Hz)	90MHz	Branchez un voltmétre 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)
6	Branchez sur la prise d'antenne FM à travers une antenne fictive FM.	106MHz (modulé à 100% par 400Hz)	106MHz	Branchez un voltmétre 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					
7	Branchez sur la prise d'antenne FM à travers une antenne fictive FM.	100MHz (modulé à 100% par 400Hz)	100MHz	Branchez un distorsio métre sur les bornes de haut-parleur de l'appareil.	T101 (Transfo FI discri.) [B]	• Réglez au minimum d'indication du distorsiomètre. Recommencez les étapes (4) et (7).
	REGLAGE DU SEUIL DU SILENCIEUX D'ACCORD					
8	Branchez sur la prise d'antenne FM à travers une antenne fictive FM. Niveau de sortie du générateur 16 dB (6.3μV).	100MHz (modulé à100% par 400Hz)	100MHz	Branchez un voltmètre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	VR102	• Commutateur de silencieux sur "ON" • Régler pour obtenir une lecture en sortie.
	REGLAGE DE L'INDICATEUR D'ACCORD FM					
9	Branchez sur la prise d'antenne FM à travers une antenne fictive FM. Niveau de sortie du générateur 100 dB (100mV).	100MHz (modulé à 100% par 400Hz)	100MHz	Indicateur d'intensité	VR101	• Réglez VR101 pour obtenir env. "4.7" points sur l'échelle d'intensité.

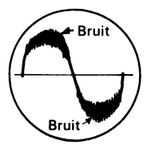
ALIGNEMENT DU PILOTE MULTIPLEX FM

	Avec un fréquencemétre	Par un outre système
10	1. Signal mono 100 MHz 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. Réglez **VR301** sur 19kHz ±30Hz.	1. Appliquez à l'appareil un signal stéréo provenant d'un générateur ou de la réception d'un émetteur. 2. Réglez **VR301** jusqu à ce que l'indicateur de stéréophonic s'allume. Collez le curseur de **VR301** comme indiqué sur la fig. 2.

REGLAGE DE LA SEPARATION DES CANAUX

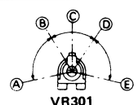
Notes:
1. Modulateur stéréo . . . . . Branchez sa sortie sur la prise EXT. MOD. du générateur. OSC interne . . . . . 1kHz Modulation du signal pilote 10%
2. Générateur de signal . . . . . Fréquence env. 100MHz, niveau de sortie 72dB (IHF), genre de modulation sur FM.
3. Commutateur de gamme . . . . FM 4. Commutateur de silencieux. . . . . ON/FM AUTO

	BRANCHEMENT DU GENERATEUR DE SIGNAL	MODE DU MODULATEUR STEREO ET TAUX DE MODULATION	INDICATEUR (VOLTMETRE ELECTRONIQUE OU OSCILLOSCOPE)	POINTS DE REGLAGE	OBSERVATIONS
11	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)



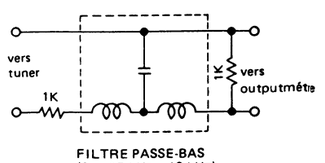
Sinusoïdale

Fig. 1



Ⓐ-Ⓑ , Ⓓ-Ⓔ: Position stéréo arrêt
Ⓑ-Ⓓ : Position stéréo en marche (éclairage du voyant indicateur)
Ⓒ : Point de réglage du circuit pilote

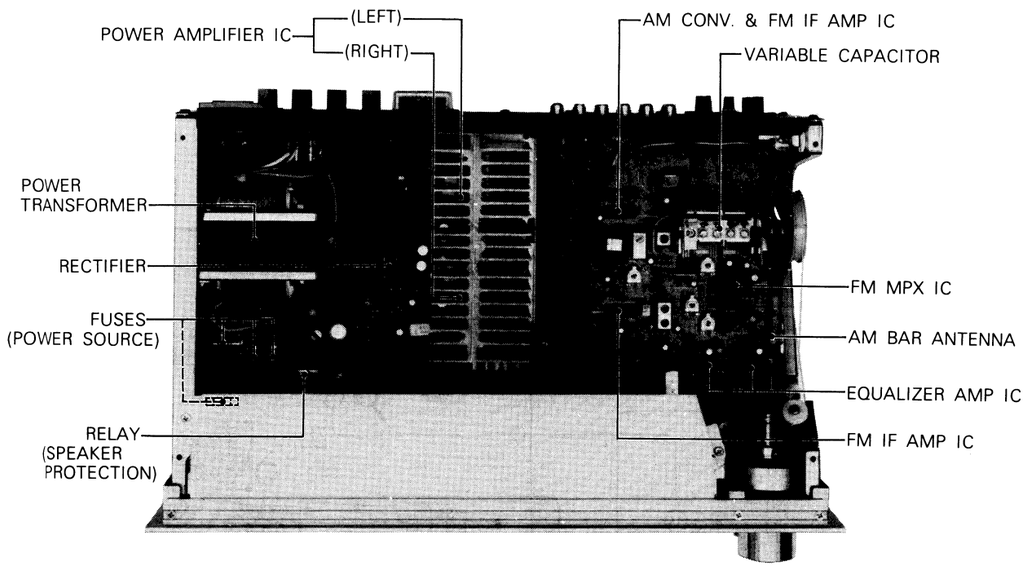
Fig. 2



FILTRE PASSE-BAS (fc = 15 kHz ~19 kHz)

Fig. 3

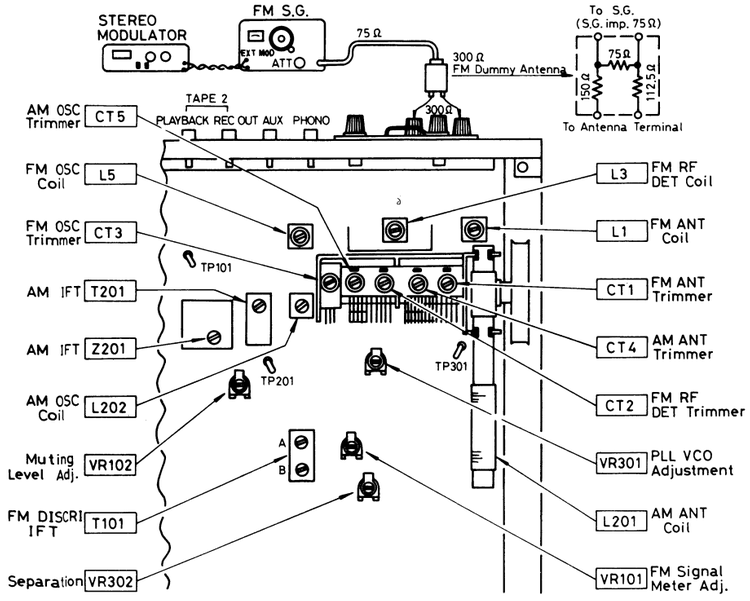
■ PRINTED CIRCUIT BOARD VIEW

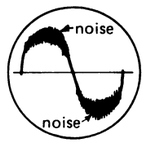


■ NOTE

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.

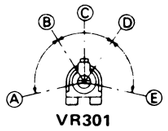
■ ALIGNMENT POINTS





(SINE WAVE)

Fig. 4 (Abb. 4)



VR301

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

Fig. 5 (Abb. 5)

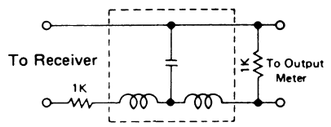
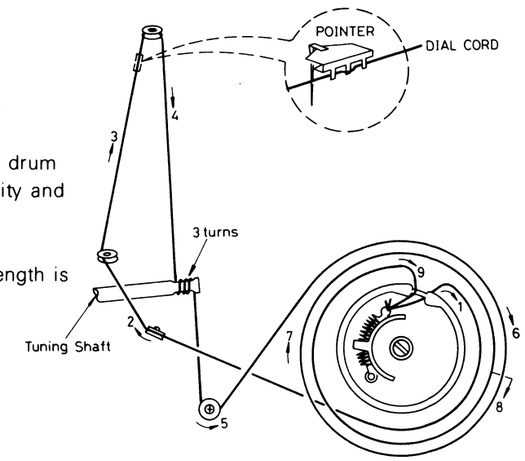


Fig. 6 (Abb. 6)

■ 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 Ⓐ direction and lifting it upward Ⓑ 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.

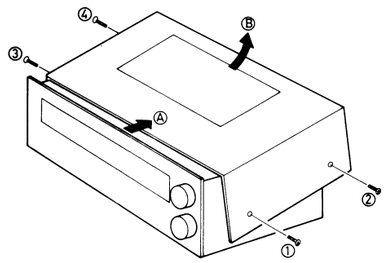


Fig. 7

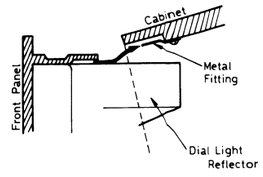


Fig. 8

■ 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.

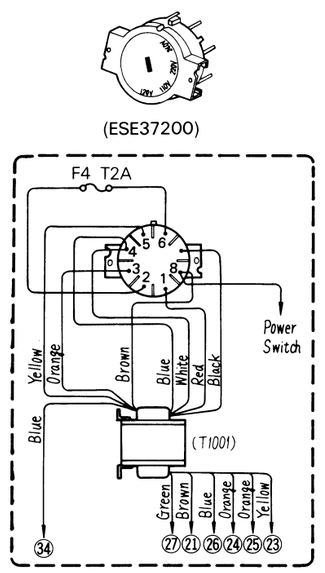


Fig. 9

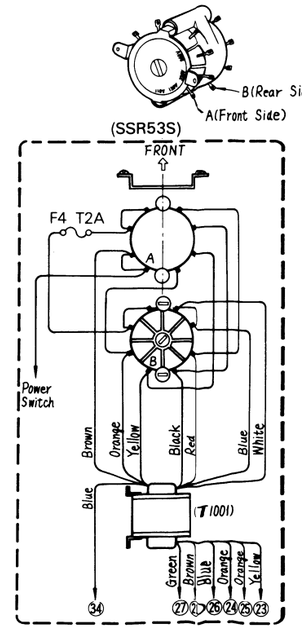
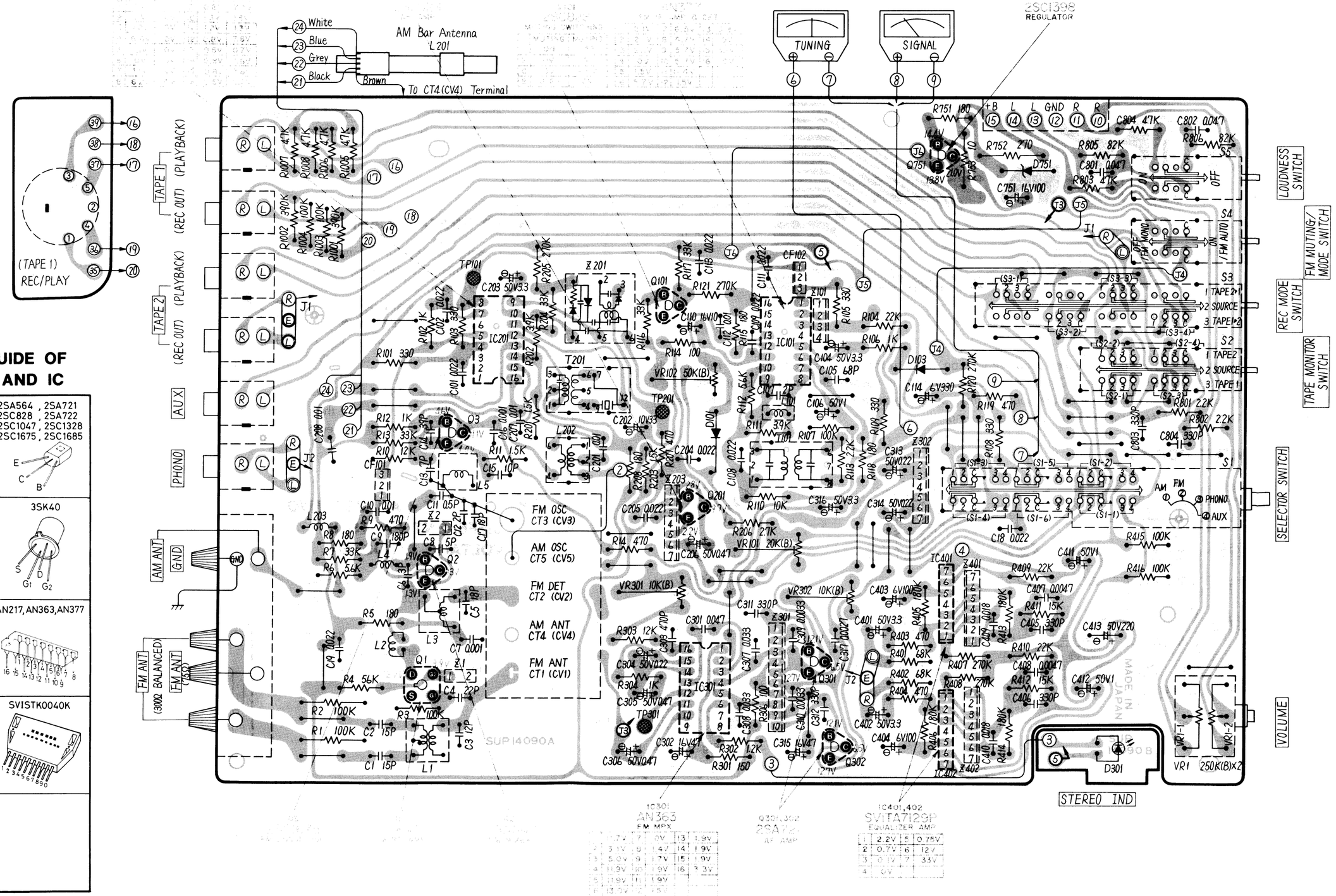


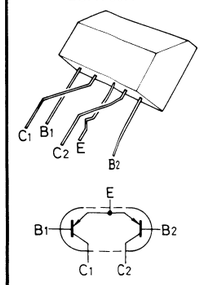
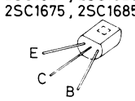
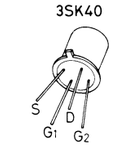
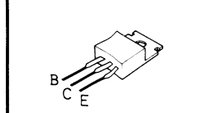
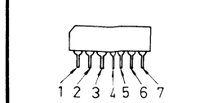
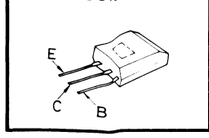
Fig. 10

■ FM/AM TUNER AND EQUALIZER CIRCUIT BOARD

Earth (Ground) Lines



■ TERMINAL GUIDE OF TRANSISTOR AND IC

2SA798A 	2SA564 , 2SA721 2SC828 , 2SA722 2SC1047 , 2SC1328 2SC1675 , 2SC1685 
	3SK40 
2SC1398 	AN217, AN363, AN377
SVITA7129P 	SVISTK0040K
2SC1940 	

■ FM/AM TUNER AND EQUALIZER CIRCUIT BOARD

Earth (Ground) Lines

IC201 AN217 AM CONV & FM 1st, 2nd IF AMP

	FM	AM		FM	AM
1	0V	0V	9	0.8V	7.7V
2	0V	0V	10	1.3V	1.5V
3	1.2V	0V	11	1.2V	1.3V
4	6.4V	0V	12	0.8V	7.8V
5	1.1V	0V	13	0.5V	0.7V
6	0V	0V	14	0.8V	1.6V
7	1.1V	0V	15	0.8V	7.8V
8	6.2V	0V	16	0.5V	0.7V

Q201 2SC828 AF AMP

Q101 2SC828 MUTING SWITCHING

	MUTING ON	MUTING OFF
E	0V	0V
C	0V	9.0V
B	0.6V	0V

IC101 AN377 FM IF AMP & DET

1	2.1V	7	6.5V	13	0.3V
2	2.1V	8	5.7V	14	0V
3	2.1V	9	5.7V	15	5.1V
4	0V	10	5.7V	16	0V
5	1.5V	11	11.4V		
6	5.7V	12	1.5V		

Q751 2SC1398 REGULATOR

AM Bar Antenna L201

White / Blue / Grey / Black / Brown — To CT4(CV4) Terminal

TUNING

SIGNAL

(TAPE 1) REC/PLAY

TAPE 1 (REC OUT) (PLAYBACK)

TAPE 2 (REC OUT) (PLAYBACK)

AUX

PHONO

AM ANT

GND

FM ANT (300Ω BALANCED)

FM ANT (75Ω UNBALANCED)

FM OSC CT3 (CV3)

AM OSC CT5 (CV5)

FM DET CT2 (CV2)

AM ANT CT4 (CV4)

FM ANT CT1 (CV1)

SUP14090A

LOUDNESS SWITCH

FM MUTING/ MODE SWITCH

REC MODE SWITCH

TAPE MONITOR SWITCH

SELECTOR SWITCH

VOLUME

STEREO IND

D301

MADE IN JAPAN

Q3 2SC1675 FM LOCAL OSC

Q1 3SK40 FM RF AMP

Q2 2SC1047 FM MIXER

IC301 AN363 FM MPX

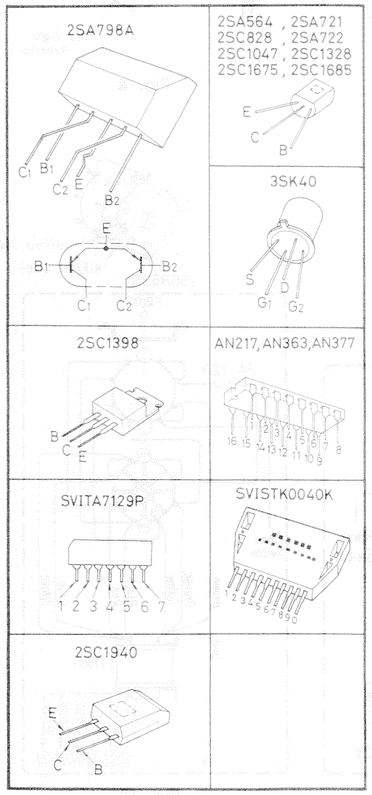
1	11.7V	7	0V	13	1.9V
2	3.1V	8	1.4V	14	1.9V
3	5.0V	9	1.7V	15	1.9V
4	11.9V	10	1.9V	16	3.3V
5	11.9V	11	1.9V		
6	13.0V	12	1.5V		

Q301,302 2SA721 AF AMP

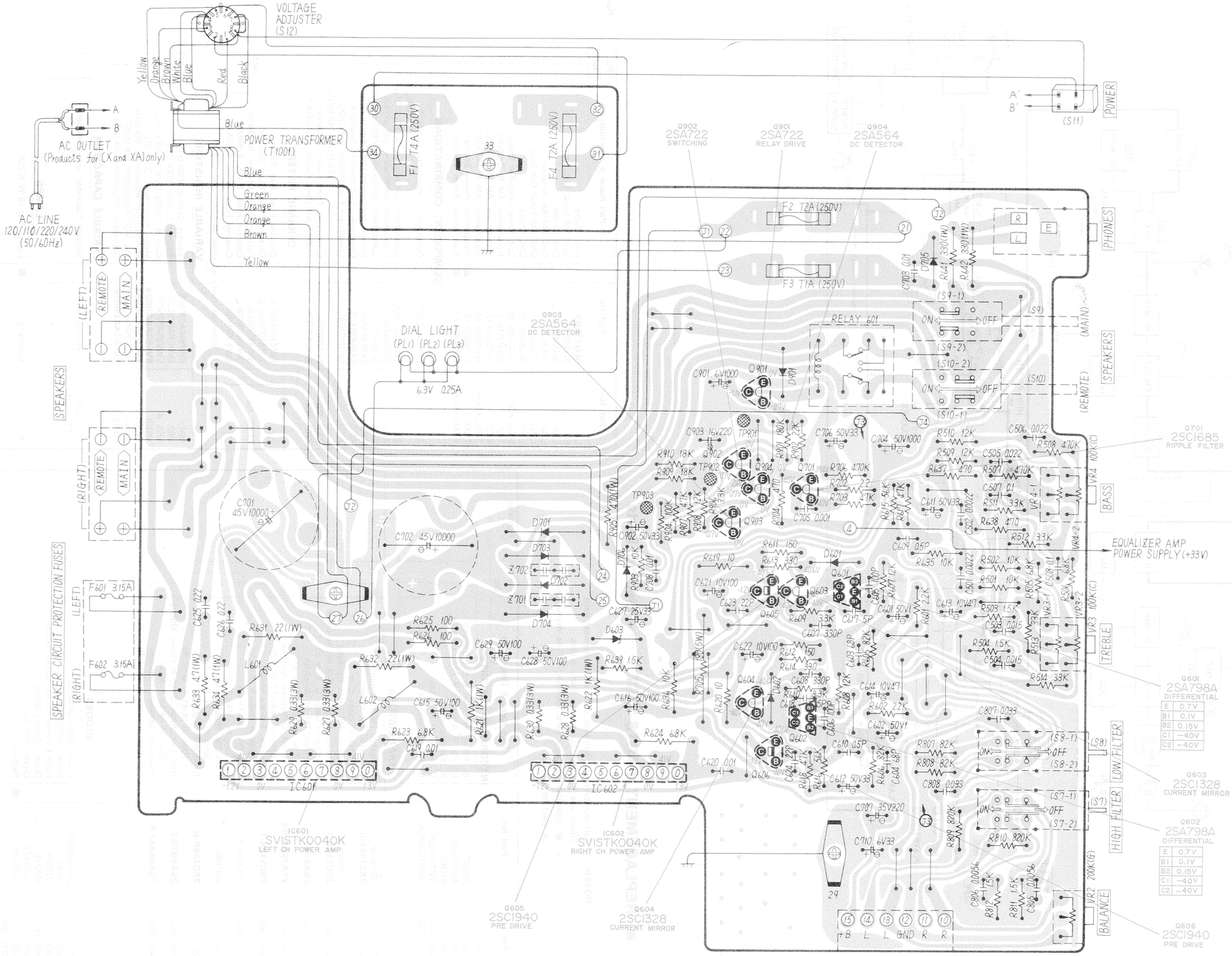
IC401,402 SVITA7129P EQUALIZER AMP

1	2.2V	5	0.75V
2	0.7V	6	12V
3	0.1V	7	33V
4	0V		

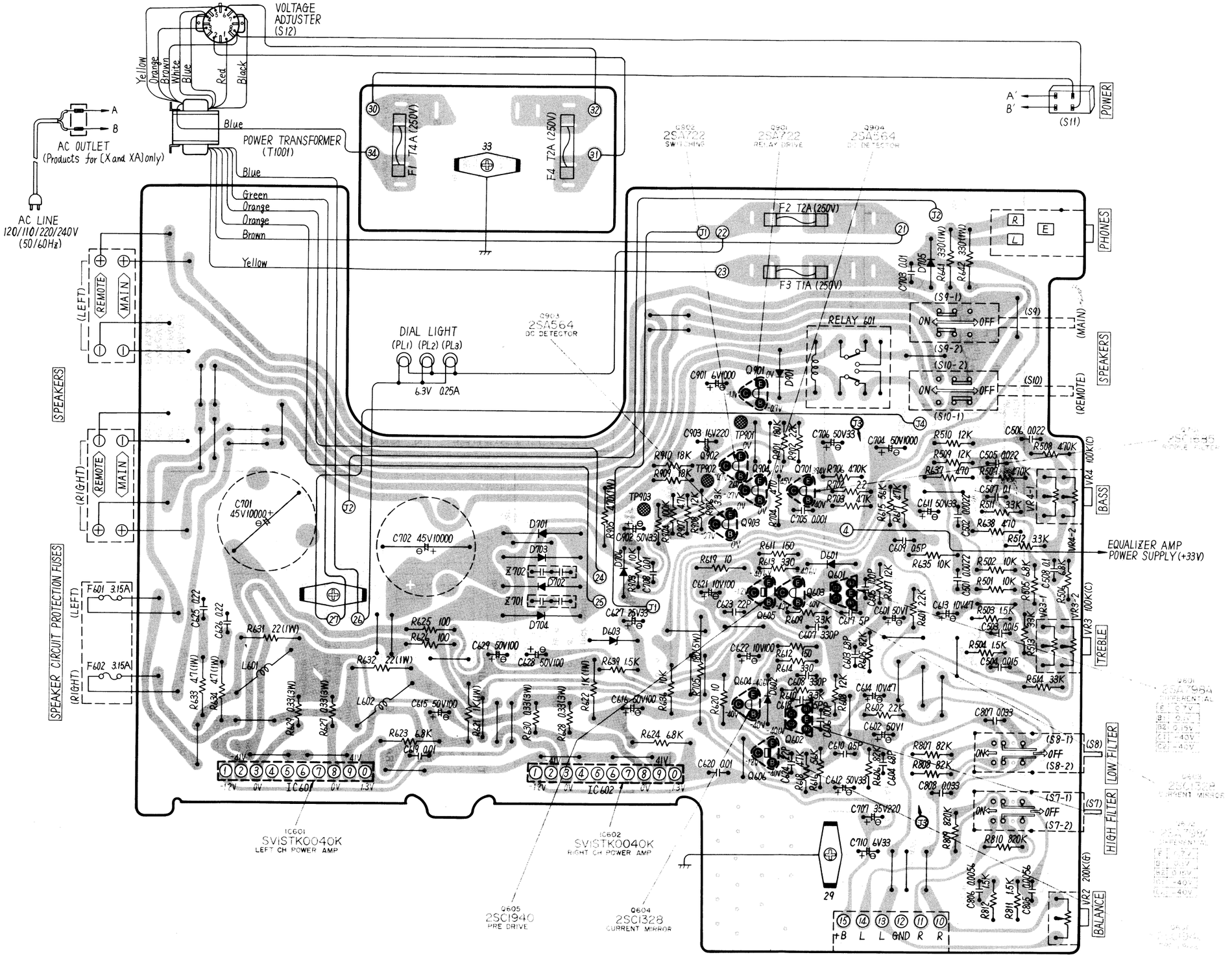
■ TERMINAL GUIDE OF TRANSISTOR AND IC



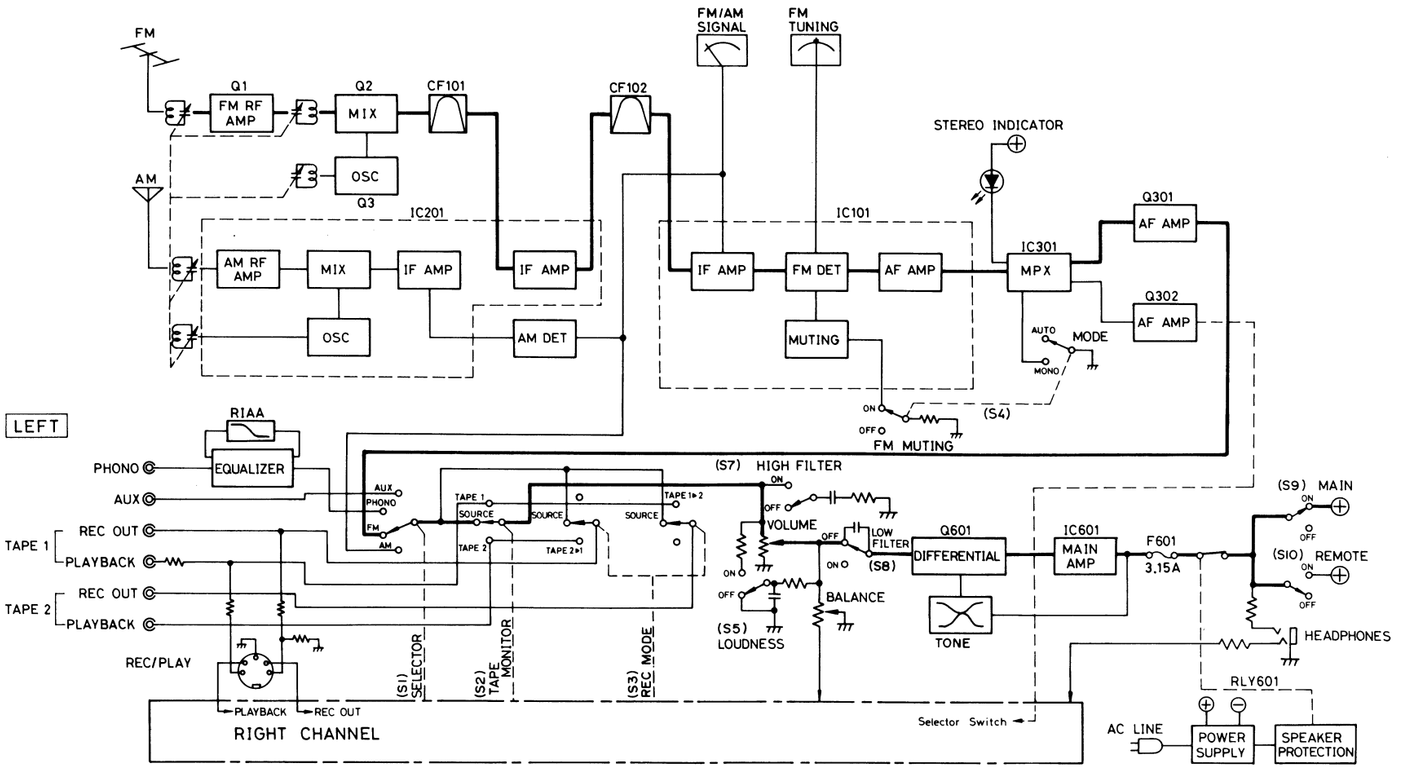
■ TONE, MAIN AMPLIFIER, POWER SUPPLY AND SPEAKER PROTECTION CIRCUIT BOARD



■ TONE, MAIN AMPLIFIER, POWER SUPPLY AND SPEAKER PROTECTION CIRCUIT BOARD


VOLTAGE ADJUSTER (S12)
Yellow
Orange
Brown
White
Blue
Red
Black
A
B
AC OUTLET
(Products for (X and XA) only)
AC LINE
120/110/220/240V
(50/60Hz)
Blue
POWER TRANSFORMER (T1001)
Blue
Green
Orange
Orange
Brown
Yellow
F1 T4A (250V)
F4 T2A (250V)
33
A'
B'
POWER
(S11)
Q902 2SA722 SWITCHING
Q901 2SA722 RELAY DRIVE
Q904 2SA564 DC DETECTOR
F2 T2A (250V)
F3 T1A (250V)
PHONES
R
L
E
D705
R644 330(1W)
R642 330(1W)
(S9-1)
(S9-2)
(S9)
ON
OFF
(MAIN)
SPEAKERS
RELAY 601
(S10-2)
(S10)
(S10-1)
(REMOTE)
DIAL LIGHT
(PL1) (PL2) (PL3)
6.3V 0.25A
Q903 2SA564 DC DETECTOR
C901 6V1000
D901
C903 16V220
C706 50V33
C704 50V1000
R510 12K
C506 0.022
R508 470K
R509 12K
C505 0.022
R504 470K
R437 470
C507 0.1
R511 33K
VR4 100K(C)
BASS
VR4-1
C411 50V33
C502 0.0022
R638 470
R512 33K
VR4-2
EQUALIZER AMP POWER SUPPLY (+33V)
C409 0.5P
R635 10K
R502 10K
R501 10K
C501 0.0022
R503 1.5K
C503 0.015
R504 1.5K
C504 0.015
R514 33K
C508 0.1
R305 6.8K
VR3-2 100K(C)
VR3-1
VR3
TREBLE
C807 0.033
(S8-1)
(S8-2)
(S8)
LOW FILTER
R807 82K
R808 82K
C808 0.033
(S7-1)
(S7-2)
(S7)
HIGH FILTER
C707 35V220
R809 820K
R810 820K
C710 6V33
C806 0.0056
C805 0.0056
R812 1.5K
R811 1.5K
VR2 200K(B)
BALANCE
+B L L GND R R
SPEAKER CIRCUIT PROTECTION FUSES
(LEFT)
F601 3.15A
(RIGHT)
F602 3.15A
(LEFT)
(REMOTE)
(MAIN)
(RIGHT)
(REMOTE)
(MAIN)
SPEAKERS
C701 45V10000
C702 45V10000
D701
D703
D702
D704
R625 100
R624 100
C629 50V100
C628 50V100
R632 22(1W)
R639 1.5K
R631 22(1W)
C625 0.22
C626 0.22
R633 4.7(1W)
R634 4.7(1W)
L601 0Ω
L602 0Ω
C615 50V100
R623 6.8K
C616 0.01
R627 0.33(3W)
R629 0.33(3W)
R630 0.33(3W)
R628 0.33(3W)
R622 1K(1W)
R637 10K
C616 50V100
R624 6.8K
R705 680(5W)
R620 10
C620 0.01
C603 1.8P
R605 82K
C614 10V47
R602 2.2K
C602 50V1
C610 0.5P
C612 50V33
C404 68P
C405 47P
C407 330P
C408 330P
C409 33K
C410 33K
C617 5P
C618 100P
C619 12K
C401 50V1
R601 2.2K
C613 10V47
C621 10V100
C622 10V100
C623 22P
R612 150
R614 330
R611 150
R613 330
R619 10
D601
Q601
Q603
Q605
Q604
Q602
Q606
C702 50V33
C701 0.001
R705 4.7K
R704 2.2
R706 470K
R707 4.7K
R708 2.2
R709 4.7K
R710 18K
R711 18K
R712 12K
R713 33K
R714 33K
R715 5.6K
R716 47K
R717 47K
R718 12K
R719 33K
R720 33K
R721 33K
R722 33K
R723 33K
R724 33K
R725 33K
R726 33K
R727 33K
R728 33K
R729 33K
R730 33K
R731 33K
R732 33K
R733 33K
R734 33K
R735 33K
R736 33K
R737 33K
R738 33K

■ BLOCK DIAGRAM



■ 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 CIRCUITS						
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	SVITA7129P		IC, Equalizer Amplifier	2		
IC601, 602	SVISTK0040K		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	2SC1940-K		Transistor, Pre Driver (Use in ranks K or L)	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		
Q901, 902	**2SA902S-F**		Transistor, Relay Drive & Power Muting (Use in ranks F or G)	2		
Q903, 904	**2SA666AI-R**		Transistor, Speaker Protection (Use in ranks P, Q or R)	2		
DIODES						
D101	SVDKB262E		Diode, Meter Detector	1		
D103	OA99		Diode, Switching	1		
D301	LN25RP		Light Emitting Diode, Stereo Indicator	1		
D601, 602	MA27B		Diode, Current Mirror	2		
D603	SVDMZ324		Diode, 24V Zener	1		
D701, 702, 703, 704	SVDS3V20	■	Rectifier	4		
D705, 706	**SM112**	■	Rectifier	2		
D751	SVDMZ414		Diode, 14V Zener	1		
D901	**SM112**		Relay Diode (Pulse Killor)	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	SLO4P31		Coil, FM Local Oscillator	1		
L101	SLQX180-2		Coil, Choke	1		
L201	SLF2C11		Coil, AM Bar Antenna	1		
L202	SLO2C3-P		Coil, AM Local Oscillator	1		
L203	SLQX101-2D		Coil, Choke	1		
L601, 602	SLQY15G-3P		Coil, Power Amplifier Output	2		
T101	SLI4D513-3		Transformer, FM IF Detector	1		
T201	SLI7D101-M		Transformer, AM IF (455kHz)	1		
T201 (XE)only	SLI7D103-M		Transformer, AM IF (470kHz)	1		
T1001	SLT5Q79-W	■	Transformer, Power Source	1		○
T1001(XAL,XE) only	SLT5Q81-W	■	Transformer, Power Source	1		○
COMPONENT COMBINATIONS						
Z1	EXRP102Z223S		Component Combination, 22kΩ & 0.001μF	1		
Z2	EXRP103P102S		Component Combination, 1kΩ & 0.01μF	1		
Z101	EXF3SL04C		Component Combination, 0.01μF(X3)	1		
Z201	SLI9F101-Z		Component Combination, AM Detector	1		
Z203	EXBH85005K		Component Combination, Resistors	1		
Z301	EXBH88007K		Component Combination, Resistors	1		
Z302	EXA6YD04C		Component Combination, 3.9kΩ (X2) 100kΩ (X2), 820pF(X2)	1		
Z401, 402	EXA6SD01C		Component Combination, Equalizer	2		
Z701, 702	EXRFS203ZS		Component Combination, 0.01μF(X2)	2		
CERAMIC FILTERS						
CF101, 102	SVFE107MS8-A		Ceramic Filter, Red, 10.7MHz	each 2		
	SVFE107MS8-B		Ceramic Filter, Blue, 10.67MHz			
	SVFE107MS8-C		Ceramic Filter, Orange, 10.73MHz			
	SVFE107MS8-D		Ceramic Filter, Black, 10.64MHz			
	SVFE107MS8-E		Ceramic Filter, White, 10.76MHz			
	(Use pair ranks as same as CF101 and CF102.)					
VARIABLE RESISTORS						
VR1	EWFMKA031BF5		Volume Control, 250kΩ (B)	1		
VR2	EVHGPAF25G25		Balance Control, 200kΩ (G)	1		
VR3, 4	EWKB9AF25C15		Bass & Treble Control, 100kΩ (C)	2		
VR101	**EVLS3AA00B24**		Meter Adjustment, 20kΩ (B)	1		
VR102	**EVLS3AA00B54**		Muting Level Adjustment, 50kΩ (B)	1		
VR301	EVTS3MA00B14		PLL VCO Adjustment, 10kΩ (B)	1		
VR302	**EVLS3AA00B14**		Separation Adjustment, 10kΩ (B)	1		
VARIABLE CAPACITOR						
CV1~CV5 (CT1~CT5)	ECVC751K144A		Variable Capacitor, with Trimmer	1		
LAMPS						
PL1, 2, 3	XAMR62S	■	Lamp, Dial (6.3V 0.25A)	3		
FUSES						
F1	XBA2C40TRO	■	Fuse, 4A.T(250V), Power Source	1		
F2, 4	XBA2C20TRO	■	Fuse, 2A.T(250V), Power Source	2		
F3	XBA2C10TRO	■	Fuse, 1A.T(250V), Power Source	1		
F601, 602	XBA2C31SSO	■	Fuse, 3.15A(250V), Speaker Circuit	2		

Ref. No.	Part No.		Part Name & Description	Per Set		Remarks
RELAY						
RLY601	SSY19-1	S	Relay, Speaker Protection	1		
SWITCHES						
S1	ESRM164F25E		Switch, Selector	1		
S2	SSL117		Switch, Tape Monitor	1		○
S3	SSL115		Switch, Recording Mode	1		○
S4, 5, 7, 8	SSL123		Switch, Muting/Mode, Loudness, Low & High Filter	4		
S9, 10	SSH223S		Switch, Speakers	1		
S11	ESL21191	S	Switch, Power Source	1		
S12	ESE37200	S	Switch, Voltage Adjustment(See page 8)	1		○
S12	SSR53S	S	Switch, Voltage Adjustment(See page 8)	1		

NOTES:
Guide letters of Resistor and Capacitor indicate;

Resistors
ERD ..... Carbon
ERO ..... Metal film
ERF ..... Non-flammable
ERG ..... Metal oxide
ERX ..... Metal film

Capacitors
ECC ..... Ceramic
ECQM ..... Polyester
ECE ..... Electrolytic
ECK ..... Ceramic
ECQS ..... Polystyrene
ECE□N .... Non-Polar Electrolytic

Ref. No.	Part No.	
RESISTORS		
R1, 2	**ERD50TJ104**	
Except for (XAL)		
R3	**ERD25TJ104**	
R4	**ERD25TJ563**	
R5	**ERD25TJ181**	
R6	**ERD25TJ562**	
R7	**ERD25TJ333**	
R8	**ERD25TJ181**	
R9	**ERD25TJ471**	
R10	**ERD25TJ123**	
R11	**ERD25TJ152**	
R12	**ERD25TJ102**	
R13	**ERD25TJ333**	
R14	**ERD25TJ471**	
R101	**ERD25TJ331**	
R102	**ERD25TJ102**	
R103	**ERD25TJ331**	
R104	**ERD25TJ223**	
R105	**ERD25TJ331**	
R106	**ERD25TJ102**	
R107	**ERD25TJ104**	
R108, 109	**ERD25TJ331**	
R110	**ERD25TJ103**	
R111	**ERD25TJ392**	
R112	**ERD25TJ562**	
R113	**ERD25TJ222**	
R114	**ERD25TJ181**	
R115	**ERD25TJ181**	
R116, 117	**ERD25TJ333**	
R118	**ERD25TJ181**	
R119	**ERD25TJ471**	
R120, 121	**ERD25TJ274**	

Ref. No.	Part No.	
R201	**ERD25TJ152**	
R202	**ERD25TJ392**	
R203	**ERD25TJ152**	
R204	**ERD25TJ333**	
R205	**ERD25TJ274**	
R206	**ERD25TJ272**	
R207	**ERD25TJ471**	
R208	**ERD25TJ181**	
R301	**ERD25TJ151**	
R302	**ERD25TJ122**	
R303	**ERD25TJ123**	
R304	**ERD25TJ102**	
R306	**ERD25TJ101**	
R401, 402	ERO25CKG6802	
R403, 404	**ERD25TJ471**	
R405, 406	ERO25CKG1803	
R407, 408	ERO25CKG2703	
R409, 410	**ERD25TJ223**	
R411, 412	**ERD25TJ153**	
R413, 414	**ERD25TJ184**	
R415, 416	**ERD25TJ104**	
R501, 502	**ERD25TJ103**	
R503, 504	**ERD25TJ152**	
R505, 506	**ERD25TJ682**	
R507, 508	**ERD25TJ474**	
R509, 510	**ERD25TJ123**	
R511, 512	**ERD25TJ332**	
R513, 514	**ERD25TJ333**	
R601, 602	**ERD25TJ222**	
R605, 606	**ERD25TJ823**	

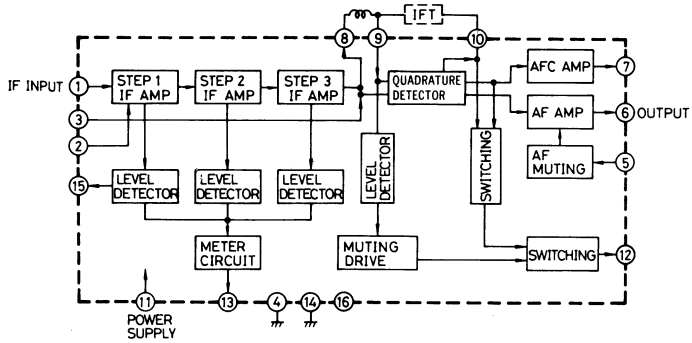
Ref. No.	Part No.	
R607, 608	**ERD25TJ123**	
R609, 610	**ERD25TJ332**	
R611, 612	**ERD25TJ151**	
R613, 614	**ERD25TJ331**	
R615, 616	**ERD25TJ563**	
R617, 618	**ERD25TJ473**	
R619, 620	**ERD14FJ100**	S
R621, 622	**ERG1ANJ102**	
R623, 624	**ERD12FJ682**	S
R625, 626	**ERD14FJ101**	S
R627, 628	ERF3RKR33	S
R629, 630	ERF3RKR33	S
R631, 632	**ERG1ANJ220**	
R633, 634	**ERX1ANJ4R7**	
R635, 636	**ERD14FJ103**	S
R637, 638	**ERD14FJ471**	S
R639	**ERD25TJ152**	
R641, 642	**ERG1ANJ331**	
R702	ERD18FAJ2R2	S
R703	**ERD25TJ473**	
R704	**ERD14FJ471**	S
R705	ERF5SJ181	S
R706	**ERD25TJ474**	
R751	**ERD25TJ181**	
R752	ERD12FJ271	S
R753	ERD12FJ100	S
R801, 802	**ERD25TJ222**	
R803, 804	**ERD25TJ473**	
R805, 806	**ERD25TJ823**	
R807, 808	**ERD25TJ823**	
R809, 810	**ERD25TJ824**	
R811, 812	**ERD25TJ152**	
R901	**ERD25TJ184**	

Ref. No.	Part No.	
R902	**ERD25TJ223**	
R903	**ERD25TJ103**	
R904	**ERD25TJ104**	
R905	**ERG1ANJ471**	
R906	**ERD25TJ332**	
R907	**ERD25TJ472**	
R908	**ERD25TJ123**	
R909, 910	**ERD25TJ183**	
R1001, 1002	**ERD25TJ394**	
R1003, 1004	**ERD25TJ104**	
R1005~1008	**ERD25TJ472**	

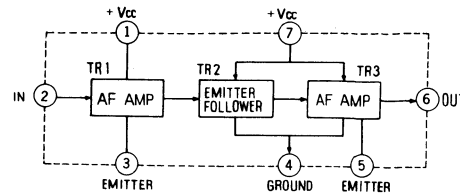
Ref. No.	Part No.	
CAPACITORS		
C1, 2	ECCD1H150KC	
C3	ECCD1H120KC	
C4	ECCD1H220KC	
C5	ECCD1H180KR	
C6	ECCD1H030CC	
C7	ECKD1H102MDA	
C8	ECCD1H050CC	
C9	ECCD1H181K	
C10	ECKD1H103ZF	
C11	ECCD1H0R5CC	
C12	ECCD1H020CC	
C13	ECCD1H070DC	
C14	ECCD1H390KC	
C15	ECCD1H100KC	
C16	ECKD1H102MDA	
C17	ECCD1H180KR	
C18, 19	ECKD1H223ZF	
C51,52(XAL)only	ECKDHS101MB	S
C101, 102	ECKD1H223ZF	
C104	**ECEA2AS3R3**	
C105	ECCD1H680K	
C106	**ECEA2AS010**	
C107	ECCD1H020CC	
C108, 109	ECKD1H223ZF	
C110	**ECEA1HS100**	
C111	ECKD1H223ZF	
C112	ECKD1H103ZF	
C113	ECKD1H223ZF	
C114	**ECEA1AS331**	
C201	ECKD1H103MD	
C202	**ECEA1CS330**	
C203	**ECEA2AS3R3**	
C204, 205	ECQM1H223KZ	
C206	**ECEA2ASR47**	
C207, 208	ECKD1H103ZF	
C251 (XAL)only	ECKDHS102MD	S
C301	ECQM1H473KZ	
C302	**ECEA1ES470**	
C303	ECQS05471JZ	

Ref. No.	Part No.	
C304	**ECEA50ZR22**	
C305	**ECEA50ZR47**	
C306	**ECEA50MR47R**	
C307, 308	ECQM1H333JZ	
C309, 310	ECQM1H332KZ	
C311, 312	ECKD1H331KB	
C313, 314	**ECEA50ZR22**	
C315	**ECEA1ES470**	
C316	**ECEA2AS3R3**	
C317	ECQM1H272KZ	
C401, 402	**ECEA50M3R3R**	
C403, 404	**ECEA1AS101**	
C405, 406	ECKD1H331KB	
C407, 408	ECQM1H472JZ	
C409, 410	ECQM1H183JZ	
C411, 412	**ECEA50M1R**	
C413	**ECEA1HS221**	
C501, 502	ECQM1H222KZ	
C503, 504	ECQM1H153KZ	
C505, 506	ECQM1H223KZ	
C507, 508	ECQM1H104KZ	
C601, 602	**ECEA50M1R**	
C603, 604	ECCD1H680K	
C605, 606	ECCD1H101K	
C607, 608	ECKD1H331KB	
C609, 610	ECCD1H0R5CC	
C611, 612	**ECEA1JS330**	
C613, 614	**ECEA1AS470**	
C615, 616	**ECEA1HS101**	
C617, 618	ECCD1H050C	
C619, 620	ECKD1H103MD	
C621, 622	**ECEA1AS101**	
C623, 624	ECCD1H220K	
C625, 626	ECQM1H224KZ	
C627	**ECEA1VS330**	
C628, 629	**ECEA1HS101**	
C701, 702	ECET45R103Y	
C703	ECKD1H103ZF	
C704	**ECEA1HS102**	
C705	ECKD1H102ZF	
C706	**ECEA1JS330**	
C707	**ECEA1VS221**	
C708	ECKD1H103ZF	
C710	**ECEA1CS330**	
C752	**ECEA1ES101**	
C801, 802	ECQM1H473KZ	
C803, 804	ECKD1H331KB	
C805, 806	ECQM1H562KZ	
C807, 808	ECQM1H333KZ	
C901	**ECEA0JS102**	
C902	**ECEA50Z3R3**	
C903	**ECEA16N220V**	S

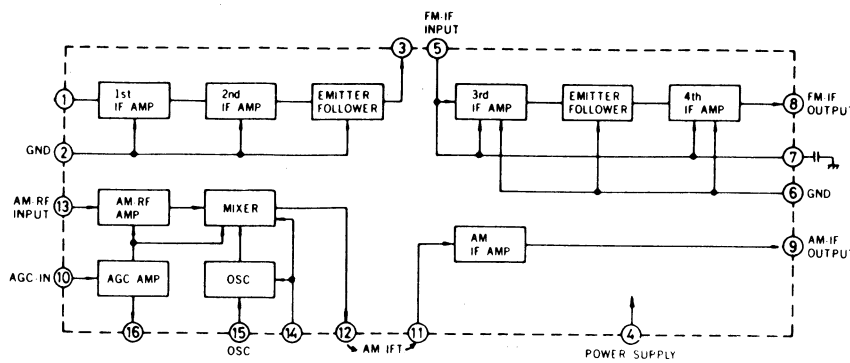
■ BLOCK DIAGRAM OF INTEGRATED CIRCUITS



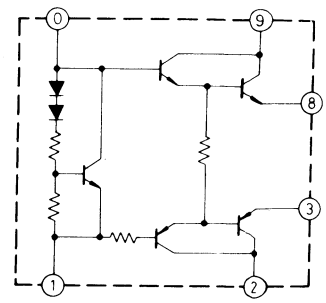
IC101 (AN377)
FM IF Amplifier & Detector



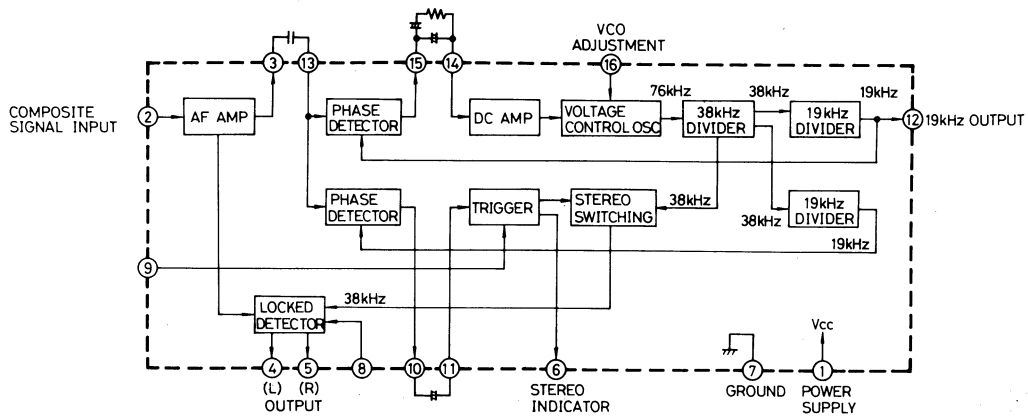
IC401, 402 (SVITA7129P)
Equalizer Amplifier



IC201 (AN217)
FM IF Amplifier & AM Converter

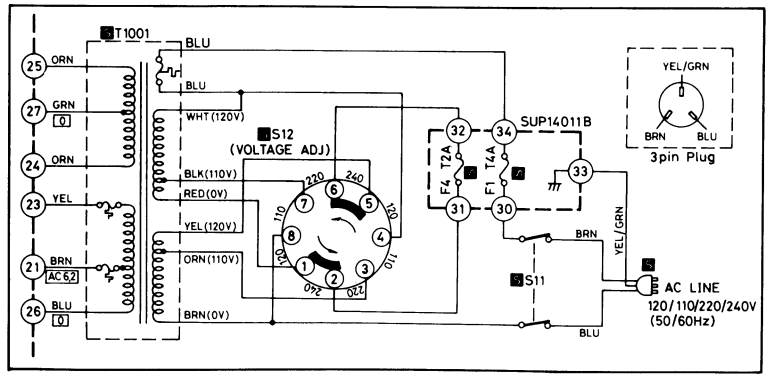


IC601, 602 (SVISTK0040K)
Power Amplifier



IC301 (AN363) FM Multiplex

■ POWER SOURCE CIRCUITRY OF PRODUCT FOR AUSTRALIA (XAL) ONLY



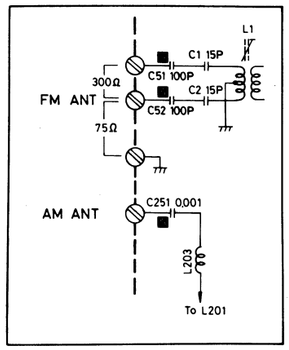
Schematic Diagram··Model SA-400 (X,XA)

Notes:

1. **S1-1~S1-6:** Selector switch in **"AM"** position.
   ①AM ⟷ ②FM ⟷ ③PHONO ⟷ ④AUX
2. **S2-1~S2-4:** Tape monitor switch in **"SOURCE"** position.
   ①TAPE 2 ⟷ ②SOURCE ⟷ ③TAPE 1
3. **S3-1~S3-4:** Recording mode switch in **"SOURCE"** position.
   ①TAPE 2 ▶ 1 ⟷ ②SOURCE ⟷ ③TAPE 1 ▶ 2
4. **S4:** FM muting/mode switch in **"ON/AUTO"** position.
5. **S5:** Loudness switch in **"OFF"** position.
6. **S7-1, S7-2:** High-filter switch in **"OFF"** position.
7. **S8-1, S8-2:** Low-filter switch in **"OFF"** position.
8. **S9-1, S9-2:** Main speaker switch in **"ON"** position.
9. **S10-1, S10-2:** Remote speaker switch in **"OFF"** position.
10. **S11:** Power source switch in **"ON"** position.
11. **S12:** Voltage adjustment switch in **"240V"** position.
    120V ⟷ 110V ⟷ 220V ⟷ 240V
12. 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.
13. AF signal lines. ⇨ FM signal lines. ➡ AM signal lines.
14. [S] indicates that only parts specified by the manufacturer be used for safety.
15. This schematic diagram may be modified at any time with the development of new technology.

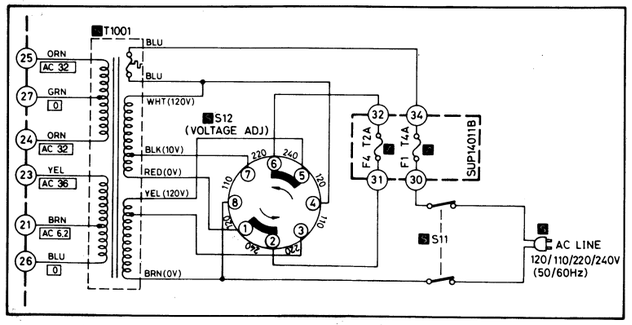
■ ANTENNA CAPACITORS

● **Product for Australia(XAL) only**

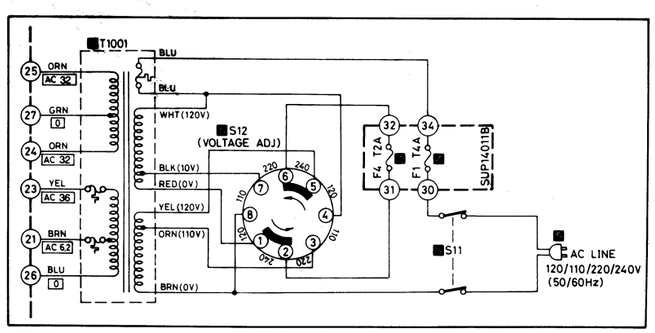


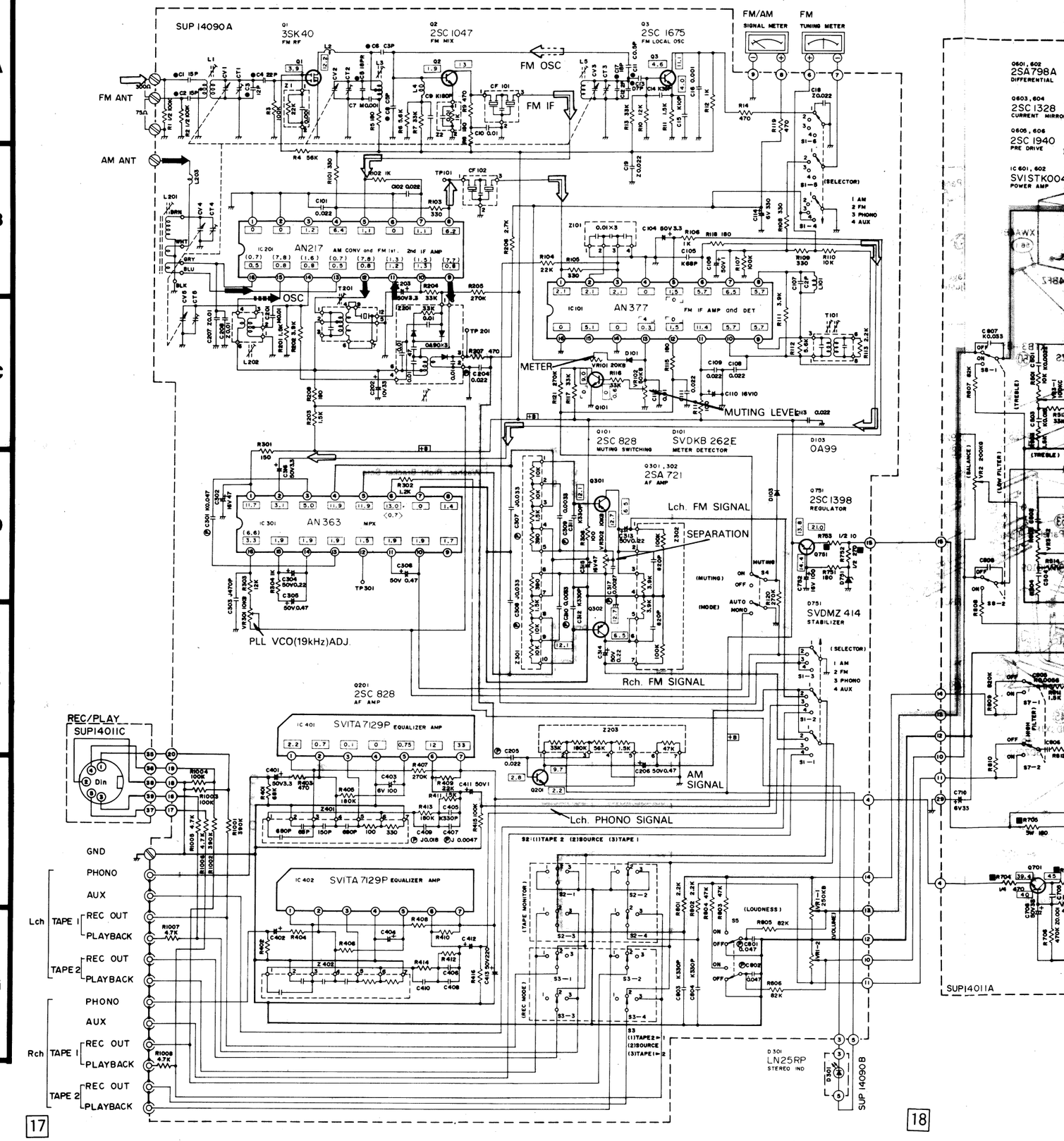
■ POWER SOURCE CIRCUITRY OF OTHER PRODUCTS

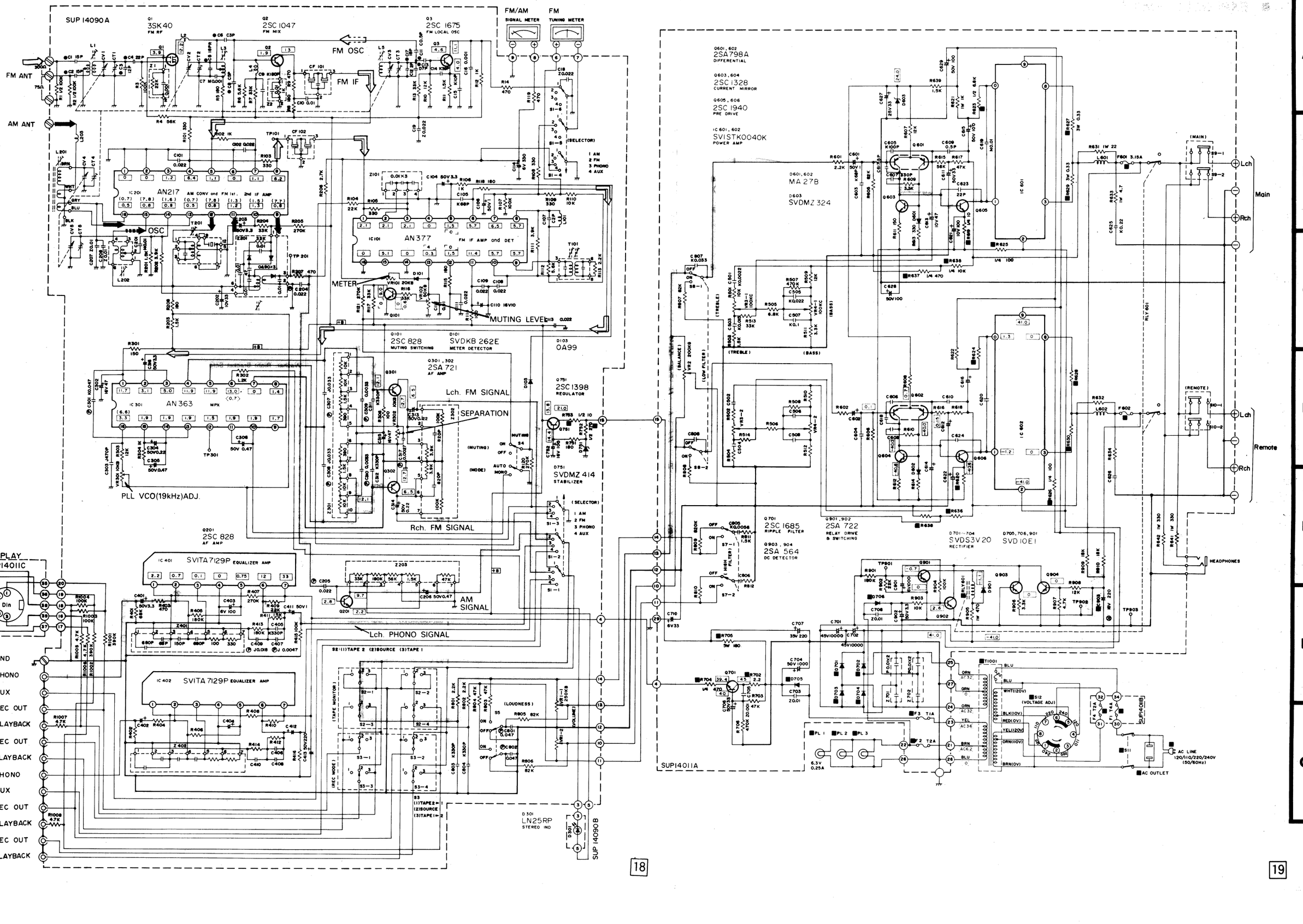
● **Products for European(XG), France(XGF), Holland(XGH), Swiss(XSW), and Scandinavia(XSD) only.**



● **Products for United Kingdom(XE) only**

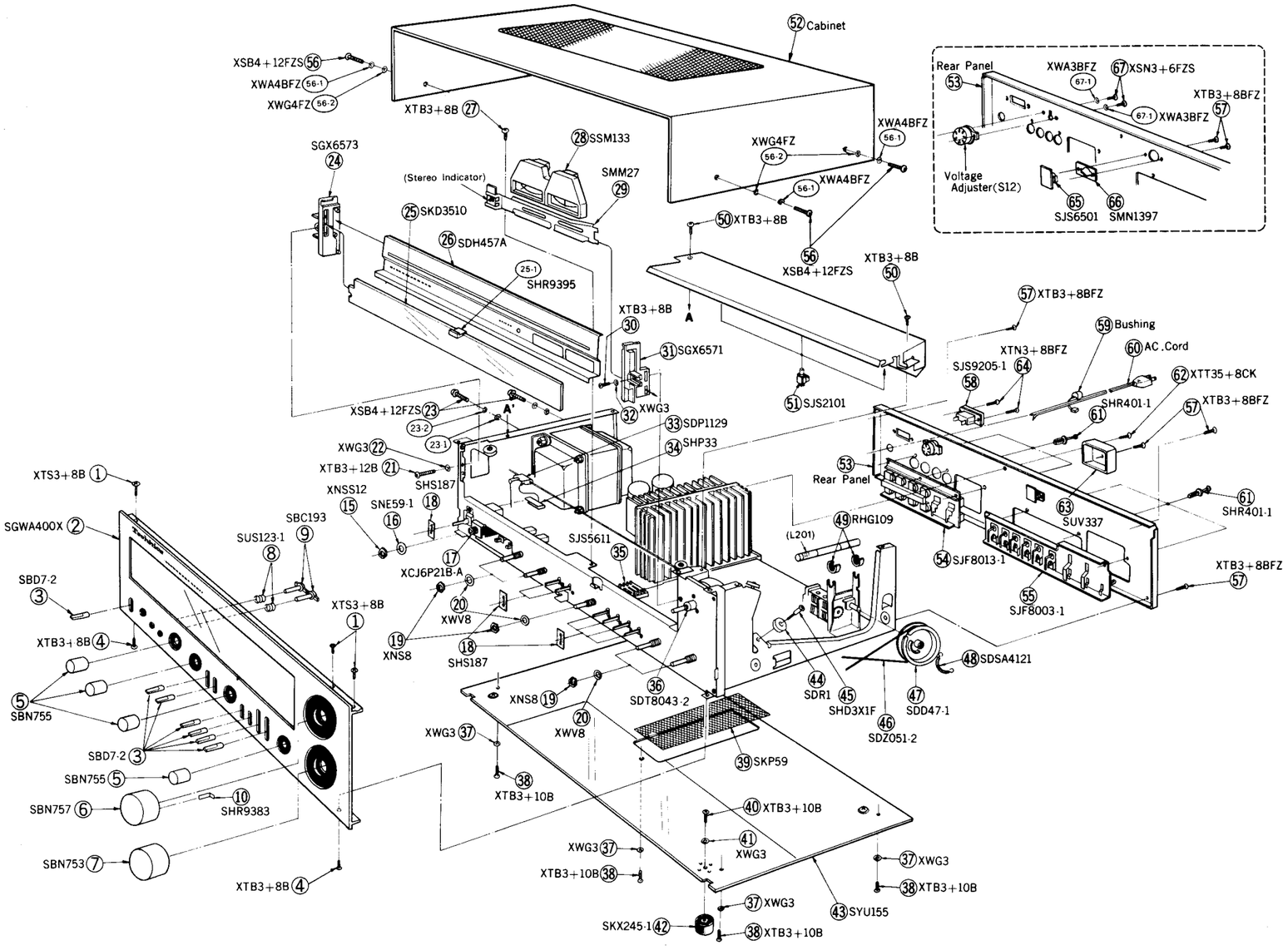





SUP 14090A
Q1 3SK40 FM RF
Q2 2SC1047 FM MIX
Q3 2SC 1675 FM LOCAL OSC
FM OSC
FM IF
FM ANT
AM ANT
FM/AM SIGNAL METER
FM TUNING METER
(SELECTOR) 1 AM 2 FM 3 PHONO 4 AUX
IC201 AN217 AM CONV and FM 1st, 2nd IF AMP
OSC
IC101 AN377 FM IF AMP and DET
METER
MUTING LEVEL
Q101 2SC 828 MUTING SWITCHING
D101 SVDKB 262E METER DETECTOR
D103 0A99
IC301 AN363 MPX
Q301,302 2SA 721 AF AMP
Lch. FM SIGNAL
SEPARATION
Rch. FM SIGNAL
Q751 2SC1398 REGULATOR
D751 SVDMZ 414 STABILIZER
MUTING
(MUTING) (MODE) AUTO MONO
PLL VCO(19kHz)ADJ.
Q201 2SC 828 AF AMP
AM SIGNAL
Lch. PHONO SIGNAL
IC401 SVITA7129P EQUALIZER AMP
IC402 SVITA7129P EQUALIZER AMP
S2:(1)TAPE 2 (2)SOURCE (3)TAPE 1
S3 (1)TAPE2 (2)SOURCE (3)TAPE1
(TAPE MONITOR) (REC MODE) (LOUDNESS) (VOLUME)
REC/PLAY SUP1401IC
GND PHONO AUX Lch TAPE 1 REC OUT PLAYBACK TAPE 2 REC OUT PLAYBACK
PHONO AUX Rch TAPE 1 REC OUT PLAYBACK TAPE 2 REC OUT PLAYBACK
D301 LN25RP STEREO IND
SUP 14090B
Q601,602 2SA798A DIFFERENTIAL
Q603,604 2SC1328 CURRENT MIRROR
Q605,606 2SC1940 PRE DRIVE
IC601,602 SVISTK0040K POWER AMP
Q601,602 MA 278
D603 SVDMZ324
(TREBLE) (BASS) (BALANCE) (LOW FILTER)
RLY601
(MAIN) Lch Rch Main
(REMOTE) Lch Rch Remote
HEADPHONES
Q701 2SC1685 RIPPLE FILTER
Q901,902 2SA 722 RELAY DRIVE & SWITCHING
Q903,904 2SA 564 DC DETECTOR
D701~704 SVDS3V20 RECTIFIER
D705,706,901 SVD10E1
(HIGH FILTER)
SUP1401IA
PL1 PL2 PL3
6.3V 0.25A
(VOLTAGE ADJ)
AC OUTLET
AC LINE 120/110/220/240V (50/60Hz)

17 18 19

■ EXPLODED VIEWS



■ 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	SGWA400X		Panel, Front Ass'y	1	○
3	SBD7-2		Knob, Lever Switches	7	
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	7	○
19	XNS8		Nut, Volumes & Selector M'tg	5	
20	XWV8		Washer, Volumes & Selector	5	
21	XTB3+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	SDH457A		Plate, Dial	1	*○
27	XTB3+8B		Screw, Meter Bracket M'tg	1	
28	SSM133		Meter, Signal & Tuning	1	
29	SMM27		Bracket, Meter	1	*○
30	XTB3+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(XSW,XSD)only	SKA10150W		Cabinet, Black Wooden	1	○
52(XE)only	SKA10151W		Cabinet, Brown Wooden	1	○
52	SKA10170W		Cabinet, Black Wooden	1	○
53(XA,X)	SGP1350-1A		Rear Panel	1	○
53(XAL)	SGPA400L		Rear Panel, SGP1350-2A with Name Plate (SGT16670)	1	○
53(XG,XGF, XGH,XE)	SGP1350A		Rear Panel	1	○
53(XSD,XSW)	SGPA400D		Rear Panel, SGP1350A with Name Plate (SGT16550)	1	○
54	SJF8013-1		Terminal, Speakers & Speaker Fuses	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	8	
58(XA,X)only	SJS9205-1	■	Socket, AC Outlet	1	
59(XE)only	SHR129		Bushing, AC Cord	1	
59(XAL)only	SHR131		Bushing, AC Cord	1	
59	SHR127		Bushing, AC Cord	1	
60(XE)only	RJA45ZC	■	AC Cord, Power Source	1	○
60(XAL)only	QFC1207M	■	AC Cord, Power Source	1	○
60(XSW)only	SJAE1	■	AC Cord, Power Source	1	
60	SJA97	■	AC Cord, Power Source	1	
61	SHR401-1		Latch, Speakers & Input Terminal M'tg	6	
62	XTT35+8CK		Screw, Heat Sink M'tg	1	
63	SUV337		Cover, Speaker Fuses	1	*
64(XA,X)only	XTN3+8BFZ		Screw, AC Outlet M'tg	2	
65	SJS6501		Socket, DIN (TAPE DECK, REC/PLAY)	1	
66	SMN1397		Bracket, DIN Socket	1	*
67	XSN3+6FZS		Screw, Voltage Adjuster M'tg	2	
67-1	XWA3BFZ		Washer, Spring	2	

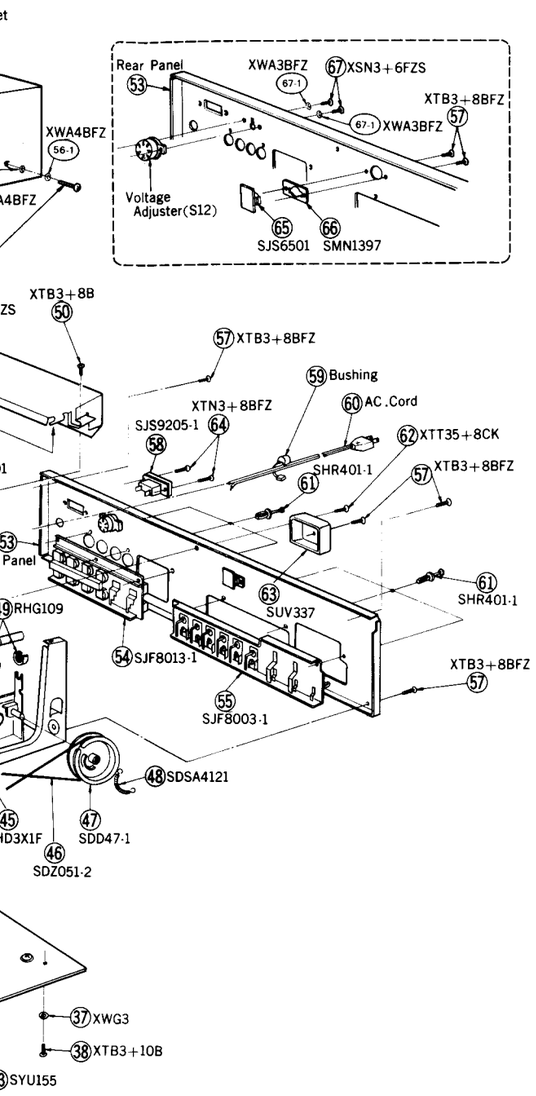
■ ACCESS

A

■ PACKING

■ 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.

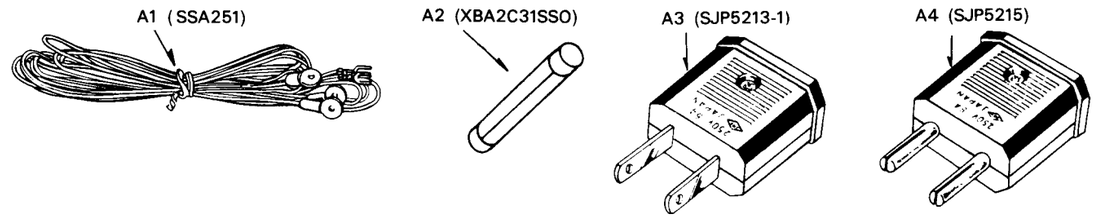


Ref. No.	Part No.		Part Name & Description	Per Set	Remarks
			CABINET and CHASSIS PARTS		
1	XTS3+8B		Screw, Front Panel M'tg	3	
2	SGWA400X		Panel, Front Ass'y	1	○
3	SBD7-2		Knob, Lever Switches	7	
4	XTB3+8B		Screw, Front Panel M'tg	2	
5	SBN755		Knob, Bass, Treble, Balance & Selector	4	
6	SBN757		Knob, 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	7	○
19	XNS8		Nut, Volumes & Selector M'tg	5	
20	XWV8		Washer, Volumes & Selector	5	
21	XTB3+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	SDH457A		Plate, Dial	1	*○
27	XTB3+8B		Screw, Meter Bracket M'tg	1	
28	SSM133		Meter, Signal & Tuning	1	
29	SMM27		Bracket, Meter	1	*○
30	XTB3+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(XSW,XSD)only	SKA10150W		Cabinet, Black Wooden	1	○
52(XE)only	SKA10151W		Cabinet, Brown Wooden	1	○
52	SKA10170W		Cabinet, Black Wooden	1	○
53(XA,X)	SGP1350-1A		Rear Panel	1	○
53(XAL)	SGPA400L		Rear Panel, SGP1350-2A with Name Plate (SGT16670)	1	○
53(XG,XGF, XGH,XE)	SGP1350A		Rear Panel	1	○
53(XSD,XSW)	SGPA400D		Rear Panel, SGP1350A with Name Plate (SGT16550)	1	○
54	SJF8013-1		Terminal, Speakers & Speaker Fuses	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	8	
58(XA,X)only	SJS9205-1	■	Socket, AC Outlet	1	
59(XE)only	SHR129		Bushing, AC Cord	1	
59(XAL)only	SHR131		Bushing, AC Cord	1	
59	SHR127		Bushing, AC Cord	1	
60(XE)only	RJA45ZC	■	AC Cord, Power Source	1	○
60(XAL)only	QFC1207M	■	AC Cord, Power Source	1	○
60(XSW)only	SJA61	■	AC Cord, Power Source	1	
60	SJA97	■	AC Cord, Power Source	1	
61	SHR401-1		Latch, Speakers & Input Terminal M'tg	6	
62	XTT35+8CK		Screw, Heat Sink M'tg	1	
63	SUV337		Cover, Speaker Fuses	1	*
64(XA,X)only	XTN3+8BFZ		Screw, AC Outlet M'tg	2	
65	SJS6501		Socket, DIN (TAPE DECK, REC/PLAY)	1	
66	SMN1397		Bracket, DIN Socket	1	*
67	XSN3+6FZS		Screw, Voltage Adjuster M'tg	2	
67-1	XWA3BFZ		Washer, Spring	2	

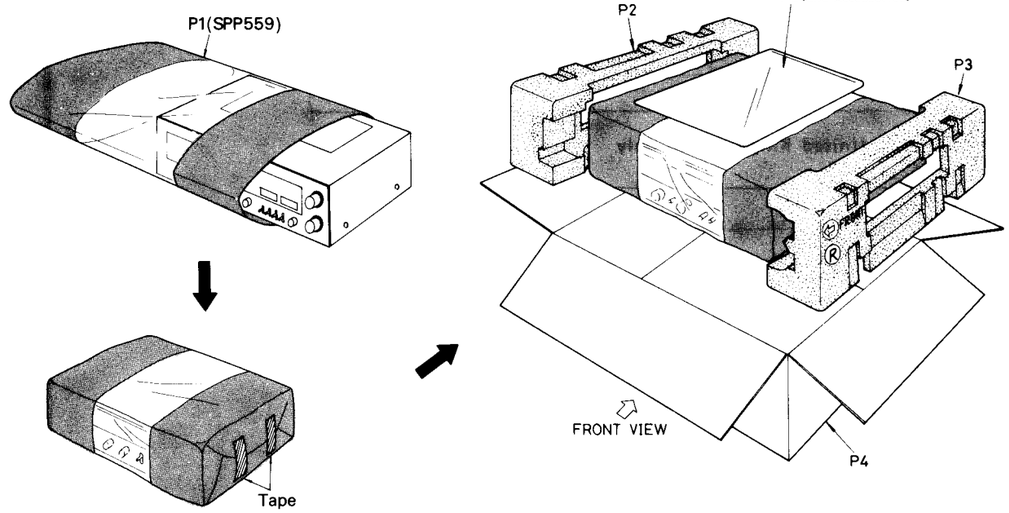
Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
		ACCESSORIES		
A1	SSA251	Cord, FM Feeder	1	
A2	XBA2C31SSO	Fuse, 3.15A (250V) Speaker Circuit	2	
A3(XA,X)only	SJP5213-1	Plug Adapter, AC Power	1	
A4(XA,X)only	SJP5215	Plug Adapter, AC Power	1	
		PACKING PARTS		
P1	SPP559	Polyethylene Bag	1	
P2(XE,XSW)only	SPS1591-1	Pad, Left Side	1	○
P2	SPS1591	Pad, Left Side	1	○
P3(XE,XSW)only	SPS1593-1	Pad, Right Side	1	○
P3	SPS1593	Pad, Right Side	1	○
P4(XGF)	SPG1497	Carton Box	1	○
P4(XSW,XE)	SPG1493	Carton Box	1	○
P4(XA,X,XGH,XGXAL)	SPG1491	Carton Box	1	○
P5(XA,X,XAL,XE)	SQF1893	Instructions Book, Printed Matter	1	○
P5(XG,XSW,XGH,XGF)	SQF1891	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.
* (XG) is available in European only.
* (XSD) is available in Scandinavia only.
* (XSW) is available in Swiss only.
* (XGF) is available in France only.
* (XE) is available in United Kingdom only.

■ ACCESSORIES



■ PACKINGS



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78048600 Ⓚ

For additional information, please refer to the service manual for Model No. SA-400 (X, XA, XAL, XGH, XG, XSD, XSW, XGF, XE).

Notes: * This information included only the changes of the **SA-400 (X, XA, XAL, XGH, XG, XSD, XSW, XGF, XE)** service manual (ORDER NO. SD7804-1332).
* When servicing model **SA-400,** this information and **SA-400 (X, XA, XAL, XGH, XG, XSD, XSW, XGF, XE)** (ORDER NO. SD7804-1332) 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 Ⓐ direction and lifting it upward Ⓑ 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.

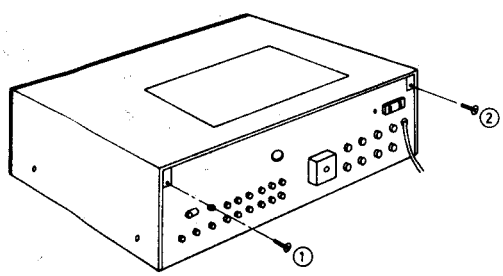


Fig. 7-1

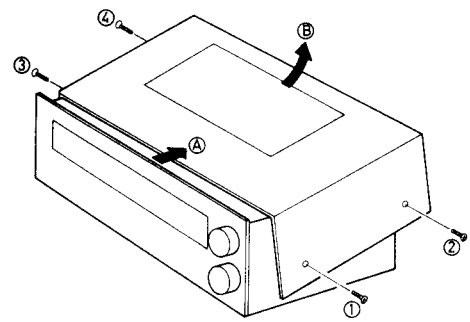


Fig. 7

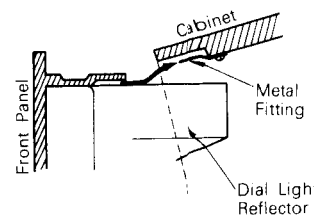


Fig. 8

Modification-2

■ REPLACEMENT PARTS LIST OF FUSES & REAR PANEL (Page 14 & Page 21)

Ref. No.	Change of Part No. OLD	NEW	Part Name & Description	Per Set		Remarks
			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 (XA,X)	SGP1350-1A	SGP1350-1A	Rear Panel	1		C
53 (XAL)	SGPA400L	SGPA400L1	Rear Panel, SGP1350-2E with Name Plate(SGT16670)	1		C
53 (XG,XGF,XGH,XE)	SGP1350A	SGP1350E	Rear Panel	1		C
53 (XSD,XSW)	SGPA400D	SGPA400D1	Rear Panel SGP1350E with Name Plate(SGT16550)	1		C
			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		

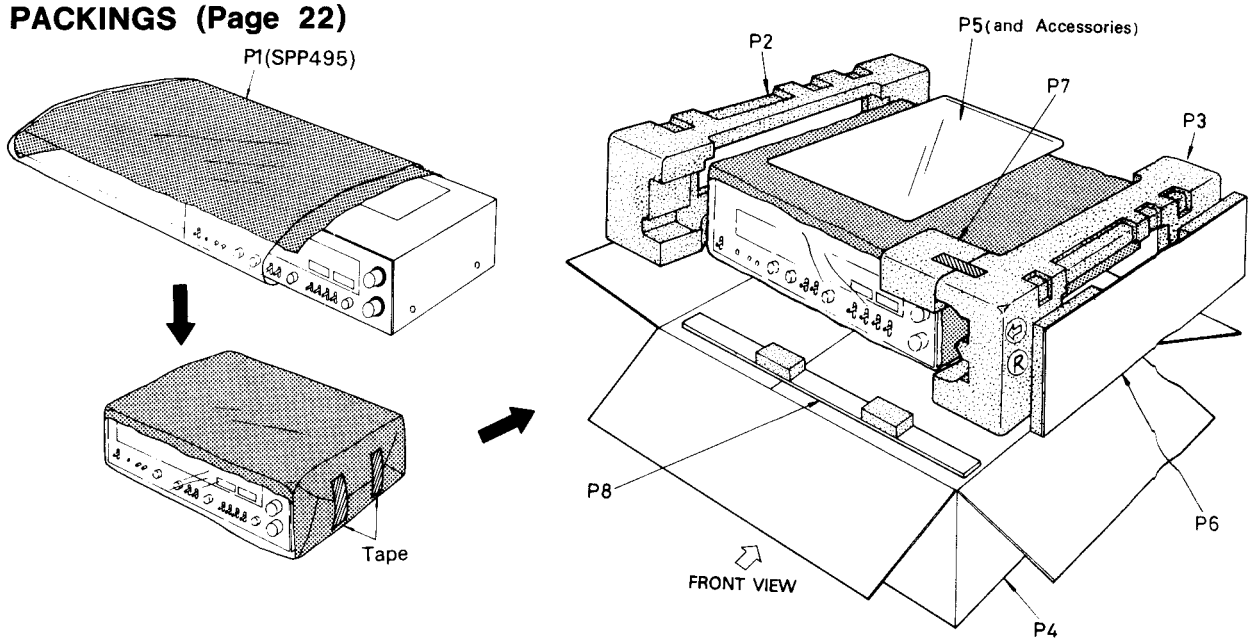
Modification-3

■ PACKING PARTS LIST (Page 22)

Ref. No.	Part No.		Part Name & Description	Per Set		Remarks
			PACKING PARTS			
P1	SPP495		Polyethylene Bag	1		
P2(XE,XSW)only	SPS1591-1		Pad, Left Side	1		○
P2	SPS1591		Pad, Left Side	1		○
P3(XE,XSW)only	SPS1593-1		Pad, Right Side	1		○
P3	SPS1593		Pad, Right Side	1		○
P4(XGF)	SPG1497		Carton Box	1		○
P4(XE)	SPG1493		Carton Box	1		○
P4(XA,X,XGH,XGXSW,E,XAL)	SPG1491		Carton Box	1		○
P5(XA,X,XAL,XE)	SQF1893-1		Instructions Book, Printed Matter	1		○
P5(XG,XSW,E,XGH,XGF)	SQF1891-1		Instructions Book, Printed Matter	1		○
P6(XE,XSW)only	SPS1655		Pad, Right Side	1		○
P6	SPS1657		Pad, Right Side	1		○
P7	SPS1653		Pad, Right Front Side } Addition	1		○
P8(XE,XSW)only	SPS1649		Pad, Bottom Side	1		○
P8	SPS1651		Pad, Bottom Side	1		○

Modification-4

■ PACKINGS (Page 22)



Modification-5

■ OTHERS

- Set for Scandinavia indicates **(D)** insted of **(XSD),** this changes is from April, 1978.

The model SA-400 (XSD) is available in Scandinavia only.

⬇

The model SA-400 (D) is available in Scandinavia only.

- Correction of dimensions (General of technical Specifications)

430(W)×145(H)×260(D) mm
(16 15/16"×5 23/32"×10 1/4") → Correction → 430(W)×142(H)×300(D) mm
(16 15/16"×5 19/32"×11 13/16")

Printed in Japan
7804779 0 Ⓚ