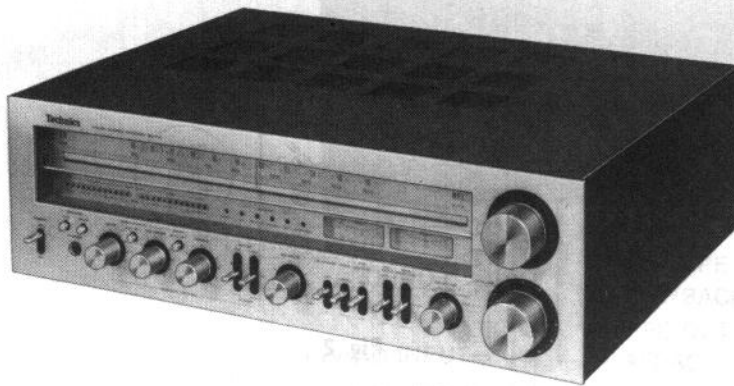


# Service Manual

FM/AM STEREO RECEIVER

## SA-700

(D), (XGH), (XGF), (XSW),  
(XE), (XAL), (XA), (X)

- \* The model SA-700 (D) is available in Scandinavia and European only.
- \* The model SA-700 (XGH) is available in Holland only.
- \* The model SA-700 (XGF) is available in France only.
- \* The model SA-700 (XSW) is available in Switzerland only.
- \* The model SA-700 (XE) is available in United Kingdom only.
- \* The model SA-700 (XAL) is available in Australia only.
- \* The models SA-700 (XA) and SA-700 (X) are available in Asia, Latin America, Middle East and Africa only.

\* Cabinet colour differs according to destination.

### 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 120 W (4Ω), 2 x 110 W (8Ω)	
40 Hz ~ 16 kHz continuous power output		
both channels driven	2 x 110 W (4Ω), 2 x 100 W (8Ω)	
20 Hz ~ 20 kHz continuous power output		
both channels driven	2 x 110 W (4Ω), 2 x 100 W (8Ω)	
Power bandwidth		
both channels driven at 4Ω	10 Hz ~ 40 kHz (-3 dB)	
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% (4Ω, 8Ω)	
half power at 20 Hz ~ 20 kHz	0.025% (4Ω), 0.015% (8Ω)	
half power at 1 kHz	0.005% (4Ω, 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%	
Damping factor	25 (4Ω), 50 (8Ω)	
Input sensitivity and impedance		
PHONO	2.5 mV/47 kΩ	
AUX	150 mV/47 kΩ	
PLAYBACK (TAPE 1), REC/PLAY input	180 mV/47 kΩ	
PLAYBACK (TAPE 2)	150 mV/47 kΩ	
MAIN IN	1 V/100 kΩ	
PHONO maximum input voltage (1 kHz, RMS)	200 mV	
S/N		
rated power at 4Ω	PHONO 75 dB (IHF, A: 83 dB)	
	AUX 88 dB (IHF, A: 95 dB)	
-26 dB power at 4Ω	PHONO 65 dB, AUX 70 dB	
50 mW power at 4Ω	PHONO 55 dB, AUX 55 dB	
Frequency response	PHONO RIAA standard curve	
	30 Hz ~ 15 kHz, ±0.2 dB	
	AUX 20 Hz ~ 20 kHz, +0 dB, -0.3 dB	
	10 Hz ~ 40 kHz, -1 dB	
Tone controls	BASS 50 Hz, +12 dB ~ -12 dB	
	TREBLE 20 kHz, +12 dB ~ -12 dB	
	MIDDLE 1 kHz, +7 dB ~ -7 dB	
Low boost at tone controls "0" position	100 Hz, +6 dB	
High boost at tone controls "0" position	10 kHz, +6 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 and impedance		
PRE OUT	1 V/4.7 kΩ	
REC OUT (TAPE 1,2)	150 mV	
REC/PLAY output	30 mV/80 kΩ	

Channel balance (250 Hz ~ 6300 Hz), AUX	±1.0 dB
Channel separation at 1 kHz, AUX	63 dB
Headphones output level and impedance	500 mV/330Ω
Load impedance	MAIN or REMOTE 4 ~ 16Ω
	MAIN + REMOTE 8 ~ 16Ω

#### FM TUNER SECTION

Frequency range	88 ~ 108 MHz
Antenna terminals	300Ω (balanced), 75Ω (unbalanced)
Sensitivity (±40 kHz deviation)	
S/N 30 dB	1.8μV (300Ω), 1.3μV (75Ω)
S/N 26 dB	1.6μV (300Ω), 1.2μV (75Ω)
S/N 20 dB	1.5μV (300Ω), 0.9μV (75Ω)
IHF usable sensitivity	1.8μV (IHF '58)
IHF S/N 46 dB stereo quieting sensitivity	18μV (75Ω)
Total harmonic distortion	MONO 0.1%
	STEREO 0.2%
S/N (±40 kHz deviation)	MONO 60 dB (IHF: 77 dB)
	STEREO 58 dB (IHF: 73 dB)
Frequency response	20 Hz ~ 15 kHz, +0.2 dB, -0.8 dB
Alternate channel selectivity	80 dB
Capture ratio	1.0 dB
Image rejection at 98 MHz	85 dB
IF rejection at 98 MHz	100 dB
Spurious response rejection at 98 MHz	100 dB
AM suppression	60 dB
Stereo separation	1 kHz 45 dB, 10 kHz 35 dB
Leak carrier	19 kHz -60 dB (-65 dB, IHF)
	38 kHz -65 dB (-70 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, 250μV/m
Selectivity	35 dB
Image rejection at 1000 kHz	50 dB
IF rejection at 1000 kHz	45 dB

#### GENERAL

Power consumption	850 W
Power supply (50 Hz/60 Hz)	110V/120V/220V/240V
Dimensions (W x H x D)	510 x 160 x 390 mm
	(20 3/8" x 6 3/16" x 15 3/8")
Weight	16.1 kg (35.5 lb.)

## TECHNICAL GUIDE

### Power-indication circuitry

The power amplifier output signal is attenuated by the sensitivity selector, and is applied to the logarithmic-compression circuitry. In this circuitry, as shown in figure 1, the output characteristics change logarithmically in relation to input, and the output is applied to the window comparator IC. Here, the pulse waveform becomes as shown in figure 2, and the indicator illuminates according to the input of the IC (the output of the power amplifier).

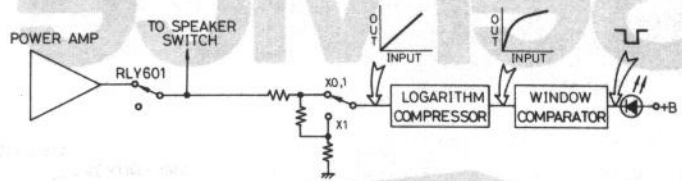


Fig. 1

### Tone-control circuitry

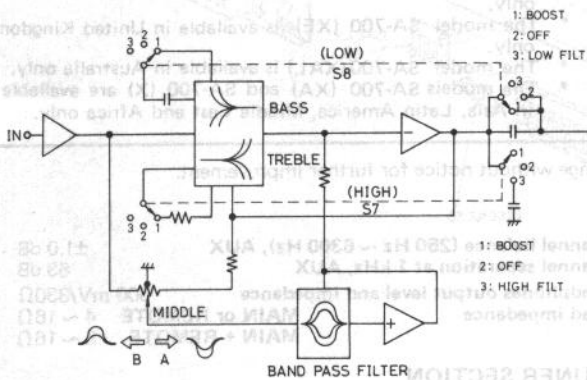


Fig. 3

Configuration is as shown in figure 3. Bass and treble are the BAX type of control circuitry, and a bandpass filter is used for control of intermediate frequencies. If the middle control is moved in direction A, a valley-like characteristic can be obtained. If it is moved in direction B, a peak-like characteristic can be obtained.

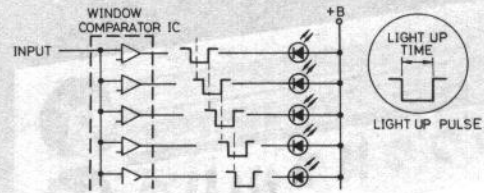


Fig. 2

## ALIGNMENT INSTRUCTIONS (Main Amplifier Circuitry) — ENGLISH —

### Main amplifier (Ic) alignment . . . . . Refer to fig. 4.

1. The "Ic" adjustment should be started about 5 minutes after setting the power switch to the ON position.
2. Speakers switch to "push" position.
3. Connect DC voltmeter between TP601 and ⊕ speaker terminal of right channel.
4. Adjust VR602 to 12 mV on DC voltmeter indication.
5. Connect DC voltmeter between Emitter (TR613) and ⊕ speaker terminal of left channel.
6. Adjust VR601 to 12 mV on DC voltmeter indication.

### Power level indication alignment . . . . . Refer to fig. 4.

1. Connect AC VTVM to speakers terminal. (Left and Right channels)
2. Power display switch to "ON" position and display range switch to "XO. 1" position.
3. Selector switch to "AUX" position.
4. Apply a 1 kHz signal to "AUX" terminal. (Left and Right channels)
5. Volume control to maximum position of set.
6. Adjust supply signal level to 12.6V ~ 12.7V output of speaker terminal.
7. Adjust VR801 (Left channel) and VR802 (Right channel) until "200W" indicator lights up.

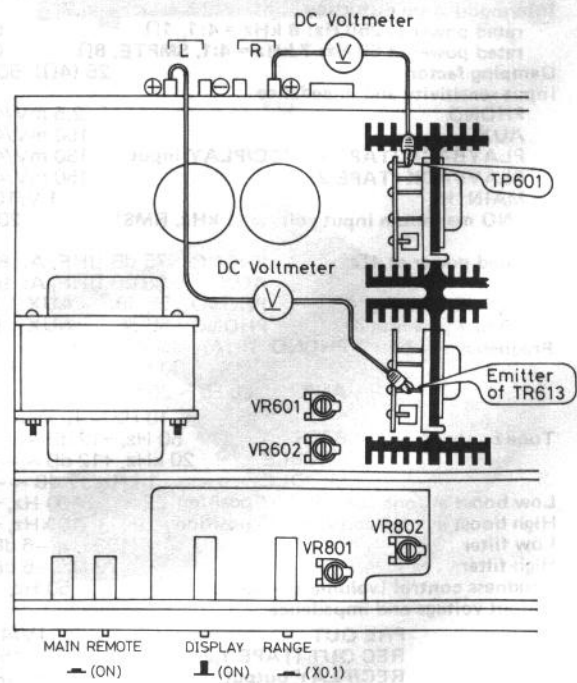
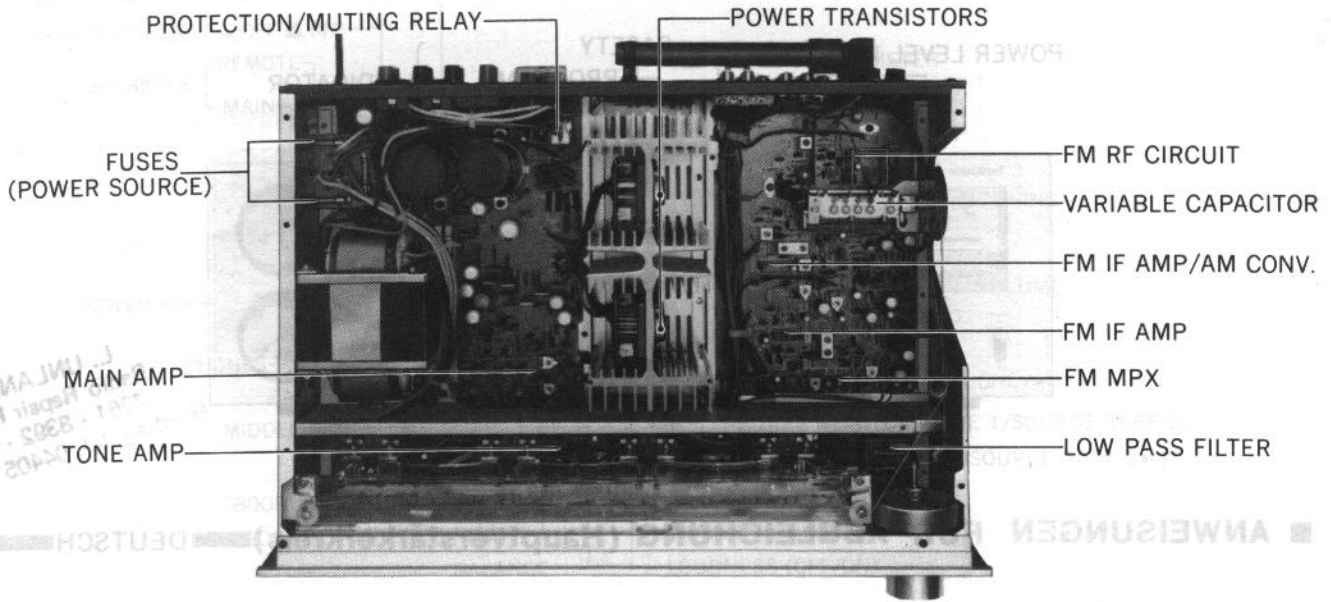


Fig. 4 (Abb. 4)

■ CHASSIS 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 transistor from destruction, should the speaker terminals be short-circuited. Accordingly, if the unit fails to function upon completion of the speaker connections, check the speaker circuit protection fuses first of all for possible blowing.

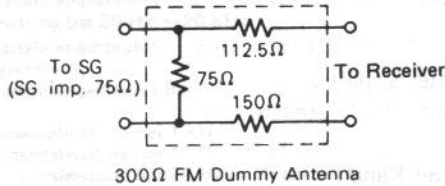


Fig. 5 (Abb. 5)

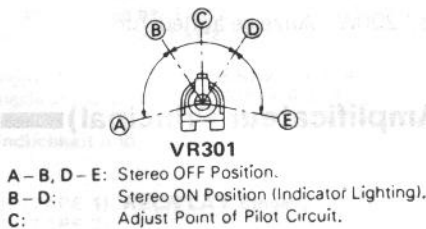


Fig. 6 (Abb. 6)

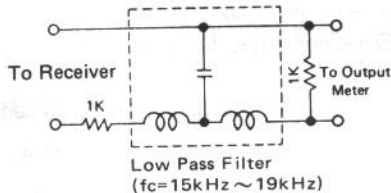
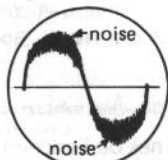


Fig. 7 (Abb. 7)



(SINE WAVE)  
Fig. 8 (Abb. 8)

■ ALIGNMENT POINTS (FM/AM tuner circuitry)

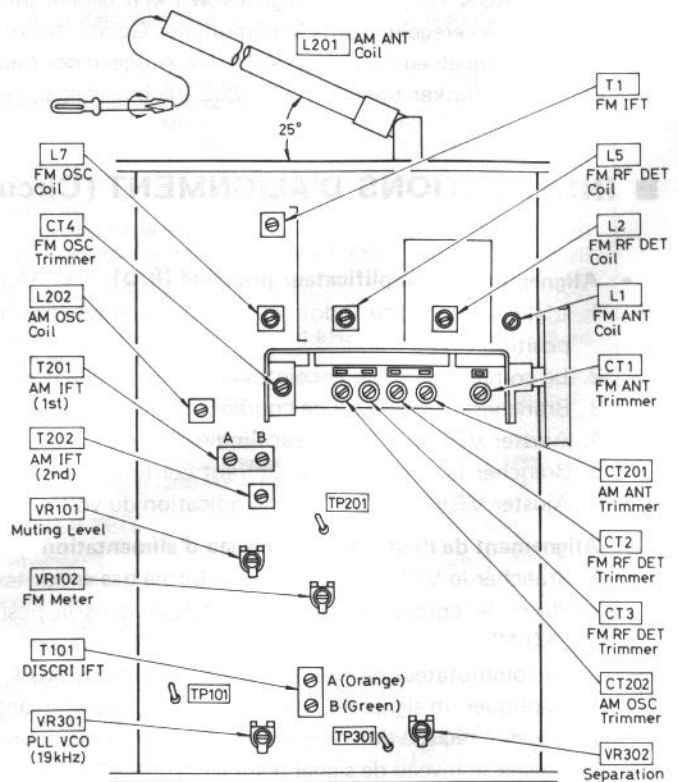
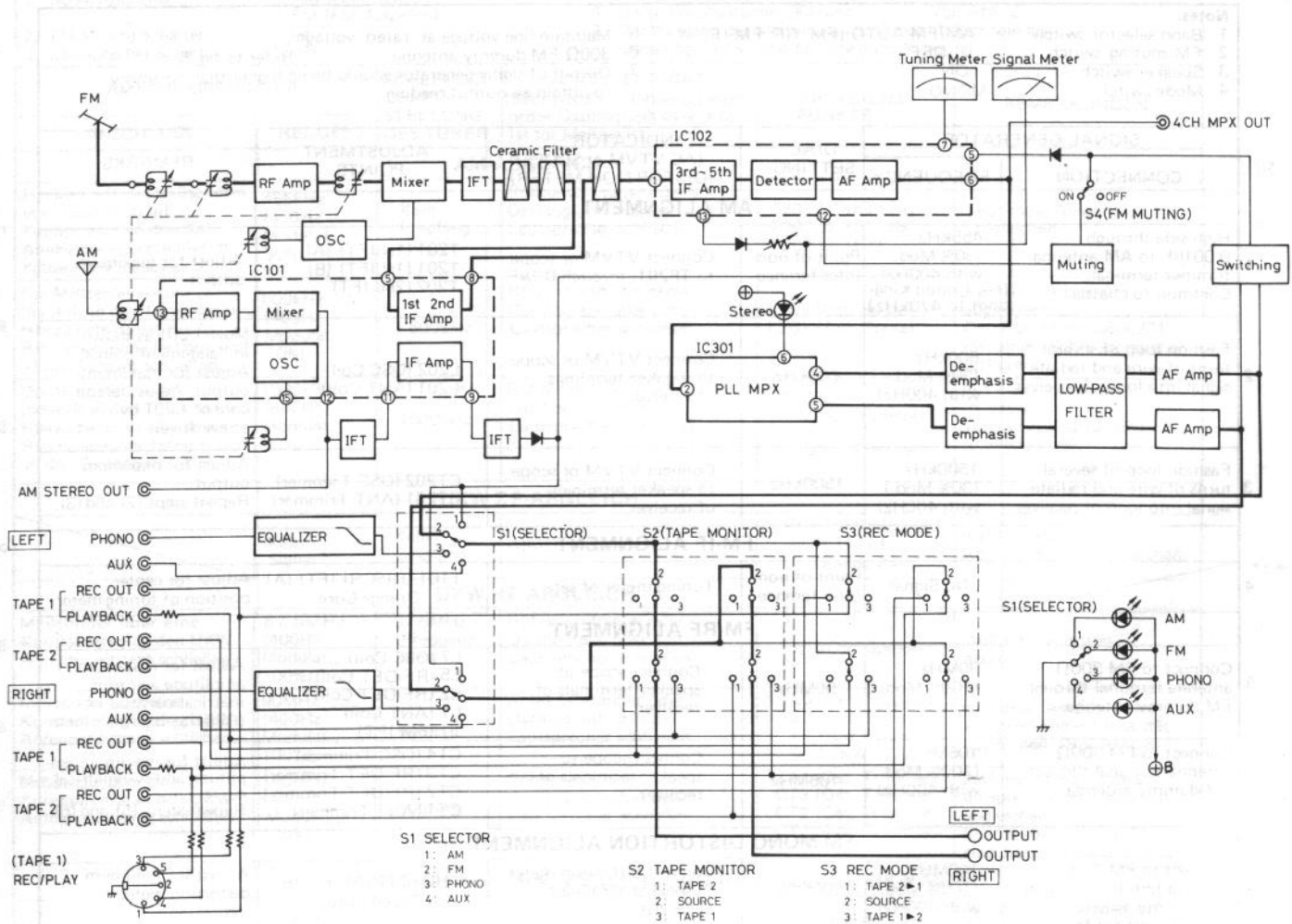


Fig. 9 (Abb. 9)

# ■ ALIGNMENT INSTRUCTIONS (FM/AM tuner circuitry) — ENGLISH

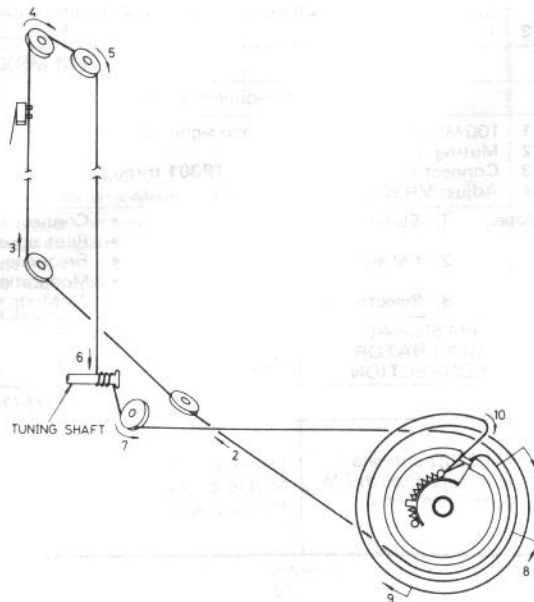
SIGNAL GENERATOR		DIAL SETTING	INDICATOR (AC VTVM or SCOPE) (DISTORTION METER)	ADJUSTMENT POINTS	REMARKS	
CONNECTION	FREQUENCY					
<b>Notes:</b> 1. Band selector switch . . . . . AM/FM AUTO (FM, RF FM-IF) 2. FM muting switch . . . . . OFF 3. Speaker switch . . . . . ON 4. Mode switch . . . . . MONO 5. Maintain line voltage at rated voltage. 6. 300Ω FM dummy antenna . . . . . Refer to fig. 5 7. Output of signal generator should be no higher than necessary to obtain an output reading.						
<b>AM ALIGNMENT</b>						
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-interference	Connect VTVM or scope to TP201. through 0.1μF	T201 (1st IFT) (A) T201 (1st IFT) (B) T202 (2nd IFT)	Adjust for maximum output.
2	Fashion loop of several turns of wire and radiate signal into loop of receiver	600kHz (30% Mod. with 400Hz)	600kHz	Connect VTVM or scope to speaker terminals of receiver.	L202 (OSC Coil) L201 (ANT Coil)	Move L201 as shown in "alignment points" Adjust for maximum output. Adjust ferrite core of L201 by screw driver.
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.	CT202 (OSC Trimmer) CT201 (ANT Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).
<b>FM-IF ALIGNMENT</b>						
4		No Signal	Point of non-interference.	Tuning meter of set.	T101 (DISCRI IFT) (A) Orange Core	Adjust for center position of tuning meter.
<b>FM-RF ALIGNMENT</b>						
5	Connect to FM 300Ω antenna terminal through FM dummy antenna.	90MHz (100% Mod. with 400Hz)	90MHz	Connect scope to speaker terminals of receiver.	L7 (OSC Coil) L5 (RF-DET Coil) L2 (RF-DET Coil) L1 (ANT Coil) T1 (FM IFT)	Adjust for maximum amplitude and symmetrical curve. (Refer to fig. 8).
6	Connect to FM 300Ω antenna terminal through FM dummy antenna.	106MHz (100% Mod. with 400Hz)	106MHz	Connect scope to speaker terminals of receiver.	CT4 (OSC Trimmer) CT3 (RF DET Trimmer) CT2 (RF DET Trimmer) CT1 (ANT Trimmer)	Adjust for maximum amplitude and symmetrical curve. Repeat steps (5) and (6).
<b>FM MONO DISTORTION ALIGNMENT</b>						
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 meter indication
<b>FM MUTING LEVEL ALIGNMENT</b>						
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.	VR101	FM muting switch to "ON". Adjust so that output can be obtained.
<b>FM SIGNAL METER ALIGNMENT</b>						
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 VR102 for about 4.7 point of signal meter indication.		
<b>FM MPX PILOT ALIGNMENT</b>						
Using a frequency counter			Using alternate system			
10	1 100 MHz Non-modulated mono signal applied to set. 2 Muting switch to "ON" 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. 6.		
<b>Notes:</b> <ul style="list-style-type: none"> <li>1. Stereo modulator . . . . . • Connect stereo modulator output to EXT MOD terminal of signal generator.</li> <li>2. FM signal generator . . . . . • Pilot signal modulation to "10%"</li> <li>3. Selector switch to "FM AUTO" • Frequency approximately 100MHz/Output level to "72dB (IHF)"</li> <li>4. Mode switch to "STEREO" • Modulation mode to "FM"</li> </ul>						
FM SIGNAL GENERATOR CONNECTION	STEREO MODULATOR MODE & MOD. RATE	INDICATOR (AC VTVM)	ADJUSTMENT POINTS	REMARKS		
<b>FM STEREO SEPARATION ALIGNMENT</b>						
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. 7)	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.	

**BLOCK DIAGRAM ..... FM/AM Tuner and tape monitor selection circuitry**

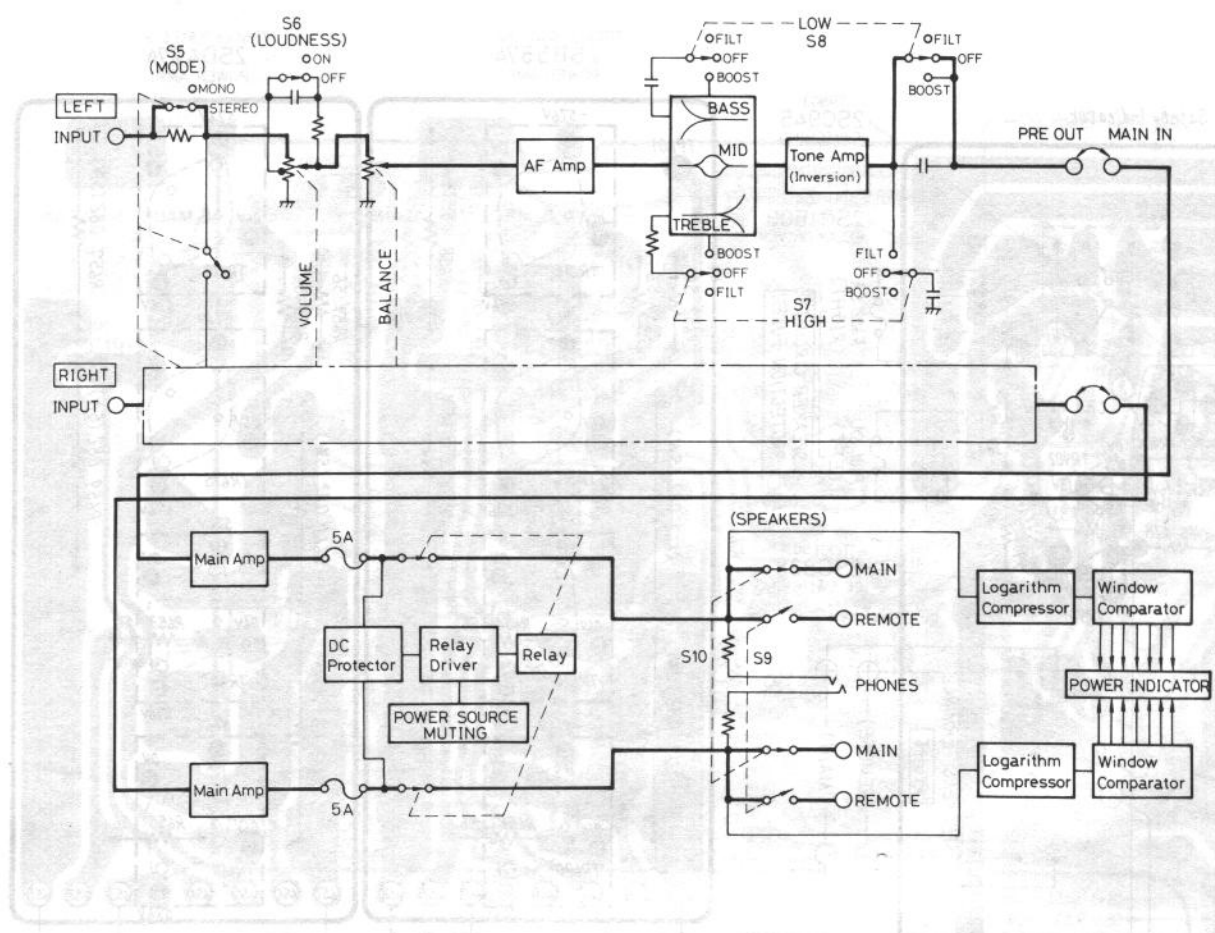


**DIAL CORD INSTALLATION GUIDE**

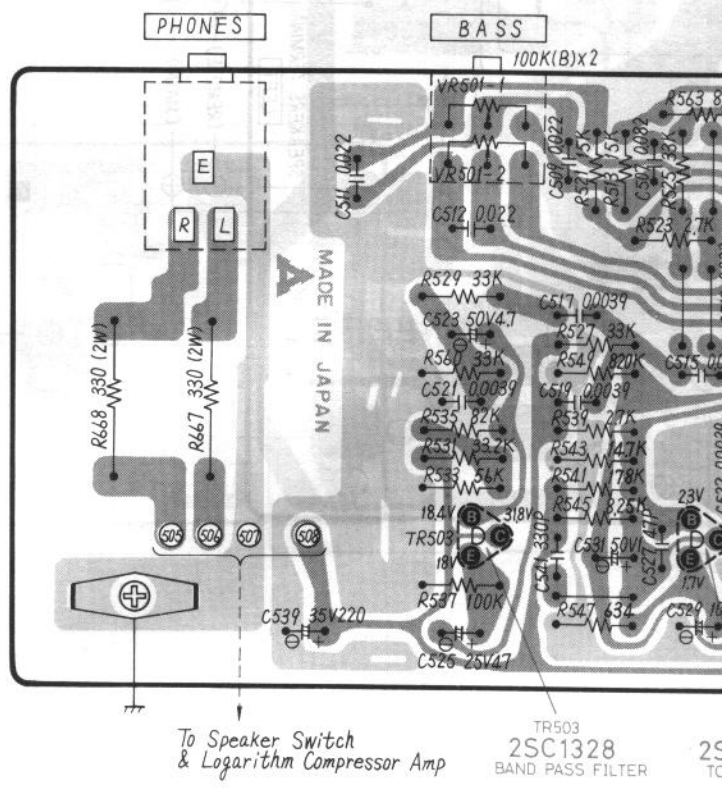
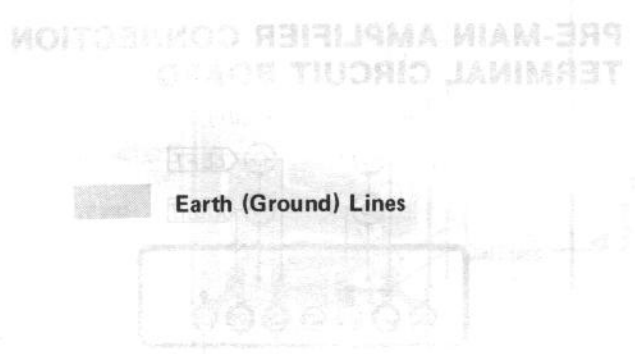
- For threading a fresh cord, proceed as follows.
  1. Prepare a fresh cord more than 220cm (86-3/8") in length.
  2. Bring the variable capacitor into a state where the drum is completely turned to the right (maximum capacity and lowest frequency for the variable capacitor).
  3. Direct the cord in the order from 1 to 10.
  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.



■ BLOCK DIAGRAM ..... Pre and Main amplifier circuitry



■ TONE AMPLIFIER CIRCUIT BOARD



To Speaker Switch & Logarithm Compressor Amp

TR503 2SC1328 BAND PASS FILTER

REPLACEMENT PARTS LIST ..... Electric Parts

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

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
TR801, 802	2SA666A1-R	Transistor, Logarithm Compressor (Use in ranks P, Q or R)	2	
TR803, 804, 805, 806	2SC1328-T	Transistor, Logarithm Compressor (Use in ranks S, T or U)	4	
TR807	2SC1398-Q	Transistor, Regulator (Use in ranks P, Q or R)	1	
TR901, 902	2SC1328-T	Transistor, Power Amp DC Detector (Use in ranks S, T or U)	2	
TR903	2SC945-R	Transistor, Relay Switching (Use in P1, P2 or R)	1	
TR904	2SC1509-R	Transistor, Relay Driver (Use in ranks Q or R)	1	
<b>DIODES</b>				
D101, 102, 103	MA150	Diode, Switching	6	
D104	SVDKB262E	Diode, Meter Detector	1	
D201, 202, 203	OA99	Diode, AM Detector & AGC	3	
D303	SVDMZ312C	Diode, 12V Zener	1	
D304	LN35BP	Light Emitting Diode, Safety Indicator	1	
D305, 306, 307, 308, 309	LN25RP	Light Emitting Diode, Program Indicator	5	
D601, 602	SVDMA26-1	Diode, Current Mirror	2	
D701	SVDS15VB20	Rectifier	1	
D702	SM112	Rectifier	1	
D703	SVDMZ336B	Diode, Zener, 36V	1	
D704	SVDMZ330B	Diode, Zener, 30V	1	
D801	SVDMZ214A	Diode, Zener, 14V	1	
D803 ~ D810	LN26RP	Light Emitting Diode, Red	8	
D811 ~ D818	LN46YP	Light Emitting Diode, Orange	8	
D819 ~ D826	LN36BP	Light Emitting Diode, Green	8	
D901, 902	SM112	Relay Diode & Rectifier	2	
<b>COILS and TRANSFORMERS</b>				
L1	SLA4P25	Coil, FM Antenna	1	
L2	SLD4P9	Coil, FM RF Detector	1	
L3, 4	RLQY25S2	Coil, Choke	2	
L5	SLD4P15	Coil, FM RF Detector	1	
L6	RLQY15G5	Coil, Choke	1	
L7	SLO4P31	Coil, FM Local Oscillator	1	
L101	SLQX180-2	Coil, Choke	1	
L201	SFL2D45	Coil, AM Bar Antenna (w/Mounting)	1	
L202	SLO2G9	Coil, AM Local Oscillator	1	
L203	SLQX101-2D	Coil, Choke	1	
L601, 602	SLQY15G-3U	Coil, Power Amplifier Output	2	
T1	SLI4C109	Transformer, FM IF	1	
T101	SLI4D513-3	Transformer, FM IF	1	
T201	SLI7C101-T	Transformer, AM IF (455 kHz)	1	
T201 (XE) only	SLI7Z103-T	Transformer, AM IF (470 kHz)	1	
T202	SLI2C413	Transformer, AM IF	1	
T301	SLMA1Z3-Z	Transformer, Low Pass Filter	1	
T701	SLT5S27-W	Transformer, Power	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
<b>INTEGRATED CIRCUITS</b>				
IC101	AN217-BB	IC, FM IF Amplifier & AM Converter	1	
IC102	AN377	IC, FM IF Amplifier & FM Detector	1	
IC301	AN363	IC, FM Multiplex	1	
IC801, 802	SVIMS1901P	IC, Window Comparator	2	
<b>TRANSISTORS</b>				
TR1	3SK40-M	Transistor, [FET] FM RF Amplifier	1	
TR2	2SC1047-C	Transistor, FM Mixer (Use in ranks C or D)	1	
TR4	2SC1675-L1	Transistor, Local Oscillator	1	
TR5	2SK49-H1	Transistor, [FET] Buffer	1	
TR101, 102, 103, 105, 106, 201, 202	2SC1328-T	Transistor, Muting Switching (Use in ranks S, T or U)	7	
TR104	2SA666A1-R	Transistor, Muting Switching	1	
TR301, 302	2SA902S-F	Transistor, AF Amplifier (Use in ranks Q, R or S)	2	
TR303	2SC1398-Q	Transistor, Regulator (Use in ranks F or G)	1	
TR401, 402	SVTM47LP	Transistor, Equalizer Amplifier (Use in ranks P, Q or R)	2	
TR403, 404	2SC1328-T	Transistor, Equalizer Amplifier (Use in ranks S or T)	2	
TR405, 406	2SA720-R	Transistor, Equalizer Amplifier (Use in ranks Q or R)	2	
TR501, 502, 503, 504, 505, 506, 507, 508	2SC1328-T	Transistor, Tone Amplifier (Use in ranks S or T)	8	
TR601, 602	2SA798A-G2	Transistor, Differential Amplifier (Use in ranks F2 or G2)	2	
TR603, 604	2SC1328-T	Transistor, Current Mirror (Use in ranks S or T)	2	
TR605, 606	2SC1628-0	Transistor, Pre Driver (Use in ranks Y or O)	2	
TR607, 608	2SC945-R	Transistor, Thermal Compensation (Use in ranks P1, P2 or R)	2	
TR609, 610	2SC1913A-R	Transistor, Drive Amplifier (Use in ranks R or Q)	2	
TR611, 612	2SA913A-R	Transistor Drive Amplifier (Use in ranks R or Q) (Use pair ranks as same as TR609, 610)	2	
TR613, 615, 617, 619, 618, 620	2SD427A-R	Transistor, Power Amplifier (Use in ranks O or R)	4	
TR614, 616, 618, 620	2SB557A-R	Transistor, Power Amplifier (Use in ranks O or R) (Use pair ranks as same as TR613 ~ TR619 and TR620.)	4	
TR701	2SD381-L	Transistor, Regulator (Use in ranks L or M)	1	
TR702	2SB536-L	Transistor, Regulator (Use in ranks L or M)	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
<b>CERAMIC FILTERS</b>				
CF	SVFE107MM-A	Ceramic Filter, Post. 10.7MHz	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
<b>SWITCHES</b>				

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks			
CF101, 102	SVFE107MM-A SVFE107MM-B SVFE107MM-C SVFE107MM-D SVFE107MM-E SVFE107ML-A SVFE107ML-B SVFE107ML-C SVFE107ML-D SVFE107ML-E	<b>CERAMIC FILTERS</b> 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 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, CF102 and CF103.)	each 2	○			
			each 1	○			
			<b>THERMISTORS</b>				
			TH601, 602	RRT251	Thermistor, Driver Amplifier Circuit	2	
			TH801, 802	ERTD2FHL103S	Thermistor, Output Indicator Circuit	3	
			VR101	EVL33AA00B15	<b>VARIABLE RESISTORS</b> Muting Level Adjustment, 100kΩ(B) FM Meter Adjustment, 20kΩ(B) PLL VCO Adjustment, 10kΩ(B) Separation Adjustment, 10kΩ(B) Bass & Treble Control, 100kΩ(B) Middle Control, 100kΩ(B) Icq Adjustment, 500Ω(B) LED Lighting Level Adjustment, 20kΩ(B) Volume Control, 250kΩ(B) Balance Control, 250kΩ(BH)	1	
			VR102	EVL33AA00B24		1	
			VR301	EVT33MA00B14		1	
			VR302	EVL33AA00B14		1	
			VR601, 502	EWK6GA029B15		2	
VR503	EWK7KA029B15	1					
VR601, 602	EVL33AA00B52	2					
VR801, 802	EVL33AA00B24	2					
VR1001	EWFM1A029BF5	1					
VR1002	EWK4A029252	1					
CV1,2,3,4	ECVC763J124AS	<b>VARIABLE CAPACITOR</b> Variable Capacitor, with Trimmer	1				
201, 202 (CT1,2,3,4) (CT201, 202)							
Z201	EXRF203Z471S	<b>COMPONENT COMBINATIONS</b> Component Combination, AM Detector Component Combination, Rectifier	1				
Z701, 702	EXRF5203ZS		2				
RLY601	SSY19-1	<b>RELAY</b> Relay, Protection & Muting	1				
F1	XBA2C63TRO	<b>FUSES</b> Fuse, T6.3A (250V), Primary Fuse, T 2A (250V), Lamp Fuse, T1.6A (250V), RF Circuit Fuse, T3.15A (250V), Primary Fuse, 5A (250V), Speaker Circuit	1				
F2	XBA2C20TRO		1				
F3	XBA2C16TRO		1				
F4	XBA2C31TRO		1				
F601, 602	XBA2C50SSO	2	○				
PL1, 2, 3, 4	XAMR62S	<b>LAMPS</b> Lamp, Dial (6.3V 0.25A)	4				

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
<b>SWITCHES</b>				
S1	ESRM164F25A	Switch, Selector	1	
S2, 3	SSL95	Switch, Tape Monitor & Recording Mode	2	
S4, 6	SSL97	Switch, Loudness & FM Muting	2	
S5	SSL99	Switch, Mode	1	
S7, 8	SSL93	Switch, Low & High Filter	2	
S9, 10	SSH223S	Switch, Speakers (Main & Remote)	1	
S13	SSL103	Switch, Power Source	1	
S14	SSR53S	Switch, Voltage Adjuster	1	
S15, 17	SSH63S	Switch, Sensitivity & Display OFF	2	

**NOTES 2:**

Guide letters of Resistor and Capacitor indicate;

**Resistors**

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

**Capacitors**

- ECC . . . . Ceramic
- ECK . . . . Ceramic
- ECQ . . . . Polypropylene
- ECM . . . . Polyester
- ECN . . . . Paper
- ECE . . . . Non-Polar Electrolytic
- ECE . . . . Electrolytic

**No. 1**

Ref. No.	Part No.	Ref. No.	Part No.
<b>RESISTORS</b>			
R1, 2	ERD50TJ104	R115	ERD25TJ470
(The products for [XAL] are not provided.)			
R3	ERD25TJ223	R116	ERD25TJ181
R4	ERD25TJ563	R117	ERD25TJ103
R5	ERD25TJ181	R118	ERD25TJ274
R6	ERD25TJ562	R119	ERD25TJ331
R7	ERD25TJ333	R120	ERD25TJ223
R8	ERD25TJ102	R121	ERD25TJ563
R9, 10	ERD25TJ181	R122	ERD25TJ224
R15	ERD25TJ100	R123	ERD25TJ333
R16	ERD25TJ681	R124	ERC14GK825
R17, 18	ERD25TJ223	R125, 126	ERD25TJ103
R19	ERD25TJ102	R127	ERD25TJ223
R20	ERD25TJ333	R128	ERD25TJ104
R21	ERD25TJ102	R129	ERD25TJ683
R101	ERD25TJ102	R201	ERD25TJ152
R102, 103	ERD25TJ331	R202	ERD25TJ562
R104	ERD25TJ823	R203	ERD25TJ181
R105	ERD25TJ331	R204	ERD25TJ392
R106	ERD25TJ102	R205	ERD25TJ274
R107	ERD25TJ274	R206, 207	ERD25TJ333
R108	ERD25TJ104	R208	ERD25TJ104
R109	ERD25TJ101	R209	ERD25TJ393
R110	ERD25TJ221	R210	ERD25TJ472
R111	ERD25TJ822	R212	ERD25TJ332
R112	ERD25TJ392	R213	ERD25TJ104
R113	ERD25TJ562	R214	ERD25TJ272
R114	ERD25TJ272	R215	ERD25TJ472
		R216	ERD25TJ682

**No. 2**

Ref. No.	Part No.	Ref. No.	Part No.
R15	ERD25TJ470	R115	ERD25TJ470
R116	ERD25TJ181	R116	ERD25TJ181
R117	ERD25TJ103	R117	ERD25TJ103
R118	ERD25TJ274	R118	ERD25TJ274
R119	ERD25TJ331	R119	ERD25TJ331
R120	ERD25TJ223	R120	ERD25TJ223
R121	ERD25TJ563	R121	ERD25TJ563
R122	ERD25TJ224	R122	ERD25TJ224
R123	ERD25TJ333	R123	ERD25TJ333
R124	ERC14GK825	R124	ERC14GK825
R125, 126	ERD25TJ103	R125, 126	ERD25TJ103
R127	ERD25TJ223	R127	ERD25TJ223
R128	ERD25TJ104	R128	ERD25TJ104
R129	ERD25TJ683	R129	ERD25TJ683
R201	ERD25TJ152	R201	ERD25TJ152
R202	ERD25TJ562	R202	ERD25TJ562
R203	ERD25TJ181	R203	ERD25TJ181
R204	ERD25TJ392	R204	ERD25TJ392
R205	ERD25TJ274	R205	ERD25TJ274
R206, 207	ERD25TJ333	R206, 207	ERD25TJ333
R208	ERD25TJ104	R208	ERD25TJ104
R209	ERD25TJ393	R209	ERD25TJ393
R210	ERD25TJ472	R210	ERD25TJ472
R212	ERD25TJ332	R212	ERD25TJ332
R213	ERD25TJ104	R213	ERD25TJ104
R214	ERD25TJ272	R214	ERD25TJ272
R215	ERD25TJ472	R215	ERD25TJ472
R216	ERD25TJ682	R216	ERD25TJ682



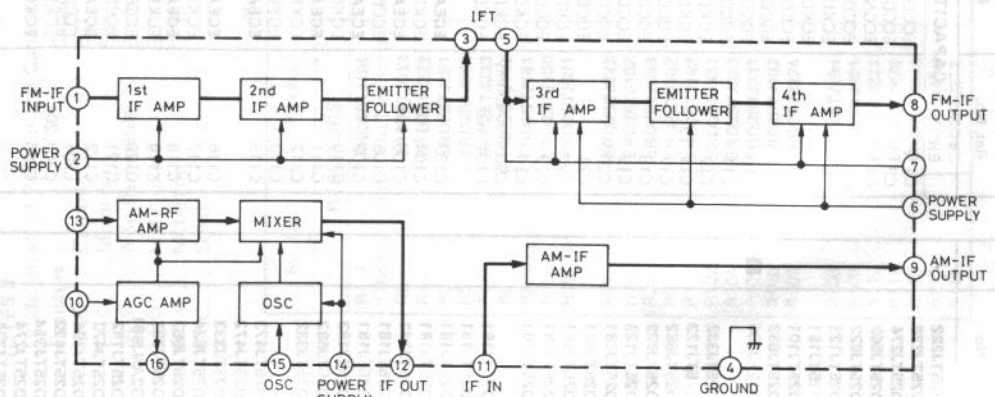


CAPACITORS

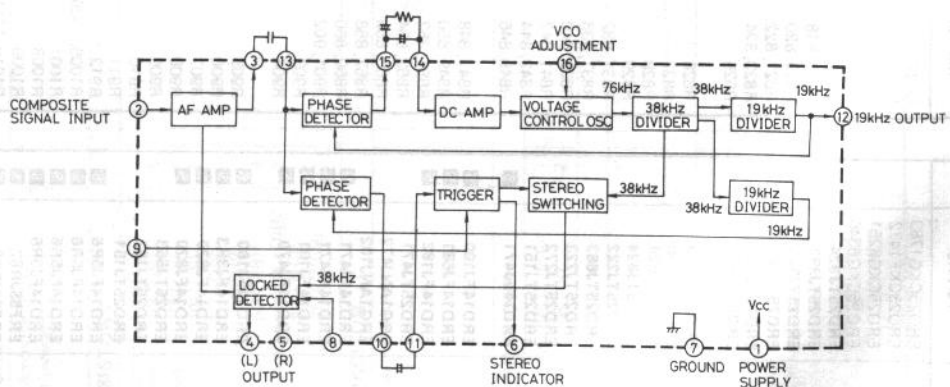
Ref. No.	Part No.
C611, 612	ECCD1H010C
C613, 614	ECCD2H101K
C615, 616	ECCD2H220K
C617, 618	ECEA1JS101
C619, 620	ECKD1H102ZF
C621, 622	ECKD1H471KB
C623, 624	ECKD1H103ZF
C625, 626	ECEA1JS101
C627, 628	ECEA1JS101
C629, 630	ECQM1473KZ
C631, 632	ECCD2H101K
C633, 634	ECCD1HOR5CC
C701, 702	ECET163R153U
C703	ECKD1H103ZF
C704	ECEA1ES471
C705	ECEA1ES101
C706, 707	ECKD1H103ZF
C708	ECEA1HS221
C709	ECEA1VS221
C710	ECQMT1473KZ
C801, 802	ECEA50Z1
C803, 804	ECEA1HS100
C805, 806	ECEA1HS100
C807	ECKD1H102ZF
C808	ECEA1ES470
C809	ECEA1HS100
C901	ECKD1H103ZF
C902	ECEA50Z3R3
C903	ECEA16N220V
C904	ECEA1CS330
C1001 (XSW) only	ECNCA4A223M

■ BLOCK DIAGRAM OF INTEGRATED CIRCUITS

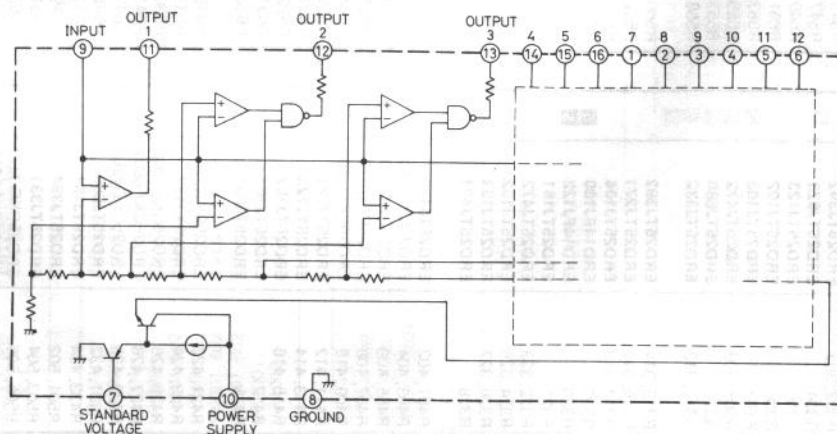
IC101 (AN217)  
FM IF amplifier &  
AM converter



IC301 (AN363)  
FM multiplex



IC801, 802 (SVIMS1901P)  
Window comparator of  
power display circuitry

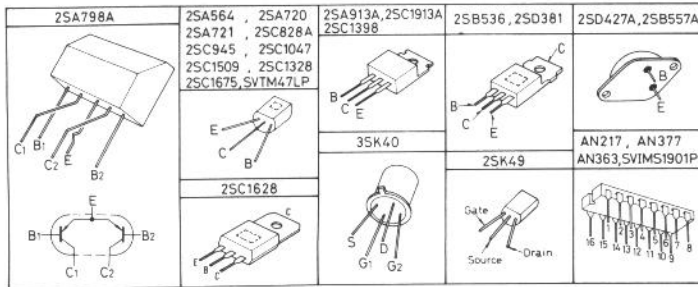


# Schematic Diagram Model SA-700 (XA), (X)

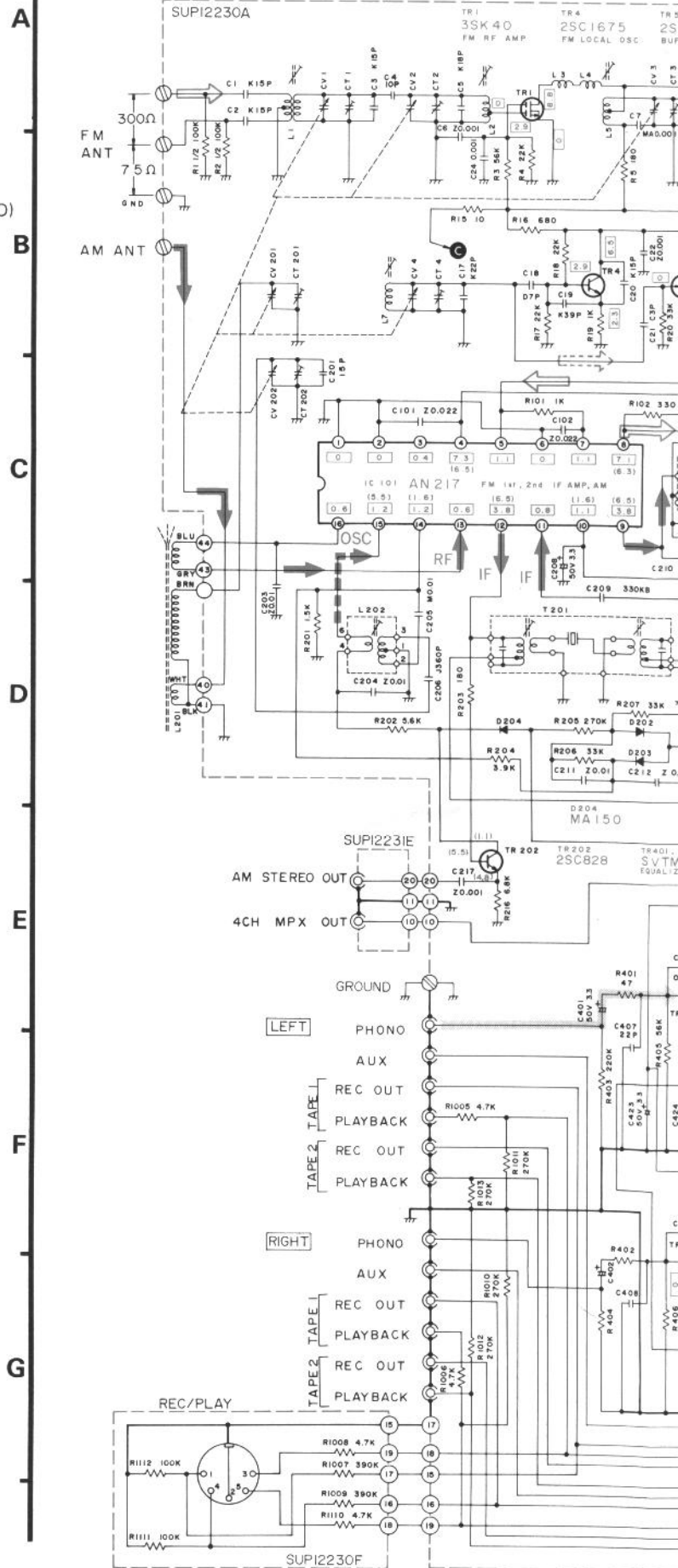
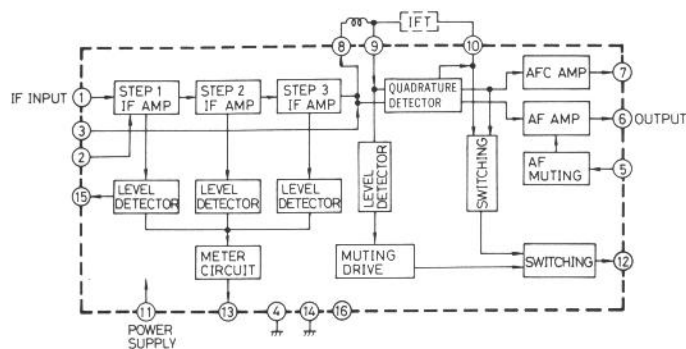
## Notes:

- S1-1 ~ S1-6:** Selector switch in "AM" position.  
① AM ↔ ② FM AUTO ↔ ③ PHONO ↔ ④ AUX
  - S2-1 ~ S2-4:** Tape monitor switch in "SOURCE" position.  
① TAPE 2 ↔ ② SOURCE ↔ ③ TAPE 1
  - S3-1 ~ S3-4:** Recording mode switch in "SOURCE" position.  
① TAPE 2 ▶ 1 ↔ ② SOURCE ↔ ③ TAPE 1 ▶ 2
  - S4:** FM muting switch in "ON" position.
  - S5-1 ~ S5-4:** Mode switch in "STEREO" position. (STEREO ↔ MONO)
  - S6-1, S6-2:** Loudness switch in "OFF" position.
  - S7:** Acoustic HIGH switch in "OFF" position.  
① BOOST ↔ ② OFF ↔ ③ FILTER
  - S8:** Acoustic LOW switch in "OFF" position.  
① BOOST ↔ ② OFF ↔ ③ FILTER
  - S9:** Remote speakers switch in "OFF" position.
  - S10:** Main speakers switch in "ON" position.
  - S13:** Power source switch in "ON" position.
  - S14:** Voltage adjustment switch in "240V" position.  
① 110V ↔ ② 120V ↔ ③ 220V ↔ ④ 240V
  - S15:** Power display range switch in "X1" position. (X1 ↔ X0.1)
  - S17:** Power display switch in "ON" position.
- 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 switch is turned on under no-signal condition.
16. AF Signal lines. FM Signal lines. AM Signal lines.
17. This schematic diagram may be modified at any time with the development of new technology.

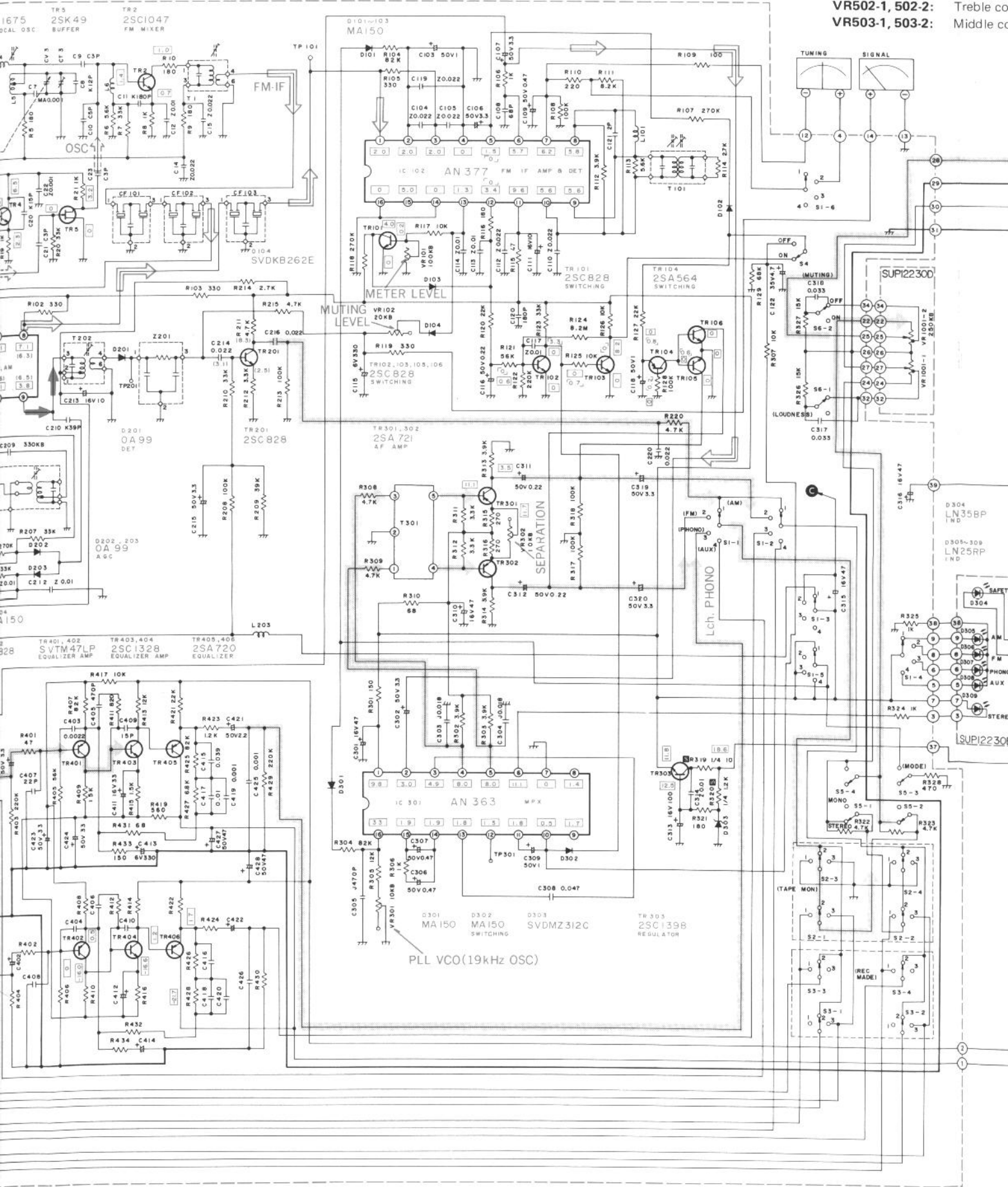
## ■ TERMINAL GUIDE OF TRANSISTOR & IC



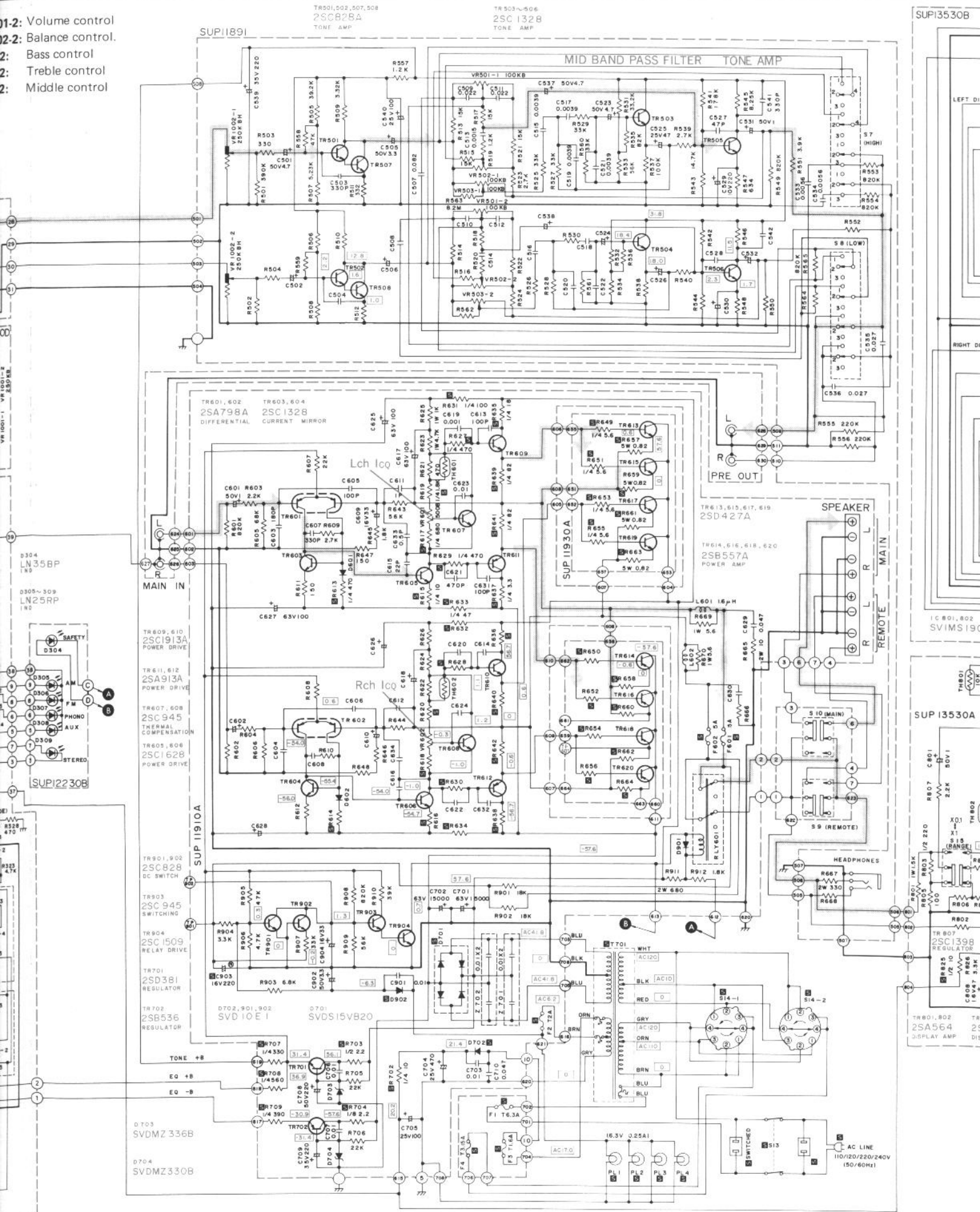
## ■ BLOCK DIAGRAM OF IC102 (AN377)

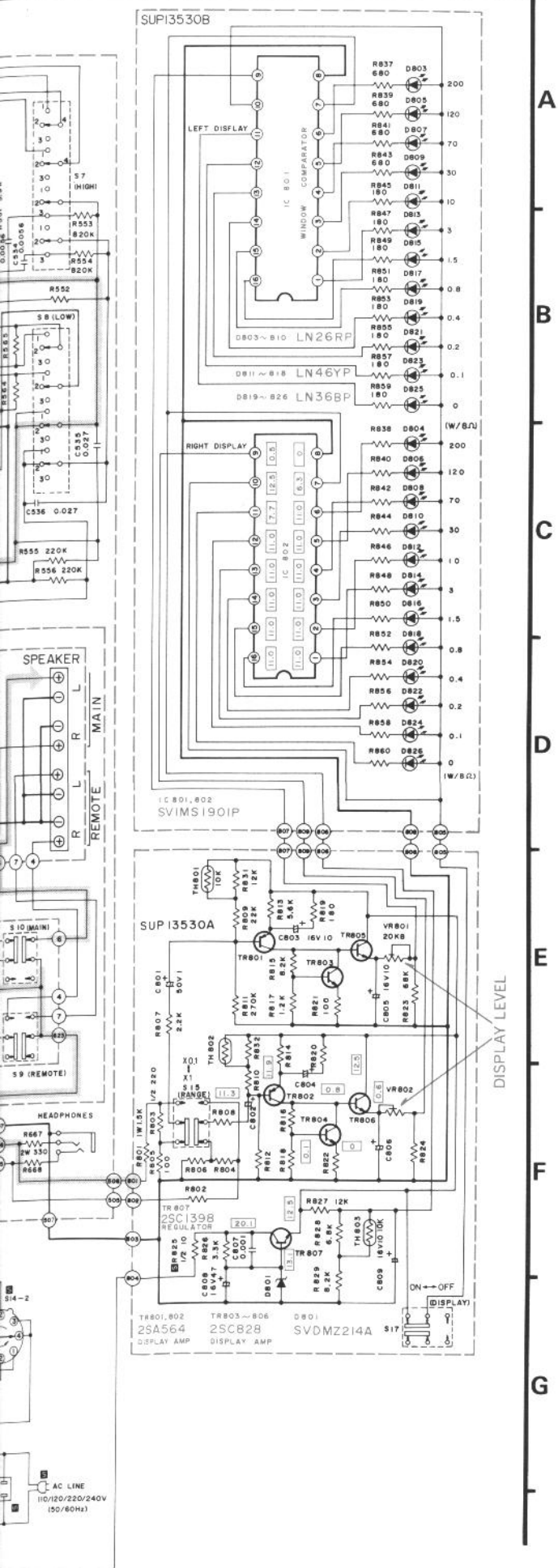


- VR1001-1, 1001-2: Volume
- VR1002-1, 1002-2: Balance
- VR501-1, 501-2: Bass
- VR502-1, 502-2: Treble
- VR503-1, 503-2: Middle



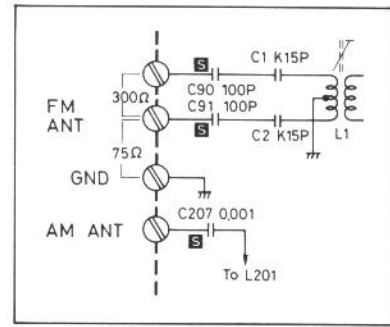
- 1: Volume control
- 2: Balance control.
- 2: Bass control
- 2: Treble control
- 2: Middle control





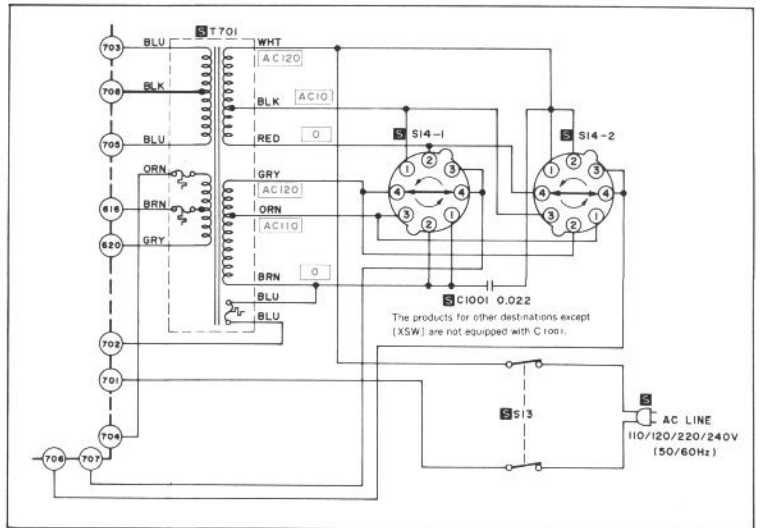
### ■ ANTENNA CAPACITORS

- Product for Australia [XAL] only.

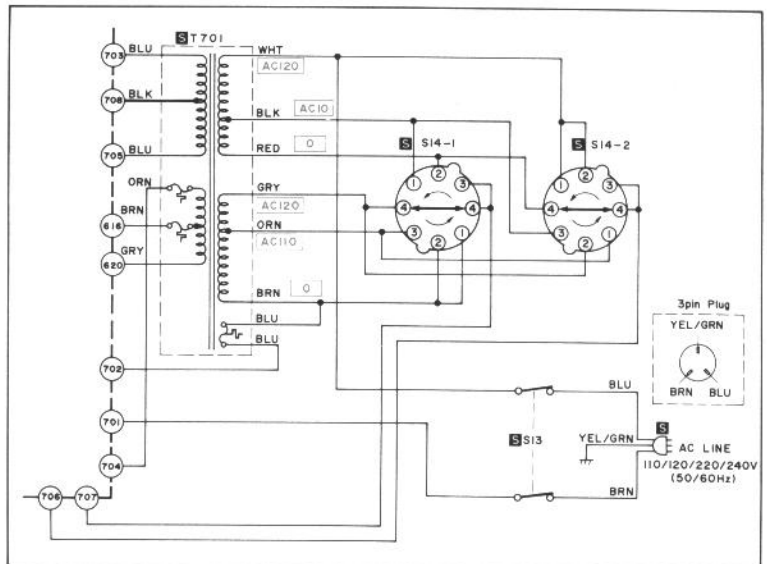


### ■ POWER SOURCE CIRCUITRY OF OTHER PRODUCTS

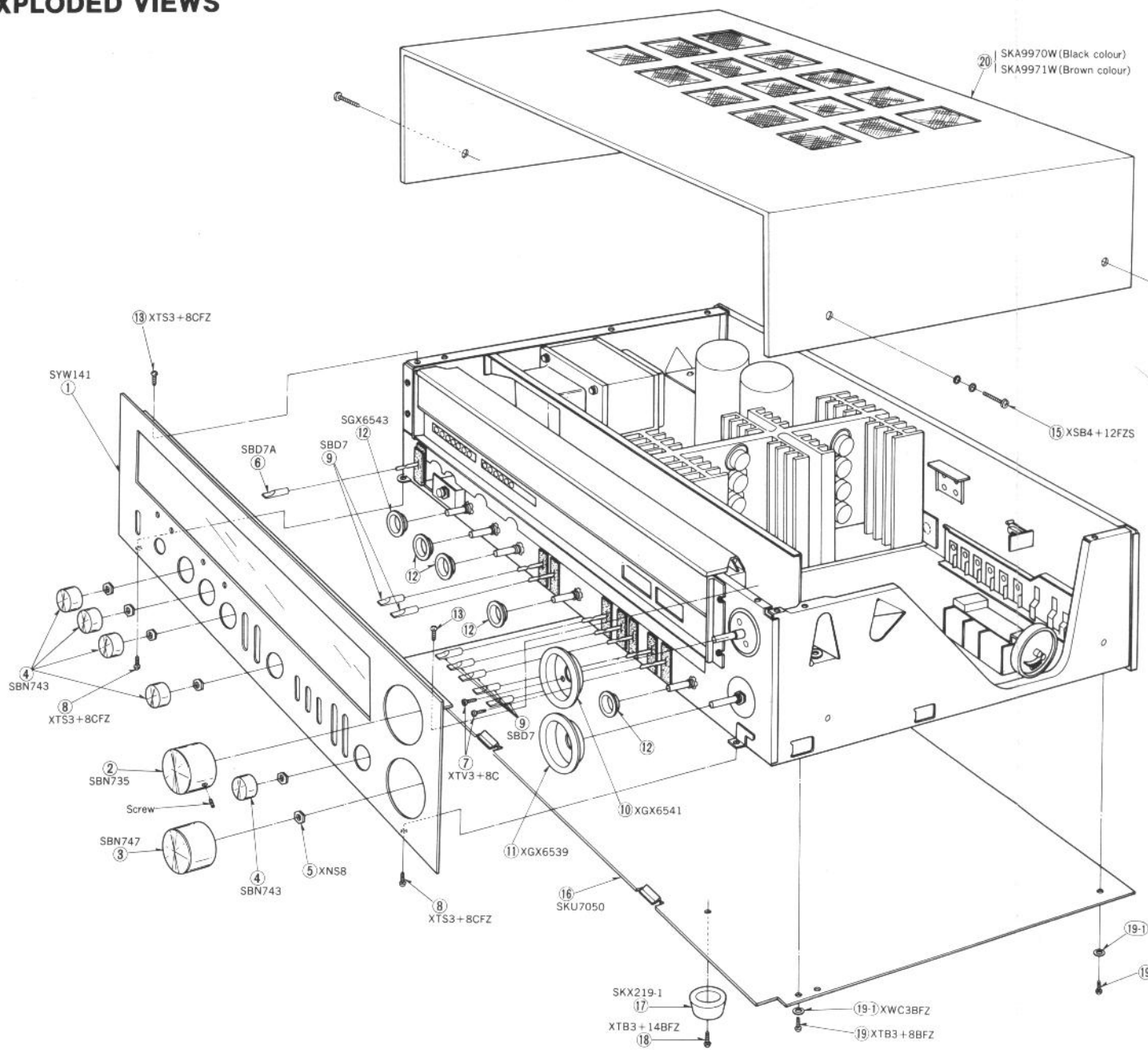
- Products for Scandinavia and European [D], Holland [XGH], France [XGF], Switzerland [XSW] and United Kingdom [XE] only.



- Product for Australia [XAL] only



EXPLODED VIEWS



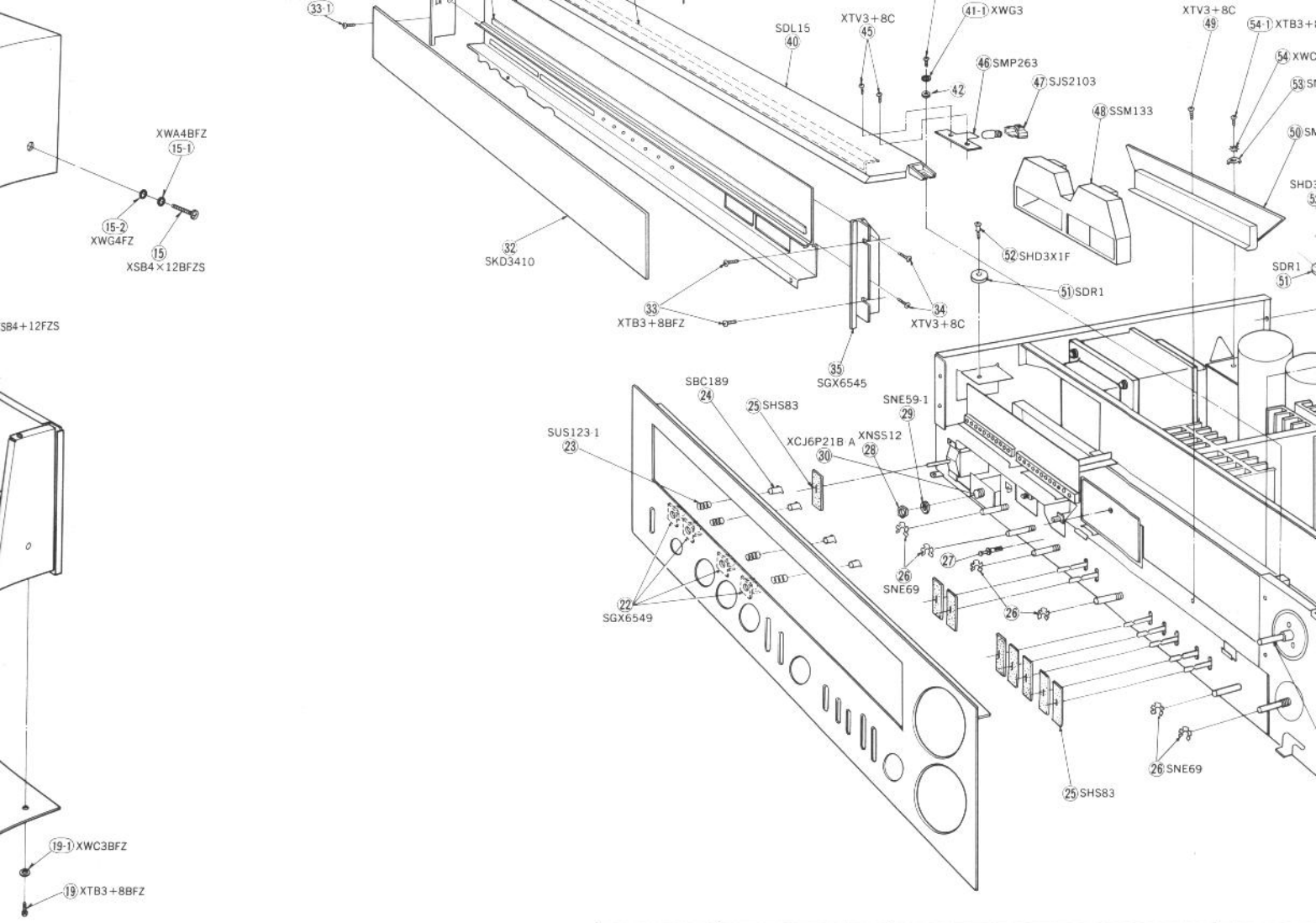
REPLACEMENT PARTS LIST ..... Cabinet & chassis parts

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

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
1	SYW141	Panel, Front	1	○
2	SBN735	Knob, Tuning	1	
3	SBN747	Knob, Volume	1	
4	SBN743	Knob, Selector, Balance, Treble, Mid Range and Bass	5	○
5	XNS8	Nut, Ornament M'tg	6	
6	SBD7A	Knob, Power Switch	1	○
7	XTV3+8C	Screw, Tuning Ornament M'tg	2	
8	XTS3+8CFZ	Screw, Front Panel M'tg	2	
8 [XAL]only	XTB3+8BFZ	Screw, Front Panel M'tg	2	
8-1 [XAL]only	XWC3BFZ	Washer	2	
9	SBD7	Knob, Lever Switch	7	○
10	SGX6541	Ornament, Tuning	1	
11	SGX6539	Ornament, Volume	1	
12	SGX6543	Ornament, Selector, Balance, Treble, Mid Range and Bass	5	
13	XTS3+8CFZ	Screw, Front Panel M'tg	2	
15	XSB4+12FZS	Screw, Cabinet M'tg	4	
15-1	XWA4BFZ	Washer, Cabinet Screw (Spring)	4	
15-2	XWG4FZ	Washer, Cabinet Screw	4	

Ref. No.	Part No.	Part Name & Description
16	SKU7050	Bottom Foot, Se
17	SKX219-1	Screw, f
18	XTB3+14BFZ	Washer, f
19	XTB3+8BFZ	Washer, f
19-1	XWC3BFZ	Washer, f
20	SKA9970W	Cabinet
20 (XE) only	SKA9971W	Cabinet
22	SGX6549	Sleeve, f
23	SUS123-1	Spring, f
24	SBC189	Button, f
25	SHS83	Shading, f
26	SNE69	Circlip, f
27	SHR401-1	Lock Pi
28	XNSS12	Nut, He
29	SNE59-1	Washer, f
30	XCJ6P21B-A	Jack, He
31	SD18039	Shaft, T
32	SKD3410	Scale, D
33	XTB3+8BFZ	Screw, f
33-1	XTB3+12BFZ	Screw, f
34	XTV3+8C	Screw, f
35	SGX6545	Escutch
36	SGX6547	Escutch

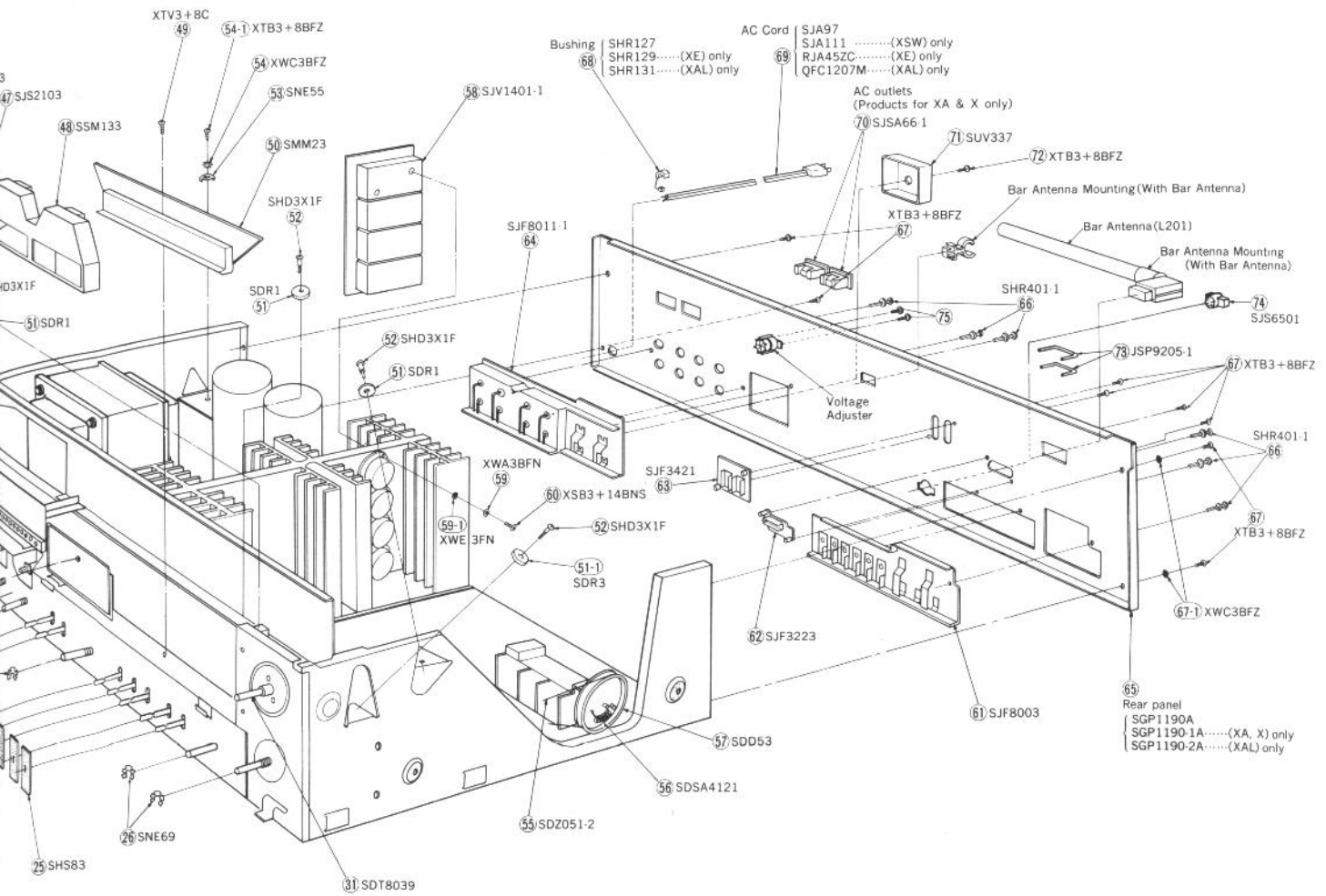
(black colour)  
(brown colour)



Part Name & Description	Per Set	Remarks
Bottom Board	1	* ○
Foot, Set	4	
Screw, Foot M'tg	4	
Screw, Bottom Board M'tg	12	
Washer, Bottom Board Screw	12	
Cabinet, Black Colour	1	○
Cabinet, Brown Colour	1	○
Sleeve, Push Switch Button	4	
Spring, Push Switch Button	4	
Button, Push Switch	4	
Shading Cloth	8	
Circlip, Volume	6	
Lock Pin, Program Indicator Circuit Board M'tg	1	
Nut, Headphones Jack	1	
Washer, Headphones Jack	1	
Jack, Headphones	1	
Shaft, Tuning Control Ass'y	1	
Scale, Dial	1	* ○
Screw, Dial Scale M'tg	2	
Screw, Dial Scale M'tg	2	
Screw, Dial Scale Escutcheon M'tg	4	
Escutcheon, Dial Scale (Right)	1	
Escutcheon, Dial Scale (Left)	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
37	SGX765	Mirror, Dial Scale	1	○
38	SDH451	Plate, Indicator & Dial Memory	1	* ○
39	SMZ289	Escutcheon, Reflector Plate	1	* ○
40	SDL15	Reflector Plate	1	○
41	XTN3+8B	Screw, Reflector Plate M'tg	2	
41-1	XWG3	Washer	2	
42	SHR9339	Spacer, Reflector Plate Screw	1	
43	SDP1123-1	Pointer, Dial	1	*
44	SHP29	Paper, Pointer Slide	1	
45	XTV3+8C	Screw, Pilot Lamp Bracket M'tg	8	*
46	SMP263	Bracket, Pilot Lamp	4	*
47	SJS2103	Socket, Pilot Lamp	4	
48	SSM133	Meter, Signal & Tuning	1	
49	XTV3+8C	Screw, Meter Bracket M'tg	1	
50	SMM23	Bracket, Meter	1	*
51	SDR1	Pulley, Dial Cord	3	
51-1	SDR3	Pulley, Dial Cord	1	
52	SHD3X1F	Shaft, Pulley	4	*
53	SNE55	Lug, Ground	1	
54	XWC3BFZ	Washer, Fuse Circuit Board Screw	1	
54-1	XTB3+8BFZ	Screw, Fuse Circuit Board M'tg	1	
55	SDZ051-2	Cord, Dial, 86.9/16 (220cm)	1 roll	
56	SDSA4121	Spring, Dial Cord	1	
57	SDD53	Drum, Dial Cord	1	
58	SJV1401-1	Socket, Power Transistors	8	
59	XWA3BFN	Washer, Power Transistors Screw	16	
59-1	XWE3FN	Washer, Power Transistors Screw	16	





Description	Per Set	Remarks
Memory	1	○
Memory	1	*○
Memory	1	*○
Memory	1	○
Memory	2	○
Memory	2	
Screw	1	
Screw	1	*
Screw	1	
Screw	1	
Bracket M'tg	8	
Bracket M'tg	4	*
Bracket M'tg	4	
Bracket M'tg	1	
Bracket M'tg	1	
Bracket M'tg	1	*
Bracket M'tg	3	
Bracket M'tg	1	
Bracket M'tg	4	*
Bracket M'tg	1	
Bracket M'tg	1	
Bracket M'tg	1	
Bracket M'tg	1	
Board Screw	1	
Board M'tg	1	
Board M'tg (220cm)	1 roll	
Resistors	1	
Resistors	1	
Resistors	8	
Resistors	16	
Resistors	16	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
60	XSB3+14BNS	Screw, Power Transistors M'tg	16	
61	SJF8003	Terminal, Input and Antenna	1	
62	SJF3223	Terminal, 4CH Mpx Out and AM Stereo Out	1	
63	SJF3421	Terminal, Per Out and Main In	1	
64	SJF8011-1	Terminal, Speakers and Speaker Fuses	1	○
65 (XA, X) only	SGP1190-1A	Rear Panel	1	○
65 (XAL) only	SGP1190-2A	Rear Panel	1	○
65	SGP1190A	Rear Panel	1	○
66	SHR401-1	Lock Pin, Speakers Terminal and Input Terminal	6	
67	XTB3+8BFZ	Screw, Rear Panel M'tg	8	
67-1	XWC3BFZ	Washer	2	
68 (XAL) only	SHR131	Bushing, AC Cord	1	
68 (XE) only	SHR129	Bushing, AC Cord	1	
68	SHR127	Bushing, AC Cord	1	
69 (XAL)	QFC1207M	AC Cord, Power Source w/3 pin Plug	1	<b>S</b>
69 (XE)	RJA45ZC	AC Cord, Power Source	1	<b>S</b>
69 (XSW)	SJA111	AC Cord, Power Source w/Plug	1	<b>S</b>
69 (D, XGH, XGF, XA, X)	SJA97	AC Cord, Power Source w/Plug	1	<b>S</b>
70 (XA, X) only	SJSA66-1	Socket, AC Outlet	2	<b>S</b>
71	SUV337	Cover, Speaker Circuit Fuse	1	
72	XTB3+8BFZ	Screw, Fuse Cover M'tg	1	
73	SJP9205-1	Short Pin, Pre & Main Amp Connection	2	
74	SJS6501	Socket, DIN (Tape Deck REC/PLAY)	1	
75	XSB3+8FZS	Screw, Voltage Adjuster M'tg	2	