

Service Manual

FM/AM Stereo Receiver

SA-101

(M), (MC)



Simulated wood cabinet

* The model SA-101 (M) is available in U.S.A.
 * The model SA-101 (MC) is available in Canada.

TECHNICAL SPECIFICATIONS

Specifications are subject to change without notice for further improvement.

AMPLIFIER SECTION

Rated minimum sine wave RMS power output
 40 Hz ~ 20 kHz both channels driven
 0.04% total harmonic distortion.

18 W per channel (8 ohms)

1 kHz continuous power output
 both channels driven
 0.04% total harmonic distortion

19 W per channel (8 ohms)
 20 W per channel (4 ohms)

Dynamic headroom 1.4dB (8 ohms)

Total harmonic distortion

rated power at 40 Hz ~ 20 kHz 0.04% (8 ohms)

half power at 40 Hz ~ 20 kHz 0.025% (8 ohms)

half power at 1 kHz 0.009% (8 ohms)

SMPTE intermodulation distortion 0.04% (8 ohms)

Frequency response

PHONO RIAA standard curve ± 0.8 dB

TUNER, AUX, TAPE 7 Hz ~ 45 kHz, -1 dB

20 Hz ~ 20 kHz, $+0.8$ dB, -0.8 dB

Input sensitivity

PHONO 0.6 mV (2.5 mV, IHF '66)

TAPE 35 mV (150 mV, IHF '66)

S/N (IHF, A)

PHONO 76 dB (78 dB, IHF '66)

TUNER, AUX, TAPE 80 dB (95 dB, IHF '66)

Maximum input voltage

PHONO 75 mV (130 mV, 1 kHz)

Input impedance

PHONO 47 kilohms

TAPE 27 kilohms

Tone controls

BASS 50 Hz, $+10$ dB ~ -10 dB

TREBLE 20 kHz, $+10$ dB ~ -10 dB

Loudness control (volume at -30 dB) 50 Hz, $+9$ dB

Output voltage

REC OUT 150 mV

Low frequency damping factor 20 (8 ohms)

10 (4 ohms)

Load impedance

MAIN or REMOTE 4 ~ 16 ohms

MAIN and REMOTE 8 ~ 16 ohms

FM TUNER SECTION

Frequency range 88 ~ 108 MHz

Sensitivity 10.8 dBf (1.9 μ V, IHF '58)

50 dB quieting sensitivity

MONO 14.8 dBf (3.0 μ V, IHF '58)

STEREO 38.3 dBf (45 μ V, IHF '58)

Total harmonic distortion

100 Hz 0.18% (MONO), 0.35% (STEREO)

1 kHz 0.18% (MONO), 0.3% (STEREO)

6 kHz 0.3% (MONO), 0.4% (STEREO)

S/N

MONO 75 dB

STEREO 70 dB

Frequency response 20 Hz ~ 15 kHz, $+1$ dB, -2 dB

Alternate channel selectivity 65 dB

Capture ratio 1.2 dB

Image rejection at 98 MHz 55 dB

IF rejection at 98 MHz 70 dB

Spurious response rejection at 98 MHz 80 dB

AM suppression 50 dB

Stereo separation

1 kHz 45 dB

10 kHz 35 dB

Carrier leak

19 kHz -40 dB

38 kHz -50 dB

Antenna terminals 300 ohms (balanced)

75 ohms (unbalanced)

AM TUNER SECTION

Frequency range 525 ~ 1605 kHz

Sensitivity 30 μ V, 300 μ V/m

Selectivity 30 dB

Image rejection at 1000 kHz 50 dB

IF rejection at 1000 kHz 40 dB

GENERAL

Power consumption 110 W

Power supply AC 120V, 60 Hz

Dimensions (W x H x D) 440 x 133 x 280 mm

(17 $\frac{1}{16}$ " x 5 $\frac{1}{4}$ " x 11 $\frac{1}{32}$ ")

Weight 5.6 kg (12.3 lb.)

Weights and dimensions shown are approximate.

Technics

Panasonic Company
 Division of Matsushita Electric
 Corporation of America
 One Panasonic Way, Secaucus,
 New Jersey 07094

Panasonic Hawaii, Inc.
 320 Waiakamilo Road, Honolulu,
 Hawaii 96817

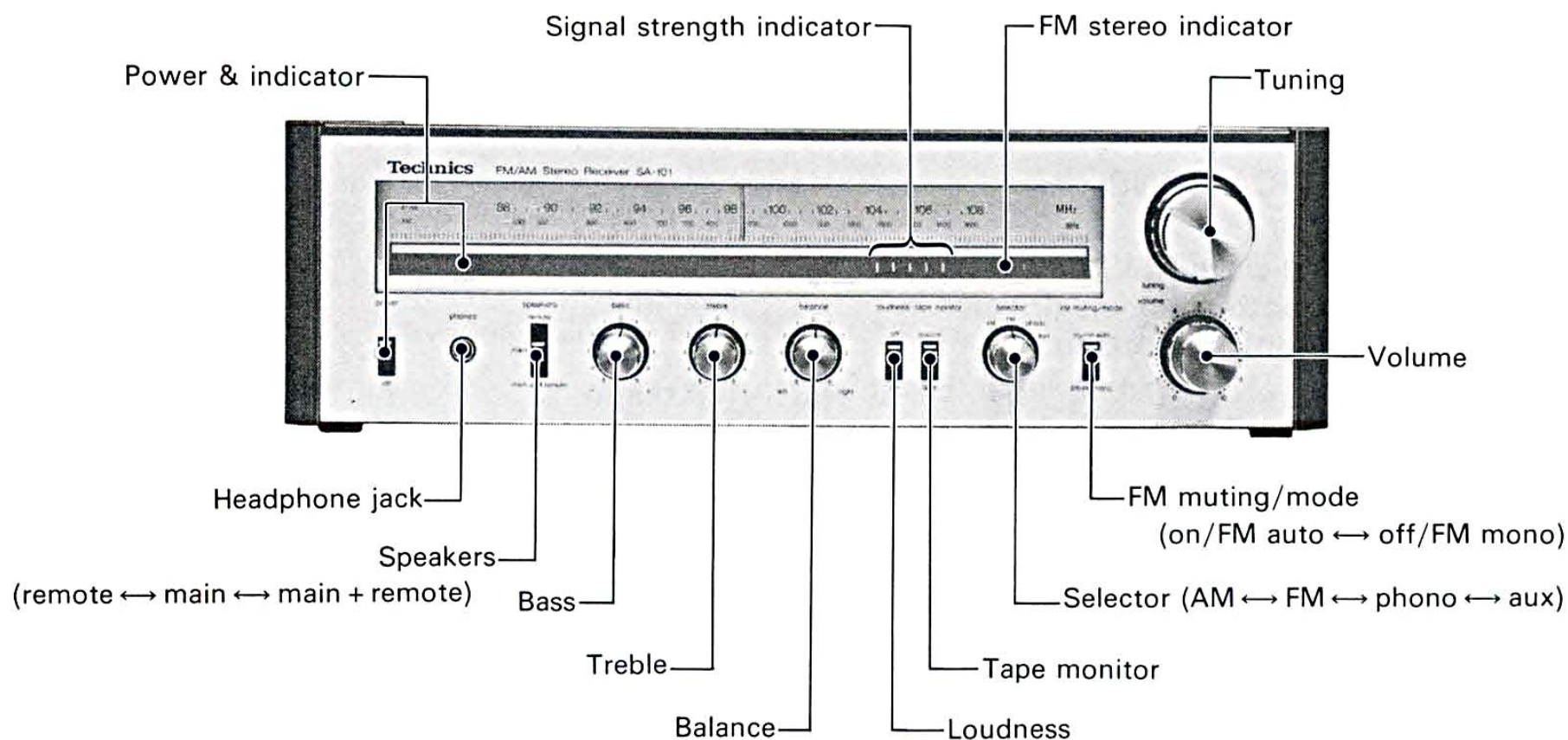
Matsushita Electric of Canada Ltd.
 5770 Ambler Drive,
 Mississauga, Ontario L4W 2T3

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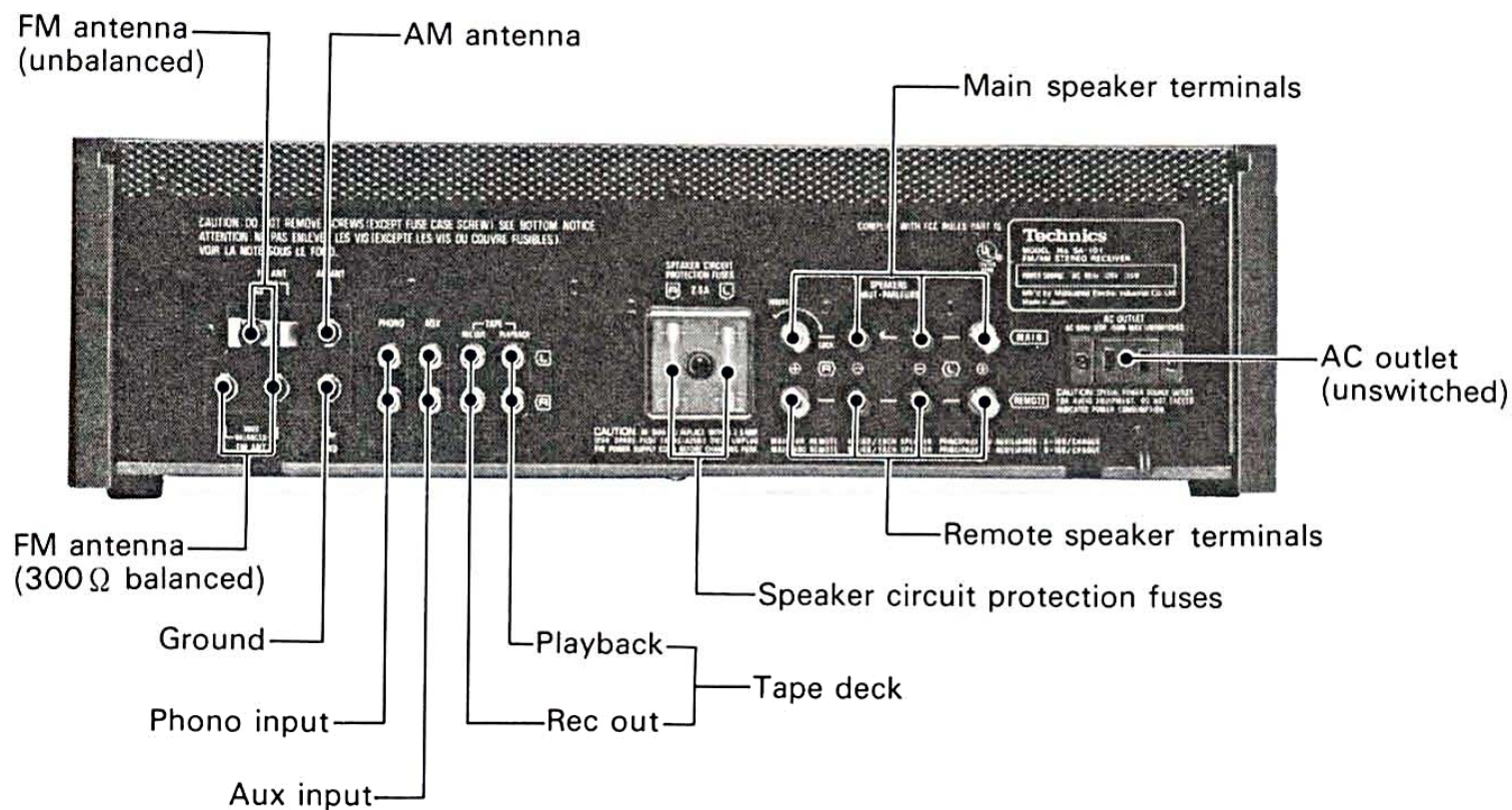
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■ LOCATION OF CONTROLS

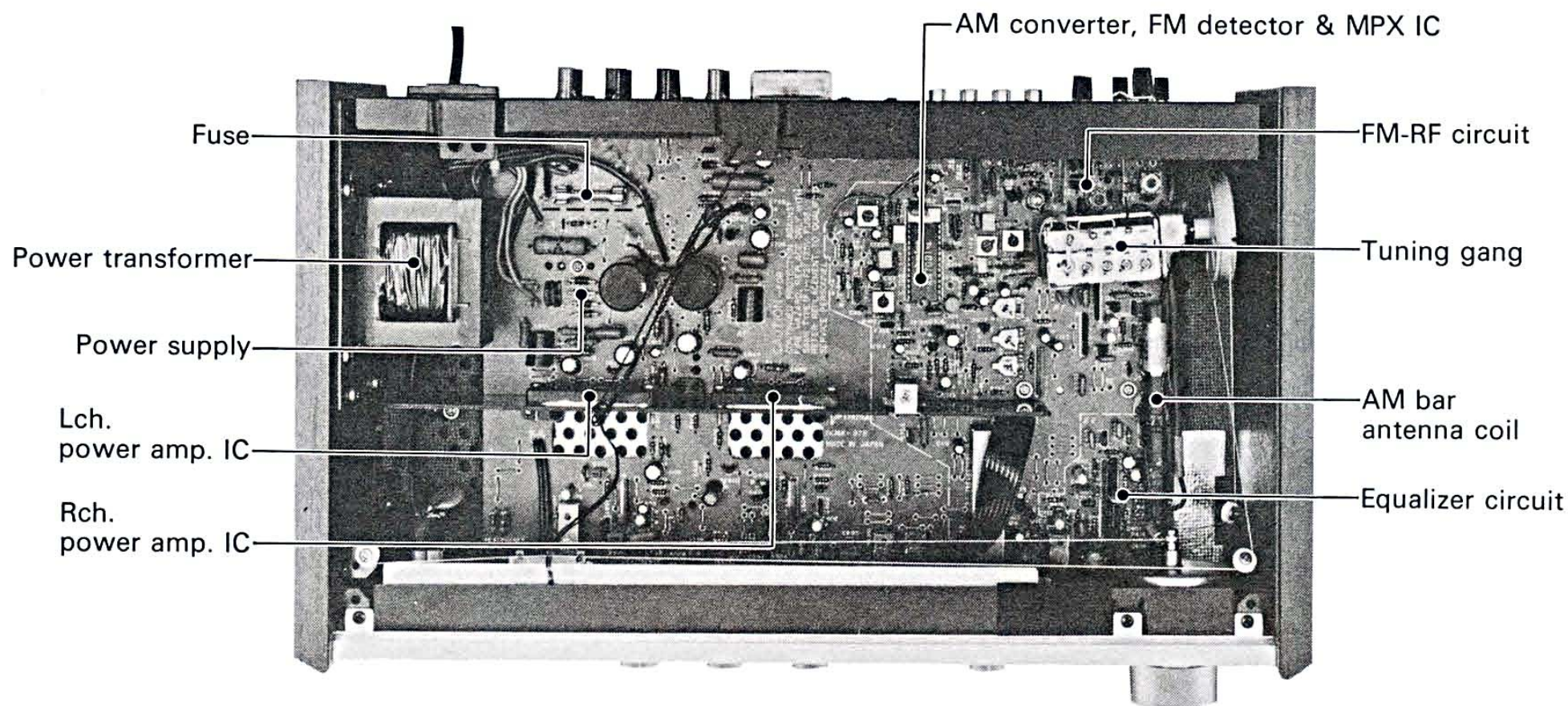
• Front side view



• Rear side view



● Inside view



■ HOW TO REMOVE THE TOP BOARD

1. Remove the 3 setscrews [Fig. 1: ①~③] holding the top board and ventilation.
2. Move the top board and ventilation slightly toward the rear of the unit [Fig. 1:]

■ HOW TO REMOVE THE FRONT PANEL AND THE BOTTOM BOARD

1. Loosen the 4 setscrews holding the left and right side boards.
2. Remove the 3 setscrews [Fig. 1: ④~⑥] holding the front panel and remove the 3 setscrews [Fig. 2: ⑦~⑨] holding the bottom board.
3. Pull out the 6 knobs. (Tuning, Volume, Selector, Balance, Treble & Bass)
4. Pull the front panel outward from the front of the unit.
5. To remove the bottom board, remove the 9 setscrews [Fig. 2: ⑩~⑱] holding the bottom board.

Note: When turning on the power supply with the top board removed, stop the indicator lamp retaining spring with tape as shown in Fig. 3 so that it will not come off the rear panel.
Remove the tape before mounting the top board.

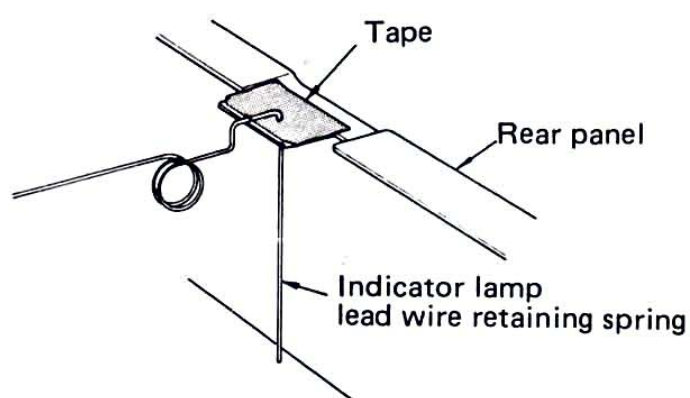


Fig. 3

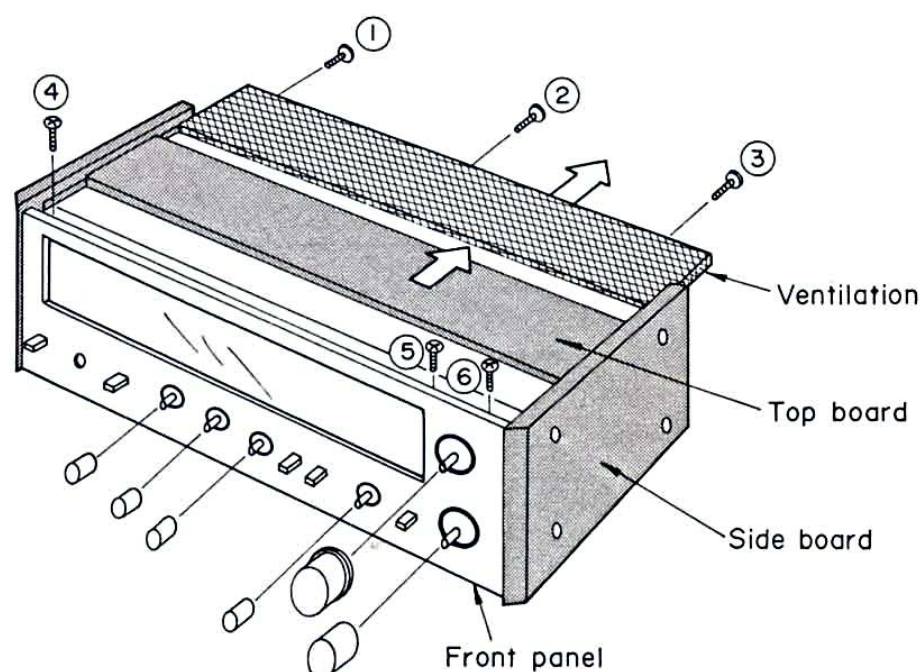


Fig. 1

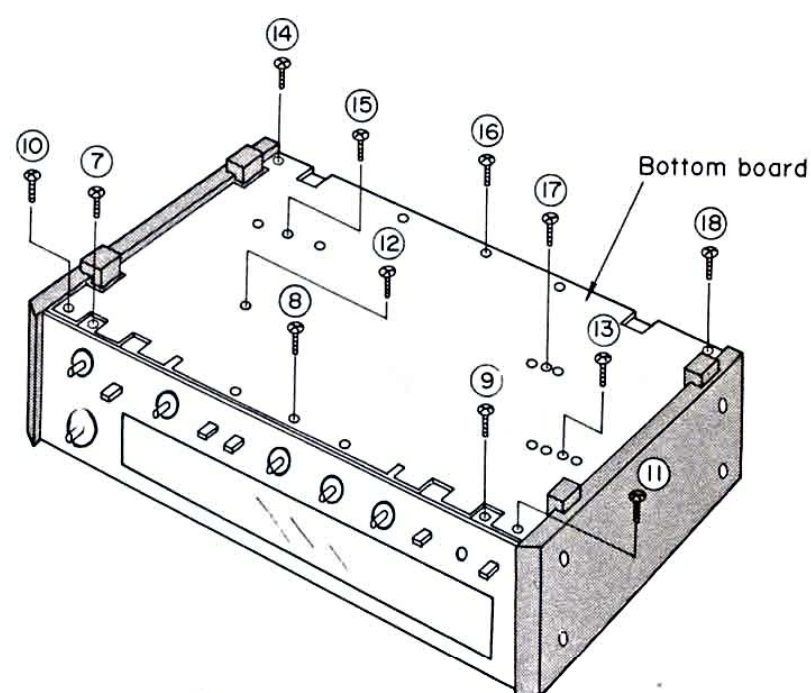
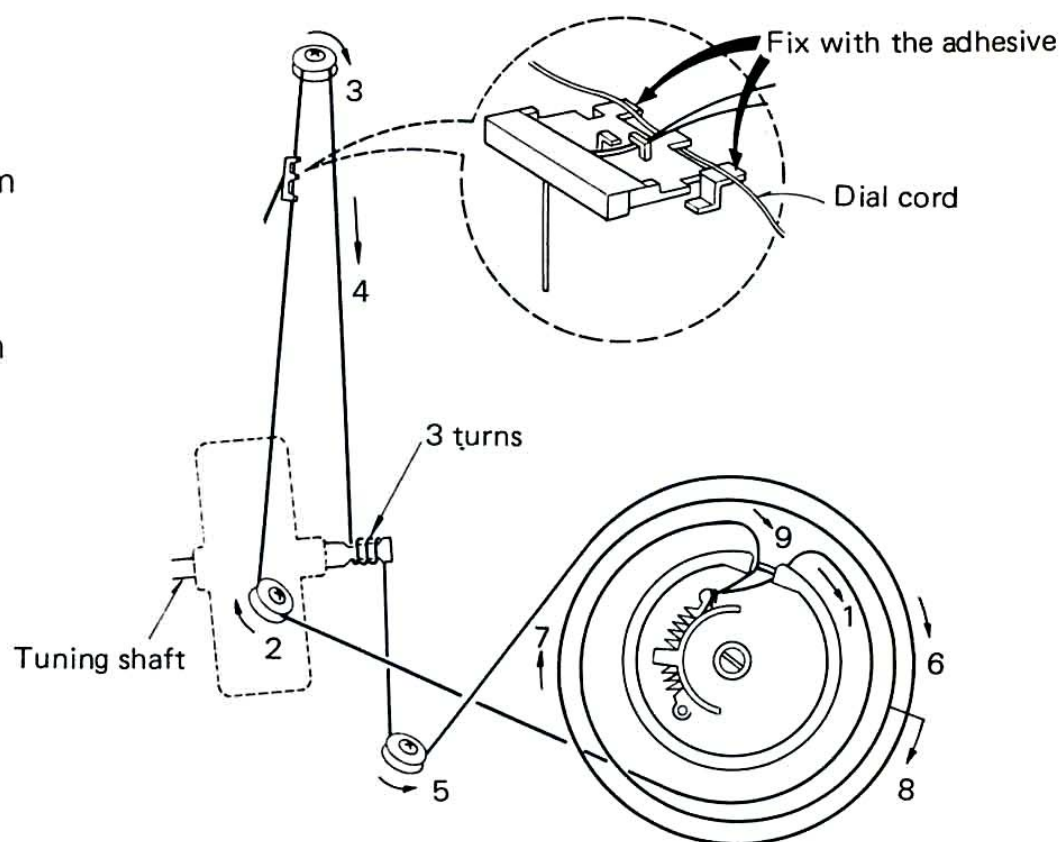


Fig. 2

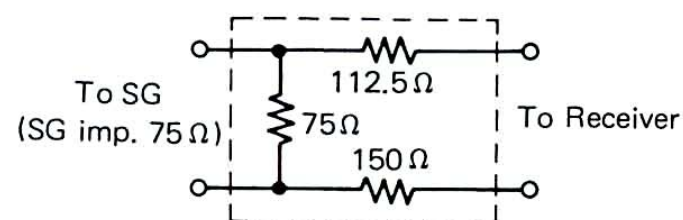
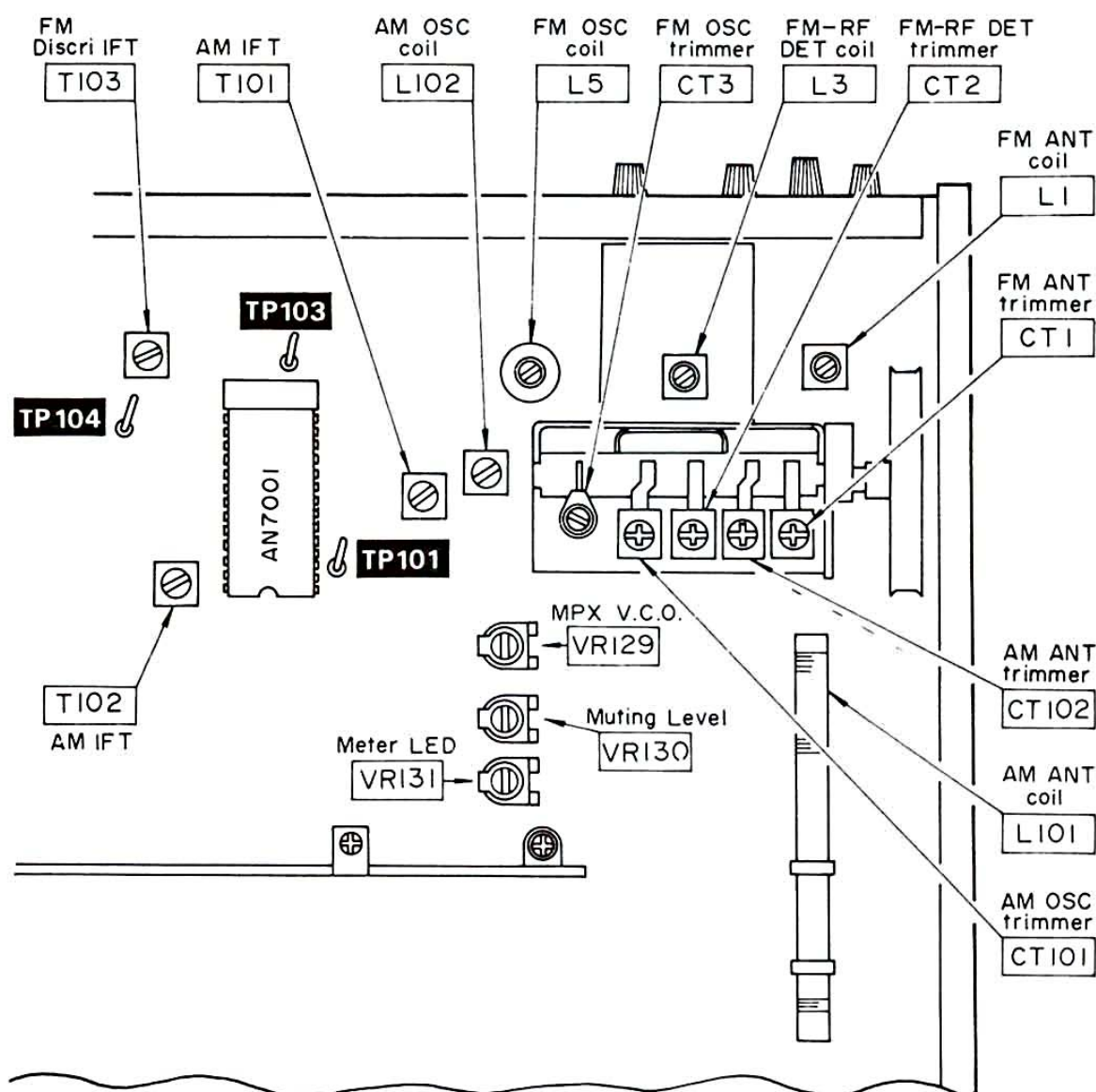
■ DIAL CORD INSTALLATION GUIDE

● For threading a fresh cord, proceed as follows.

1. Prepare a fresh cord more than 180cm (70-15/16") 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 adhesive.



■ ALIGNMENT POINTS



300Ω FM dummy antenna
Fig. 1

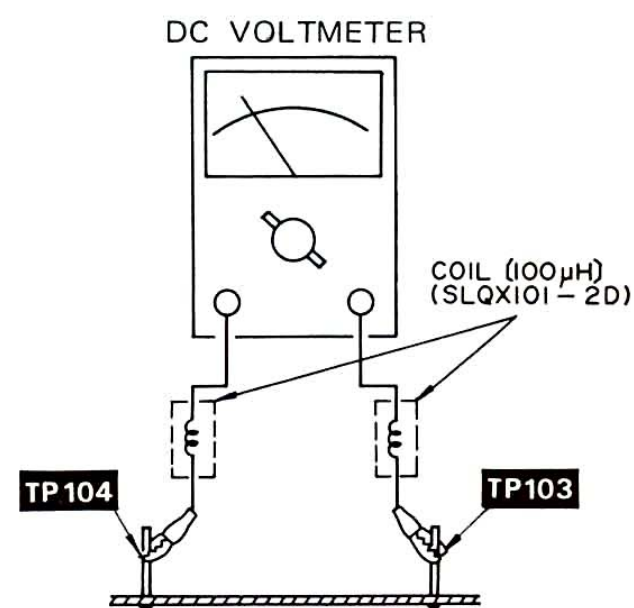
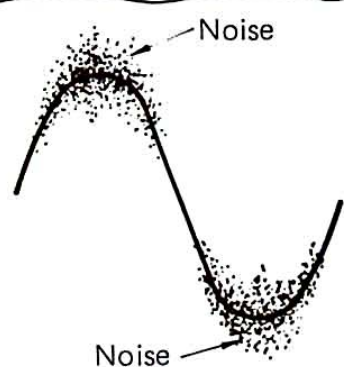
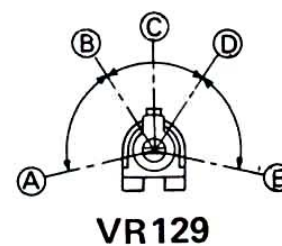


Fig. 2



AF output wave form
Fig. 3



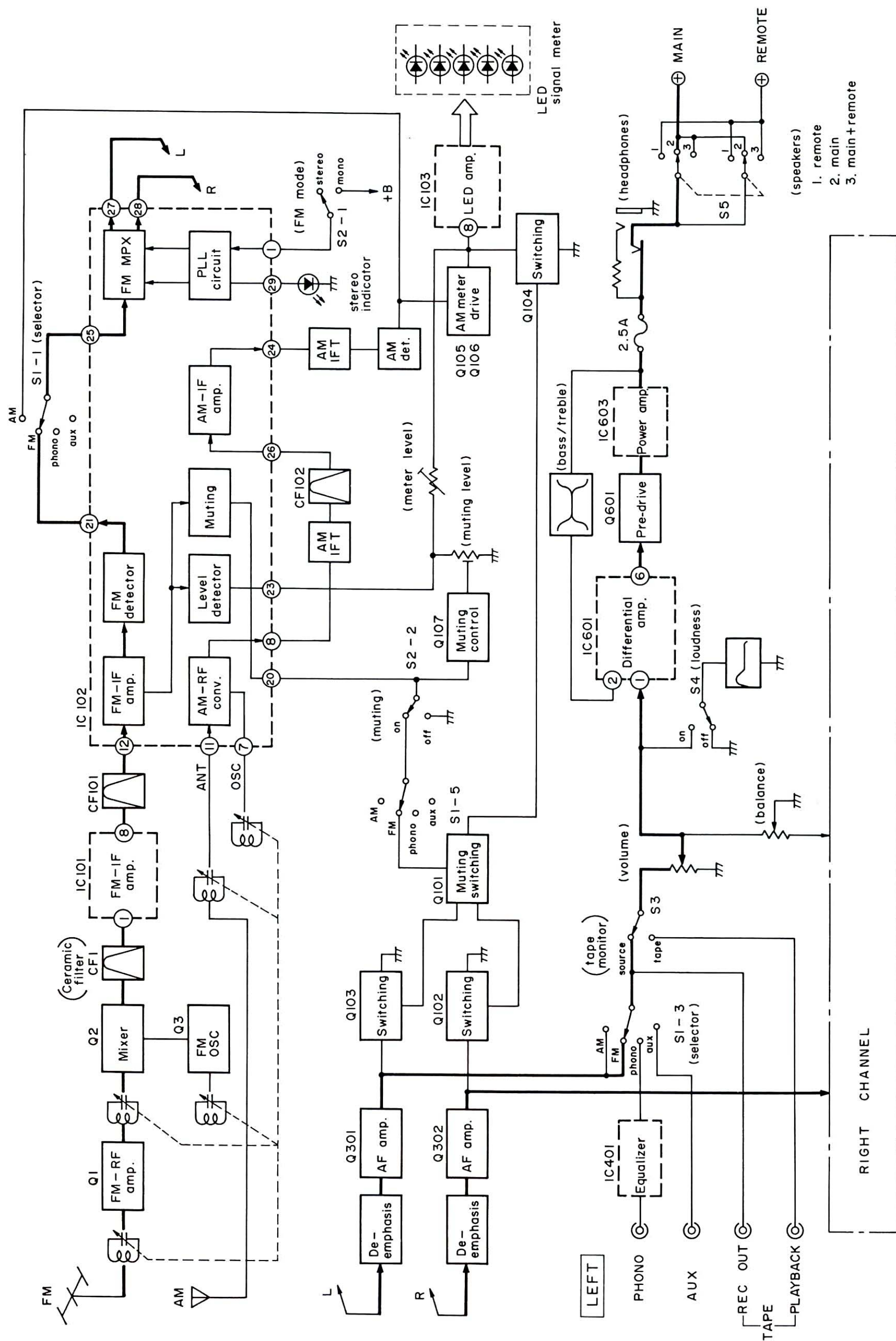
- A-B, D-E: Stereo OFF Position.
- B-D: Stereo ON Position (Indicator Lighting).
- C: Adjust Point of MPX Circuit.

Fig. 4

■ ALIGNMENT INSTRUCTIONS

Notes: 1. Band selector switch 2. FM muting & mode switch 3. Maintain line voltage at 120 volts.						{ AM (AM Alignment) FM (FM Alignment) off/mono						4. 300Ω FM dummy antenna Refer to fig. 1. 5. Output of signal generator should be no higher than necessary to obtain an output reading. 6. Fix the bottom board before adjustment to chassis.					
AM/FM SIGNAL GENERATOR				DIAL SETTING		INDICATOR (VTVM or SCOPE)		ADJUSTMENT POINTS		REMARKS							
CONNECTION		FREQUENCY															
AM ALIGNMENT																	
Higher side through 0.001μF to AM antenna trimmer terminal. Common to chassis.		450kHz (30% Mod. with 400 Hz)		Point of non-interference		Connect AC VTVM or scope to "SPEAKER" terminals.		T101 (1st IFT) T102 (2nd IFT)		Adjust for maximum output.							
Fashion loop of several turns of wire and radiate signal into loop of receiver.		600kHz (30% Mod. with 400Hz)		600kHz		Connect AC VTVM or scope to "SPEAKER" terminals.		L102 (OSC Coil) L101 (ANT Coil)		Adjust for maximum output, Adjust L101 by moving coil bobbin along ferrite core.							
Fashion loop of several turns of wire and radiate signal into loop of receiver.		1500kHz (30% Mod. with 400Hz)		1500kHz		Connect AC VTVM or scope to "SPEAKER" terminals.		CT101 (OSC Trimmer) CT102 (ANT Trimmer)		Adjust for maximum output. Repeat steps (2) and (3).							
FM RF ALIGNMENT																	
Connect to FM 300Ω antenna terminal through 300Ω FM dummy antenna.		90MHz (100% Mod. with 400Hz) weak input.		90MHz		Connect scope to "SPEAKER" terminal.		L5 (OSC Coil) L3 (RF DET Coil) L1 (ANT Coil)		• Add weak input so that noise is included in the output wave form. • Make the adjustment so that the output wave form is vertically symmetrical. (Fig. 3) • Repeat the steps (4) and (5) until the frequency correctly matches the dial scale.							
		106MHz (100% Mod. with 400Hz) weak input.		106MHz		Connect scope to "SPEAKER" terminal.		CT3 (OSC Trimmer) CT2 (RF DET Trimmer) CT1 (ANT Trimmer)									
FM-IF ALIGNMENT																	
Connect to FM 300Ω antenna terminal through 300Ω FM dummy antenna.		No-Signal		100MHz		Connect DC VTVM to between TP104 and TP103 through choke coil. Refer to fig. 2.		T103 (Discriminator IFT)		• Adjust T103 core so that voltage measured in signal mode is 0V in 300mV range.							
		100MHz (100% Mod. with 400Hz) weak input.		100MHz		Connect DC VTVM to between TP104 and TP103 through choke coil. Connect scope to "SPEAKER" terminal.				• Add weak input so that noise is included in the output wave form. • Make the tuning so that the output wave form is vertically symmetrical. (Fig. 3) • Adjust T103 core so that voltage measured in signal mode is 0V in 300mV range. • Repeat steps (6) and (7).							
SIGNAL METER LED (Light Emitting Diode) INDICATOR ALIGNMENT																	
Connect to FM 300Ω antenna terminal through 300Ω FM dummy antenna. Apply 45dB(178μV) to receiver.		100MHz (100% Mod. with 400Hz)		100MHz		Signal meter LED		VR131 (Meter LED)		• Adjust VR131 while observing the signal meter LED so that the indicator at 5th is about to turn on.							
FM MUTING LEVEL ALIGNMENT																	
Connect to FM 300Ω antenna terminal through 300Ω FM dummy antenna. Apply 16 dB (6.3μV) to receiver.		100MHz (100% Mod. with 400Hz)		100MHz		Connect AC VTVM or scope to "SPEAKER" terminals.		VR130 (Muting Level)		• FM muting/mode switch to "on/auto". • Adjust so that output can be obtained.							
FM MPX V.C.O. ALIGNMENT																	
Using a frequency counter						Using alternate system											
1 100MHz Non-modulated mono signal applied to receiver. 2 FM muting/mode switch to "on/FM auto". 3 Connect frequency counter to TP101 through resistor (100kΩ). 4 Adjust VR129 to 19kHz, ±30Hz.						1 Apply stereo signal from generator or stereo station to receiver. 2 Adjust VR129 until stereo indicator lights up. Cement arm of VR129 as shown in fig. 4.											

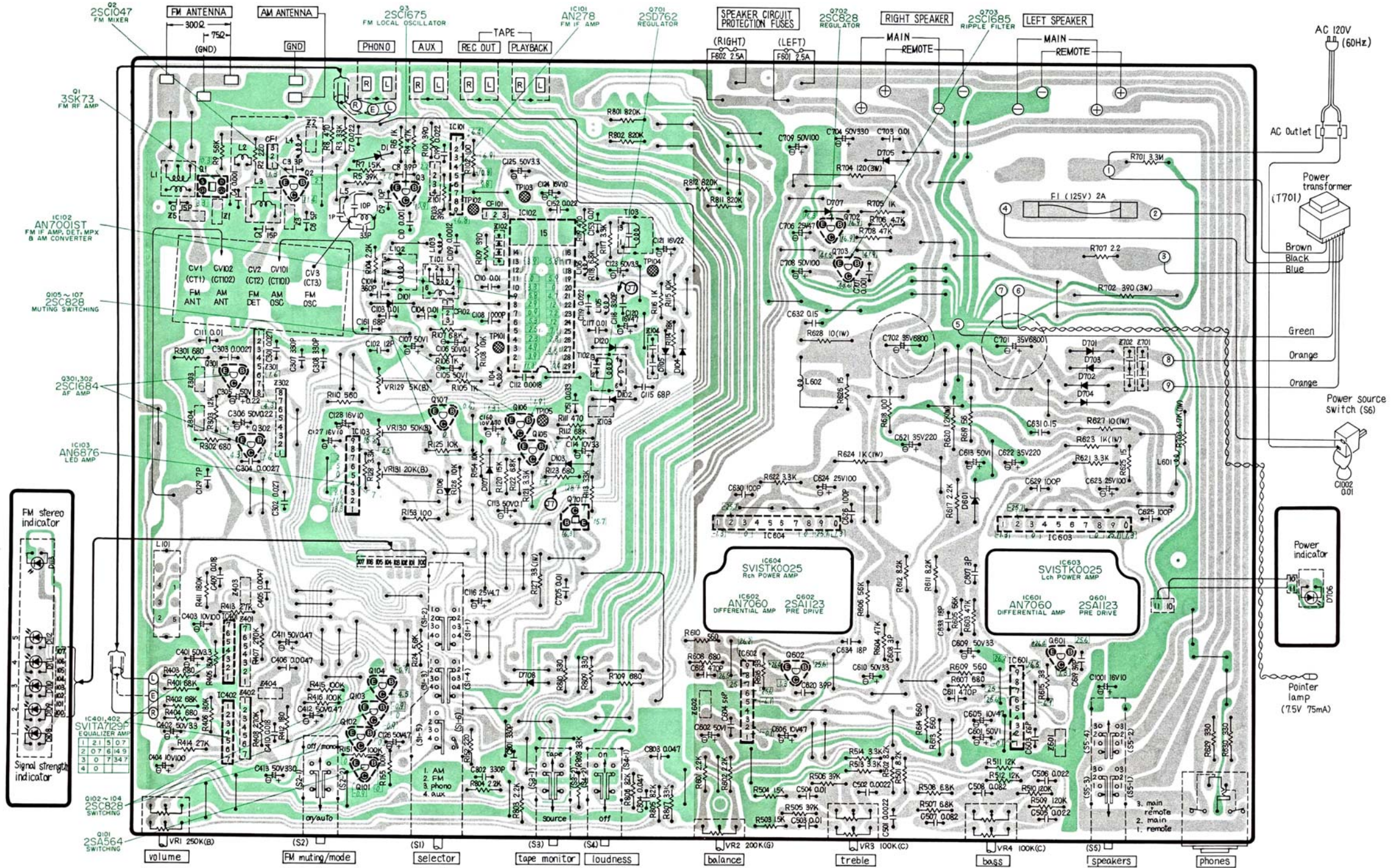
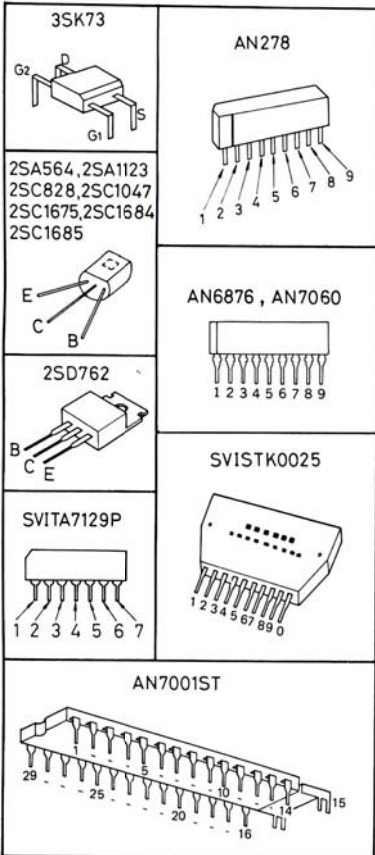
■ BLOCK DIAGRAM



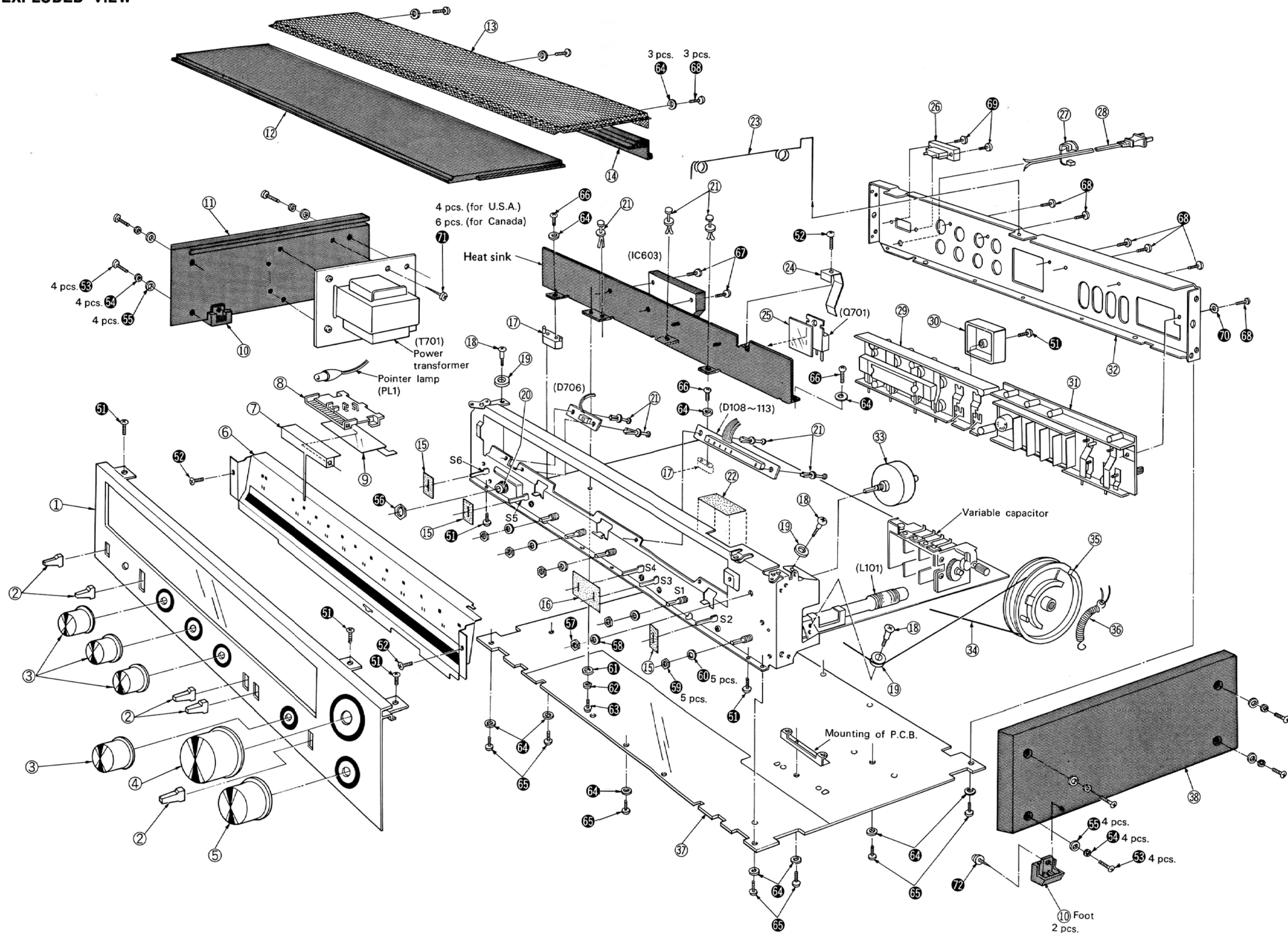
■ PRINTED CIRCUIT BOARD WIRING VIEW

Earth (Ground) lines

• Terminal guide of transistors and IC's



■ EXPLODED VIEW



■ REPLACEMENT PARTS LISTCabinet & Chassis Parts

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

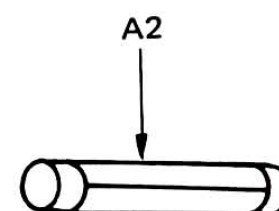
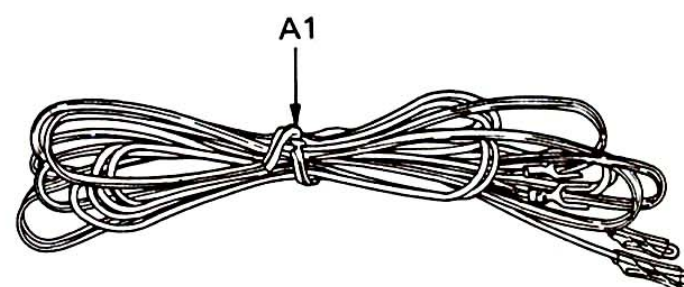
Ref. No.		Part No.	Part Name & Description
CABINET and CHASSIS PARTS			
1		SGWA101M	Panel, Front (Ass'y)
2		SBD29	Knob, Lever Switches
3		SBN873	Knob, Bass, Treble, Balance & Selector
4		SBN869	Knob, Tuning
5		SBN871	Knob, Volume
6		SKD3830	Scale, Dial
7		SDP5077	Pointer, Dial
8		SDP927	Bracket, Pointer & Pointer Lamp
9		SDA85	Slider, Pointer
10		SKL233	Foot
11		SKZ1621	Side Board, Right
12		SYK757	Top Board
13		SGM73	Ventilation
14		SGX6759	Escutcheon, Ventilation
15		SHS2425	Fiber, Power, Speaker & Mode Switch
16		SHS2427	Fiber, Loudness & Tape monitor Switch
17		SHE101	Mounting, Heat sink & P.C.B.
18		SHD3X21F-1	Shaft, Dial Pulley
19		RDR14-2	Pulley, Dial
20		XCJS6P21E-A	Jack, Headphones
21		SHR401-1	Latch, LED P.C.B. & Heat sink M'tg
22		SHS1033	Fiber
23		SUL31	Mounting, Pointer Lamp Lead Wire
24		SUS181	Spring, Transistor (Q701) Press
25		SMX181	Mica Plate, Transistor (Q701)
26	Δ	SJS9205-1	Socket, AC Outlet
27		SFHK040L	Bushing, AC Cord
28	Δ	RJA9YA	AC Cord, Power Source
29		SJF8021	Terminal, Speakers
30		SUV337	Cover, Speaker Circuit Fuses
31		SJF8019	Terminal, Input & Antenna
32	JPN	SGP2070A	Panel, Rear (Made in Japan)
32	MSA	SGP2070B	Panel, Rear (Made in Singapore)
33		SDT8063	Shaft, Tuning
34		SDZ051-2	Cord, Dial (1.8m)
35		SDD47-1	Drum, Variable Capacitor
36		SDS4121	Spring, Dial Cord
37		SYU217	Bottom Board
38		SKZ1623	Side Board, Left
SCREWS, NUTS and WASHERS			
51		XTB3+8BFZ	Screw, Front Panel & Fuse Cover M'tg
52		XTB3+8BFN	Screw, Dial Scale & Transistor Spring M'tg
53		XSN4+20BVS	Screw, Side Board M'tg
54		XWA4BFZ	Washer, Spring
55		XWG4FZ	Washer
56		XNS12	Nut, Headphone Jack M'tg
57		XNS11	Nut, Tuning Shaft M'tg
58		XWV11	Washer
59		XNS8	Nut, Volume, Selector etc. M'tg
60		XWV8	Washer
61		XWG3FN	Washer
62		XWA3BFN	Washer, Spring
63		XTB3+10BFN	Screw, Heat Sink M'tg
64		XWG3	Washer
65		XTV3+12BFN	Screw, Bottom Board M'tg
66		XTV3+10BFN	Screw, P.C.B. & Heat Sink M'tg
67		XTB3+16BFN	Screw, Power IC M'tg
68		XTB3+10BFZ	Screw, Terminals, Ventilation M'tg
69		XTN3+8BFZ	Screw, AC Outlet M'tg
70		XWC3B	Washer
71		XTN5+12B	Screw, Power Transformer M'tg
72		XMA31+13	Screw, Foot M'tg

Ref. No.		Part No.	Part Name & Description
ACCESSORIES			
A1		SSA267	Cord, FM Indoor Antenna
A2	Δ	XBAS1A2501	Fuse, Speaker Circuit (125V 2.5A)
PACKING PARTS			
P1		SPP495	Polyethylene Bag
P2		SPS2371	Pad, Left & Right
P3 [M]	JPN	SPG2245	Carton Box, Products for U.S.A. (Made in Japan)
P3 [M]	MSA	SPG2295	Carton Box, Products for U.S.A. (Made in Singapore)
P3 [MC]		SPG2247	Carton Box, Products for Canada
P4 [M]		SQF10273	Instructions Book, Printed Matter Products for U.S.A.
P4 [MC]		SQF10275	Instructions Book, Printed Matter Products for Canada

(M) is available in U.S.A.
(MC) is available in Canada.

JPN: Made in Japan.
MSA: Made in Singapore.

• Accessories



■ REPLACEMENT PARTS LISTElectric Parts

- NOTES:** 1. Part numbers are indicated on most mechanical parts
Please use this part number for parts orders
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be used for safety.

Ref. No.	Part No.	Part Name & Description
INTEGRATED CIRCUIT		
IC101 IC102	AN278 AN7001ST	IC, FM IF Amplifier IC, AM Converter, FM IF Amplifier, Detector & Stereo Decoder (MPX)
IC103 IC401, 402 IC601, 602 IC603, 604	AN6876 SVITA7129P AN7060 SVISTK0025K	IC, LED Amplifier IC, Equalizer Amplifier IC, Differential Amplifier IC, Power Amplifier
TRANSISTORS		
Q1 Q2 Q3 Q101 Q102~107, 702 Q301, 302	3SK73-GR 2SC1047-C 2SC1675-L1 2SA666AI-R 2SC1328-T 2SC1684-R	Transistor, FM RF Amplifier Transistor, FM Mixer Transistor, FM Local Oscillator Transistor, Switching Transistor, Switching & Regulator Transistor, AF Amplifier (Use in ranks R, S or T)
Q601, 602	2SA1123-R	Transistor, Pre Drive (Use in ranks R, S or T)
Q701	2SD762-O	Transistor, Regulator (Use in ranks O or P)
Q703	2SC1685-T	Transistor, Ripple Filter (Use in ranks S or T)
DIODES		
D1 D101, 103~106 708 D102 D108~113	SVDMZ303B MA162A 2-OA99 LN07111P	Diode, 3V Zener Diode, AGC & Switching Diode, AM Detector Light Emitting Diode, Ass'y Signal Strength & Stereo Indicator
D120, D107 D601 D701~705 D707	RVDKB262C RVDEQA0106S SVDSR1K2 SVDRD16EB	Diode, Muting & Meter detector Diode, 6V Zener Rectifier Diode, 16V Zener
COILS and TRANSFORMERS		
L1 L2 L3 L4 L5 L101 L102 L103 L104 L105 L106 L601, 602	SLA4N15 RLQY25S2 SLD4P13 RLQY15G5 SLO4P63-P SLF2C27 SLO2C17 SLQX101-3M SLQX393-1Z SLQX471-M SLQX180-2 SLQY15G-3P	Coil, FM Antenna Coil, Choke Coil, FM RF Detector Coil, Choke Coil, Oscillator Coil, AM Antenna Coil, MW Oscillator Coil, Choke Coil, Choke Coil, Choke Coil, Choke Coil, Power Amplifier Output
T101 T102 T103 T701 [M] T701 [MC]	SLI2C129R-M SLI2C413R SLI4C509-P SLT5M99 SLT5M99-1	Transformer, AM IF Transformer, AM IF Transformer, FM Discriminator Transformer, Power Source (for U.S.A.) Transformer, Power Source (for Canada)
COMPONENT COMBINATIONS		
Z1	EXRP102Z223C	Component Combination, 22k Ω & 0.001 μ F
Z2	EXRP181K682C	Component Combination, 6.8k Ω & 180pF
Z3	EXRP103P102C	Component Combination, 1k Ω & 0.01 μ F
Z5	EXRP220K104C	Component Combination, 100k Ω & 22pF
Z101 Z102 Z103	EXF3YL01C EXF3SL04C EXRP103P472C	Component Combination, 0.01 μ F (x3) Component Combination, 0.01 μ F (x3) Component Combination, 4.7k Ω & 0.01 μ F
Z104, 701, 702 Z301, 302	EXRFS203ZS EXBH85085K	Component Combination, 0.01 μ F (x2) Component Combination, 10k Ω (x2) & 4.7k Ω (x3)
Z303, 304	EXRP182K104C	Component Combination, 100k Ω & 0.0018 μ F
Z401, 402 Z403, 404 Z601, 602 Z603, 604 [MC] only	EXA6SD01C EXRP331K153C EXRP820K104C ECQJ0518	Component Combination, Equalizer Component Combination, 15k Ω & 330pF Component Combination, 100k Ω & 82pF Component Combination, 10 Ω & 0.15 μ F

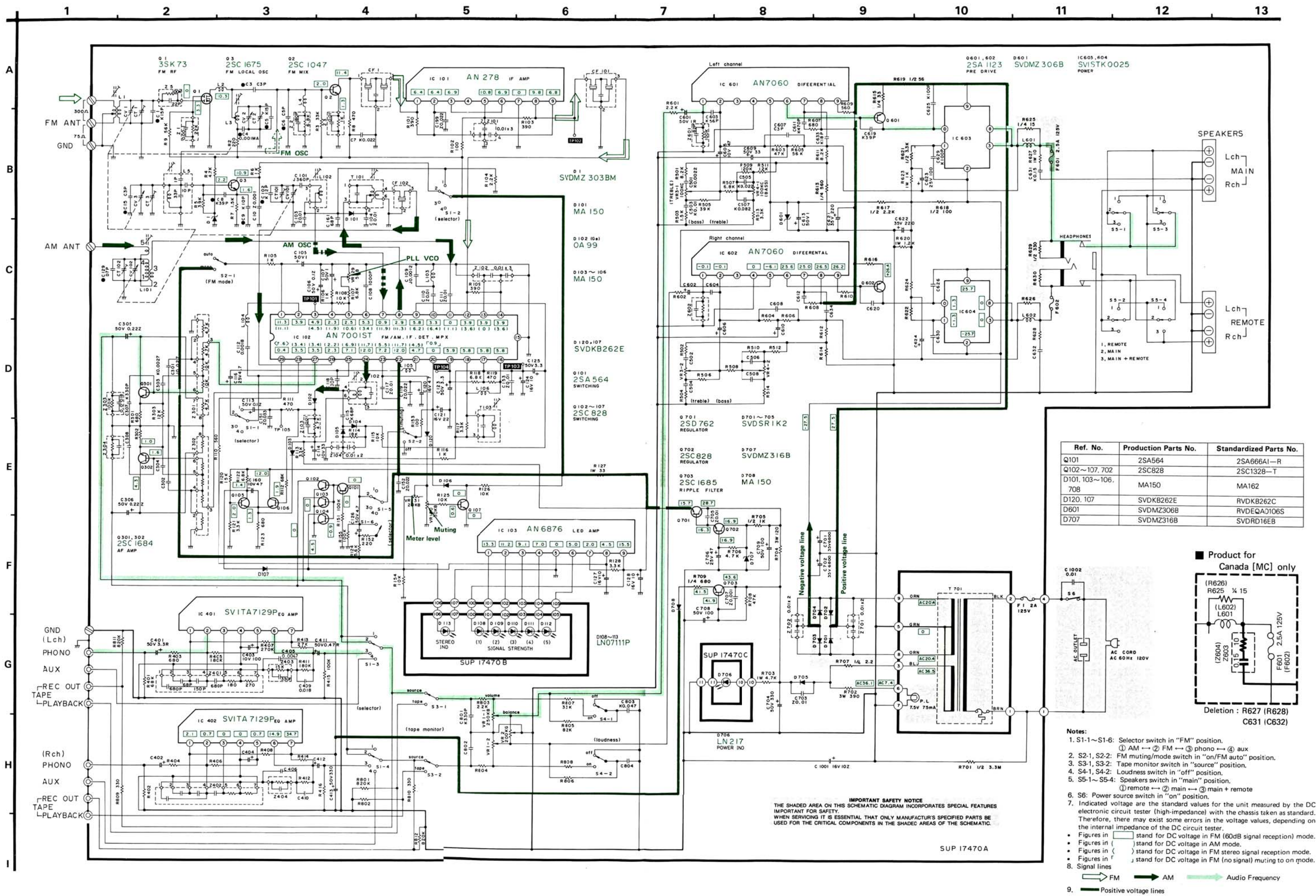
Ref. No.	Part No.	Part Name & Description
CERAMIC FILTERS		
CF1, 101	SVFE107MS8-A SVFE107MS8-B SVFE107MS8-C SVFE107MS8-D SVFE107MS8-E	Ceramic Filter, Red, 10.7MHz Ceramic Filter, Blue, 10.67MHz Ceramic Filter, Orange, 10.73MHz Ceramic Filter, Black, 10.64MHz Ceramic Filter, White, 10.76MHz (Use pair ranks as same as CF1 and CF101)
CF102	SVFSFU450B3	Ceramic Filter, AM 450kHz
FUSES		
F1 F601, 602	Δ XBA1F20NU14 Δ XBAS1A2501	Fuse, 2A (125V) P.T. Primary Fuse, 2.5A (125V) Speaker Circuit
LAMP		
PL1	SWL71-3	Lamp, Dial (w/colour Cap)
SWITCHES		
S1 S2 S3 S4 S5 S6	SSR147 SSL149 SSL147 SSL149 SSL163 Δ SSL133	Switch, Program Selector Switch, FM Muting/Mode Switch, Tape Monitor Switch, Loudness Switch, Speakers Selector Switch, Power Source
VARIABLE RESISTORS		
VR129 VR130 VR131 VR1 VR2 VR3, 4	EVTS3MA00B53 EVLS3AA00B54 EVLS3AA00B24 EWJEKA092BF5 EVHFDA505G25 EWKGSA091C15	PLL Voltage Adjustment, 5k Ω (B) FM Muting Level Adj., 50k Ω (B) Meter Sensitivity Adj., 20k Ω (B) Volume Control, 250k Ω (B) Balance Control, 200k Ω (G) Treble & Bass Control, 100k Ω (C)
VARIABLE CAPACITOR		
CV1, 2, 3, 101, 102 [CT1, 2, 3, 101, 102]	ECV5MD34X71G	Tuning Gang, FM & AM (with Trimmer)

(M) is available in U.S.A.
(MC) is available in Canada.

Ref. No.	Part No.	Part Name & Description
RESISTORS		
R2	ERD25FJ221	Carbon, 220 Ω , 1/4W, $\pm$ 5%
R3	ERD25TJ333	Carbon, 33k Ω , 1/4W, $\pm$ 5%
R4	ERD25FJ472	Carbon, 4.7k Ω , 1/4W, $\pm$ 5%
R5	ERD25TJ393	Carbon, 39k Ω , 1/4W, $\pm$ 5%
R6	ERD25FJ102	Carbon, 1k Ω , 1/4W, $\pm$ 5%
R7	ERD25FJ152	Carbon, 1.5k Ω , 1/4W, $\pm$ 5%
R8	ERD25FJ471	Carbon, 470 Ω , 1/4W, $\pm$ 5%
R9	ERD25TJ563	Carbon, 56k Ω , 1/4W, $\pm$ 5%
R101	ERD25FJ391	Carbon, 390 Ω , 1/4W, $\pm$ 5%
R102	ERD25FJ101	Carbon, 100 Ω , 1/4W, $\pm$ 5%

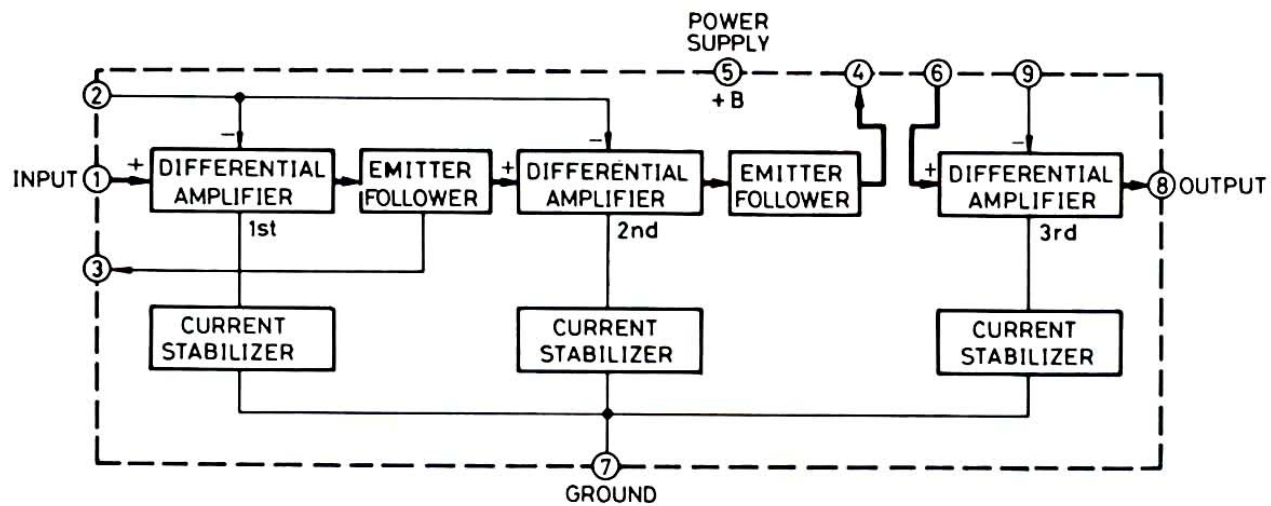
Ref. No.		Part No.	Part Name & Description		
R103		ERD25FJ391	Carbon,	390Ω,	1/4W, ± 5%
R104		ERD25FJ222	Carbon,	2.2kΩ,	1/4W, ± 5%
R105, 106		ERD25FJ102	Carbon,	1kΩ,	1/4W, ± 5%
R107		ERD25FJ682	Carbon,	6.8kΩ,	1/4W, ± 5%
R108		ERD25FJ103	Carbon,	10kΩ,	1/4W, ± 5%
R109		ERD25FJ391	Carbon,	390Ω,	1/4W, ± 5%
R110		ERD25FJ561	Carbon,	560Ω,	1/4W, ± 5%
R111		ERD25FJ471	Carbon,	470Ω,	1/4W, ± 5%
R112		ERD25TJ683	Carbon,	68kΩ,	1/4W, ± 5%
R113		ERD25TJ333	Carbon,	33kΩ,	1/4W, ± 5%
R114		ERD25TJ183	Carbon,	18kΩ,	1/4W, ± 5%
R115		ERD25FJ103	Carbon,	10kΩ,	1/4W, ± 5%
R116		ERD25FJ102	Carbon,	1kΩ,	1/4W, ± 5%
R117		ERD25FJ332	Carbon,	3.3kΩ,	1/4W, ± 5%
R118		ERD25FJ682	Carbon,	6.8kΩ,	1/4W, ± 5%
R119		ERD25FJ471	Carbon,	470Ω,	1/4W, ± 5%
R120		ERD25TJ153	Carbon,	15kΩ,	1/4W, ± 5%
R121		ERD25FJ332	Carbon,	3.3kΩ,	1/4W, ± 5%
R122		ERD25FJ682	Carbon,	6.8kΩ,	1/4W, ± 5%
R123		ERD25FJ681	Carbon,	680Ω,	1/4W, ± 5%
R124		ERD25FJ562	Carbon,	5.6kΩ,	1/4W, ± 5%
R125, 126		ERD25FJ103	Carbon,	10kΩ,	1/4W, ± 5%
R127		ERG1ANJ330	Metal Oxide,	33Ω,	1W, ± 5%
R128		ERD25FJ332	Carbon,	3.3kΩ,	1/4W, ± 5%
R151		ERD25TJ104	Carbon,	100kΩ,	1/4W, ± 5%
R152		ERD25FJ221	Carbon,	220Ω,	1/4W, ± 5%
R153		ERD25FJ101	Carbon,	100Ω,	1/4W, ± 5%
R154		ERD25FJ103	Carbon,	10kΩ,	1/4W, ± 5%
R155		ERD25TJ104	Carbon,	100kΩ,	1/4W, ± 5%
R301, 302		ERD25FJ681	Carbon,	680Ω,	1/4W, ± 5%
R303		ERD25TJ123	Carbon,	12kΩ,	1/4W, ± 5%
R401, 402		ERO25CKF6802	Metal Film,	68kΩ,	1/4W, ± 1%
R403, 404		ERD25FJ681	Carbon,	680Ω,	1/4W, ± 5%
R405, 406		ERO25CKF1803	Metal Film,	180kΩ,	1/4W, ± 1%
R407, 408		ERO25CKF2703	Metal Film,	270kΩ,	1/4W, ± 1%
R411, 412		ERD25TJ184	Carbon,	180kΩ,	1/4W, ± 5%
R413, 414		ERD25TJ273	Carbon,	27kΩ,	1/4W, ± 5%
R415, 516		ERO25CKF1003	Metal Film,	100kΩ,	1/4W, ± 1%
R501, 502		ERD25FJ822	Carbon,	8.2kΩ,	1/4W, ± 5%
R503, 504		ERD25FJ152	Carbon,	1.5kΩ,	1/4W, ± 5%
R505, 506		ERD25TJ393	Carbon,	39kΩ,	1/4W, ± 5%
R507, 508		ERD25FJ682	Carbon,	6.8kΩ,	1/4W, ± 5%
R509, 510		ERD25TJ124	Carbon,	120kΩ,	1/4W, ± 5%
R511, 512		ERD25TJ123	Carbon,	12kΩ,	1/4W, ± 5%
R513, 514		ERD25FJ332	Carbon,	3.3kΩ,	1/4W, ± 5%
R601, 602		ERD25FJ222	Carbon,	2.2kΩ,	1/4W, ± 5%
R603, 604		ERD25TJ473	Carbon,	47kΩ,	1/4W, ± 5%
R605, 606		ERD25TJ563	Carbon,	56kΩ,	1/4W, ± 5%
R607, 608		ERD25FJ681	Carbon,	680Ω,	1/4W, ± 5%
R609, 610		ERD25FJ561	Carbon,	560Ω,	1/4W, ± 5%
R611, 612		ERD25FJ822	Carbon,	8.2kΩ,	1/4W, ± 5%
R613, 614	⚠	ERD25FJ561	Carbon,	560Ω,	1/4W, ± 5%
R615, 616	⚠	ERD25FJ330	Carbon,	33Ω,	1/4W, ± 5%
R617	⚠	ERD50FJ222	Carbon,	2.2kΩ,	1/2W, ± 5%
R618	⚠	ERD50FJ101	Carbon,	100Ω,	1/2W, ± 5%
R619	⚠	ERD50FJ560	Carbon,	56Ω,	1/2W, ± 5%
R620		ERG1ANJ122	Metal Oxide,	1.2kΩ,	1W, ± 5%
R621, 622	⚠	ERD50FJ332	Carbon,	3.3kΩ,	1/2W, ± 5%
R623, 624		ERG1ANJ102	Metal Oxide,	1kΩ,	1W, ± 5%
R625, 626	⚠	ERD25FJ150	Carbon,	15Ω,	1/4W, ± 5%
R627, 628[M] only	⚠	ERG1ANJ100	Metal Oxide,	10Ω,	1W, ± 5%
R629, 630	⚠	ERD50FJ331	Carbon,	330Ω,	1/2W, ± 5%
R701	⚠	ERC12ZGK335	Solid,	3.3MΩ,	1/2W, ± 10%
R702		ERG3ANJ391	Metal Oxide,	390Ω,	3W, ± 5%
R703		ERG1ANJ472	Metal Oxide,	4.7kΩ,	1W, ± 5%
R704		ERG3ANJ121	Metal Oxide,	120Ω,	3W, ± 5%
R705	⚠	ERD50FJ102	Carbon,	1kΩ,	1/2W, ± 5%
R706		ERD25FJ472	Carbon,	4.7kΩ,	1/4W, ± 5%
R707	⚠	ERD25FAJ2R2	Carbon,	2.2Ω,	1/4W, ± 5%
R708		ERD25TJ473	Carbon,	47kΩ,	1/4W, ± 5%
R709	⚠	ERD25FJ681	Carbon,	680Ω,	1/4W, ± 5%
R801, 802		ERO50CKF8203	Metal Film,	820kΩ,	1/2W, ± 1%
R803, 804		ERD25FJ222	Carbon,	2.2kΩ,	1/4W, ± 5%
R805, 806		ERD25TJ823	Carbon,	82kΩ,	1/4W, ± 5%
R807, 808		ERD25TJ333	Carbon,	33kΩ,	1/4W, ± 5%
R809, 810		ERD25FJ331	Carbon,	330Ω,	1/4W, ± 5%
R811, 812		ERO50CKF8203	Metal Film,	820kΩ,	1/2W, ± 1%

Ref. No.		Part No.	Part Name & Description			
CAPACITORS						
C1		ECCD1H150KC	Ceramic,	15pF,	50V,	± 10%
C3		ECCD1H030CC	Ceramic,	3pF,	50V,	±0.25pF
C4		ECKD1H102MDA	Ceramic,	0.001μF,	50V,	± 20%
C5		ECCD1H150KC	Ceramic,	15pF,	50V,	± 10%
C6		ECCD1H050CC	Ceramic,	5pF,	50V,	±0.25pF
C7		ECQM1H223KZ	Polyester,	0.022μF,	50V,	± 10%
C8		ECCD1H390KC	Ceramic,	39pF,	50V,	± 10%
C9		ECCD1H100KC	Ceramic,	10pF,	50V,	± 10%
C10		ECKD1H102ZF	Ceramic,	0.001μF,	50V,	± 8%
C15		ECCD1H030CC	Ceramic,	3pF,	50V,	±0.25pF
C101		ECQP1361JZ	Polypropylene,	360pF,	100V,	± 5%
C102		ECCD1H120KC	Ceramic,	12pF,	50V,	± 10%
C103, 104		ECKD1H103ZF	Ceramic,	0.01μF,	50V,	± 8%
C105		ECEA50Z1	Electrolytic,	1μF,	50V	
C106		ECEA50ZR1	Electrolytic,	0.1μF,	50V	
C107		ECEA50Z1	Electrolytic,	1μF,	50V	
C108		ECQS1102JZ	Styrol,	1000pF,	125V,	± 5%
C109		ECQM1H122JZ	Polyester,	0.0012μF,	50V,	± 5%
C110, 111		ECKD1H103ZF	Ceramic,	0.01μF,	50V,	± 8%
C112		ECQM1H182JZ	Polyester,	0.0018μF,	50V,	± 5%
C113		ECEA50ZR1	Electrolytic,	0.1μF,	50V	
C114		ECEA1CS330	Electrolytic,	33μF,	16V	
C115		ECCD1H680K	Ceramic,	68pF,	50V,	± 10%
C116		ECEA25Z4R7	Electrolytic,	4.7μF,	25V	
C117		ECKD1H103ZF	Ceramic,	0.01μF,	50V,	± 8%
C118		ECKD1H331KB	Ceramic,	330pF,	50V,	± 10%
C119		ECKD1H223ZF	Cermic,	0.022μF,	50V,	± 8%
C120		ECEA1ES470	Electrolytic,	47μF,	25V	
C121		ECEA1ES220	Electrolytic,	22μF,	25V	
C123		ECEA50Z3R3	Electrolytic,	3.3μF,	50V	
C124		ECEA1HS100	Electrolytic,	10μF,	50V	
C125		ECEA50Z3R3	Electrolytic,	3.3μF,	50V	
C126		ECEA1JS4R7	Electrolytic,	4.7μF,	63V	
C127		ECEA1HS100	Electrolytic,	10μF,	50V	
C128		ECEA1HS100	Electrolytic,	10μF,	50V	
C129		ECCD1H070DC	Ceramic,	7pF,	50V,	± 0.5pF
C151		ECKD1H333ZF	Ceramic,	0.033μF,	50V,	± 8%
C152		ECQM1H223KZ	Polyester,	0.022μF,	50V,	± 10%
C153		ECKD1H103ZF	Ceramic,	0.01μF,	50V,	± 8%
C160		ECEA1AS470	Electrolytic,	47μF,	10V	
C161		ECCD1H680K	Ceramic,	68pF,	50V,	± 10%
C199		ECKD1H223ZF	Ceramic,	0.022μF,	50V,	± 8%
C301, 302		ECQM1H273JZ	Polyester,	0.027μF,	50V,	± 5%
C303, 304		ECQM1H272KZ	Polyester,	0.0027μF,	50V,	± 10%
C305, 306		ECEA50ZR22	Electrolytic,	0.22μF,	50V	
C307, 308		ECKD1H331KB	Ceramic,	330pF,	50V,	± 10%
C401, 402		ECEA50M3R3R	Electrolytic,	3.3μF,	50V	
C403, 404		ECEA1AS101	Electrolytic,	100μF,	10V	
C405, 406		ECQM1H472JZ	Polyester,	0.0047μF,	50V,	± 5%
C409, 410		ECQM1H183JZ	Polyester,	0.018μF,	50V,	± 5%
C411, 412		ECEA50MR47R	Electrolytic,	0.47μF,	50V	
C413		ECEA1HS331	Electrolytic,	330μF,	50V	
C501, 502		ECQM1H222KZ	Polyester,	0.0022μF,	50V,	± 10%
C503, 504		ECQM1H103KZ	Polyester,	0.01μF,	50V,	± 10%
C505, 506		ECKD1H223KZ	Ceramic,	0.022μF,	50V,	± 10%
C507, 508		ECKD1H823KZ	Ceramic,	0.082μF,	50V,	± 10%
C601, 602		ECEA50M1R	Electrolytic,	1μF,	50V	
C603, 604		ECCD1H560K	Ceramic,	56pF,	50V,	± 10%
C605, 606		ECEA1AS470	Electrolytic,	47μF,	10V	
C607, 608		ECCD1H030CC	Ceramic,	3pF,	50V,	±0.25pF
C609, 610		ECEA1JS330	Electrolytic,	33μF,	63V	
C611, 612		ECKD1H471KB	Ceramic,	470pF,	50V,	± 10%
C613		ECEA50Z1	Electrolytic,	1μF,	50V	
C619, 620		ECCD1H390K	Ceramic,	39pF,	50V,	± 10%
C621, 622		ECEA1VS221	Electrolytic,	220μF,	35V	
C623, 624		ECEA1ES101	Electrolytic,	100μF,	25V	
C625, 626		ECCD1H101K	Ceramic,	100pF,	50V,	± 10%
C629, 630		ECCD1H101K	Ceramic,	100pF,	50V,	± 10%
C631, 632 [M] only		ECQM1H154KZ	Polyester,	0.15μF,	50V,	± 10%
C633, 634		ECCD1H180K	Ceramic,	18pF,	50V,	± 10%
C701, 702		ECETS1VV682U	Electrolytic,	6800μF,	35V	
C703		ECKD1H103ZF	Ceramic,	0.01μF,	50V,	± 8%
C704		ECEA1HS331	Electrolytic,	330μF,	50V	
C705		ECKD1H103ZF	Ceramic,	0.01μF,	50V,	± 8%
C706		ECEA1ES470	Electrolytic,	47μF,	25V	
C707		ECKD1H102ZF	Ceramic,	0.001μF,	50V,	± 8%
C708, 709		ECEA1HS101	Electrolytic,	100μF,	50V	
C801, 802		ECKD1H331KB	Ceramic,	330pF,	50V,	± 10%
C803, 804		ECQM1H473KZ	Polyester,	0.047μF,	50V,	± 10%
C1001		ECEA16Z10	Electrolytic,	10μF,	16V	
C1002	⚠	ECKDMY103PF	Ceramic,	0.01μF,	125VAC,	± 100%

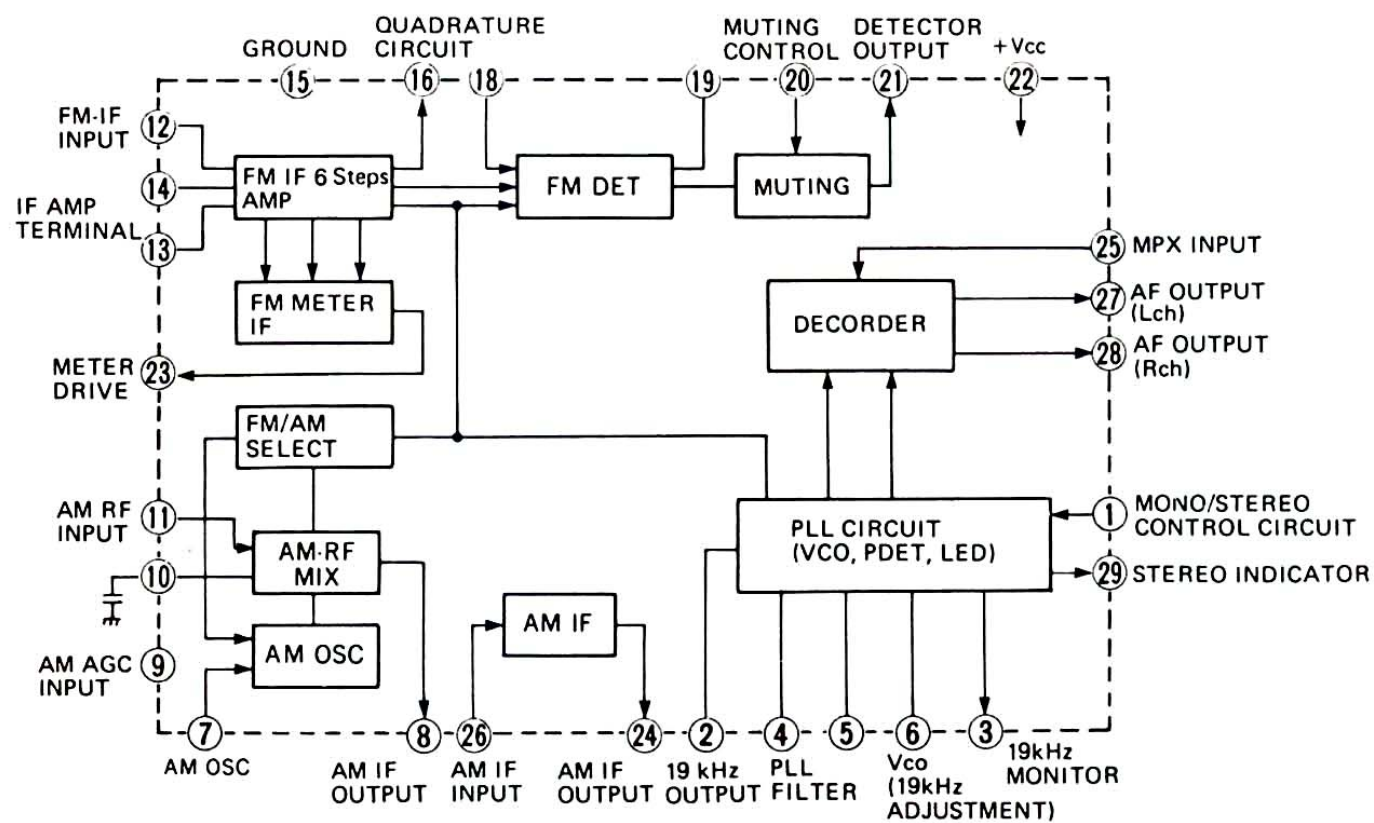


■ BLOCK DIAGRAM OF IC'S

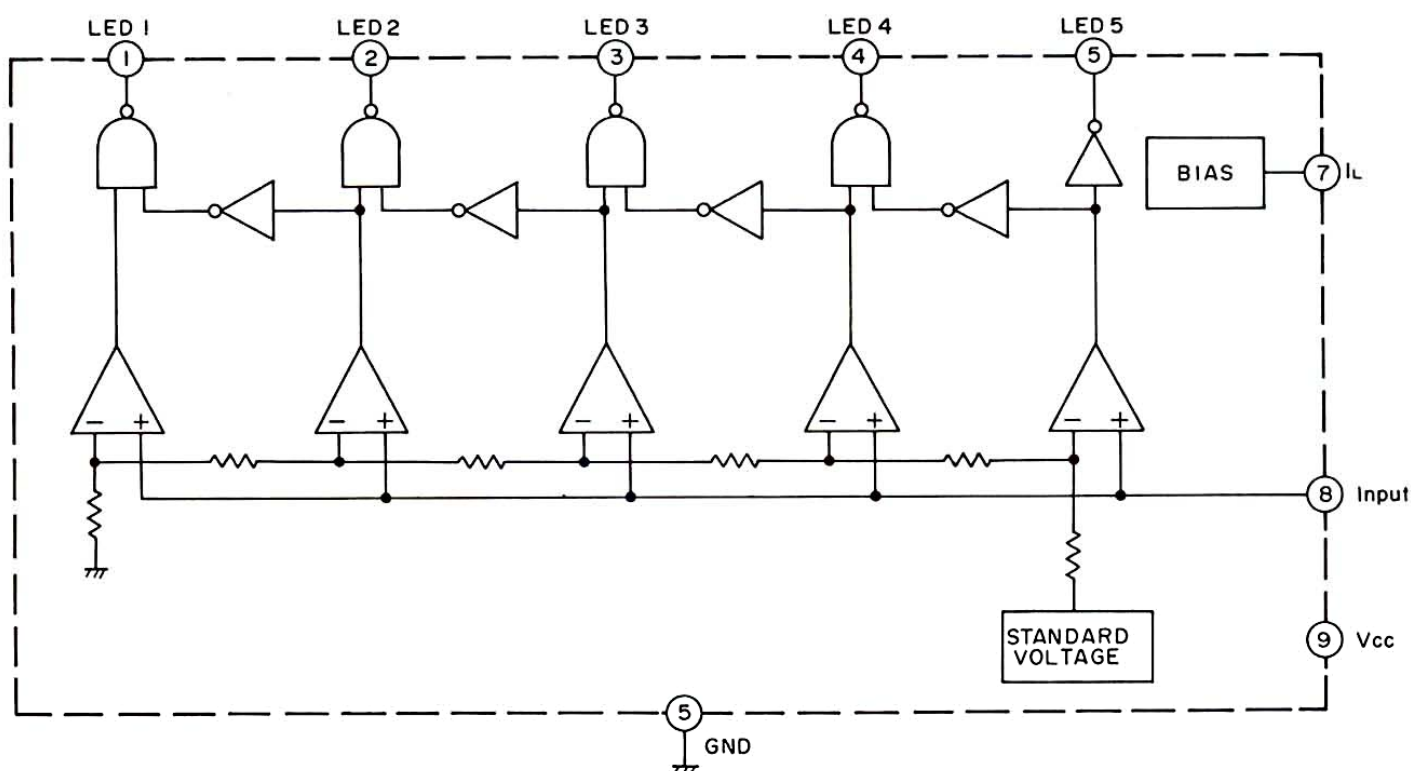
- This is the basic block diagram of the inside circuit of IC. In an actual circuit, there may be sometimes idle terminals or some different functions other than the basic circuit.



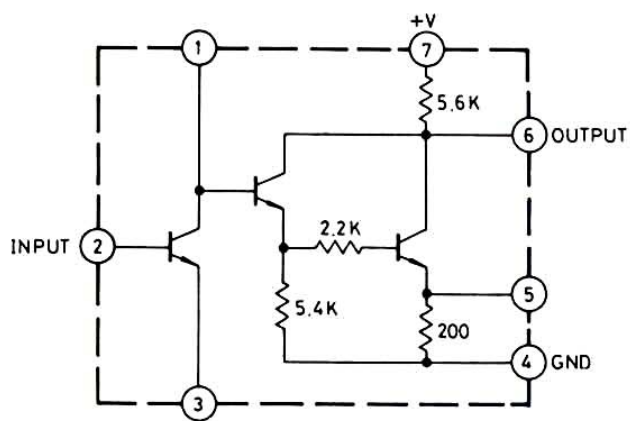
IC101 (AN278)
FM IF amplifier



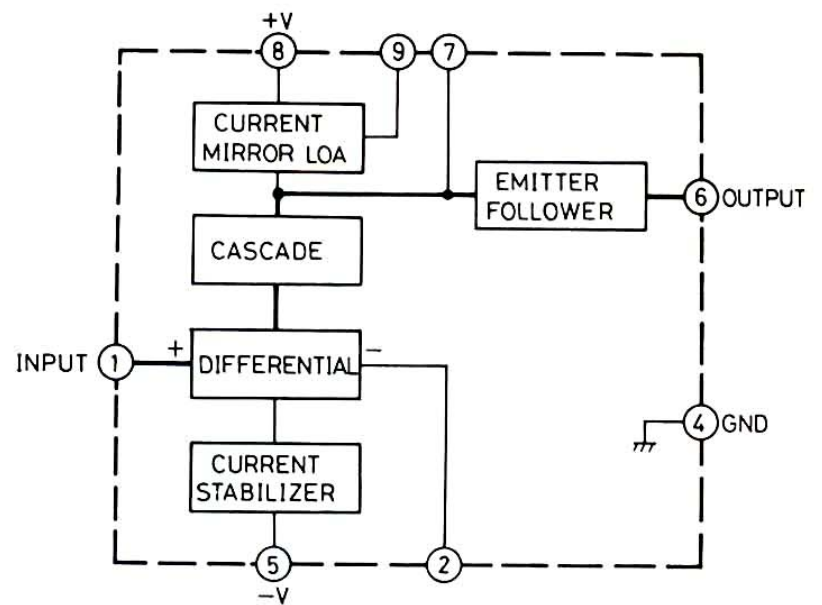
IC102 (AN7001ST)
AM converter, FM IF amplifier, detector & MPX



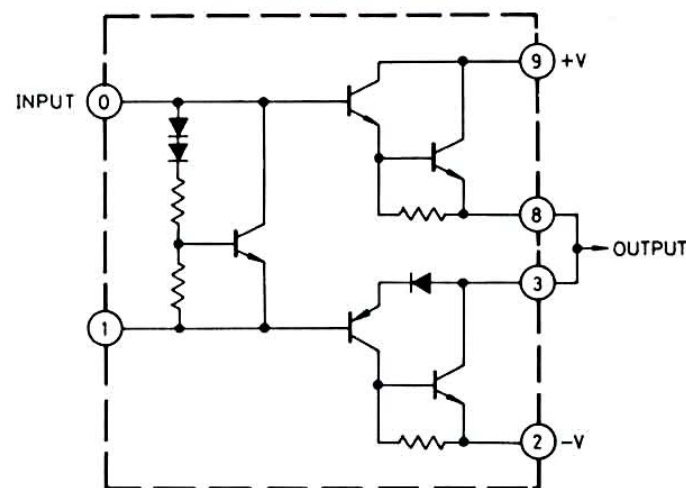
IC103 (AN6876)
LED drive amplifier



IC401, 402 (SVITA7129P)
Equalizer amplifier



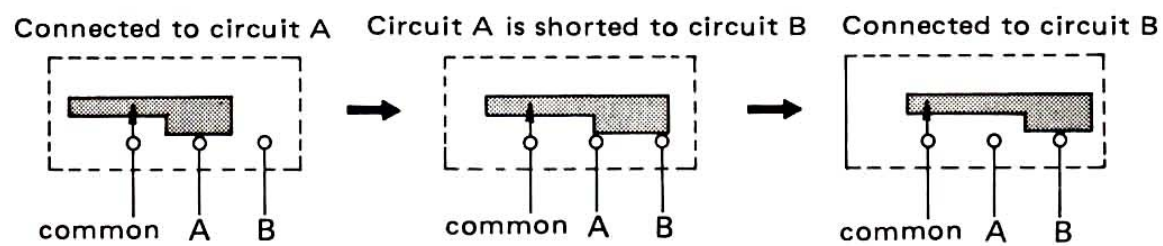
IC601, 602 (AN7060)
Differential amplifier



IC603, 604 (SVISTK0025)
Power amplifier

• Shorting Switch

This unit uses a shorting switch. As illustrated below, the circuit is shorted to the next circuit without being opened. In the circuit diagram, the shaded area represents the common terminal.



An example of circuit diagram

