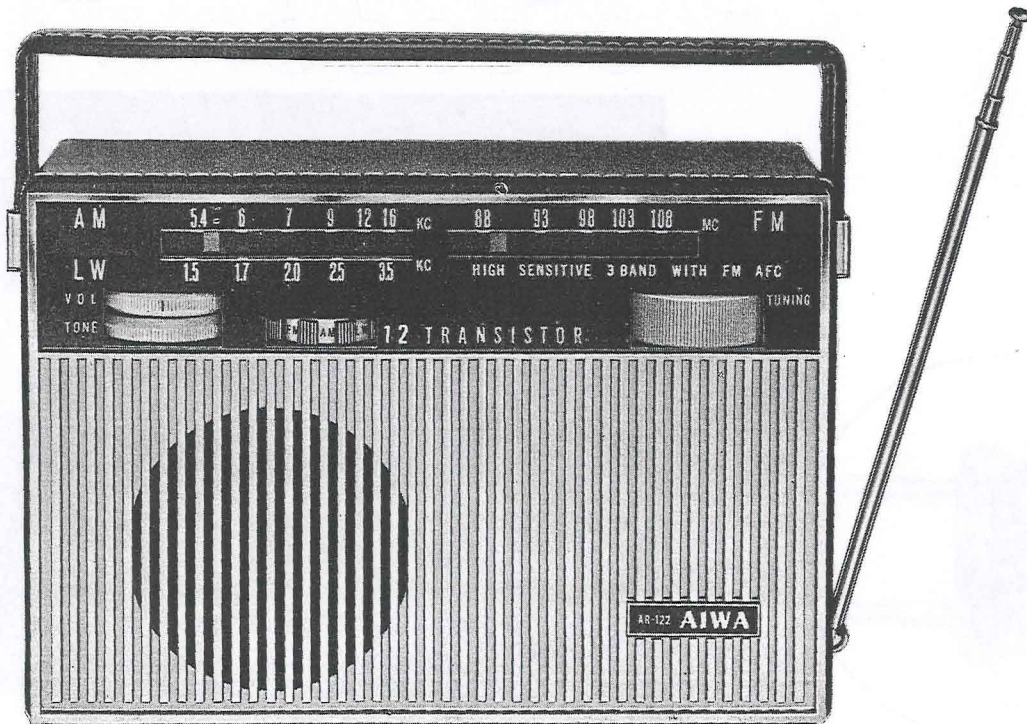


AIWA

12 TRANSISTOR RADIO

MODEL AR-122

SERVICE MANUAL



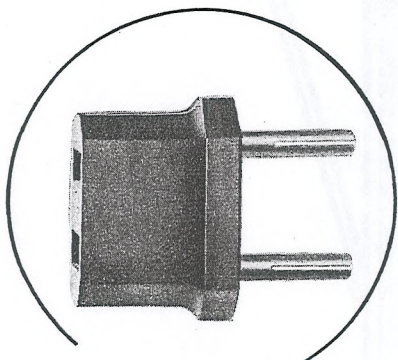
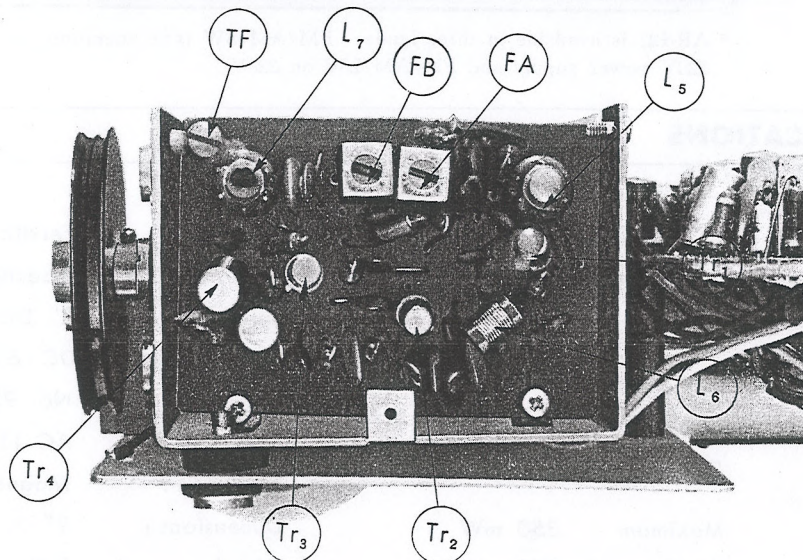
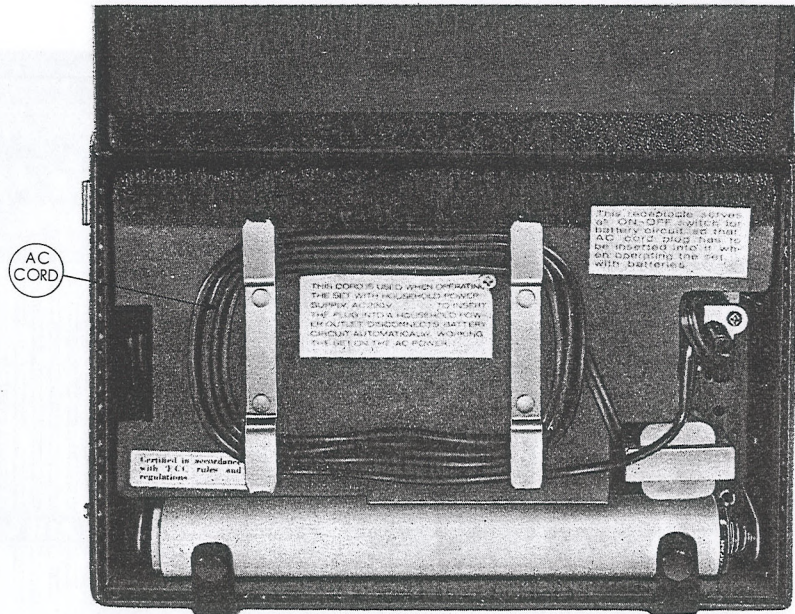
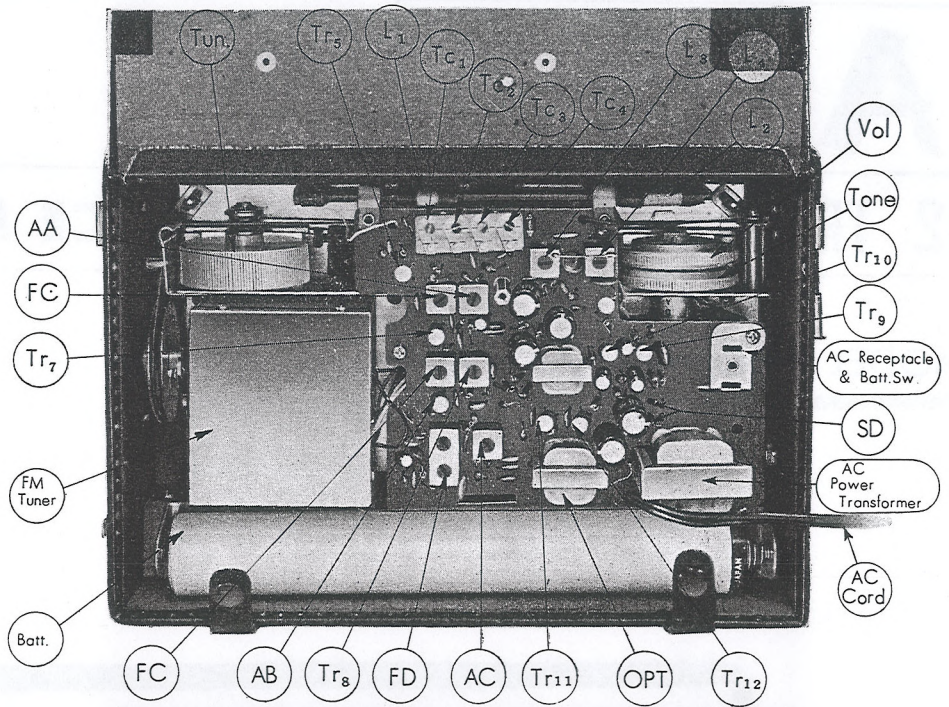
* AR-122 is available in three kinds: FM/AM/SW type operating on 117V (110V) and 220V power supply and FM/AM/LW on 220V.

SPECIFICATIONS

Circuit :	12 transistors/5 diodes 2 rectifier/1 thermister	Antenna :	Ferrite bar antenna AM, SW, (LW) 7-section rod antenna FM, SW
Frequency range :	FM 88~ 108 Mc AM 525~1650 Kc SW 3.5~ 10 Mc (LW 150~350 Kc)	Speaker :	3" Dia. 8Ω
Output :	Maximum 350 mW Undistorted 250 mW	Power Supply :	DC 6 V Size "C" Eveready No. 935 JIS UM-2 × 4 also AC 117V or 220V
		Earphone :	Magnetic earphone
		Dimensions :	9" × 6¼" (7¾") × 3"
		Weight :	5 lbs.

AIWA CO., LTD. TOKYO, JAPAN

Transistors and Major Components Locations



AC Cord for FM/AM/LW

Schematic Circuit Diagram

FM-AM-SW

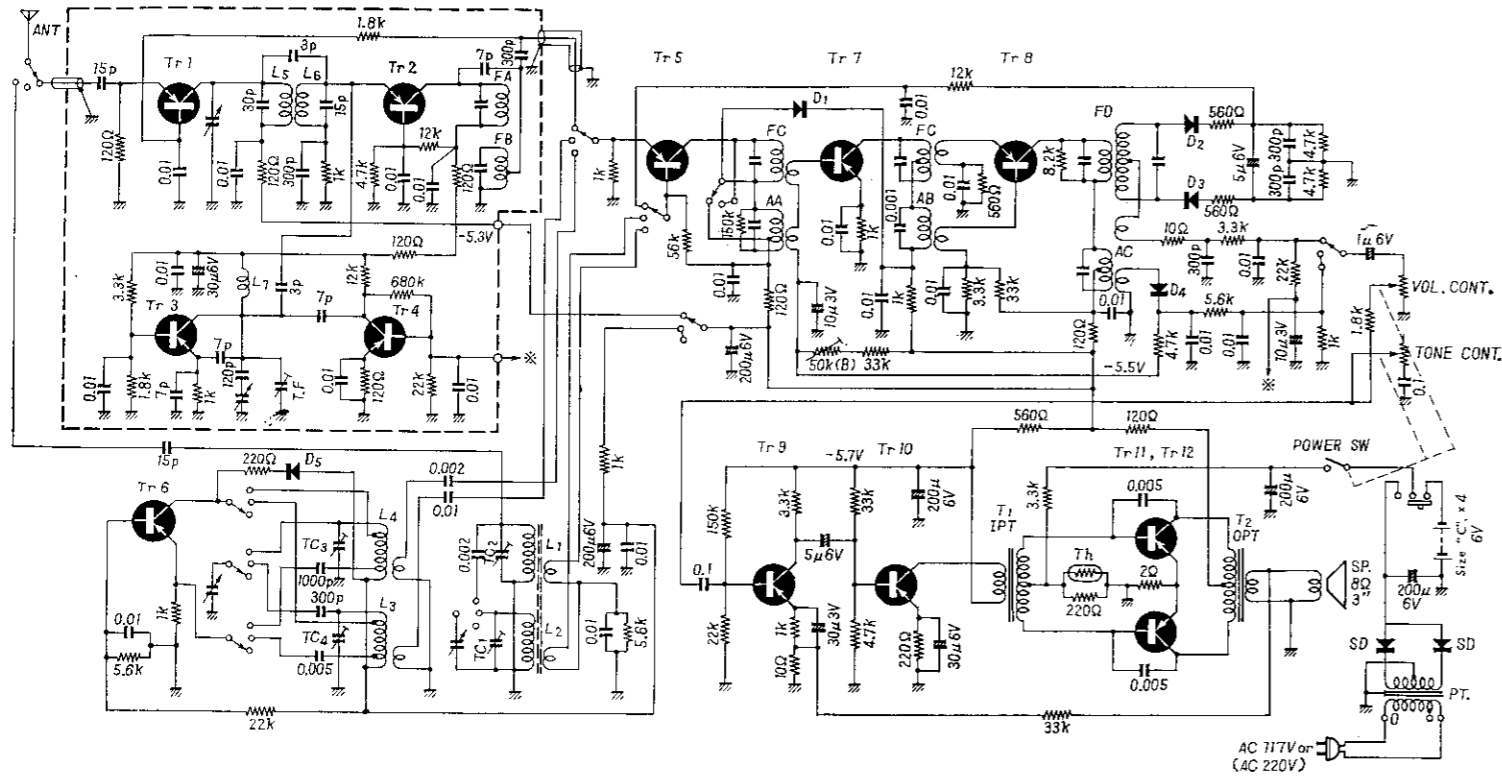


Fig.1

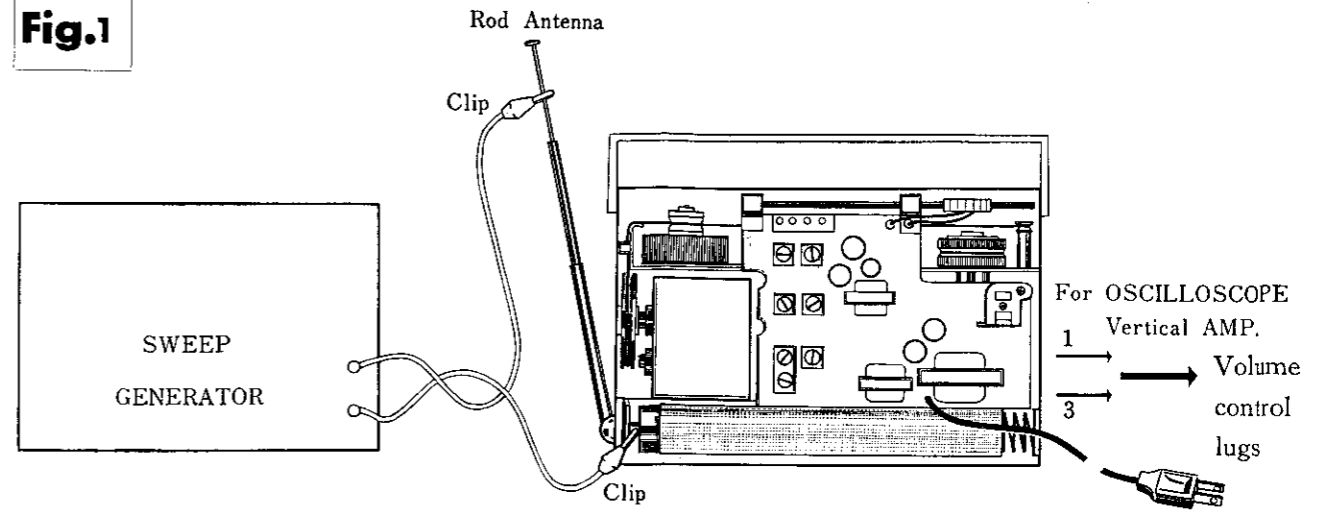
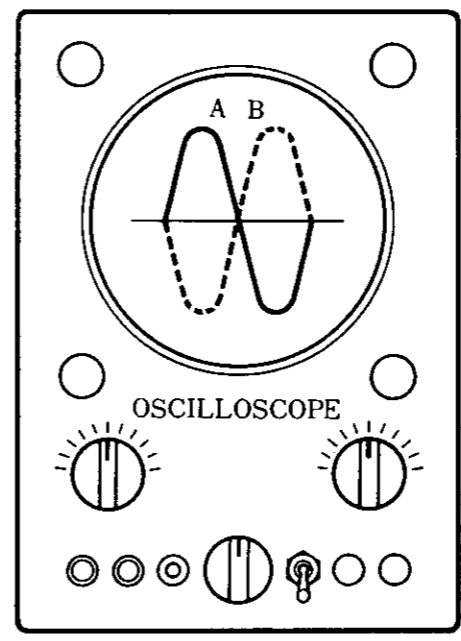


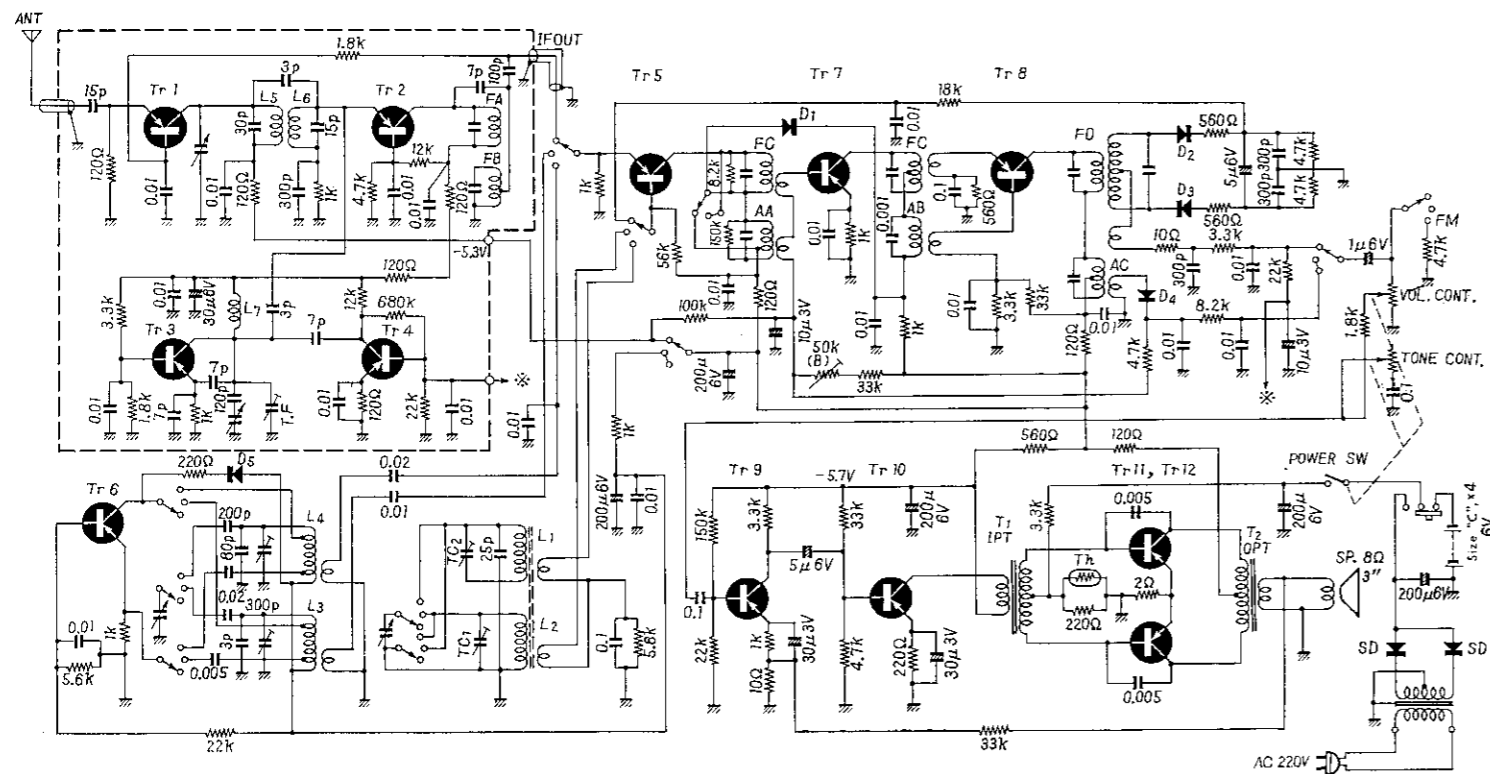
Fig.2

A or B
 "S" curve maximum and
 to be symmetry

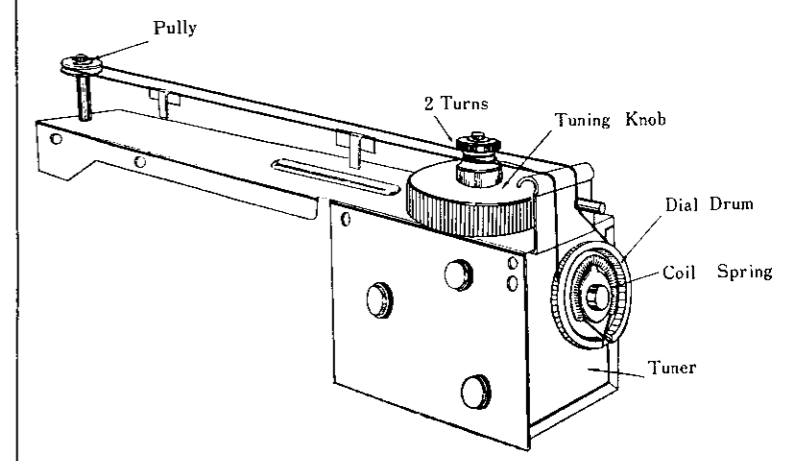


↑ ↑ (FM DET. OUT)
 V. input
 From Volume control lugs
 No. 1 & 3 of the Radio

FM-AM-LW



Tuning Drive Cord



ALIGNMENT INSTRUCTIONS (FM)

* Volume control should be at minimum.

* Oscilloscope should be connected across lug No. 1 & 3 of Volume control.

Step	Sweep Generator Coupling	Band Switch Setting	Sweep Generator Frequency	Radio Dial Setting	Adjust for "S" curve max. (Fig. 2)
1	Fig. 1	FM	10.7 Mc	VC. Max.	FA. FB. FC. FD
2	Fig. 1	FM	86.5 Mc	VC. Max.	L7
3	Fig. 1	FM	109 Mc	VC. Min.	TF
4	Repeat step 2 & 3				
5	Fig. 1	FM	100 Mc	100 Mc	L5 (FM-AM-LW) RADIO only

ALIGNMENT INSTRUCTIONS (AM)

* Volume control should be at maximum.

* Output meter should be connected across the voice coil of speaker.

Step	Signal Generator Coupling	Band Switch Setting	Signal Generator Frequency	Radio Dial Setting	Adjust for Max. Output
1	Loop	AM	455 Kc	VC. Max.	AA. AB. AC.
2	Loop	AM	515 Kc	VC. Max.	L3
3	Loop	AM	1700 Kc	VC. Min.	TC4
4	Repeat step 2 & 3				
5	Loop	AM	600 Kc	600 Kc	L ₂
6	Loop	AM	1400 Kc	1400 Kc	TC1
7	Repeat step 5 & 6				

ALIGNMENT INSTRUCTIONS (SW)

* Volume control should be at maximum.

* Output meter should be connected across the voice coil of speaker

Step	Signal Generator Coupling	Band Switch Setting	Signal Generator Frequency	Radio Dial Setting	Adjust for Max. Output
1	Loop	SW	3.55 Mc	VC. Max.	L4
2	Loop	SW	10.5 Mc	VC. Min.	TC3
3	Repeat step 1 & 2				
4	Loop	SW	4.0 Mc	4.0 Mc	L1
5	Loop	SW	8.0 Mc	8.0 Mc	TC2
6	Repeat step 4 & 5				

ALIGNMENT INSTRUCTIONS (LW)

* Volume control should be at maximum.

* Output meter should be connected across the voice coil of speaker.

Step	Signal Generator Coupling	Band Switch Setting	Signal Generator Frequency	Radio Dial Setting	Adjust for Max. Output
1	Loop	LW	145 Kc	VC. Max.	L4
2	Loop	LW	370 Kc	VC. Min.	TC3
3	Repeat step 1 & 2				
4	Loop	LW	145 Kc	VC. Max.	L1
5	Loop	LW	370 Kc	VC. Min.	TC2
6	Repeat step 4 & 5				

PARTS LIST

FM/AM/SW RADIO

FM/AM/LW RADIO

VARIABLE CAPACITOR

Symbol No.	Parts No.	Description
VC1	R-33306	Tuning Capacitor
TF	R-29307	Trimmer
TC1, 2, 3, 4	R-33307	Trimmer

VOLUME CONTROL

Symbol No.	Parts No.	Description
VOL.	R-20303	Volume control (Tone)

SPEAKER

Symbol No.	Parts No.	Description		
		Size	Field	V.C. IMP.
SP.	R-26304	2½"	P.D.	8Ω

ROD ANTENNA

Symbol No.	Parts No.	Description
Rod Ant	R-6007	Rod Antenna

TRANSFORMER

Symbol No.	Parts No.	Description
AA	R-3315	AM IFT
AB	R-3316	AM IFT
AC	R-29314	AM IFT
FA	R-29311	FM IFT
FB	R-29312	FM IFT
FC	R-3340	FM IFT
FD	R-29313	FM Ratio Trans.
FE	R-29313	
T1	R-29306	I. P. T.
T2	R-29305	O. P. T.
PT	R-30304	Power Trans. FM-AM-SW
PT	R-30604	Power Trans. FM-AM-LW

HOUSING ASSEMBLY

Symbol No.	Parts No.	Description
Housing	R-33002	
Tun Knob	R-20005	
Tone Knob	R-20006	
VR Knob	R-20007	
Pointer	R-20111	
Front Panel	R-33001	
SW Lever	R-33004	

CHASSIS ASSEMBLY

Symbol No.	Parts No.	Description
Chassis	R-33101-A	Chassis Assy
Tuner case	R-29111	Tuner Case
	R-29112	Tuner Cover

COIL

Symbol No.	Parts No.	Description
L3	R-9304	AM OSC. Coil
L5, L7	R-6315	FM ANT. Coil & OSC. Coil
L6	R-3342	FM CH. Coil

TRANSISTOR & DIODE

Symbol No.	Original Type	Description
Tr1	2SA240	FM RF. Amp.
Tr2	2SA239	FM Mix.
Tr3	2SA239	FM OSC.
Tr4	2SB54	FM AFC.
Tr5	2SA93	FM IF/AM Mix.
Tr6	2SA93	AM OSC.
Tr7, 8	2SA93	FM AM IF Amp.
Tr9	2SB54	Audio Pri Amp.
Tr10	2SB54	Driver Amp.
Tr11,12	2SB56	Power Amp.
D1	IN60	AM AGC.
D2, 3	IN60	FM Detector
D4	IN60	AM Detector
D5	IN60	OSC Stable
SD	SE-O5 (or 1S358)	AC Rectifier

SWITCH

Symbol No.	Parts No.	Description
SW	R-33302	Band Switch

FM/AM/SW RADIO

COIL

Symbol No.	Parts No.	Description
L1, 2	R-33303	AM SW Ant. Coil
L4	R-33309	SW OSC. Coil

HOUSING ASSEMBLY

Symbol No.	Parts No.	Description
Dial scale	R-33003	Dial Scale (for SW)
Indicator	R-33006	Band Switch (for SW)

FM/AM/LW RADIO

COIL

Symbol No.	Parts No.	Description
L1, 2	R-33353	AM LW Ant. coil
L4	R-33359	LW OSC. coil

HOUSING ASSEMBLY

Symbol No.	Parts No.	Description
Dial scale	R-33053	Dial Scale
Indicator	R-33056	Band Switch Plate