SANYO

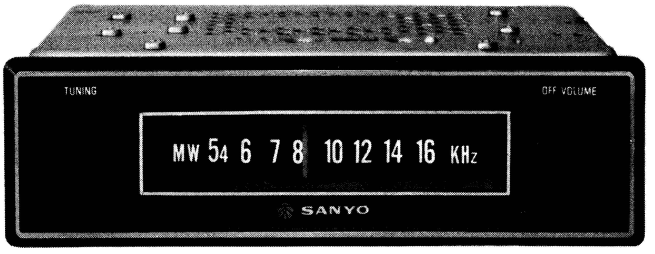
ISO

All-Transistor Car Radio

MODEL F-8108A

SERVICE MANUAL

SANYO ELECTRIC CO., LTD.
INTERNATIONAL DIVISION : SANYO ELECTRIC TRADING CO., LTD.
OSAKA, JAPAN

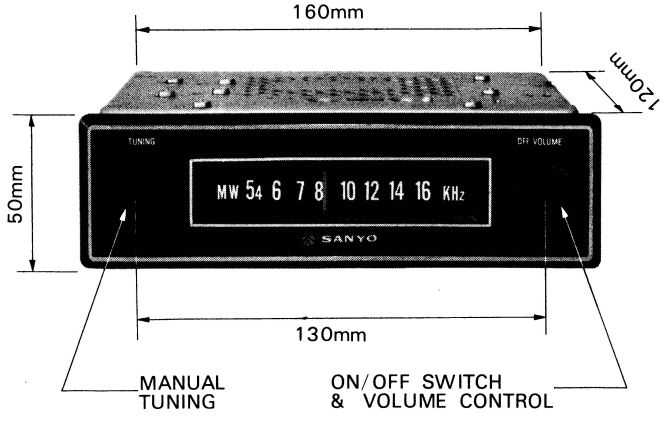


SPECIFICATIONS

CIRCUIT SYSTEM .....6 transistor plus 2 diode super-heterodyne with an RF amplifier and manual tuning.
FREQUENCY RANGE .....535-1605 KHz
INTERMEDIATE FREQUENCY .....455 KHz
SENSITIVITY (for 500 mW output) .....20 μV (6 V)
10 μV (12 V)
SIGNAL TO NOISE RATIO .....26 dB (at 56 μV signal input)
SELECTIVITY ..... 20 dB (at 10 KHz off-tuning from 1000 KHz)
OUTPUT POWER .....Maximum 1.6 W (12 V)
1.0 W (6 V)
Undistorted 1.0 W (12 V)
0.6 W (6 V)
POWER SUPPLY .....12 V and 6 V (Reversible ground polarity)
CURRENT DRAIN .....400 mA (12 V) 700 mA (6 V)

SPEAKER .....4″ permanent dynamic type
4 ohm voice coil impedance
TRANSISTORS .....2SA322~RF Amplifier
2SA322~Converter
2SA202~1st IF Amplifier
2SA203~2nd IF Amplifier
2SB186~Audio Driver
2SB474~Power Amplifier
DIODES .....1S188~Detector
1S188~AGC
DIMENSIONS .....Width~160 mm (6-1/2″)
Hight~ 50 mm (2″)
Depth~120 mm (4-13/16″)
SHAFT SPACE .....130 mm (Distance between both control shafts)
WEIGHT .....1.1 kg (2.5 lbs)

CONSTRUCTION



STANDARD ACCESSORIES

PART NO.	DESCRIPTION			Q'TY
R-R7006	Noise Suppressor Resistor			1
R-C4005	Noise Suppressor Capacitor			1
R-S1044	Spare Fuse 1A			1
R-S1170a	Extension Speaker Plug			1
R-111663a	Mounting Angle			2
R-111685	Mounting Metal (Perforated)			1
	Hex Hd Machine Screw	5×8	ISO	3
	Hex Hd Machine Screw	6×30	ISO	3
	Hex Nut Type-1	6ø	ISO	3
	Spring Washer	6ø		3
	Washer	6ø		6
	Spring Washer	5ø		3
	Washer	5ø		3
R-477453	Instruction Book			1

PARTS LIST

PART NO.	DESCRIPTION	Q'TY
(HOUSING)		
R-117563a	Casing Metal	1
R-112086b	Front Metal	1
R-117560	Top Metal	1
R-A397186	Front Panel Assembly	1
R-397186	Front Plastic	1
R-387052	Dial Scale	1
R-267337	Badge	1
R-36147a	Back Screen	1
R-S8729	Pointer	1
R-397187	Tuning Knob	1
R-397187L	Volume Knob	1
R-24950	Hex Nut - control shaft	2
R-24523	Hex Nut - front panel assy	2
R-113232	Special Washer	4
R-S87350	Tuning Shaft	1
R-24709a	Guide Shaft	1
R-24797a	Guide Shaft	1
R-12325	Spring	1
R-	Didal Cord 0.5% tetron 350mm	1
R-15095a	Tension Spring - dial cord	1
R-32408	Insulator Base - jack mtg	1
R-34091	Insulator washer	1
R-26797b	Heat Sink - power transistor	1

SCHEMATIC LOCATION	PART NO.	DESCRIPTION
(SEMICONDUCTORS)		
Tr1	2SA322	Transistor (black mark)
Tr2	2SA322	Transistor (no mark)
Tr3	2SA202A	Transistor
Tr4	2SA203A	Transistor
Tr5	2SB186A	Transistor
Tr6	2SB474	Transistor (w/ a mylar sheet two insulator pipe)
D1 D2	1S188	Diode
(CONTROLS)		
L2 - L5	R-S87225	Tuner Assembly
R18	R-R124725	Variable Resistor - volume control
CT1	R-C0707	Trimmer 60pF
CT2	R-C0029d	Trimmer 65pF
CT3	R-C0028d	Trimmer 50pF
	R-S4743	Slide Switch - 6V/12V
(COILS & TRANSFORMERS)		
L1	R-W1016d	Choke Coil 10 μH
L6	R-W1015d	Choke Coil 6 μH
T1	R-W8210	Oscillator Coil
T2	R-W5T151a	IF Transformer
T3	R-W5T152	IF Transformer
T4	R-W5T069	IF Transformer
T5	R-W5T088	IF Transformer
T6	R-W6158a	Input Transformer
T7	R-W6328	Output Transformer
(MISCELLANEOUS)		
SP	R-S6374① a	Speaker 4" 4 ohms
	R-S2156①	Antenna Receptacle
	R-S2139	Jack - EXT. SP
	R-S1715	Pilot Lamp
	R-S2735	Pilot Socket
	R-S1102a	Polarity Reverse Plug
	R-S2164	Polarity Reverse Socket
	R-S1286	Fuse Holder
	R-23204L	Lug Plate - for transistor

SCHEMATIC LOCATION	PART NO.	DESCRIPTION
(FIXED VALUE CAPACITORS)		
C2	R-CKD200K	20pF ±10% Ceramic
C3 C6	R-CQS103Y	0.01 μF +30% Mylar
C4 C19	R-CQS403Y	0.04 μF +30% Mylar
C5	R-CKD121K	120pF ±10% Mylar
C7	R-CQS502Y	0.005 μF +30% Mylar
C8	R-CQS102Y	0.001 μF +30% Mylar
C9	R-CKD400K	40pF ±10% Ceramic
C10	R-CQT161K	160pF ±10% 250V Styrol
C11 C16	R-CKD030K	3pF ±0.5pF Ceramic
C13	R-CKD050K	5pF ±0.5pF Ceramic
C14 C15		
C18 C29	R-CKD403Z	0.04 μF +80% Ceramic
C17	R-CKD101K	100pF ±10% Ceramic
C20 C25	R-C9060	10 μF 10WV Electrolytic
C21 C22	R-C9101	200 μF 10WV Electrolytic
C23	R-C9173	200 μF 3WV Electrolytic
C24	R-C9127a	500 μF 15WV Electrolytic
C27	R-CMT504M	0.5 μF ±20% 150V M.P.
C28	R-CQS223Y	0.022 μF +30% Mylar
C30	R-C9162	500 μF 10WV Electrolytic
(FIXED VALUE RESISTORS)		
R1 R23	R-R561K	560 ohms ±10% 1/4W
R2 R16	R-R103K	10K ohms ±10% 1/4W
R3 R6		
R10 R13	R-R102K	1K ohms ±10% 1/4W
R4	R-R303K	30K ohms ±10% 1/4W
R5	R-R272K	2.7K ohms ±10% 1/4W
R7	R-R203K	20K ohms ±10% 1/4W
R8 R20	R-R682K	6.8K ohms ±10% 1/4W
R9	R-R124K	120K ohms ±10% 1/4W
R11	R-R182K	1.8K ohms ±10% 1/4W
R12	R-R822K	8.2K ohms ±10% 1/4W
R14	R-R153K	15K ohms ±10% 1/4W
R15 R36	R-R331K	330 ohms ±10% 1/4W
R17	R-R271K	270 ohms ±10% 1/4W
R19	R-R333K	33K ohms ±10% 1/4W
R21	R-R820K	82 ohms ±10% 1/4W
R22	R-R222K	2.2K ohms ±10% 1/4W
R24	R-R271J	270 ohms ±5% 1/4W
R25	R-R180J	18 ohms ±5% 1/4W
R26 R29	R-R7007	2.2 ohms ±10% 1/4W wire-wound
R27	R-R560K	56 ohms ±10% 1/4W
R28	R-R151K	150 ohms ±10% 1/4W

DESCRIPTION		Q'TY
(FASTENERS)		
Bind Head Machine Screw	3 × 8 ISO	5
Bind Head Machine Screw	3 × 10 ISO	2
Bind Head Machine Screw	3 × 6 ISO	2
Bind Head Machine Screw	3 × 4 ISO	19
Hex Nut	3ø	9
Spring Washer	3ø	6
Washer	3.3 × 10 × 1t	4
Fiber Washer	3 × 8 × 1.5t	2
Pan Head Machine Screw	3 × 4 ISO	2
Round Head Rivet	3 × 6	1
Round Head Rivet	2 × 4	3

POLARITY REVERSE

The polarity reversing plug must be positioned correctly before installing your [illegible] or making any electrical connections to the radio.

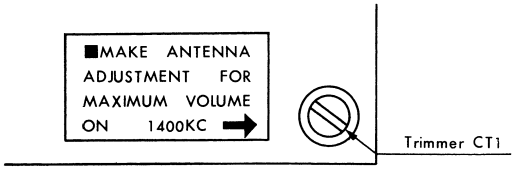
Set the polarity plug to the positive position if the positive terminal of the battery is grounded to the car.

Set the polarity plug to the negative position if the negative terminal is grounded to the car.

Damage to the radio may result if polarity plug is not positioned correctly before operating.

ANTENNA TRIMMER ADJUSTMENT

With radio installed in car and antenna fully extended, tune in weak station near 1400 KHz and adjust CT1 for maximum output.



ALIGNMENT PROCEDURES

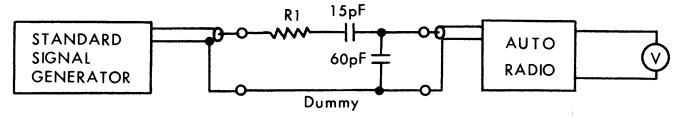
Check power supply voltage (13.2 V) and ground polarity.
Volume control should be at maximum position.

Signal generator output:	Modulation frequency 400 Hz Percentage modulation 30% Signal level just high enough to provide meter deflection.
Signal supply inlet:	Antenna receptacle through the dummy.
Output meter connection:	Through extension outlet

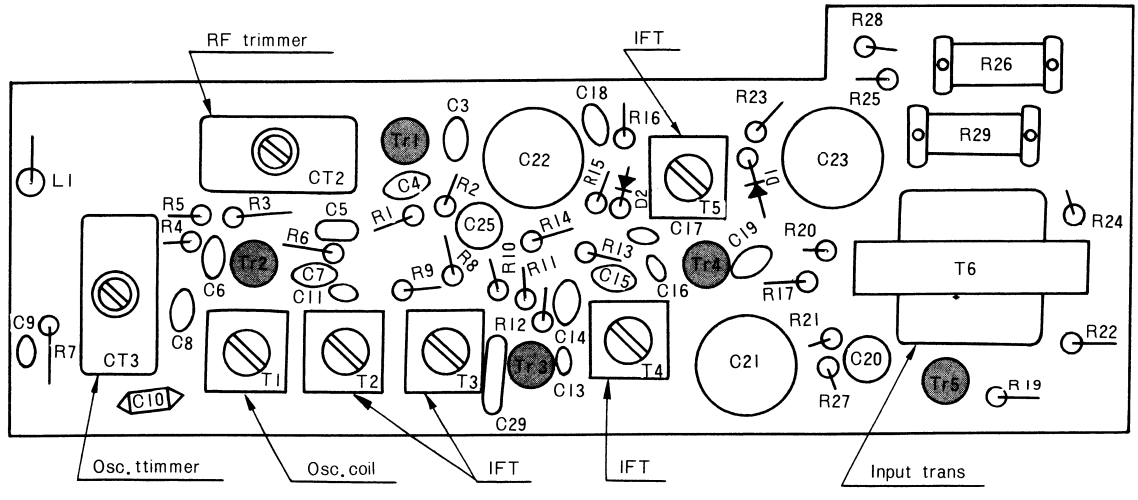
STEP	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	ADJUST FOR MAXIMUM OUTPUT
IF Alignment				
1.	Thru dummy to antenna receptacle.	455 KHz	Low frequency end stop	IF transformer T2, T3, T4, T5
RF Alignment				
2.	Thru dummy to antenna receptacle.	600 KHz	600 KHz	Oscillator coil T1
3.		1400 KHz	1400 KHz	Oscillator trimmer CT3
4.		1400 KHz	1400 KHz	RF trimmer CT2 Antenna trimmer CT1

*Repeat steps 2, 3 and 4.

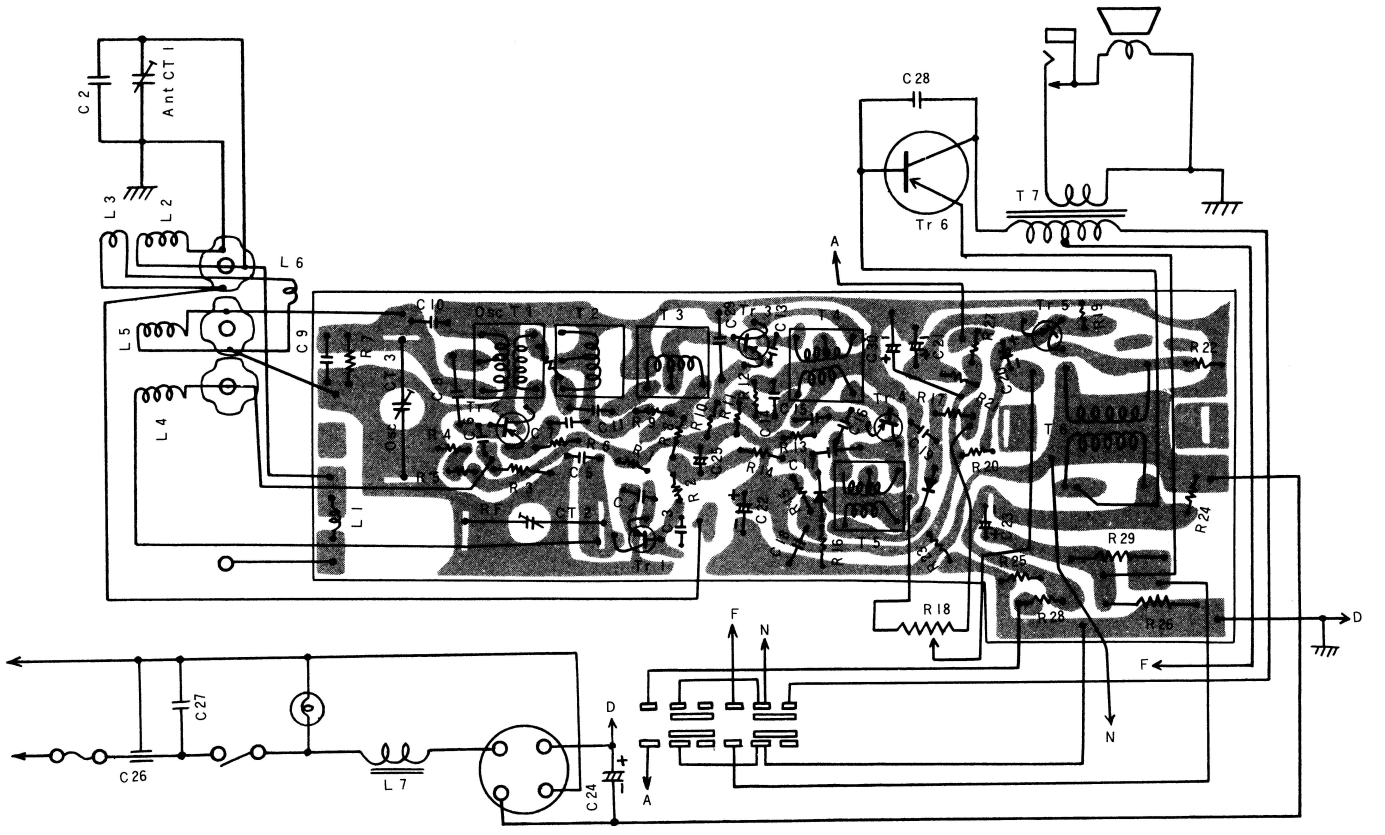
NOTE:
1. It is unnecessary to adjust tuner assembly at the points of 600 KHz and 1400 KHz because the assembly is completely line-uped.
2. Alignment is usually to be taken at points of 600 KHz and 1400 KHz, but it may be possible to obtain 530 KHz to 1605 KHz tuning range by adjusting at both lower and upper end of receiving band.



MAIN PARTS IDENTIFICATION ILLUSTRATION



INTER-PARTS LOCATION



SCHEMATIC DIAGRAM