SANYO

ALL-TRANSISTOR CAR RADIO

MODEL F-8204

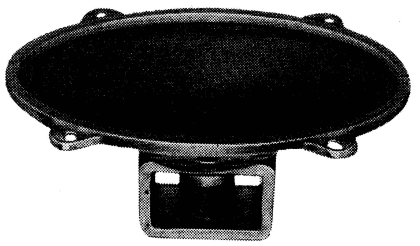
SERVICE MANUAL

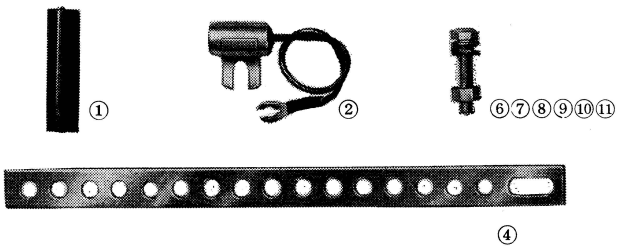
SANYO ELECTRIC CO., LTD.
INTERNATIONAL DIVISION. : SANYO ELECTRIC TRADING CO., LTD.
OSAKA, JAPAN.

SPECIFICATIONS

CIRCUIT SYSTEM ..... 7 transistor plus 2 diode super-heterodyne with an RF amplification, manual tuning and push-button tuning
FREQUENCY RANGE ..... MW 530–1,605Kc
INTERMEDIATE FREQUENCY 455Kc
SENSITIVITY ..... 10μV (500mW output)
SIGNAL TO NOISE RATIO ..... 27dB (at 50μV signal input)
SELECTIVITY ..... 20dB (at 10Kc off-tuning from 1000Kc)
OUTPUT POWER ..... Undistorted 4.0W (12V)
2.0W (6V)
Maximum 6.0W (12V)
3.0W (6V)
FIDELITY ..... 100c/s –2dB
400c/s 0dB
4000c/s –12dB
POWER SUPPLY ..... 12V and 6V (Reversable polarity)
CURRENT DRAIN ..... No signal 300mA (12V)
330mA (6V)
Maximum 1300mA (12V)
1500mA (6V)
LOUDSPEAKER ..... 5″×7″ permanent dynamic
Voice coil impedance 4 ohms
TRANSISTORS ..... 2SA322 RF AMP.
2SA322 Converter
2SA822 1st IF Amp.
2SB186 Audio Amp.
2SB186 Audio Driver
2SB187 Powor Amp. (Pushpull)
DIODES ..... 1S188 Detector
1S188 AGC
THERMISTOR ..... SDT-02 Compensator
DIMENSIONS ..... Width 164mm (6½″)
Hight 51mm (2″)
Depth 164mm (6½″)
SHAFT SPACING ..... 130mm (Distance between control shafts)
WEIGHT ..... 1.4Kg. ((3.1 lbs)

ACCESSORIES





Refference Number	Item	Rating	Q'ty
①	Noise suppressor resistor	R-R7006	5
②	Noise suppressor capacitor	R-C4005	2
③	Spare fuse	R-S1246 2A	1
④	Mounting metal (Perforated)	R-111685	1
⑤	Hex bolt	5mm×8mm	1
⑥	Hex bolt	6mm×30mm	1
⑦	Hex nut	6mm	1
⑧	Spring washer	6mm	1
⑨	Spring washer	5mm	1
⑩	Plate washer	6mm	2
⑪	Plate washer	5mm	1
⑫	Speaker with box	5″×7″ oval type	1

PARTS

Symbol No.	Stock No.	Description	Q'ty
	R-112333	Chassis -metal case	1
	R-112335	Escutcheon panel	1
	R-112334	cover -metal cover	1
	R-28096	Nose panel	1
	R-S8952	Trim plate	1
	R-38075	Dial plate	1
	R-261124	Dial cover	1
	R-112337b	Back screen	1
	R-39194a	Knob	2
	R-39140	Knob	2
	R-24864	Pointer	1
	R-47984	Specification sheet	1
	R-261122	Heat sink -for power transistor	1
	R-112239	Lead clamp -for antenna lead	1
	R-S6324	Speaker 5″×7″ P.D.S. 4 ohm	1
L2-L5	R-S81032	Tuner	1
L1	R-W1016a	Choke coil 10μH	1
L6	R-W1015a	Choke coil 6μH	1
T1	R-W8145	Oscillator coil	1
T2	R-W5T151	IF transformer primary of 1st stage	1
T3	R-W5T152	IF transformer secondary of 1st stage	1
T4	R-W5T153	IF transformer primary of 2nd stage	1
T5	R-W5T154	IF transformer secondary of 2nd stage	1
CT1	R-C0047a	Trimmer 50pF (antenna)	1
CT2	R-C0029d	Trimmer 65pF (RF stage)	1
CT3	R-C0028d	Trimmer 50pF (oscillator)	1
L7	R-W6264	Choke coil	1
T6	R-W6265	Input transformer	1
T7	R-W6266	Output transformer	1
C27-29	R-C7003	Spark capacitor 1000pF	3
R16-17	R-R124137	Volume & tone control with switch	1
	R-S3138a	Speaker lead -for set	1
	R-S3139a	Speaker lead -for speaker	1
	R-S2116a	Antenna-receptacle	1
	R-S1207	Pilot lamp	1
	R-S2141	Pilot socket	1
	R-S1204	Fuse holder	1
	R-23204L	Lug plate -for transistor	2
	R-S1102	Polarity reverse plug	1
	R-S2098	Polarity reverse socket	1
	R-S4290	Slide switch -source voltage reverse	1
Transistor			
Tr1-3		2SA322	3
Tr4-5		2SB186	2
Tr6-6		2SB217A	2
Diode			
D1-2		1S188	2
Thermistor			
Th1		SDT-02	1
Electrolylic capactiors			
C18.19.21	R-C9060	10μF 10WV	3
C20.22	R-C9074	200μF 10WV	2
C25.26	R-C9127a	500μF 15WV	2
C16	R-C9126	0.1μF 10WV (A1)	1
C32		400μF	1

Symbol No.	Stock No.	Description				
Fixed resistor						
R1		Carbon film	10K	ohm	±10%	¼W
R2		〃	560	〃	〃	〃
R3		〃	39K	〃	〃	〃
R4		〃	1K	〃	〃	〃
R5		〃	27K	〃	〃	〃
R6		〃	27K	〃	〃	〃
R7		〃	1K	〃	〃	〃
R8		〃	22K	〃	〃	〃
R9		〃	12K	〃	〃	〃
R10		〃	150K	〃	〃	〃
R11		〃	820	〃	〃	〃
R12		〃	15K	〃	〃	〃
R13		〃	330	〃	〃	〃
R14		〃	10K	〃	〃	〃
R15		〃	270	〃	〃	〃
R18		〃	22K	〃	〃	〃
R19		〃	180K	〃	〃	〃
R20		〃	1K	〃	〃	〃
R21		〃	4.7K	〃	〃	〃
R22		〃	4.7K	〃	〃	〃
R23		〃	18K	〃	〃	〃
R24		〃	200	〃	〃	〃
R25		Solid	22	〃	±5%	½W
R26		〃	1K	〃	〃	〃
R27		〃	1K	〃	〃	〃
R28		Carbon film	100K	〃	±10%	¼W
R29		〃	820	〃	+5%	〃
R30		〃	180	〃	〃	〃
R31	R-R7028	Wire wound	0.7	〃	±10%	1W
R32	R-R7030	Flexible	28	〃	〃	4W
R33		Carbon film	120K	〃	〃	¼W
R34		〃	22K	〃	〃	〃
R35		〃	120	〃	±10%	¼W
Fixed capacitors						
C1	Mylar	0.01	μF	+30−20%	50WV	Square
C2	〃	0.01	μF	〃	〃	〃
C3	Ceramic	120	pF	±10%	〃	Insulated
C4	Mylar	0.01	μF	+30−20%	〃	Square
C5	〃	0.005	μF	〃	〃	〃
C6	〃	0.001	μF	〃	〃	〃
C7	Ceramic	40	pF	±10%	〃	Disc
C8	Styrol	160	pF	±10%	250WV	Tubular
C9	Ceramic	5	pF	±0.5%	25WV	Disc
C10	Mylar	0.04	μF	+30−20%	50WV	Square
C11	Ceramic	0.04	μF	+80−20%	〃	Disc
C12	〃	2	pF	±0.5 pF	25WV	Disc
C13	〃	100	pF	±10%	50WV	Insulated
C14	〃	7	pF	±0 5%	25WV	Disc
C15	Mylar	0.01	μF	+30−20%	50WV	Square
C17	〃	0.04	μF	〃	〃	〃
C23	〃	0.01	μF	〃	〃	〃
C24	〃	0.01	μF	〃	〃	〃
C30	M. P.	0.5	μF	±20%	150WV	Tubular
C31	Ceramic	500	pF	±20%	50WV	Disc

6-20053 Printed in Japan

POLARITY REVERSE

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

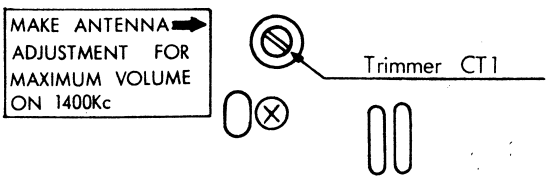
Set the polarity plug to the positive position if the positive terminal of the battery is grounded to the car.

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 a weak station near 1400Kc and adjust CT1 for maximum output.



ALIGNMNT PROCEDURES

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

Signal generator output: Modulation frequency 400cps
Percentage modulation 30%
Signal level just high enough to provide meter deflection.

Signal supply inlet: Antenna receptacle through the dummy.

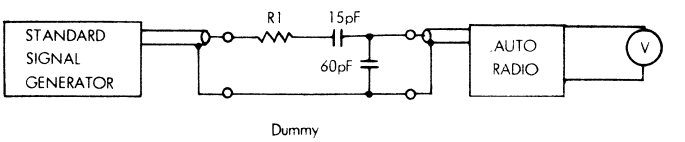
Output meter connection: Through extension outlet.

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

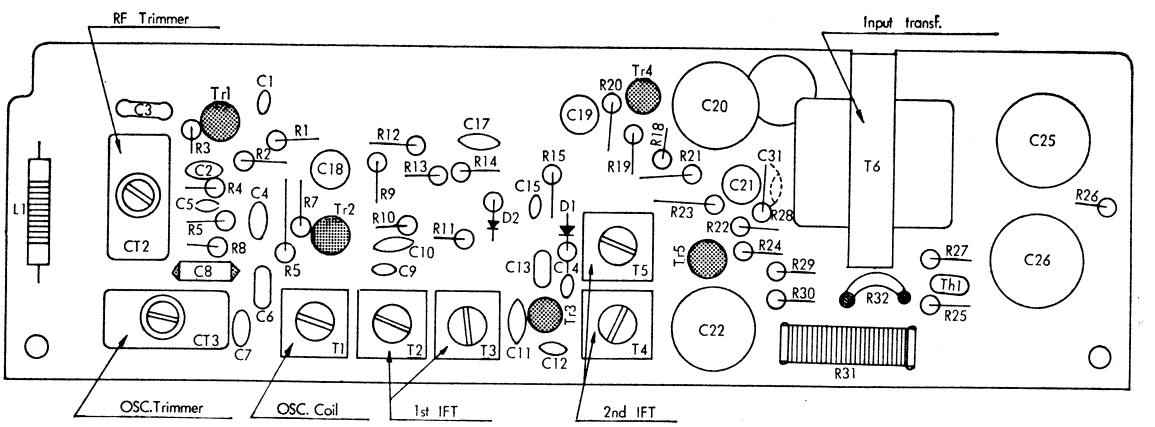
NOTE: 1. It is unnecessary to adjust tuner assembly at the points of 600Kc and 1400Kc because the assembly is completely line-uped.

2. Alignment is usually to be taken at points of 600Kc and 1400Kc, but it may be possible to obtain 530Kc to 1605Kc tuning range by adjusting at both lower and upper end of receiving band.

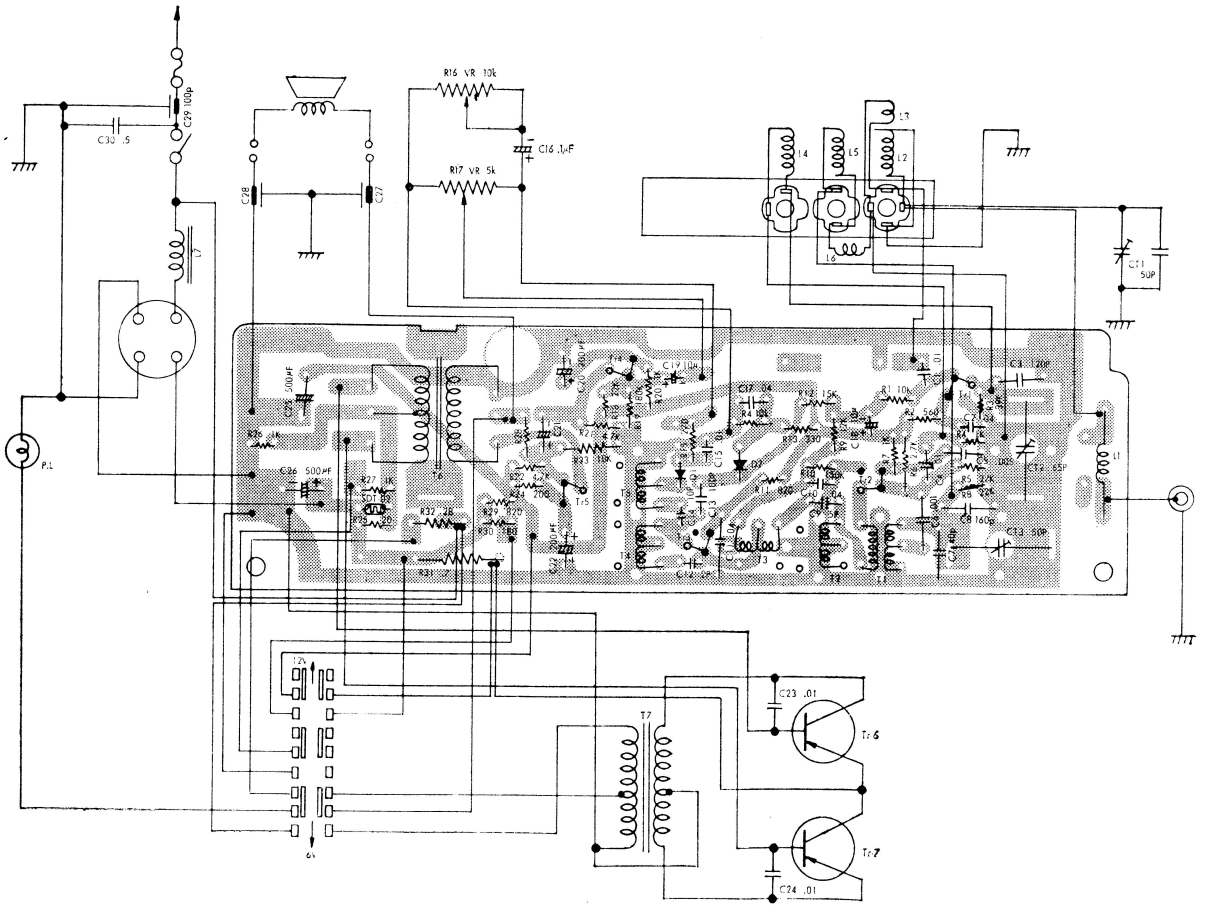
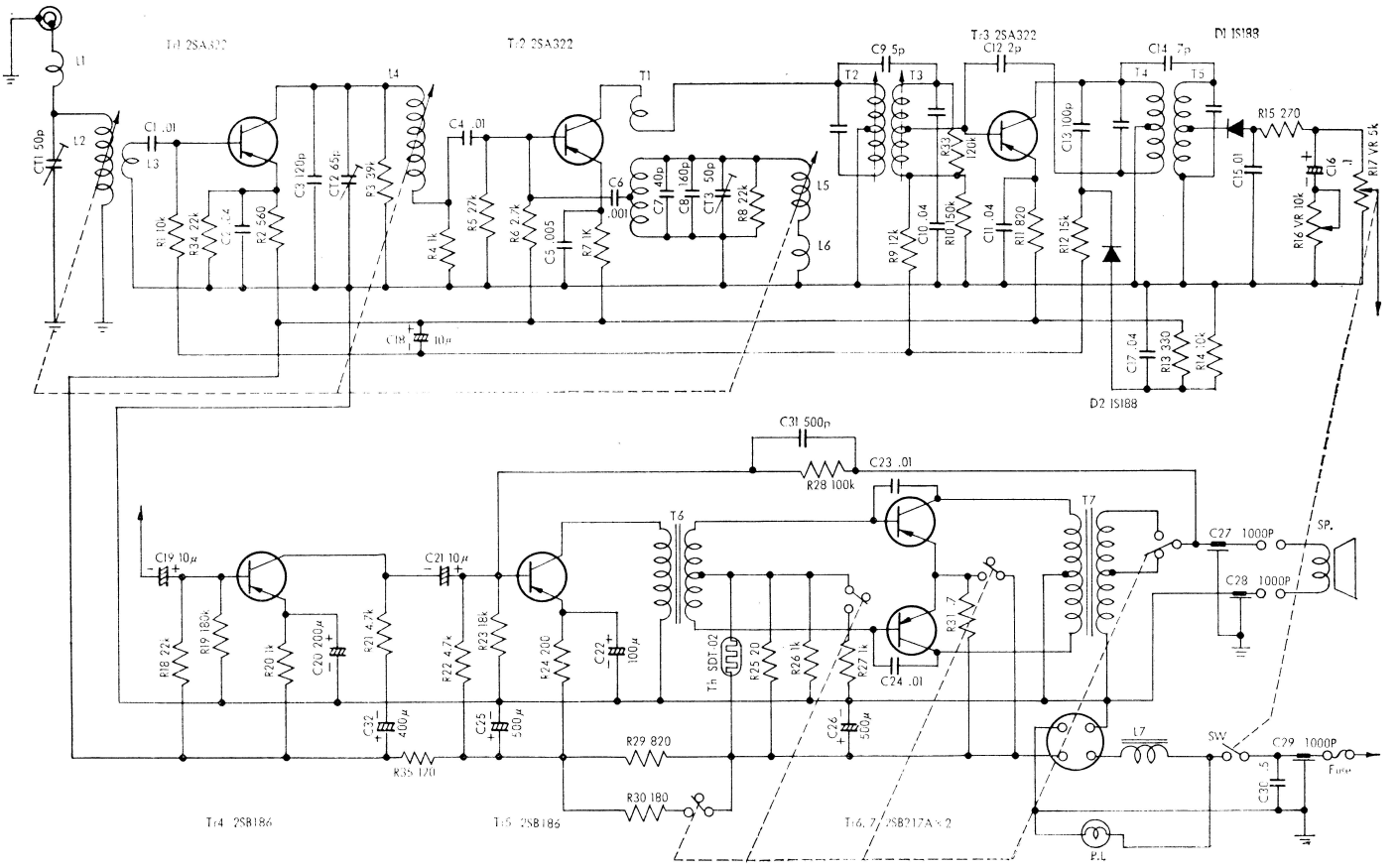
ALIGNMENT CONNECTION



MAIN PARTS LOCATION



MAIN PARTS IDENTIFICATION



CIRCUIT DIAGRAM