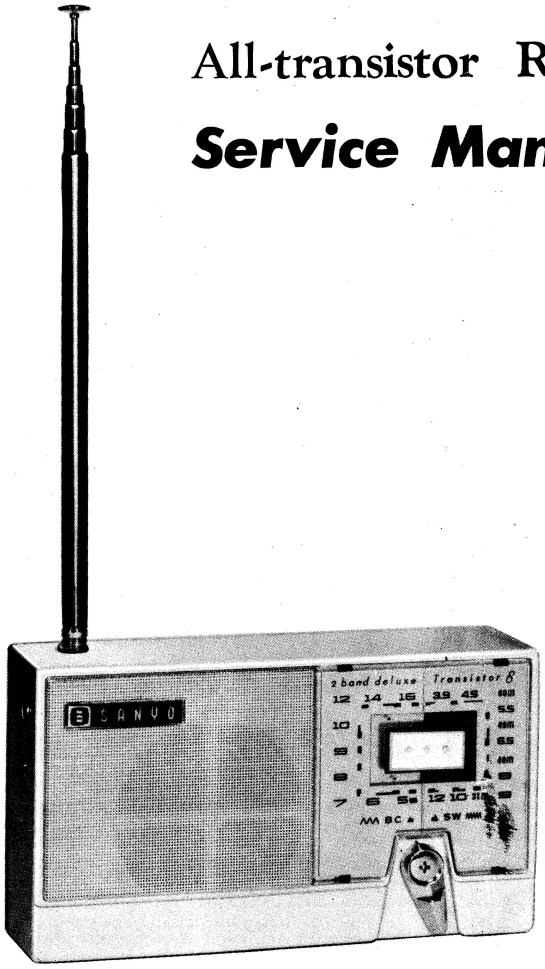
SANYO

MODEL
8S-P20

All-transistor Radio

Service Manual



SPECIFICATIONS

TUNING RANGE

Standard Broadcast Band	540 Kc/s – 1600 Kc/s
Short Wave Band	3. 9 Mc/s - 12.0 Mc/s

INTERMEDIATE FREQUENCY
455 Kc/s

TRANSISTOR COMPLEMENT

(1)	2SA221 (2SA60)	Converter
(2)	2SA202	1st IF Amplifier
(3)	2SA203	2nd IF Amplifier
(4)	2SB185	A.V.C. Amplifier
(5)	2SB185	1st AF Amplifier
(6)	2SB186	2nd AF Amplifier
(7)	2SB187 × 2	Power Amplifier (B class pushpull)

GERMANIUM DIODES & VARISTOR

(1)	IN - 60	Diode, Osc. Voltage Limiter
(2)	IN - 60	Diode, Detector
(3)	SV - 31	Varistor, Temperature Compensator

OUTPUT POWER

Undistorted	150 mW
Maximum	250 mW

RADIATION SENSITIVITY

BC	450 μV/m (Lower limit for 10mW output)
SW	250 μV/m (Lower limit for 10mW output)

BATTERY

Type	6 volts (4 penlight batteries)	
Current drain	No signal	10 mA
	Maximum	65 mA

LOUDSPEAKER

Size & type	2½ inches Permanent dynamic
Voice coil impedance	7 ohms at 1000 c/s

DIMENSIONS

Width	158 mm (6¼ inches)
Height	90 mm (3½ inches)
Depth	45 mm (1¾ inches)

WEIGHT

Approximately 560 grams (20 ozs) (without battery)

SANYO ELECTRIC CO., LTD.

PART NO.	STOCK NO.	DESCRIPTION

CABINET

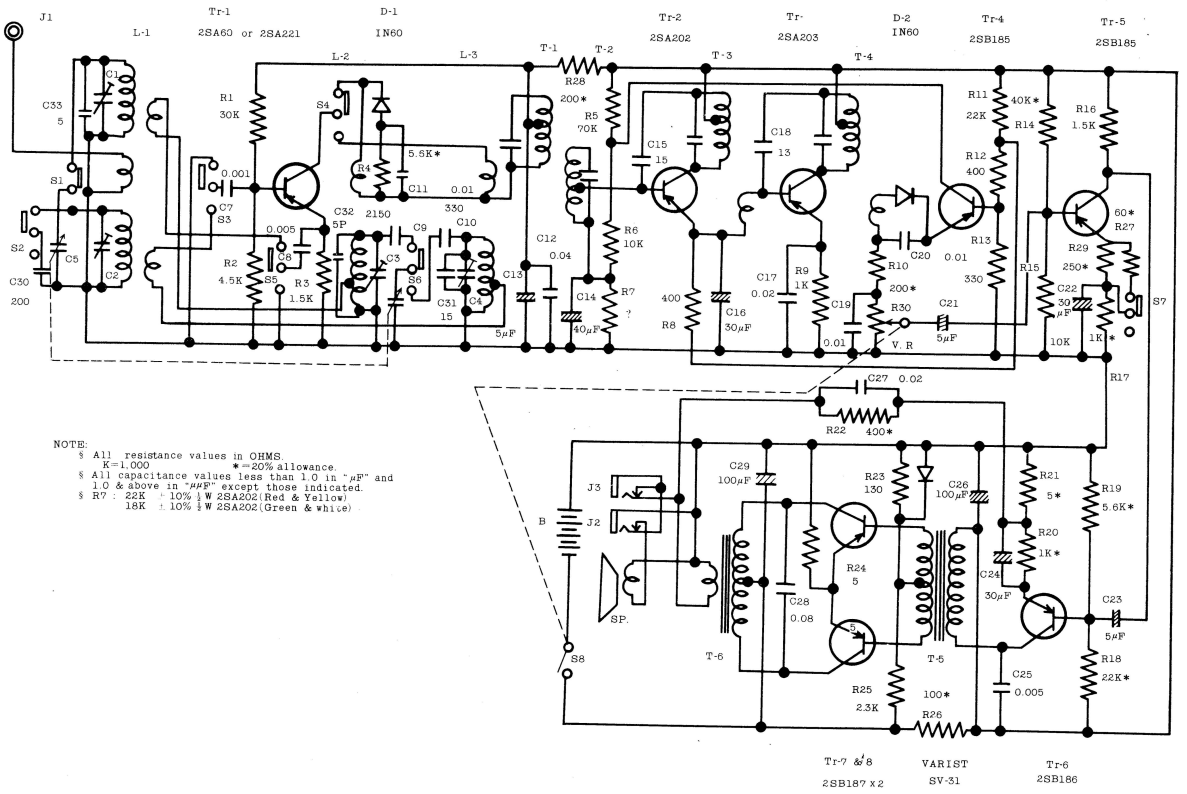
	R-31395	Cabinet
	R-39015a	Speaker grill net
	R-421518	Spacer-paper
	R-26342	Decoration panel
	R-32195	Dial panel
	R-23527	Decoration metal
	R-23474a	"SANYO" badge
	R-31396	Back cover
	R-24031a	Screw to fix back cover to cabinet
	R-13004La	C washer for above screw
	R-31185	Tuning control knob
	R-31186	Volume control knob
	R-28006bL	Band selector knob
	R-24120aL	Screw for B.S knob
	R-33124b	Drum
	R-26343	Pointing plate
	R-23198	Antenna lug plate
	R-15116a	Spring for dial rope

MISCELLANEOUS

	R-S1042	Telescoping rod antenna
	R-S8265	Antenna lead with plug & cup
	R-S2081	Dual earphone jack
	R-S6075	Earphone jack with plug
	R-S1027a	Battery snap terminal
	R-S8019	Battery case
	R-S2025La	Antenna jack

Printed in Japan

Model 8S-P20 Circuit Diagram



NOTE:
§ All resistance values in OHMS
K=1,000 *=20% allowance.
§ All capacitance values less than 1.0 in "μF" and 1.0 & above in "μμF" except those indicated.
§ R7 : 22K ±10% ½W 2SA202(Red & Yellow)
18K ±10% ½W 2SA202(Green & white)

ALIGNMENT PROCEDURES

Apply volt-meter across the voice coil. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain output reading in order to avoid AGC function.

STEP	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	ADJUST FOR MAXIMUM OUTPUT
IF ALIGNMENT				
1	High side through 0.1 mf capacitor to antenna stator lug on tuning gang. Low side to chassis.	455 Kc	upper end	T 4 T 3 T 2 T 1
BROADCAST RF ALIGNMENT				
2	Fashion loop of several turns of wire and radiate signal into loop antenna.	530 Kc	lower end	L 3
3		1650 Kc	upper end	C 4
4		Repeat Step 2 and 3.		
5		600 Kc	600 Kc	L 1b
6		1400 Kc	1400 Kc	C 2
7		Repeat Step 5 and 6.		
SHORTWAVE RF ALIGNMENT				
8	Fashion loop of several turns of wire and radiate signal into loop antenna.	3.8 mc	lower erd	L 2
9		12.5 mc	upper end	C 3
10		Repeat Step 8 and 9.		
11		4.2 mc	4.2 mc	L 1s
12		11.0 mc	11.0 mc	C 1
13		Repeat Step 11 and 12.		

PART NO.	STOCK NO.	DESCRIPTION

TRANSISTORS

Tr 1	2SA60 or 2SA221	Converter
Tr 2	2SA202	1st IF amplifier
Tr 3	2SA203	2nd IF amplifier
Tr 4	2SB185	AGC amplifier
Tr 5	2SB185	1st AF amplifier
Tr 6	2SB186	2nd AF amplifier
Tr 7	2SB187	Power amplifier
Tr 8	2SB187	Power amplifier

DIODES AND VARISTOR

D 1	IN-60	Oscillator voltage limiter
D 2	IN-60	Detector
	SV-31	Temperature compensator

Latest change

SV–31→SDT–20 (Thermistor)

COILS

L 1	R-W2030a	Antenna coil
L 2	R-W3021	Oscillator coil SW
L 3	R-W3052	Oscillator coil BC

TRANSFORMERS

T 1	R-W5T045	1st IF transformer
T 2	R-W5T046	1st IF transformer
T 3	R-W5T047	2nd IF transformer
T 4	R-W5T048	3rd IF transformer
T 5	R-W6021	Input transformer
T 6	R-W6022	Output transformer

CONTROLS

S1...6	R-S4048a	Rotary switch
C5, C6	R-C1025	Variable capacitor
VR	R-R11606a	Volume control
C1...4	R-S8412	4-block trimmer

LOUDSPEAKER

SP	R-S6027	2½″ Permanent dynamic type (7ohms)

PART NO.	STOCK NO.	DESCRIPTION

FIXED CAPACITORS

C 7	0.001	μF	+30,−20%	100V	Mylar
C 8	0.005	,,	,,	,,	,,
C 9	2150	pF	±10%		Styrol
C10	330	,,	,,		,,
C11	0.01	μF	+80,−20%	25V	Ceramic
C12	0.04	,,	,,	,,	,,
C13	5	,,		6V	Electrolytic V-Type
C14	30	,,		,,	,, V-Type
C15	15	pF	±10%	250V	Ceramic
C16	30	μF		6V	Electrolytic V-Type
C17	0.02	,,	+80,−20%	25V	Ceramic
C18	13	pF	±10%	250V	,,
C19	0.01	μF	+80,−20%	25V	,,
C20	0.01	,,	,,	,,	,,
C21	5	,,		6V	Electrolytic T-Type
C22	30	,,		6V	,, V-Type
C23	5	,,		6V	,, V-Type
C24	30	,,		6V	,, V-Type
C25	0.005	,,	+30,−20%	100V	Mylar
C26	100	,,		6V	Electrolytic V-Type
C27	0.02	,,	+80,−20%	25V	Ceramic
C28	0.08	,,	,,	,,	,, (or 0.04μF×2)
C29	100	,,		6V	Electrolytic V-Type
C30	200	pF	±10%	250V	Ceramic
C31	15	,,	,,	25V	,,
C32	5	,,	,,	,,	,,
C33	5	,,	,,	,,	,,

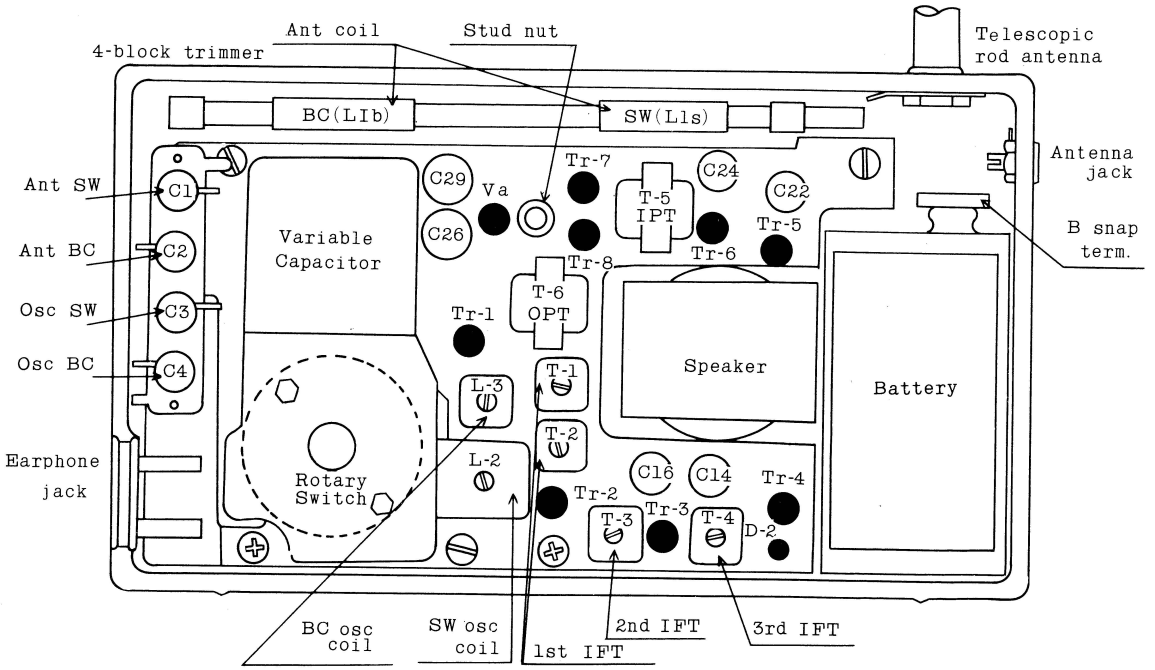
FIXED RESISTORS

R 1	Mold	30K	ohms	±10%	½W
R 2	,,	4.5K	,,	,,	,,
R 3	,,	1.5K	,,	,,	,,
R 4	,,	5.6K	,,	±20%	,,
R 5	,,	70K	,,	±10%	,,
R 6	,,	10K	,,	,,	,,
R 7	,,	18K	,,	,,	,, 2SA202...Green,White
	,,	22K	,,	,,	,, 2SA202...Yellow, Red
R 8	,,	400	,,	,,	,,
R 9	,,	1K	,,	,,	,,
R 10	,,	200	,,	±20%	,,
R 11	,,	22K	,,	±10%	,,
R 12	,,	400	,,	,,	¼W
R 13	,,	330	,,	,,	½W
R 14	,,	40K	,,	±20%	,,
R 15	,,	10K	,,	±10%	,,
R 16	,,	1.5K	,,	,,	,,
R 17	,,	1K	,,	±20%	,,
R 18	,,	22K	,,	,,	,,
R 19	,,	5.6K	,,	,,	,,
R 20	,,	1K	,,	,,	,,
R 21	,,	5	,,	,,	,,
R 22	,,	400	,,	,,	,,
R 23	,,	130	,,	±10%	,,
R 24	,,	5	,,	,,	,,
R 25	,,	2.3K	,,	±5%	¼W
R 26	,,	100	,,	±20%	½W
R 27	,,	60	,,	,,	¼W
R 28	,,	200	,,	,,	½W
R 29	,,	250	,,	,,	¼W

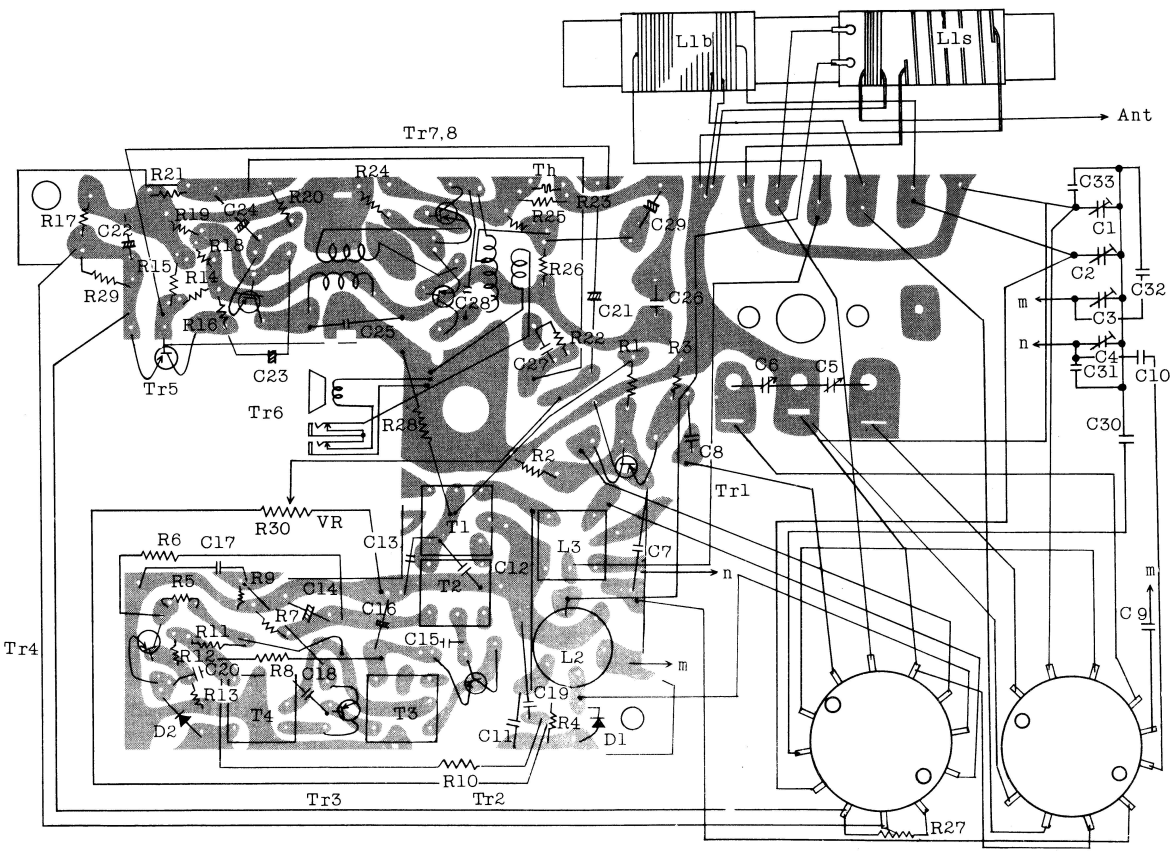
Latest change

R25 2.3K→3.9K

Main Parts Location

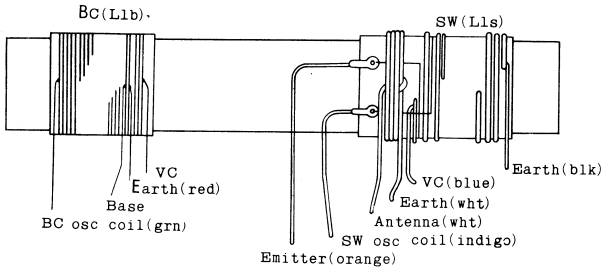


Inter-Parts Connection

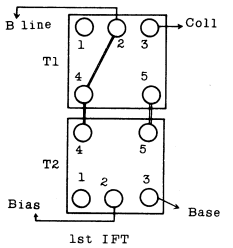


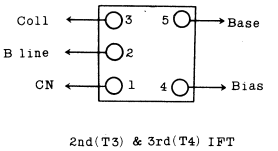
Main Parts Connection

1. Antenna coil(L1)

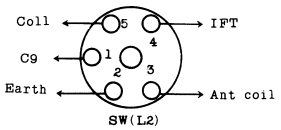


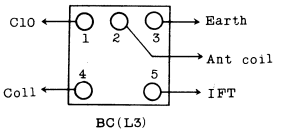
3. IF transformer



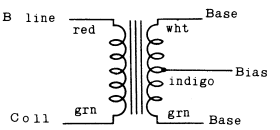


2. Oscillator coil

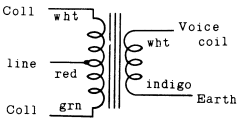




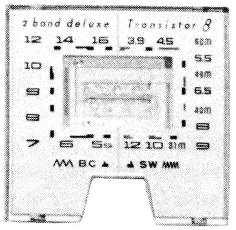
4. Input transformer(T5)



5. Output transformer(T6)



(R-32195)

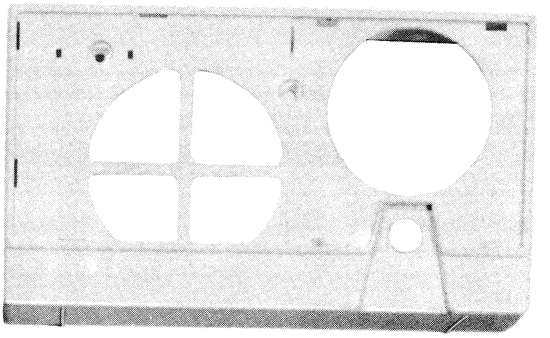


(R-23527)

(R-15116a)

(R-23198)

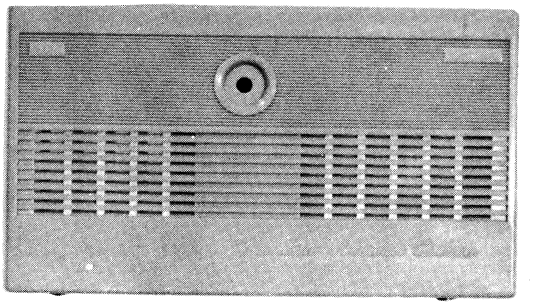
(R-31395)



(R-33124b)

(R-26343)

(R-31396)



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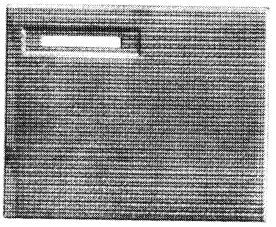

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