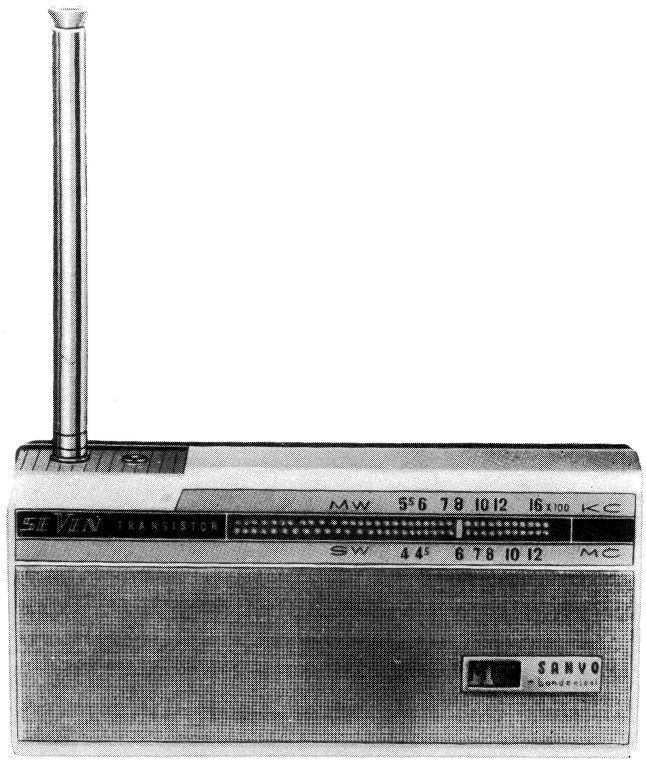
SANYO

MODEL
7S-P9

All-transistor Radio
Service Manual



SPECIFICATIONS

TUNING RANGE

Standard broadcast band	535 Kc/s - 1605 Kc/s
Shortwave band	3.9 Mc/s - 12 Mc/s

INTERMEDIATE FREQUENCY 455 Kc/s

TRANSISTOR COMPLEMENT

2SA60	Oscillator & Frequency Converter
2SA49	1st IF Amplifier
2SA53	2nd IF Amplifier
2SB54	1st AF Amplifier
2SB54	2nd AF Amplifier
2SB56 × 2	Power Amplifier (B class pushpull)

GERMANIUM DIODES & THERMISTOR

1N - 60	Diode ; Oscillation voltage limiter
1N - 60	Diode ; Detector & AGC
D22A	Thermistor ; Temperature Compensator

POWER OUTPUT

Undistorted	130 mW
Maximum	230 mW

RADIATION SENSITIVITY

Lower limit for 10 mW output

BC Band	450 μV/m
SW Band	180 μV/m

BATTERY

Type	6 volts (4 penlight batteries)	
Current consumption	No signal	9 mA
	Maximum	60 mA

LOUDSPEAKER

Size and type	$2\frac{1}{4}$ inches P.M.D.S.
Voice coil impedance	7 ohms at 1000 c/s

Provision is made for connection of a low impedance earphone if desired.

DIMENSIONS

Width	149 mm (6 inches)
Height	74 mm (3 inches)
Depth	38 mm ($1\frac{1}{2}$ inches)

WEIGHT

Approximately 370 grams (13 ozs)/W.O. batteries

SANYO ELECTRIC CO., LTD.

PART NO.	STOCK NO.	DESCRIPTION

CABINET

	R-31342	Cabinet
	R-31343	Back Cover
	R-32133	Dial Cover
	R-23383a	Dial Panel
	R-26237	Decoration Panel
	R-23384	Frame Badge
	R-36042	Band Indicator

Latest Change R-23383a→R-26632

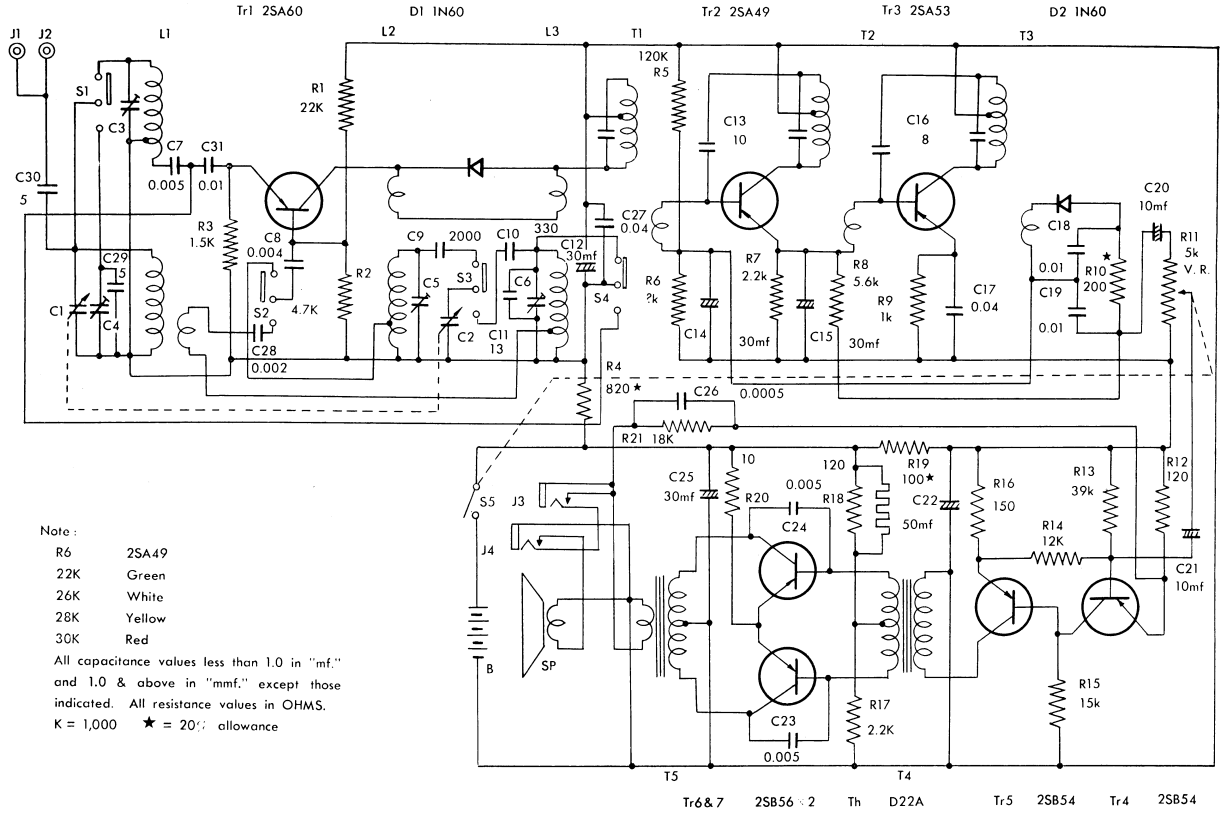
PART NO.	STOCK NO.	DESCRIPTION

MISCELLANEOUS

	R-26238	Back Plate
	R-23385	Pointer
	R-33204	Volume Control Knob
	R-33243	Tuning Knob
	R-32091a	Drum
	R-S8019	Battery Case

Printed in Japan

CIRCUIT DIAGRAM



Note :

R6	2SA49
22K	Green
26K	White
28K	Yellow
30K	Red

All capacitance values less than 1.0 in "mf." and 1.0 & above in "mmf." except those indicated. All resistance values in OHMS.
K = 1,000 ★ = 20% allowance

ALIGNMENT PROCEDURES

Output Meter Alignment

Connect volt-meter with both ends of speaker voice coil, and set the volume control at maximum. Low side of output terminal of Signal Generator shall be grounded to the chassis ground, and output voltage of Signal Generator shall be set at low level so that the automatic gain control shall not function.

STEP	CONNECT HIGH SIDE OF SIGNAL GENERATOR WITH	SELECT SWITCH	SIGNAL GENERATOR OUTPUT FREQUENCY	DIAL POINT SETTING	ADJUST FOR MAXIMUM OUTPUT
1	Connection lug of C5 (Ant. side section of gang) in series with 0.1 μF	M. W.	455 Kc/s	Quiet point near 455 Kc/s	I. F. Trans T-3 T-2 T-1
2	Short wire placed near antenna for signal radiation	M. W.	520 Kc/s	Gang Max. capacitance	Osc. Coil L-3
3		M. W.	1680 Kc/s	Gang fully open	Osc. Trimmer C-6
4		Repeat steps 2 and 3.			
5		M. W.	600 Kc/s	600 Kc/s	Ant. Coil L-1
6		M. W.	1400 Kc/s	1400 Kc/s	Ant. Trimmer C-4
7		Repeat steps 5 and 6.			
8		S. W.	3.8 Mc/s	Gang Max. capacitance	Osc. Coil L-2
9		S. W.	12.5 Mc/s	Gang fully open	Osc. Trimmer C-5
10		Repeat steps 8 and 9.			
11		S. W.	4.2 Mc/s	4.2 Mc/s	Ant. Coil L-1
12		S. W.	11.0 Mc/s	11.0 Mc/s	Ant. Trimmer C-3
13		Repeat steps 11 and 12.			

PART NO.	STOCK NO.	DESCRIPTION

TRANSISTORS

Tr 1	2SA60	Oscillator & Frequency Converter
Tr 2	2SA49	1st IF Amplifier
Tr 3	2SA53	2nd IF Amplifier
Tr 4	2SB54	1st AF Amplifier
Tr 5	2SB54	2nd AF Amplifier
Tr 6	2SB56	Power Amplifier (B class pushpull)
Tr 7	2SB56	Power Amplifier (B class pushpull)

DIODES & THERMISTOR

D 1	IN-60	Oscillation Voltage Limiter
D 2	IN-60	Detector & AGC
T H	D22A	Temperature Compensation

COILS

L 1	R-W2075	SW, BC Antenna Coil with ferrite core
L 2	R-W8024	SW Oscillator Coil
L 3	R-W8025	BC Oscillator Coil

TRANSFORMERS

T 1	R-W5T060	IF Transformer (FMC-6153R)
T 2	R-W5T059	IF Transformer (FMC-5738LH)
T 3	R-W5T039	IF Transformer (FMC-6029R)
T 4	R-W6090	Input Transformer
T 5	R-W6091	Output Transformer

CONTROLS

S1 ... 4	R-S4133	Band Selector
C1 ... 6	R-C1058	Variable Capacitor
R 11	R-R11606a	Volume Control

LOUDSPEAKER

S P	R-S6124	$2\frac{1}{4}''$ PMD type, voice coil impedance 7 ohms

ELECTROLYTIC CAPACITORS

C12+ C22+ C25	R-C9041	30 μF + 50 μF + 30 μF

PART NO.	STOCK NO.	DESCRIPTION

FIXED CAPACITORS

C 7		Mylar	0.005μF	+30-20%	100V
C 8		Mylar	0.004μF	+30-20%	100V
C 9		Mylar	2000pF	+30-20%	100V
C 10		Ceramic	330pF	±10%	
C 11		Ceramic	13pF	±1pF	
C 13		Ceramic	10pF	±1pF	
C 14		Electrolytic	30μF		3V
C 15		Electrolytic	30μF		3V
C 16		Ceramic	8pF		
C 20		Electrolytic	10μF		3V
C 21		Electrolytic	10μF		3V
C 23		Mylar	0.005μF	+30-20%	100V
C 24		Mylar	0.005μF	+30-20%	100V
C 26		Mylar	0.0005μF	+30-20%	100V
C 27		Ceramic	0.04μF	+80-20%	
C 28		Mylar	0.002μF	+30-20%	100V
C 29		Ceramic	5pF	±0.5pF	
C 30		Ceramic	5pF	±0.5pF	
C 31		Mylar	0.01μF	+30-20%	100V

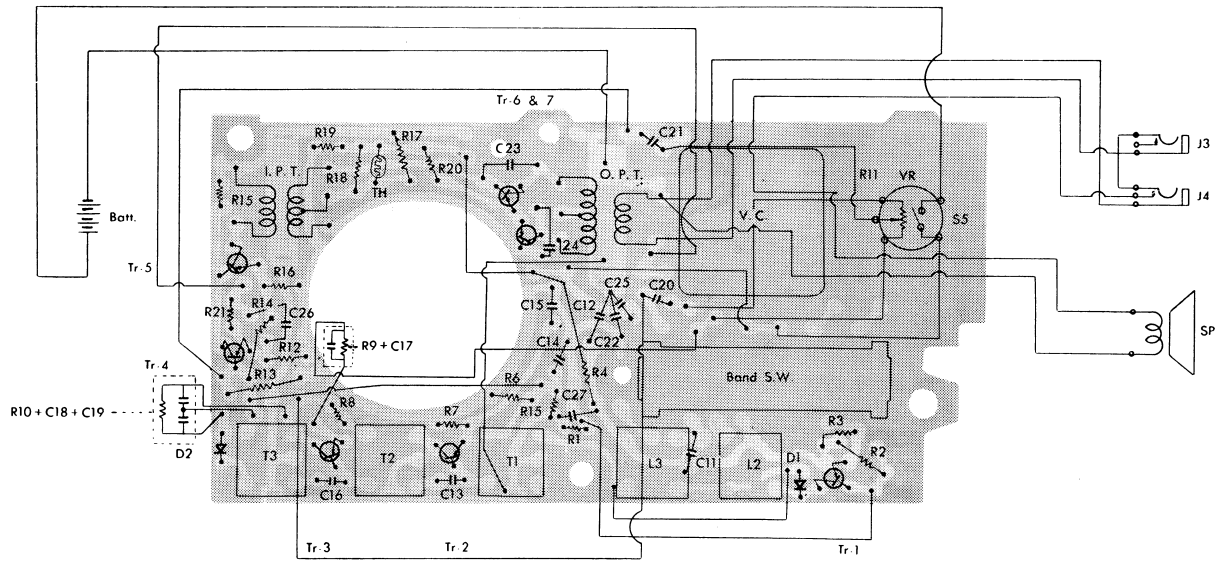
FIXED RESISTORS

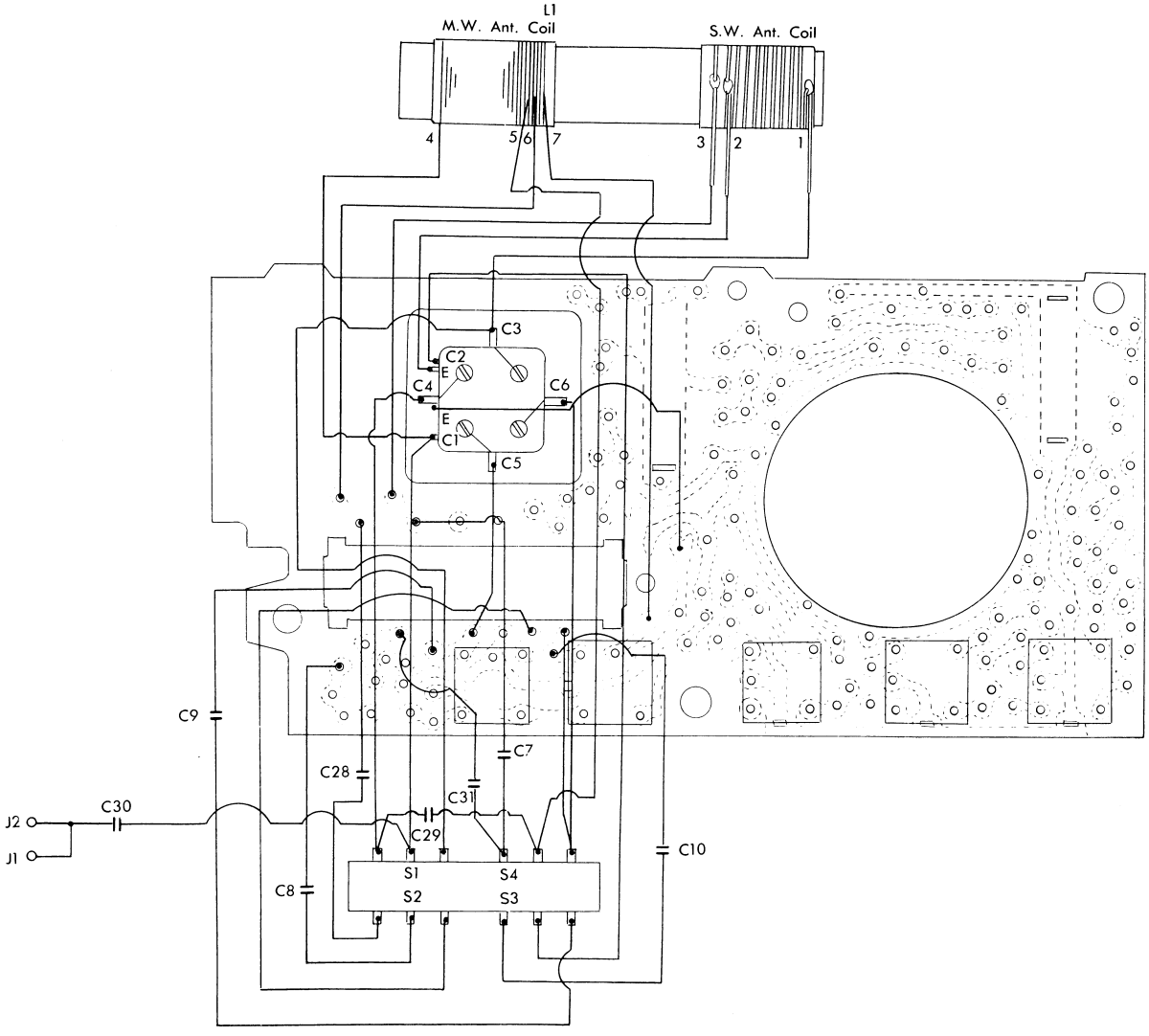
R 1		22K ohms	10%	$\frac{1}{2}$W
R 2		4.7K ohms	10%	$\frac{1}{2}$W
R 3		1.5K ohms	10%	$\frac{1}{2}$W
R 4		820 ohms	20%	$\frac{1}{2}$W
R 5		120K ohms	10%	$\frac{1}{2}$W
R 6		22K ohms	5%	$\frac{1}{2}$W
		26K ohms	5%	$\frac{1}{2}$W
		28K ohms	5%	$\frac{1}{2}$W
		30K ohms	5%	$\frac{1}{2}$W
R 7		2.2K ohms	10%	$\frac{1}{2}$W
R 8		5.6K ohms	10%	$\frac{1}{2}$W
R 12		120 ohms	10%	$\frac{1}{2}$W
R 13		39K ohms	10%	$\frac{1}{2}$W
R 14		12K ohms	10%	$\frac{1}{2}$W
R 15		15K ohms	5%	$\frac{1}{4}$W
R 16		150 ohms	10%	$\frac{1}{2}$W
R 17		2.2K ohms	10%	$\frac{1}{2}$W
R 18		120 ohms	10%	$\frac{1}{2}$W
R 19		100 ohms	20%	$\frac{1}{2}$W
R 20		10 ohms	10%	$\frac{1}{2}$W
R 21		18K ohms	10%	$\frac{1}{2}$W

RESISTOR & CAPACITOR PACKED

R9+C17	R-CXC004	(1K ohm 10% $\frac{1}{4}$W) + (0.04 μF + 100%)
R10+ C18+ C19	R-CXC002	(200 ohm 20%) + (0.01 μF + 100%) + (0.01 μF + 100%)

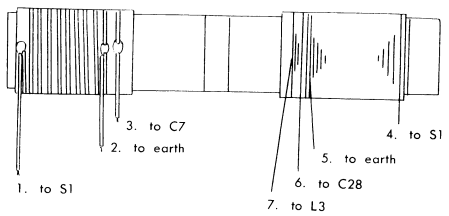
INTER PARTS CONNECTION



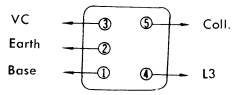


MAIN PARTS CONNECTION

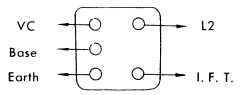
1. Ant. Coil (L1)



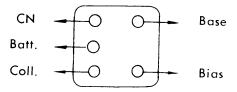
2. SW Osc. coil (L2)



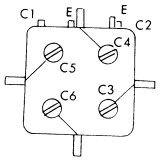
3. MW Osc. coil (L3)



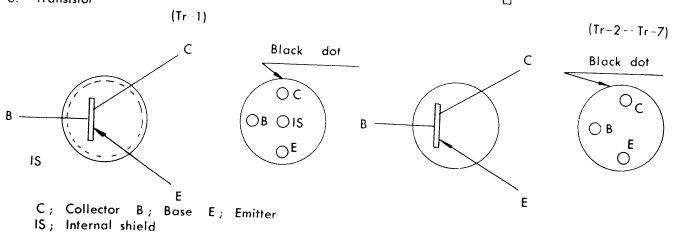
4. I. F. T. (T1 T2 T3)



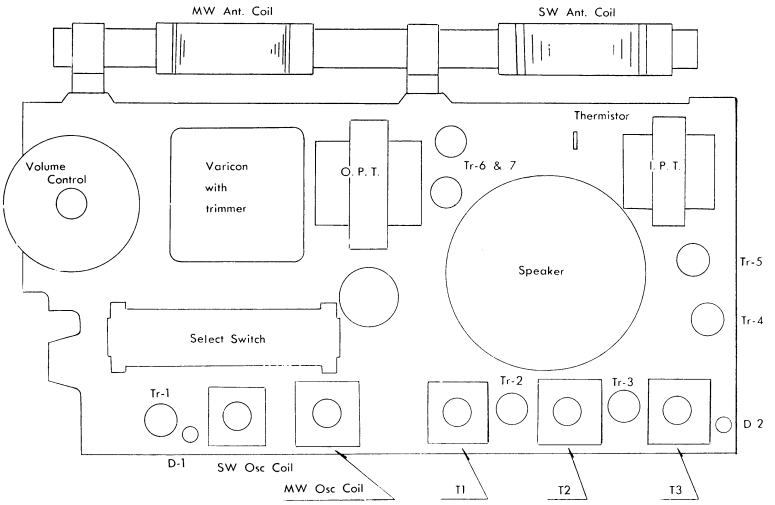
5. V. C.



6. Transistor



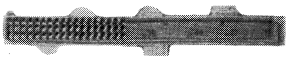
MAIN PARTS LOCATION



(R-26632)

(R-36042)

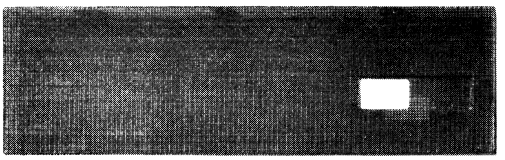
(R-32133)



(R-26238)

(R-23384)

(R-26237)

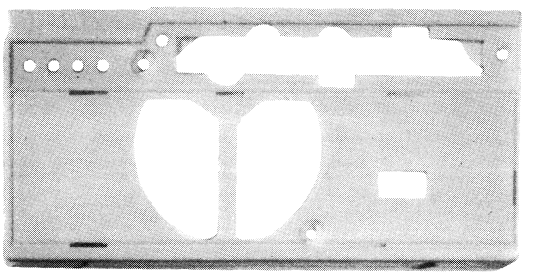
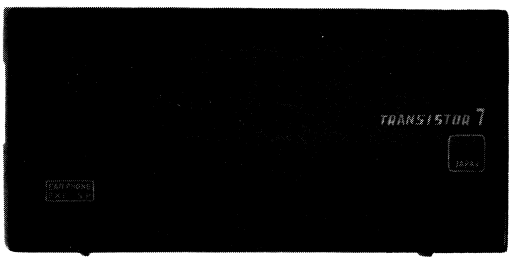


(R-33204)

(R-33243)

(R-32091 a)

(R-31342)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