SANYO

12 - TRANSISTOR, PORTABLE STEREO RADIO-PHONOGRAPH

MODEL G-2210

SERVICE MANUAL

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

SPECIFICATIONS

Circuitry; 3-band 12-transistor superheterodyne 3-speed portable stereo radio-phonograph

Frequency Range; BC 530–1605 KC; SW1 3.9– 8 MC; SW2 9.5– 18 MC

Intermediate Frequency; 455KC

Output Power; Maximum 0.5W (Each channel); Undistorted 0.4W (〃)

Speakers; Two 2¾″×7″ Permanent dynamic speaker Voice coil impedance 8 ohms

Transistor Complements;
- 2SA223 x1 Local oscillator
- 2SA222 x1 Mixer
- 2SA202 x1 1st IF amplifier
- 2SA203 x1 2nd IF amplifier
- 2SB185 x2 1st AF amplifier
- 2SB186 x2 2nd AF amplifier
- 2SB187 x4 Power amplifier

Diode; 1S188 1x Detector & AGC

Power Requirement; DC 9V 6 size ″D″ flashlight batteries (UM-1x6)

Current Drain; No signal 25mA(radio) 75mA(stereo); Maximum 150mA(radio) 200mA(stereo)

Sensitivity; BC 55μV/m for 10 mW output; SW1 75μV/m for 10 mW output; SW2 80μV/m for 10 mW output

Turn Table; 6¾″ (170 mm) dia.

Pick-up; Ceramic cartridge LP (ST) & SP

Phono Speed; 33–⅓, 45 and 78 rpm

Dimensions; 19⅜″ width × 14¼″ hight×4¼″ depth (492mm×355mm×125mm)

Weight; 4.8 kg 10.6 lbs.

ALIGNMENT PROCEDURES

IF and Broadcast RF alignment

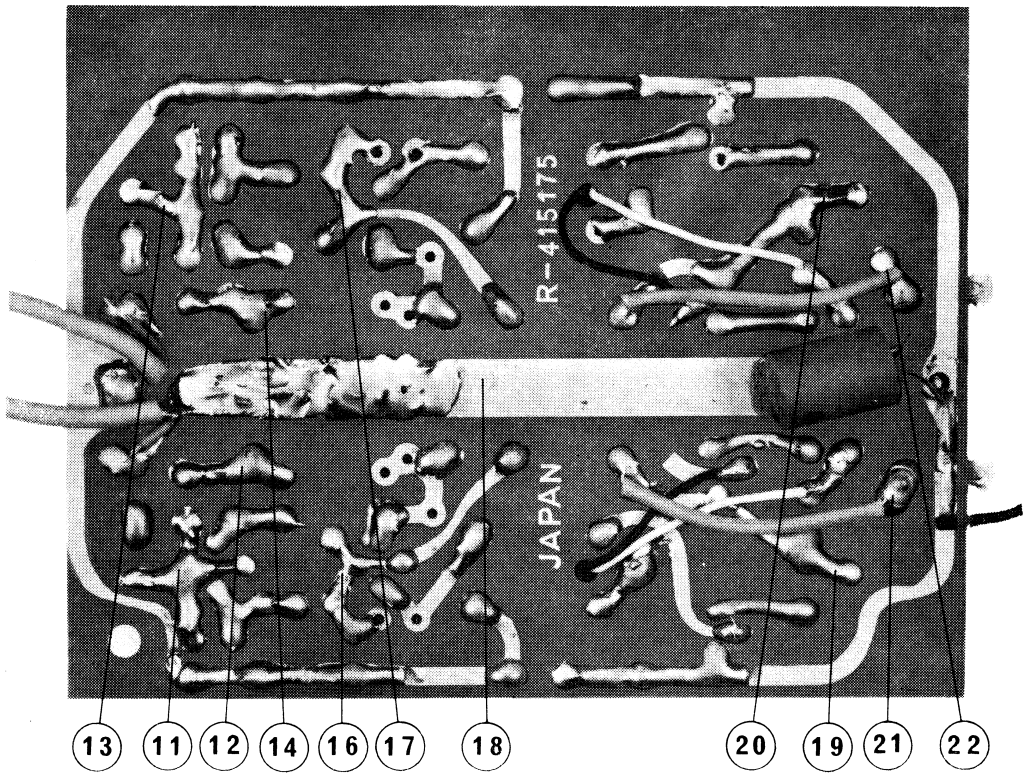
Apply volt-meter across the voice coil.

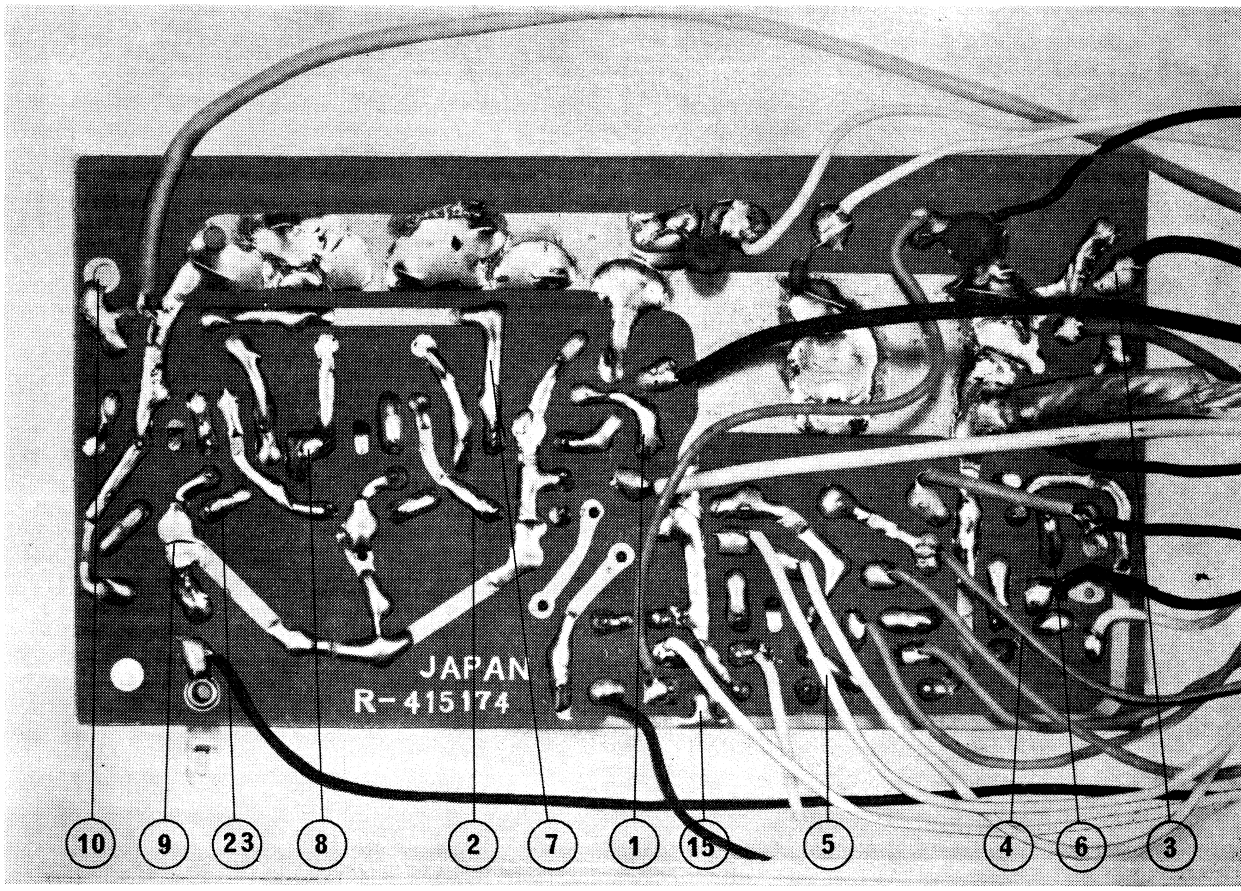
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain proper output reading in order to avoid AGC function.

STEP	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	ADJUST FOR MAXIMUM OUTPUT
＊ *IF ALIGNMENT*				
1	Radiate signal through the loop antenna, which connected with signal generator output cable.	455 kc	Lower end	T-3 T-2 T-1
＊ *BROADCAST RF ALIGNMENT*				
2	Radiate signal through the loop antenna, which connected with signal geneartor output cable.	520 kc	Lower end	BC osc. coil L-4
3		1660 kc	Upper end	BC osc. trim. Vct-3
4		Repeat steps 2 and 3		
5		600 kc	600 kc	BC ant. coil L-1
6		1400 kc	1400 kc	BC ant. trim. Vct-4
7		Repeat steps 5 and 6		
＊ *SHORT WAVE 1 RF ALIGNMENT*				
8	Radiate signal through the loop antenna, which connected with signal generator output cable.	3.86 Mc	Lower end	SW1 osc. coil L-5
9		8.4 Mc	Upper end	SW1 osc. trim. Vct-5
10		Repeat steps 8 and 9		
11		4.1 Mc	4.1 Mc	SW1 ant. coil L-2
12		7.5 Mc	7.5 Mc	SW1 ant. trim. Vct-6
13		Repeat steps 11 and 12		
＊ *SHORT WAVE 2 RF ALIGNMENT*				
14	Radiate signal through the loop antenna, which connected with signal generator output cable.	9.1 Mc	Lower end	SW2 osc. coil L-6
15		18.8 Mc	Upper end	SW2 osc. trim Vct-1
16		Repeat steps 14 and 15		
17		17.7 Mc	SW2 ant. trim. Vct-2 ¾ open	
18			17.7 Mc	SW2 ant. coil L-3
19		Repeat steps 17 and 18		

BOTTOM VIEW OF CHASSIS

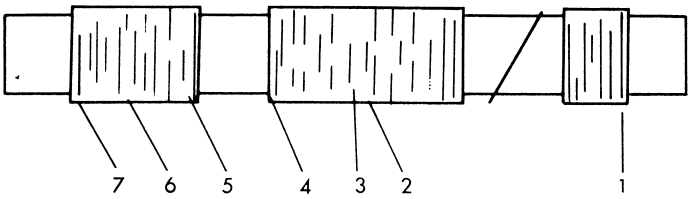
Reference numbers are similar to that of on Circuit Diagram.

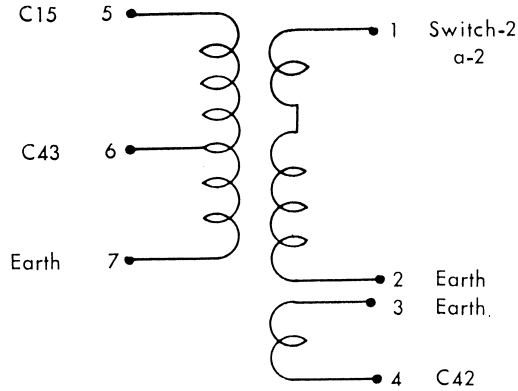




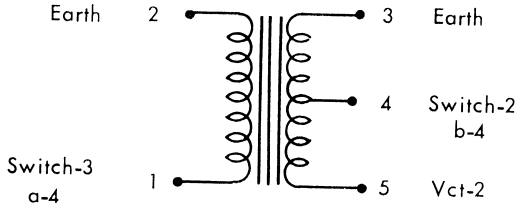
MAIN PARTS CONNECTION

1. *Antenna coil* BC (L-1) SW-1 (L-2)

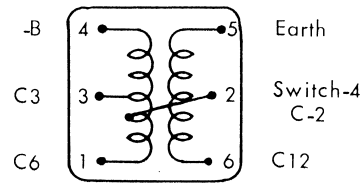




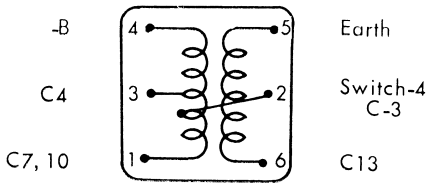
2. *Antenna coil* SW-2 (L-3)



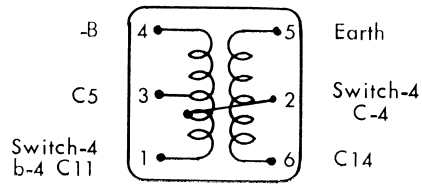
3. *BC. OSC. coil (L-4)*



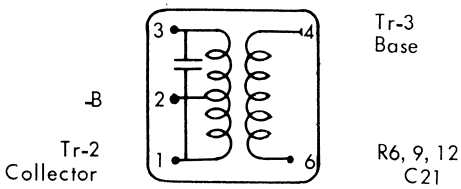
4. *SW-1 OSC. coil (L-5)*



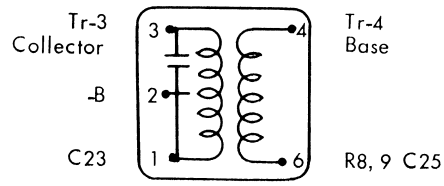
5. *SW-2 OSC. coil (L-6)*



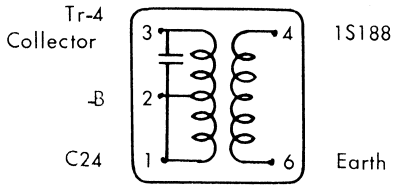
6. *IF. trans. (T-1)*



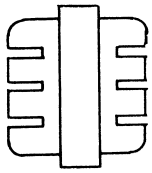
7. *IF. trans. (T-2)*

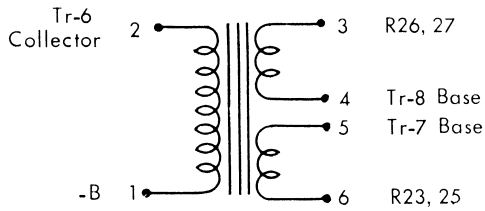


8. *IF. trans (T-3)*

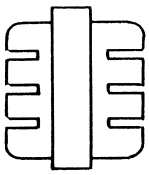


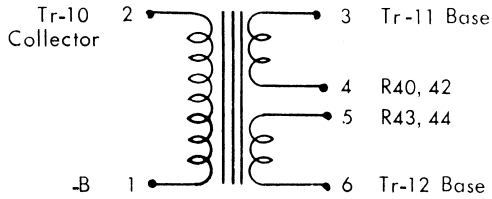
9. *Input trans. (T-4)*





10. *Input trans. (T-5)*





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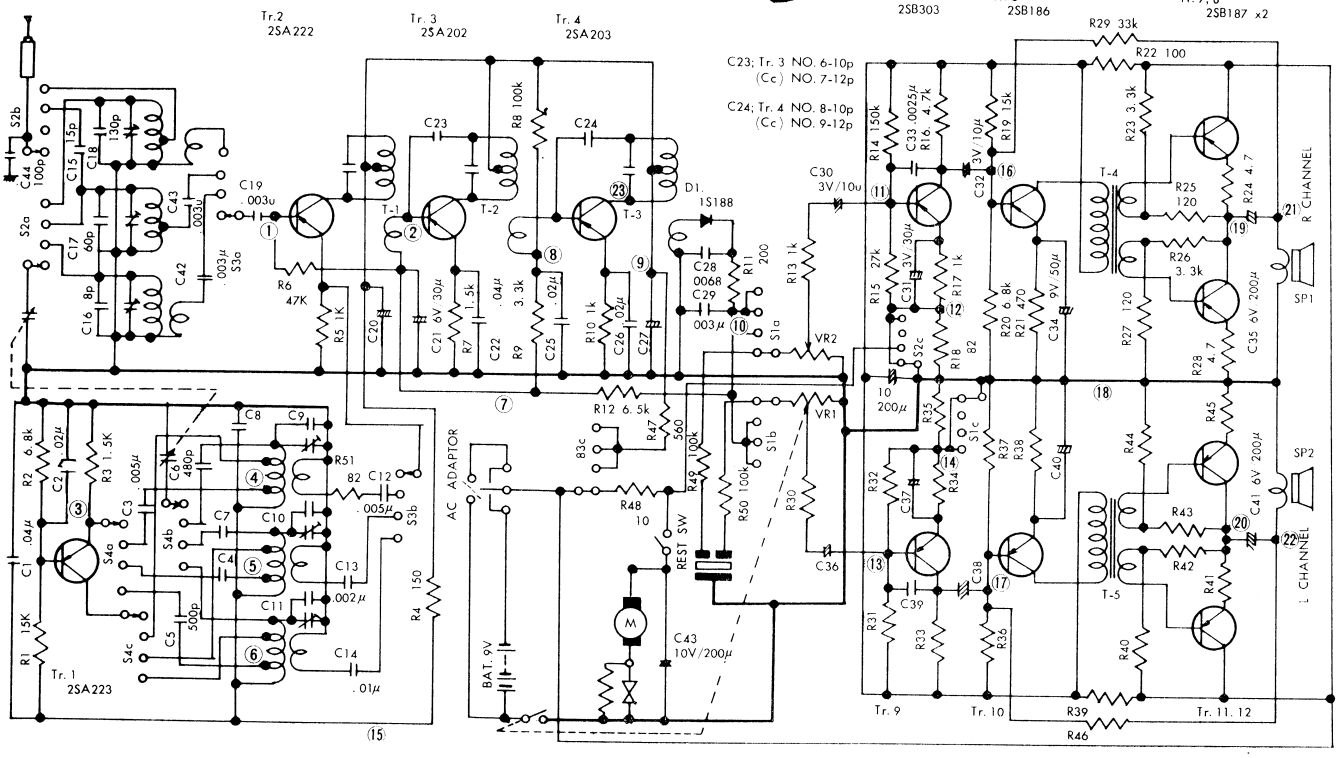
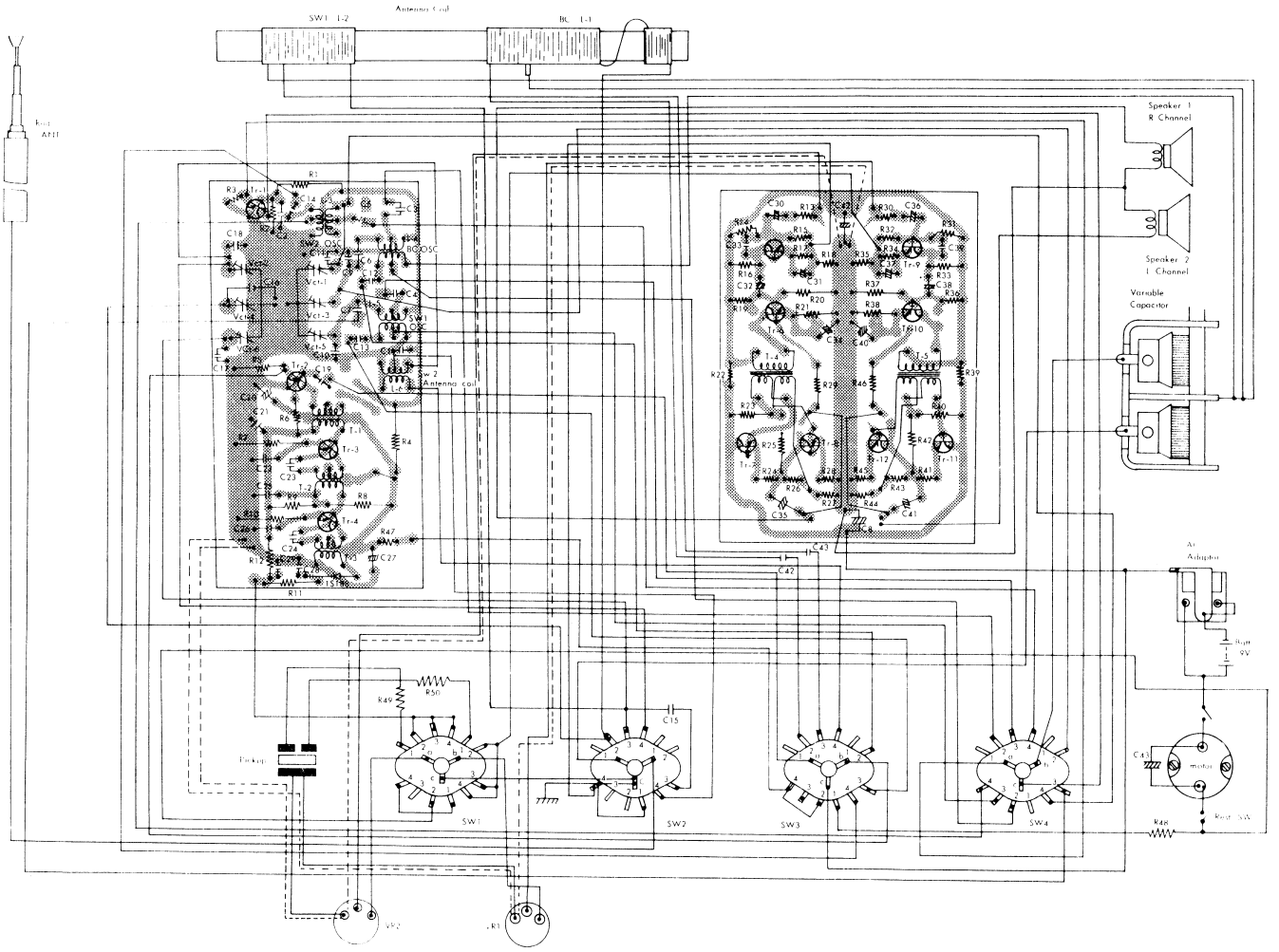
CIRCUIT DIAGRAM



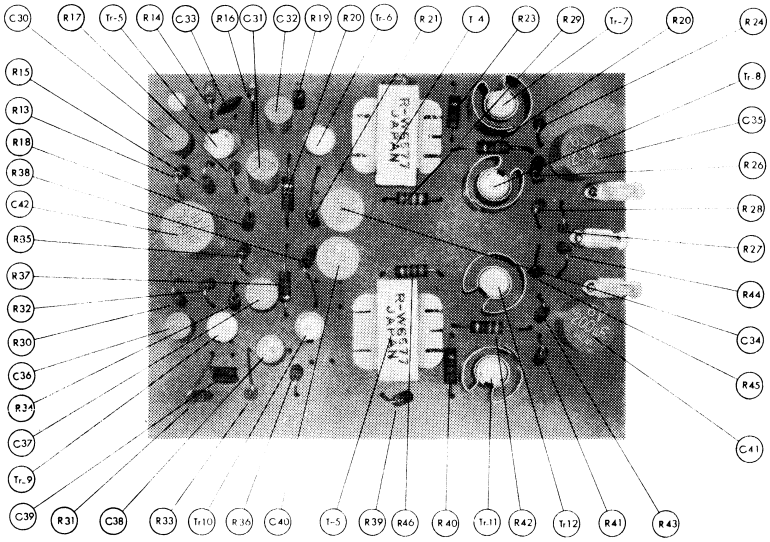
ROTARY SW	C8, 20;	10V/ 50μ		C9;	20p
	C27;	10V/120μ	◯ BC	C10;	95p
◯ SW1	C4,	.002μ	◯→◯ PHONO	C11;	130p
◯ SW2	C7;	4800p			

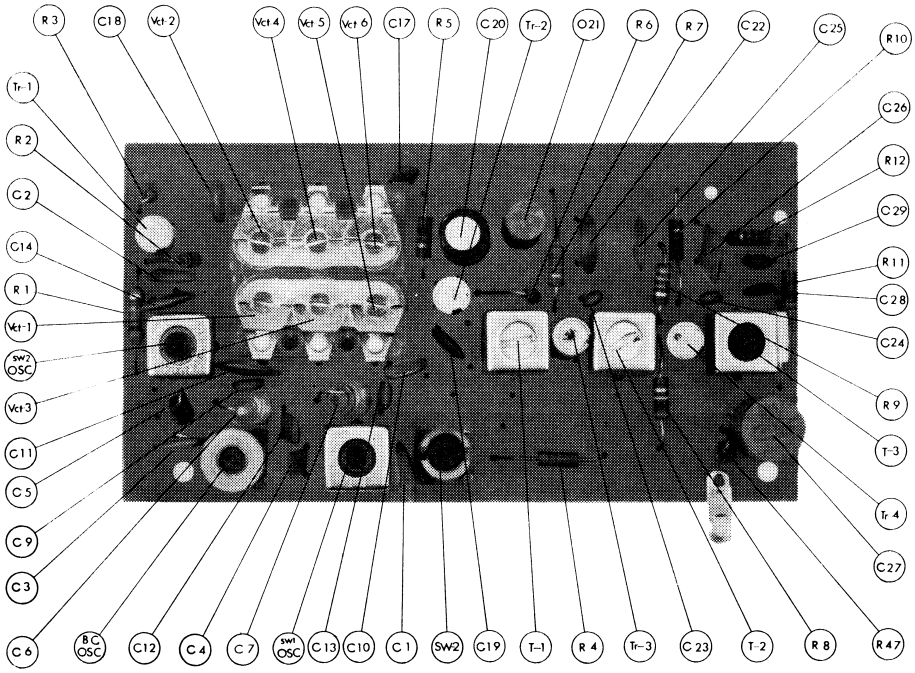
INNER PARTS CONNECTION



MAIN PARTS LOCATION

Reference numbers are similar to that of on Circuit Diagram.





PARTS LIST

STOCK NO.	DESCRIPTION	Q'ty
CABINET		
R-395084a	Back cover	1
R-395085	Top cover	1
R-315149	Cabinet	1
R-325145	Dial scale	1
R-395092	Handle	1
R-395093	Handle cover	1
R-395094	Badge base	2
R-395096	Right food of speaker box	1
R-395097a	Opening and closing knob of cabinet	1
R-365062	Clip of pickup	1
R-275007a	Outside frame of aluminium	2
R-265440	Name plate (Stereo Radio Phonograph)	1
R-265441	Badge (24×25)	2
R-265442	Badge (74×26)	1
R-395095	Left food of speaker box	1
R-245233	Insert nut (Cabinet) 5⌀ BSW	2
R-245234	〃 (Cabinet, food) 5⌀BSW	6
R-245235	〃 (R-325164a) 8⌀ BSW	5
R-245159	〃 (Cabinet)	1
R-245259	〃 (R-395097a)	1
R-245141	〃 (Speaker box)	4
R-395108a	Speaker box (right)	1
R-395109a	〃 (left)	1
R-325163	Black polystyrol of handle below cover	1

STOCK NO.	DESCRIPTION	Q'ty
R-325164a	Knob of screw hole (Cabinet)	5
R-115272	Angle metal of three screw hole	4
R-115273	Blacket metal of antenna coil	2
R-115275	Fix metal of rod antenna	1
R-245246	Opening and closing shaft	2
R-325171a	Knob of screw hole (Cabinet)	2
R-255098	Battery terminal (+)	3
R-235111	Fix metal of battery terminal	2
R-235112	〃	1
R-115278	Opening and colosing switch of cabinet	1
R-255043	Clip of attachment	1
R-245096	Pipe	1
R-44041	Cushion (Rod antenna)	1
	Felt (Knob)	6
R-255057	Coil spring (Battery terminal)	3
R-115291a	Pickup installation metal	1
R-115248d	Lever of pickup	1
R-155014	Coil spring	1
R-265460	Motor cover	1
R-115299	Installation metal of outside frame	10
R-395090	Select knob	1
R-395091	Tuning and VR. knob	3
R-325153	Attachment	1
R-395098	Battery cover	1
R-265439	Decorate metal of knob	3
R-395068	Speed exchange knob	1

PATRS LIST

STOCK NO.	DESCRIPTION	Q'ty
CABINET		
R-445054	Turn table cover	1
R-265444	Decoration metal of turn table	1
R-265461	Decoration metal of tuning knob	1
R-235116	Battery cover installation metal	2
R-245253a	Screw of battery cover	2
R-395107	Hinge of battery cover	2
R-245264a	Metal of battery cover	2
R-115268	Band of motor cover	1
R-245058	Gum (Motor)	1
R-325186	Supplement parts of cabinet	1
R-445063	Cushion (Pickup)	1
R-325192	Supplement parts of speaker box	
R-245262	Insert nut (Speaker box) 6⌀	4
CHASSIS		
R-415174	Printed in circuit board	1
R-415175a	〃	1
R-115270	Chassis	1
R-265443	Back Plate	1
R-235107	Pointer	1
R-235108	Slide of pointer	1
R-115274	Fix metal of pulley	1
R-S85161	Tuning shaft (complete)	1
R-245240	Pulley (8⌀)	2
R-245241	Pulley shaft (6⌀)	2
R-245215	Pulley	2
R-245085	Pulley shaft	2
R-S8145a	Drum (Complete)	1
R-24125a		1
R-15041	Coil spring	1
R-445050	Cushion of VC	4
	Dial rope (0.3⌀ L≒700)	1
R-325017	Pulley	2
ELECTRICAL PARTS		
R-S85160	Antenna coil (complete) Bar coil BC SW-1	1
R-W2580	Antenna coil SW-2	1
R-C1518	Variable capacitor	1
R-C0505	Trimmer	2
R-W8550	OSC coil (BC)	1
R-W8551	〃 (SW-1)	1
R-W8552	〃 (SW-2)	1
R-W5T534	IF trans. (T-1)	1
R-W5T535	〃 (T-2)	1
R-W5T536	〃 (T-3	1
R-R116531	Variable resistor (10kohms) VR-1	1
R-R116532	〃 (10kohms) VR-2	1
R-W6577	Input trans.	2
R-S6593	Speaker	2
R-S5610	Motor	1
R-S6590	Pickup	1
R-S6591	Arm	1
R-S6592	Cartridge	1
R-C9079	Electrolytic capacitor (3V/10μF) C30,32,36,38	4
R-C9080	〃 (3V/30μF) C21,31,37	3
R-C9081	〃 (9V/50μF) C34,40	2
R-9083	〃 (6V/200μF) C35,41	2
R-9549	〃 10V/200μF) C42,43	2
R-C9524	〃 (10V/50μF) C8,20	2
R-9091	〃 (10V/120μF) C27	1
R-S5614	Turn table	1
R-S4550	Rest switch	1
R-S2113	Socket of outside electric source	1
R-S4554	Rotary switch	1
R-S1552	Rod antenna	1
R-23275	Eyelet	4
R-S3063	Lug	5
R-S3522	〃 or R-S3006	2
R-12011	Lug	1
R-S3008	〃	1
2SA223	Transistor Tr-1	1
2SA222	〃 Tr-2	1
2SA202	〃 Tr-3	1
2SA203	〃 Tr-4	1
2SB186	〃 Tr-6,10	2
2SB187	〃 Tr-7,8,11,12	4
2SB303	〃 Tr-5,9	2
1S188	Diode	1
RESISTORS		
R24,28,41,45	47. ohms ±10% ¼–½W Carbon film or	4
R48	10 ohms 〃 〃 carbon composition	1
R18,35,51	82 ohms 〃 〃 fixed resistors	3
R22,39	100 ohms ±20% 〃	2
R25,27,42,44	120 ohms ±10% 〃	4
R4	150 ohms ±20% 〃	1
R11	200 ohms 〃 〃	1
R21,38	470 ohms ±10% 〃	2
R5,10,13,17,30,34	1k ohms 〃 〃	6

STOCK NO.	DESCRPTION	Q'ty
R3,7	1.5k ohms 〃 〃	2
R9,23,26,40,43	3.3k ohms 〃 〃	5
R2,16,33	4.7k ohms 〃 〃	2
R12	6.5k ohms 〃 〃	1
R20,37,12	6.8k ohms 〃 〃	3
R1,19,36	15k ohms 〃 〃	3
R15,32	27k ohms 〃 〃	2
R29,46	33k ohms 〃 〃	2
R6	47k ohms 〃 〃	1
R8,49,50	100k ohms 〃 〃	3
R14,31	150k ohms 〃 〃	2
R47	560 ohms ±20% 〃	1
CAPACITOR		
C6	480 pF ±10% 50 or 25WV Styrol	1
C7	4800 pF 〃 〃 〃	1
C5	500 pF ±20% 50WV Mylor	1
C19,42,43	0.003 μF 〃 〃 〃	3
C3,12	0.005 μF 〃 〃 〃	2
C14,28,29	0.01 μF 〃 〃 〃	3
C2	0.02 μF 〃 〃 〃	1
C4,13	0.002 μF 〃 〃 〃	2
C33,39	0.0025 μF 〃 〃 〃	2
C25,26	0.02 μF+80%,−20% 〃 Ceramic	2
C1,22	0.04 μF 〃 〃 〃	2
C23,24,	10 pF ±10% 25WV 〃	2
or	12 pF 〃 〃 〃	2
C16	8 pF 〃 〃 〃	1
C15	15 pF 〃 〃 〃	1
C9	20 pF 〃 〃 〃	1
C17	60 pF 〃 〃 〃	1
C10	95 pF 〃 〃 〃	1
C44	100 pF 〃 〃 〃	1
C11,13	130 pF 〃 〃 〃	2

SCREWS, WASHERS & NUTS

Pan head screw (3×20)	Cabinet and back cover	1
Oval countersunk head screw (3×25)	〃	4
〃 (3×6)	〃	2
Washer. (3.3×8×0.5t)	〃	1
〃 (M3)	Battery cover	2
C' washer (M2)	Battery cover and R-245243a	4
Washer	R-245264a	4
Oval countersunk head screw (2.6×6)	Outside electric source Terminal	2
〃 (3×10)	Outside frame of aluminium	6
〃 (〃)	Speaker box	4
Countersunk head screw (3×6)	〃	24
〃 (3×40)	Handle	2
Pan head tapping screw (3×6)	Rod antenna	2
〃 (〃)	Rest switch	1
〃 (〃)	P.C. board	2
〃 (〃)	〃	2
〃 (〃)	Antenna coil	2
〃 (3× 8)	Fix metal of battery terminal	3
〃 (3×10)	Speaker	8
〃 (3× 4)	Battery terminal (+)	3
Round head screw (2.6×6)	Opening and closing knob of cabinet	1
Pan head screw (3×10)	Motor	2
〃 (3× 4)	〃	1
〃 (3×20)	Clip of pickup	1
Washer (M3)	Speaker	8
〃 (〃)	Motor	2
Spring washer (M3)	Chassis	4
〃 (〃)	Motor	3
〃 (〃)	Clip of pickup	1
〃 (〃)	Handle	2
Hexagon nut (〃)	Chassis	4
〃 (〃)	Motor	2
〃 (〃)	Clip of pickup	1
〃 (〃)	Handle	2
〃 (〃)	Speaker box	4
Screw (2.6×6)	Lever	2
〃 (3×6)	Antenna coil	2
Washer (M3)	〃	2
〃 (〃)	Speaker box	4
Spring washer (M3)	〃	4
Hexagon volt (4×8)	Variable capacitor	4
Screw (2.6×6)	Drum	2
Hexagon nut (M8)	Tuning shaft	1
Spring washer (M3)	Chassis	2
Washer (M3)	Pulley	1
Pan head screw (3×6)	Speaker	8
〃 (3×10)	Rod antenna	1
〃 (〃)	Speaker	8
〃 (〃)	Clip of pickup	1
〃 (〃)	Band of motor cover	1
〃 (〃)	〃	1
Screw (3×12)	〃	1
Washer (3.2×10×1t)	Clip metal of pickup	1

6-20045 Printed in Japan.