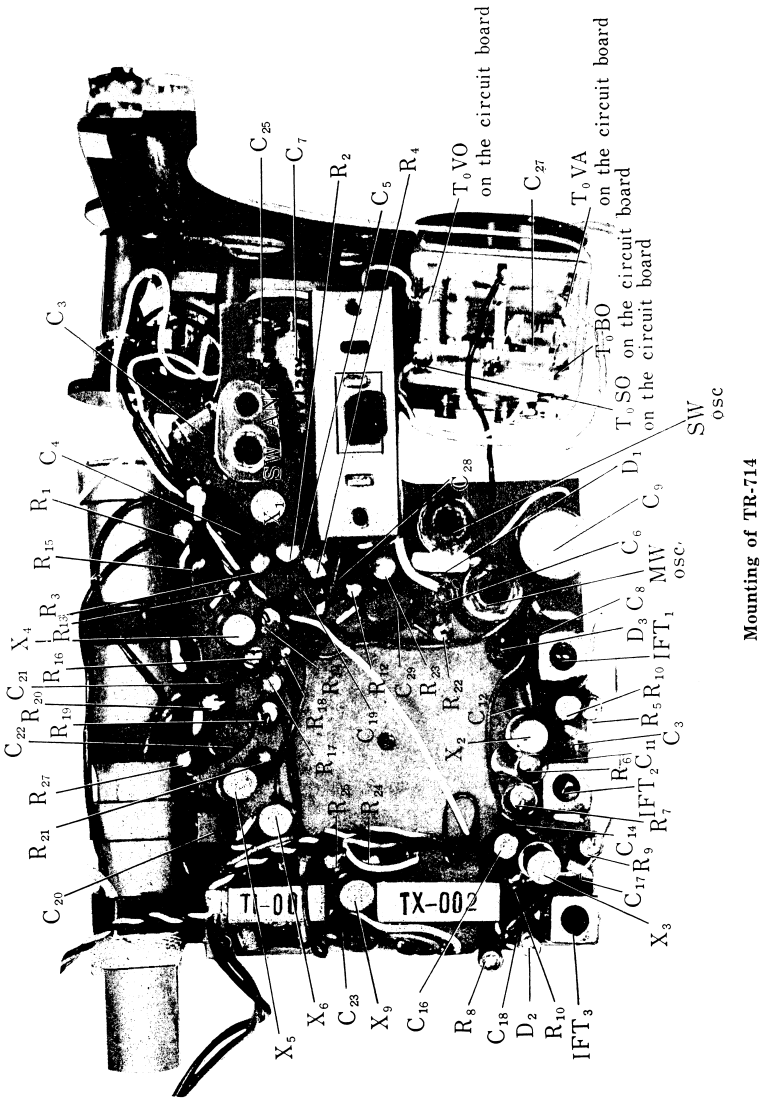
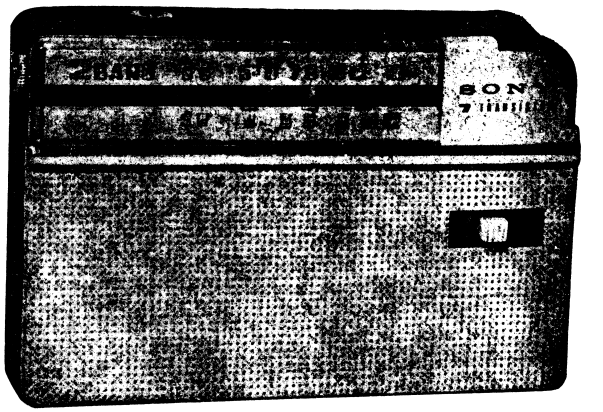


Mounting of TR-714

SONY SERVICING GUIDE

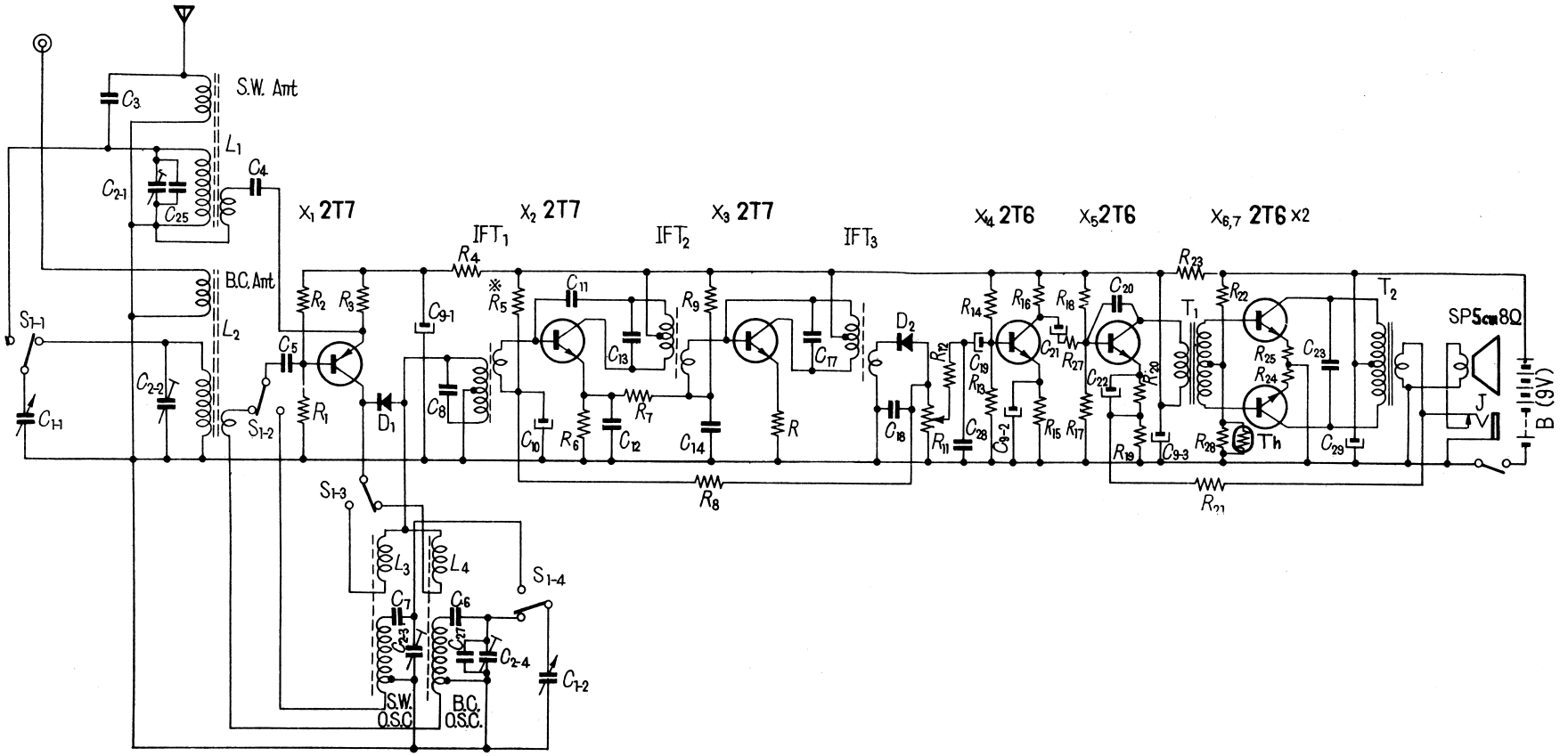
TR-714



Specifications for TR-714

Circuit	:	7 transistor superheterodyne
Covering range:	:	M.W. 535~1,605 Kc
		S.W. 3.9~12 Mc
IF frequency	:	455 Kc
Sensitivity	:	M.W. 50 μV/m with built-in ferrite bar antenna
		Better than 5 μV/m with external aerial (effective heiget 5 m.)
		S.W. 60 μV/m with telescopic antenna
		Better than 5 μV/m with external aerial (effective heiget 5 m.)
Selectivity	:	Better than 17 db (±10 Kc off)
Output power	:	50 mW (non distorted)
Current drain	:	7 mA±20% at 0 signal
Speaker	:	2¼" PM dynamic speaker (8 Ω)
Battery	:	9 Volts BL-006 P, Eveready 216 or equivalent
Dimensions	:	116×76×33.5 mm (4½"×3"×1¼")
Weight	:	350 gr. (12.5 ozs.)
Color	:	Cream, Dark green and Dark grey

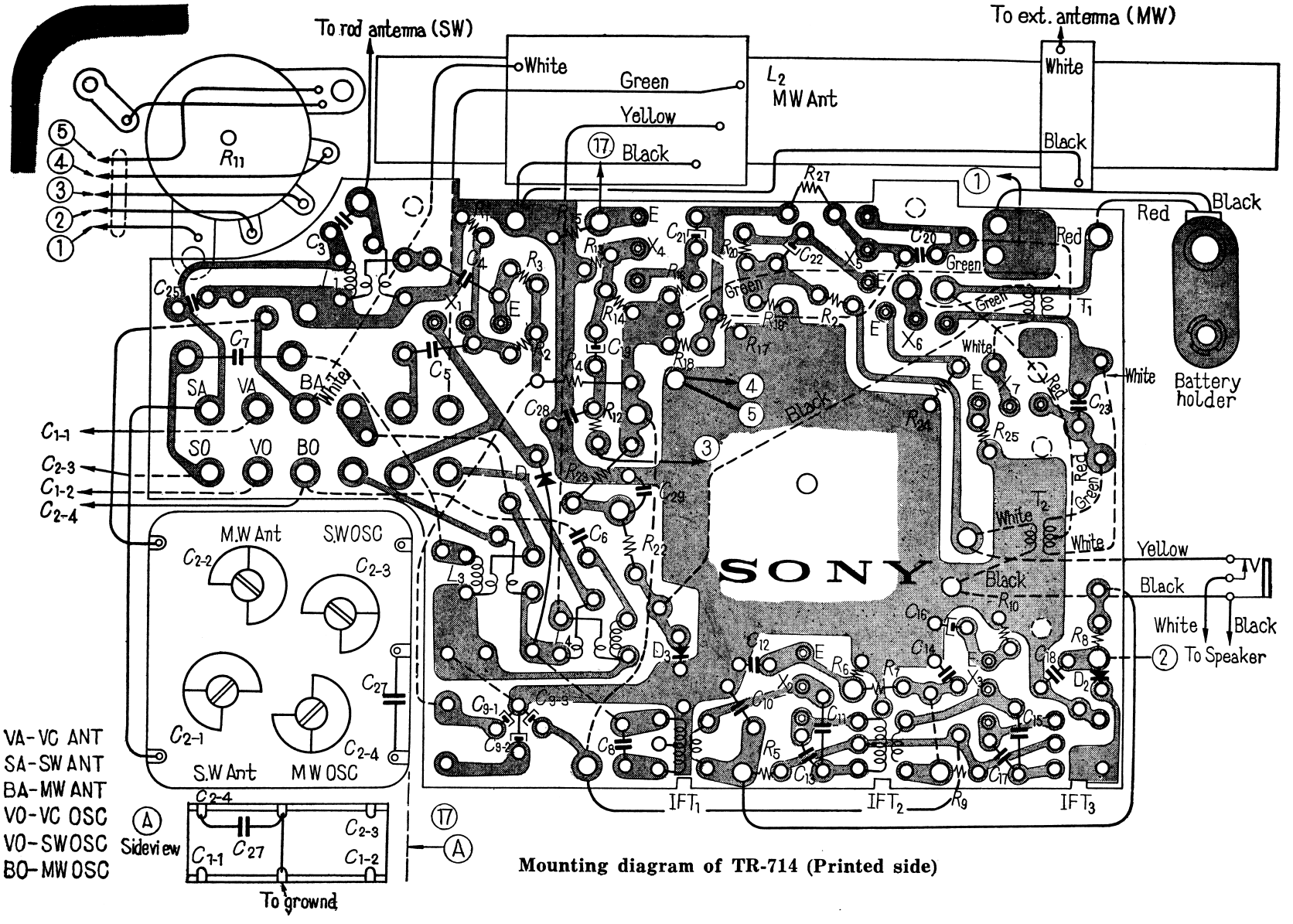
SONY CIRCUIT DIAGRAM FOR TR—714



L_1	SW Antena Coil	J	Earphone Jack	R_8	7.5 KΩ ±5 % ⅙W	R_{18}	56 KΩ ±5 % ⅙W	C_{1-1} C_{1-2}	Tuning Capacitor	C_{11}	2 PF	C_{22}	30 μF 3 V
L_2	BC Antenna Coil	B	Battery BL—006P (9V)	R_9	22 KΩ 〃 〃	R_{19}	5Ω 〃 〃	$C_{2-1}C_{2-3}$ $C_{2-2}C_{2-4}$	Trimmer	C_{12}	0.01 μF	C_{23}	0.05 μF
L_3	SW Oscillator Coil			R_{10}	470Ω 〃 〃	R_{20}	680Ω 〃 〃	C_3	2 PF	C_{13}	200 PF	C_{25}	5 PF
L_4	BC Oscillator Coil	R_1	※ 27 KΩ ±5 % ⅙W	R_{11}	5 KΩ VR with Switch	R_{21}	220Ω 〃 〃	C_4	0.005 μF	C_{14}	0.01 μF	C_{27}	10 PF
I.FT1	I F Trans.	R_2	4.2 KΩ 〃 〃	R_{12}	2.2 KΩ ±5 % ⅙W	R_{22}	6.8 KΩ 〃 〃	C_5	0.01 μF	C_{16}	10 μF 3 V	C_{28}	0.02 μF
I.FT2	〃	R_3	2.2 KΩ 〃 〃	R_{13}	10 KΩ 〃 〃	R_{23}	220Ω 〃 〃	C_6	370 PF	C_{17}	200 PF	C_{29}	10 μF 10 V
I.FT3	〃	R_4	220Ω 〃 〃	R_{14}	56 KΩ 〃 〃	R_{24}	22Ω 〃 〃	C_7	2000 PF	C_{18}	0.02 μF		
T_1	Input Trans.	R_5	※100 KΩ 〃 〃	R_{15}	820Ω 〃 〃	R_{25}	22Ω 〃 〃	C_8	200 PF	C_{19}	5 μF 6 V		
T_2	Output Trans.	R_6	470Ω 〃 〃	R_{16}	820Ω 〃 〃	R_{27}	2.2 KΩ 〃 〃	C_{9-1} C_{9-2} C_{9-3}	20 μF 10 V	C_{20}	0.001 μF		
SP	6 cm P. D. Speaker 8Ω	R_7	820Ω 〃 〃	R_{17}	10 KΩ 〃 〃	R_{28}	220Ω 〃 〃	C_{10}	10 μF 3 V	C_{21}	5 μF 6 V		

Note : ※ Adjusting Resistors

SONY CORPORATION



Mounting diagram of TR-714 (Printed side)

Adjustment

Mixer stage

Operating current

The current can be known from voltage drop across R_3 which is normally 0.66~0.77 Volt.

Since R_3=2.2 KΩ, the current will be 300~350 μA.

Tracking

M.W. band

i. Adjust core of L_4 to receive 1,680 Kc (upper limit) with the variable condenser set at minimum.
   Then adjust trimmer C_{2-4} to receive 520 Kc (lower limit) with the variable condenser set at maximum.
ii. Adjust L_2 to get maximum output at 640 Kc.
iii. Adjust C_{2-2} to get maximum output at 1,400 Kc.
iv. Confirm that 520 Kc and 1,680 Kc can be received at each extreme position of the variable condenser.

S.W. band

i. Adjust L_3 to receive 3.82 Mc (lower limit) with the variable condenser set at maximum and adjust C_{2-3} to receive 12.8 Mc (upper limit) with the variable condenser set at 97° (counting from maximum position).
ii. Adjust L_4 to get maximum output at 3.82 Mc.
iii. Adjust C_{2-1} to get maximum output at 12.8 Mc.

Helpful informations

1. In higher frequency range the local oscillator frequency varies when the antenna circuit is adjusted. This variation leads to misadjustment. To get proper result the following process is recommended.
   When C_{1-1} is adjusted, change signal generator frequency slowly until peak output is given by the set under adjustment.
   Then turn tuning knob of the set to tune to the new signal frequency.
   Adjust again C_{2-1} to get peak output.
   Repeat this procedure for 2 or 3 times. When proper adjustment is accomplished, highest output will be given.
   Around 12 Mc, image frequency may come into the adjustable range of the trimmer. The image frequency can be distinguished as follows. When the signal generator frequency is changed with the tuning knob of the set fixed, 2 frequencies will be received. Among them, higher frequency gives image.
2. When the set is mounted in the cabinet after tracking adjustment, alignment of RF section is affected by grille plate.
   To avoid this trouble, the tracking adjustment must be performed after the set is mounted in the cabinet.

To take out the set from the cabinet

1. Remove back cover of the cabinet and detach shielding plate.
(This shielding plate must be attached without fail after the set is mounted in the cabinet, because it is important to keep the set from body effect.)
2. Remove screws under the ferrite bar at the right end and on the right side of the cabinet.

Voltage and current distribution for TR-714

		Voltage Volt	Current
X_1	E	7_{25}	300~350 μA$_{500}$ μA
	B	6.5_{25}	
	C	0	
X_2	E	0.3_1	300~350 μA$_{500}$ μA
	B	0.4_1	
	C	8.3_{25}	
X_3	E	0.3_1	65~750 μA$_{2.5}$ mA
	B	0.5_1	
	C	8.3_{25}	
X_4	E	0.7_5	1~1.1 mA$_{2.5}$ mA
	B	0.8_5	
	C	7.3_{25}	
X_5	E	0.75_5	1~1.1 mA$_{2.5}$ mA
	B	0.85_5	
	C	7.8_{25}	
X_6, X_7	E	0	650~750 μA$_{2.5}$ mA
	B	0.15_1	
	C	9_{25}	

Current drain at 0 signal: 7 mA±20%.

Measurement was performed with the negative lead of the voltmeter connected to the negative side of the battery.

Internal resistance of the voltmeter is 20 KΩ/V.

Small figure next to data shows voltmeter range.

Power source voltage: 9 Volts.