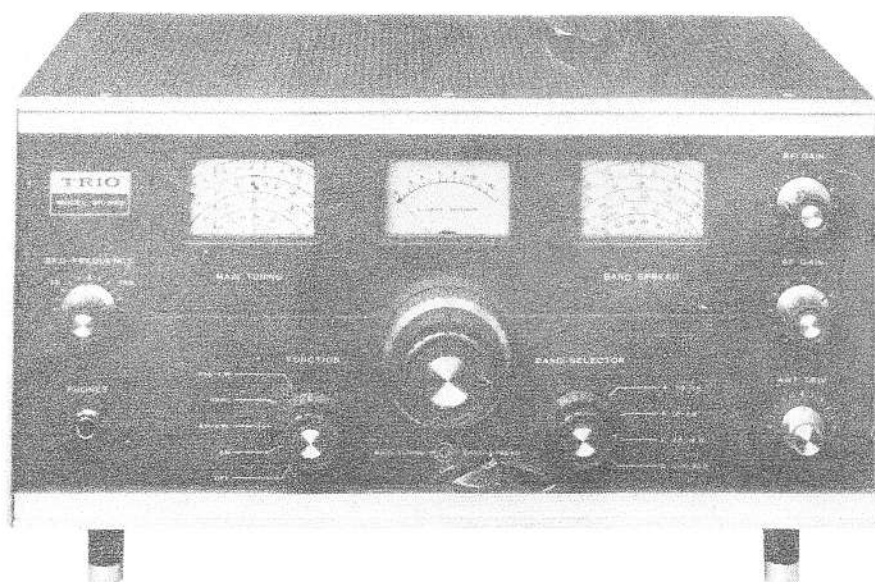




**TRIO**

# **SERVICE MANUAL**

**9R-59DE**



**COMMUNICATIONS RECEIVER**



# PARTS DESCRIPTION LIST

Symbol No.	Description	Part No.	Remarks
<b>CAPACITOR</b>			
C1	Ceramic 150pF $\pm 10\%$		
C2~4	Ceramic 0.01 $\mu$ F $\pm 10\%$		
C5	Ceramic 150pF $\pm 10\%$		
C6	Ceramic 5pF $\pm 10\%$		
C7~11	Ceramic 0.01 $\mu$ F $\pm 10\%$		
C12	Ceramic 3pF $\pm 10\%$		
C13~17	Ceramic 0.01 $\mu$ F $\pm 10\%$		
C18	Metalized Paper 0.2 $\mu$ F $\pm 20\%$		
C19	Ceramic 0.01 $\mu$ F $\pm 10\%$		
C20	Ceramic 1pF $\pm 10\%$		
C21	Ceramic 100pF $\pm 10\%$		
C22	Ceramic 20pF $\pm 10\%$		
C23	Metalized Paper 0.05 $\mu$ F $\pm 20\%$		
C24	Ceramic 150pF $\pm 10\%$		
C25	Ceramic 680pF $\pm 10\%$		
C26, 27	Ceramic 0.01 $\mu$ F $\pm 10\%$		
C28	Electrolytic Tubular 3 $\mu$ F 150WV		
C29	Ceramic 0.01 $\mu$ F $\pm 10\%$		
C30	Ceramic 680pF $\pm 10\%$		
C31	Ceramic 150pF $\pm 10\%$		
C32	Paper Tubular 0.01 $\mu$ F $\pm 20\%$		
C33	Electrolytic Tubular 30 $\mu$ F 15WV		
C34	Paper Tubular 0.01 $\mu$ F $\pm 20\%$		
C35	Electrolytic Tubular 3 $\mu$ F 150WV		
C36	Ceramic 680pF $\pm 10\%$		
C37	Electrolytic Tubular 10 $\mu$ F 25WV		
C38	Paper Tubular 0.005 $\mu$ F $\pm 20\%$		
C39	Ceramic 0.01 $\mu$ F $\pm 10\%$		
C40~42	Electrolytic Tubular 40 $\mu$ F 250WV		
C43~45	Paper Tubular 0.01 $\mu$ F $\pm 20\%$		
C46	Ceramic 0.01 $\mu$ F $\pm 10\%$		
C47	Mica 240pF $\pm 5\%$		
—	Main Variable Capacitor	D01-45	
—	Band Spread Variable Capacitor	D01-117	
—	ANT. Trimmer	D02-40	
<b>RESISTOR</b>			
R1	Fixed Carbon Composition 470 $\Omega$ $\pm 5\%$ 1/2W		
R2	Fixed Carbon Composition 1M $\Omega$ $\pm 5\%$ 1/2W		
R3	Fixed Carbon Composition 180 $\Omega$ $\pm 5\%$ 1/2W		
R4	Fixed Carbon Composition 1M $\Omega$ $\pm 5\%$ 1/2W		
R5	Fixed Carbon Composition 100k $\Omega$ $\pm 5\%$ 1/2W		
R6	Fixed Carbon Composition 330 $\Omega$ $\pm 5\%$ 1/2W		
R7	Fixed Carbon Composition 68k $\Omega$ $\pm 5\%$ 1/2W		
R8	Fixed Carbon Composition 2.2k $\Omega$ $\pm 5\%$ 1/2W		
R9	Fixed Carbon Composition 100k $\Omega$ $\pm 5\%$ 1/2W		
R10	Fixed Carbon Composition 270 $\Omega$ $\pm 5\%$ 1/2W		
R11	Fixed Carbon Composition 1k $\Omega$ $\pm 5\%$ 1/2W		
R12	Fixed Carbon Composition 22k $\Omega$ $\pm 5\%$ 1/2W		
R13	Fixed Carbon Composition 2.2k $\Omega$ $\pm 5\%$ 1/2W		
R14	Fixed Carbon Composition 100k $\Omega$ $\pm 5\%$ 1/2W		
R15	Fixed Carbon Composition 2.2k $\Omega$ $\pm 5\%$ 1/2W		



## PARTS DESCRIPTION LIST

Symbol No.	Description				Part No.	Remarks
R16	Fixed Carbon Composition	820k $\Omega$	$\pm 5\%$	1/2W		
R17	Fixed Carbon Composition	4.7k $\Omega$	$\pm 5\%$	1/2W		
R18	Fixed Carbon Composition	100k $\Omega$	$\pm 5\%$	1/2W		
R19	Fixed Carbon Composition	22k $\Omega$	$\pm 5\%$	1/2W		
R20	Fixed Carbon Composition	1k $\Omega$	$\pm 5\%$	1/2W		
R21, 22	Fixed Carbon Composition	470k $\Omega$	$\pm 5\%$	1/2W		
R23, 24	Fixed Carbon Composition	1M $\Omega$	$\pm 5\%$	1/2W		
R25	Fixed Carbon Composition	10k $\Omega$	$\pm 5\%$	1/2W		
R26, 27	Fixed Carbon Composition	22k $\Omega$	$\pm 5\%$	1/2W		
R28	Fixed Carbon Composition	47k $\Omega$	$\pm 5\%$	1/2W		
R29	Fixed Carbon Composition	22k $\Omega$	$\pm 5\%$	1/2W		
R30	Fixed Carbon Composition	10k $\Omega$	$\pm 5\%$	1/2W		
R31	Fixed Carbon Composition	1k $\Omega$	$\pm 5\%$	1/2W		
R32	Fixed Carbon Composition	100k $\Omega$	$\pm 5\%$	1/2W		
R33	Fixed Carbon Composition	22k $\Omega$	$\pm 5\%$	1/2W		
R34	Fixed Carbon Composition	470k $\Omega$	$\pm 5\%$	1/2W		
R35	Metal Film	330 $\Omega$	$\pm 10\%$	1W		
R36	Fixed Carbon Composition	220k $\Omega$	$\pm 5\%$	1/2W		
R37	Wire Wound	2.2k $\Omega$	$\pm 5\%$	8W		
R38, 39	Wire Wound	1k $\Omega$	$\pm 5\%$	4W		
R40	Fixed Carbon Composition	220k $\Omega$	$\pm 5\%$	1/2W		
R41	Fixed Carbon Composition	150 $\Omega$	$\pm 5\%$	1/2W		
TUBE/DIODE						
V1	6BA6/EF93	RF Amp.				
V2	6BE6/EK90	MIX.				
V3	6AQ8/ECC85	OSC.				
V4, 5	6BA6/EF93	IF Amp.				
V6	6BE6/EK90	PRODUCT Det.				
V7	6AQ8/ECC85	BFO & AF.				
V8	6AQ5/EC90	POWER Amp.				
D1	1N60					
D2	SW-05S	AVC Det.				
D3, 4	1N60	AVC & AF Det.				
D5	SW-05S	Noise Limiter				
D6, 7	SW-05S	Rect				
COIL/TRANSFORMER						
L1	Mechanical Filter				L4006	
L2	Matching Transformer				L51-19	
L3	Mechanical Filter				L4006	
L4	Matching Transformer				L51-19	
T1	455KC (1F)				L01-66	
T2	455KC (BFO Coil)				L05-05	
T3	Output Transformer				T02-10	
P.T.	Power Transformer				T01-169M	
POTENTIOMETER						
VR1	10k $\Omega$ (C)	RF : GAIN			R01-1203	
VR2	500 $\Omega$ (B)	S-METER			R01-0307	
VR3	500k $\Omega$ (A)	AF : GAIN			R01-0109	
SWITCH						
S1	FUNCTION	(Rotary)			S03-597	

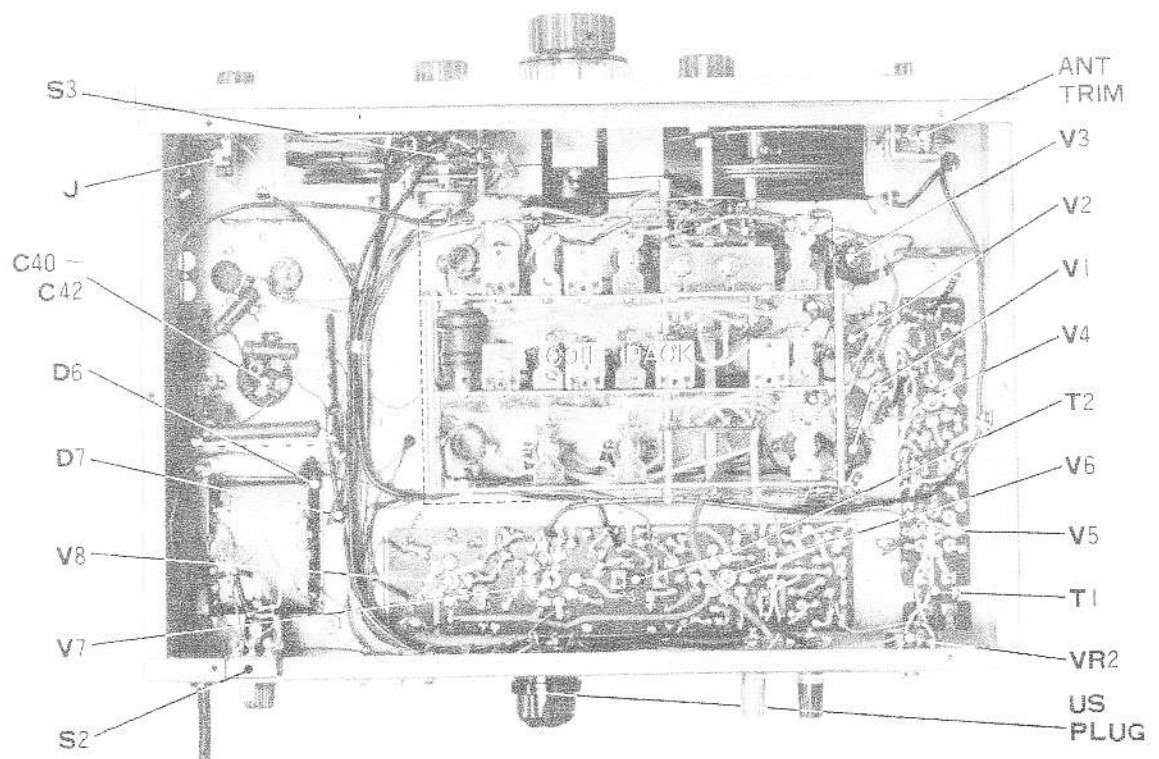
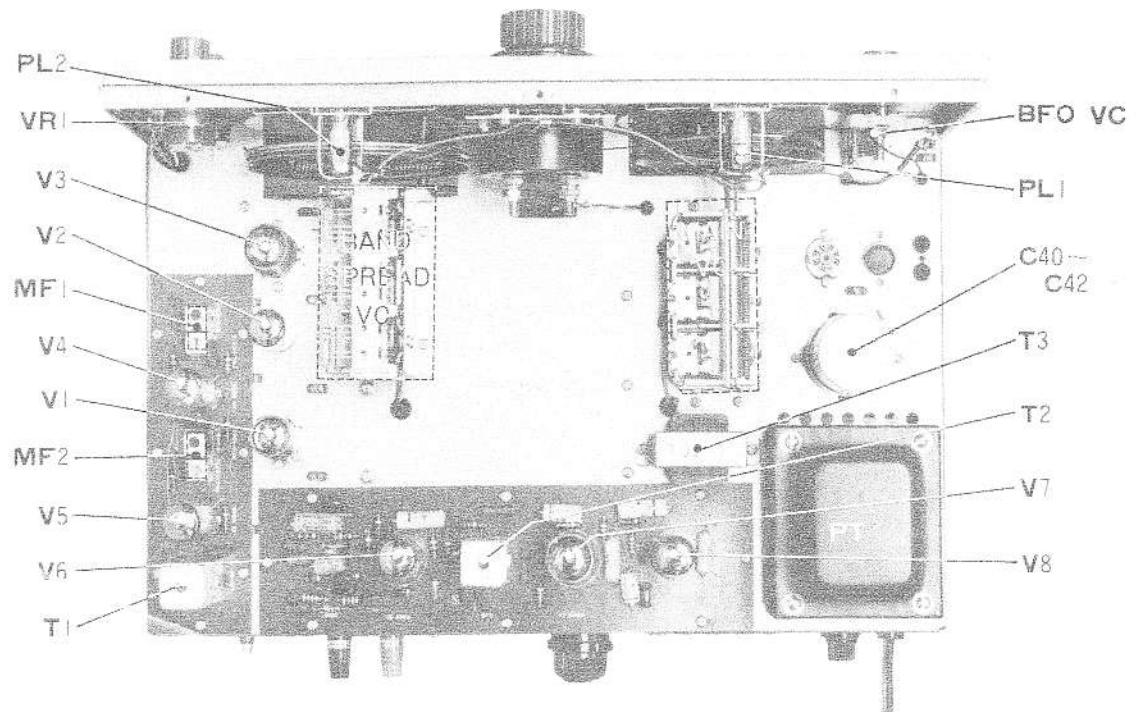


## PARTS DESCRIPTION LIST

Symbol No.	Description	Part No.	Remarks
S2	POWER (Slide)	S10-22D	
MISCELLANEOUS			
—	Main Dial Panel	A12-LA21A	
—	Sub Dial Panel	A12-LA21B	
—	US Socket	E01-38K	
—	US Plug	E09-580	
—	Knob (FUNCTION)	S14-616	
—	Knob (BFO)	S14-256	
—	Knob (MAIN TUNING)	S14-620	
—	Knob (BAND SPREAD)	S14-619	
—	Knob (BAND SELECTOR)	S14-616	
—	Knob (RF GAIN)	S14-256	
—	Knob (AF GAIN)	S14-256	
—	Knob (ANT TRIMMER)	S14-706	
COIL PACK (L04-15)			
CAPACITOR			
C101	Mica	50pF ±5%	
C102	Mica	2750pF ±5%	
C103	Mica	4000pF ±5%	
C104	Ceramic	5pF ±10%	
CT1~5	Mica Trimmer	(10pF ~ 50pF)	
CT6	Pading Trimmer		
CT7	Mica Trimmer	(10pF ~ 50pF)	
CT8, 9	Cylinder Trimmer	(2pF ~ 7pF)	
RESISTOR			
R101	Fixed Carbon Composition	680Ω ±5% 1/2W	
SWITCH			
S3	BAND (Rotary)		
COIL			
—	ANT. Coil	L101-104	
—	RF. Coil	L105-108	
—	OSC. Coil	L109-112	

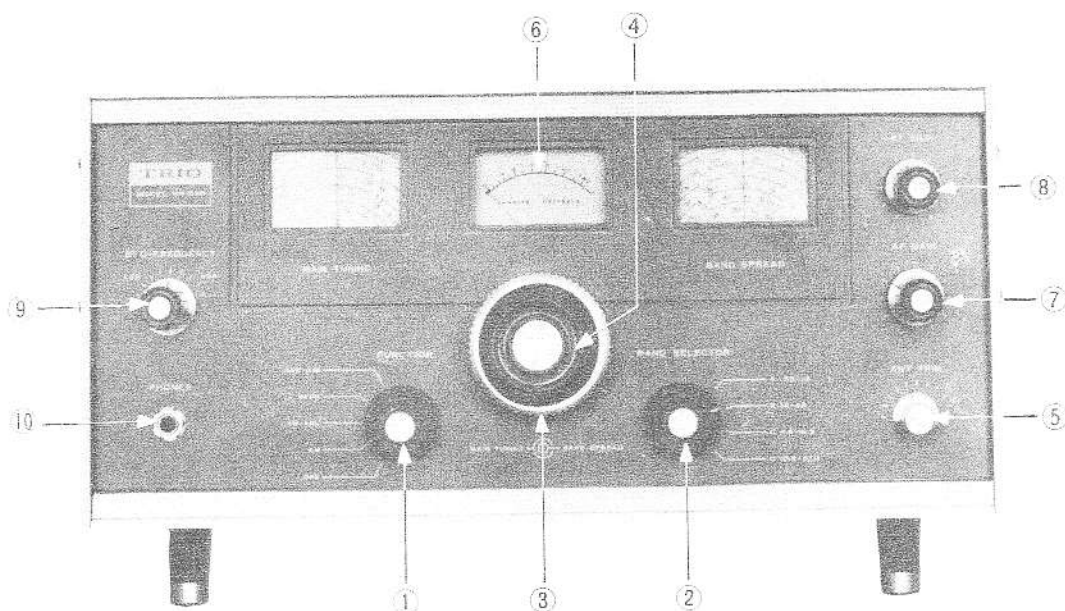


# CHASSIS TOP & BOTTOM VIEW

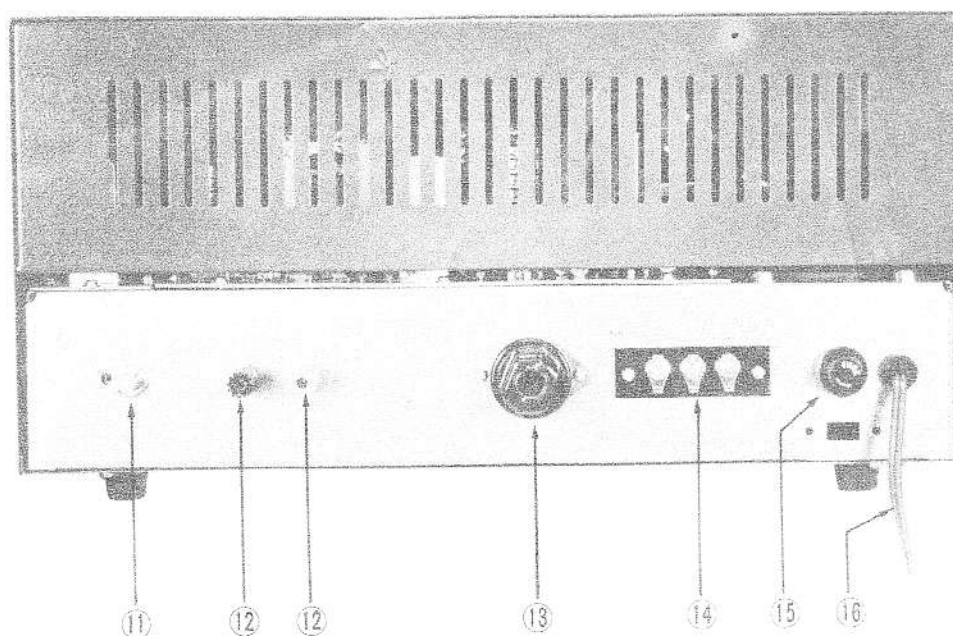




## FRONT & BACK VIEW

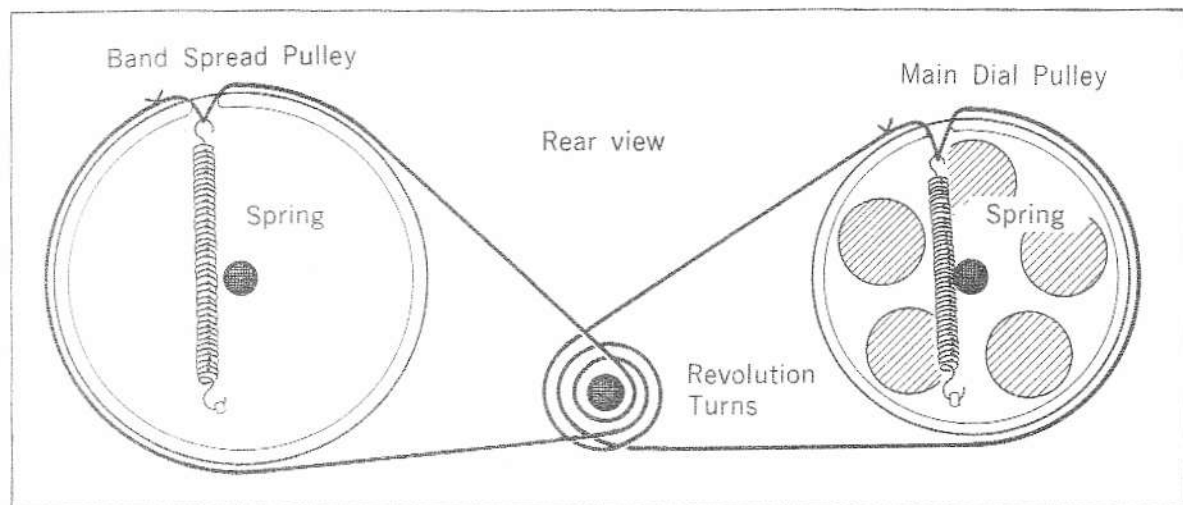
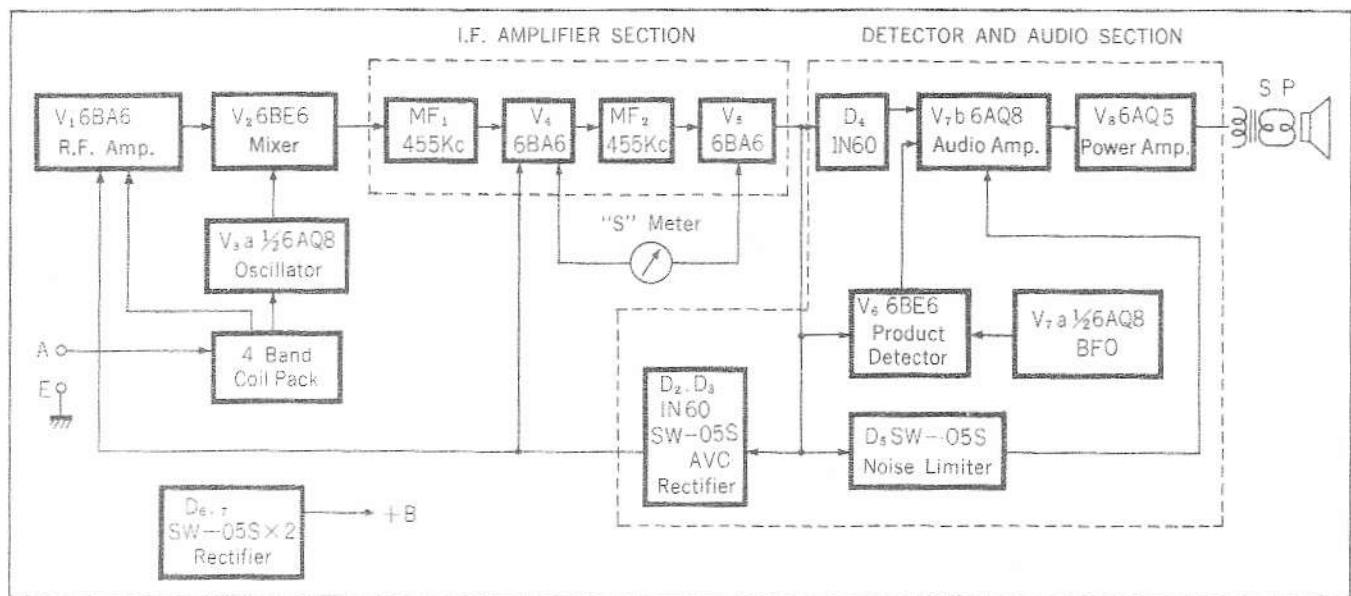


- |                 |                 |                |
|-----------------|-----------------|----------------|
| ① FUNCTION      | ⑦ AF GAIN       | ⑬ REMOTE       |
| ② BAND SELECTOR | ⑧ RF GAIN       | ⑭ OUTPUT       |
| ③ MAIN TUNING   | ⑨ BFO-FREQUENCY | ⑮ FUSE         |
| ④ BAND SPREAD   | ⑩ PHONES        | ⑯ AC LINE CORD |
| ⑤ ANT TRIM      | ⑪ ZER-ADJ       |                |
| ⑥ S-METER       | ⑫ A-E TERMINALS |                |

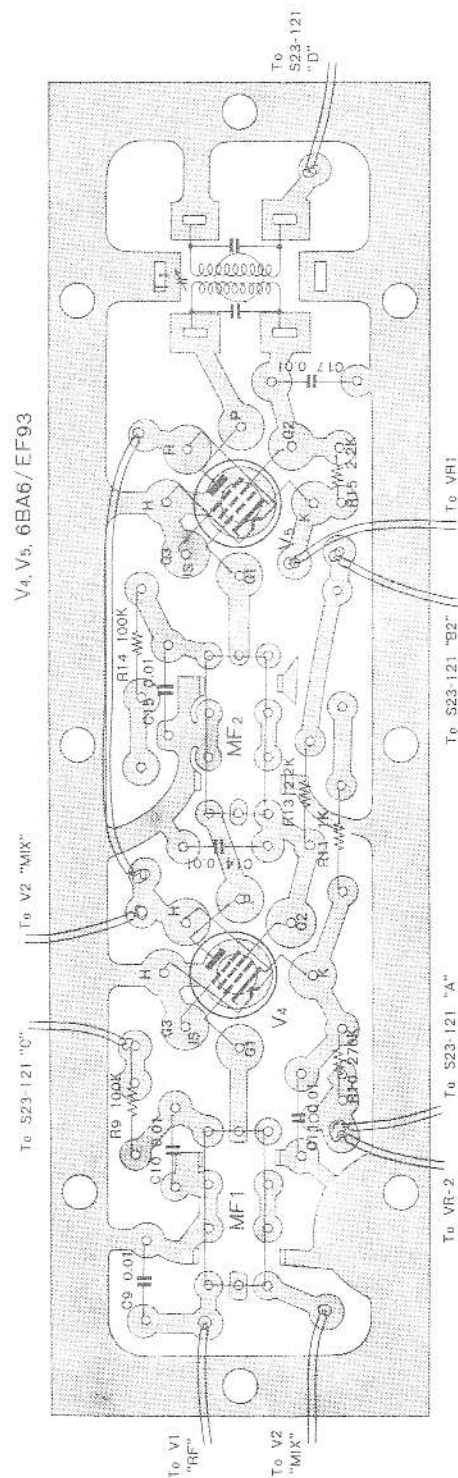




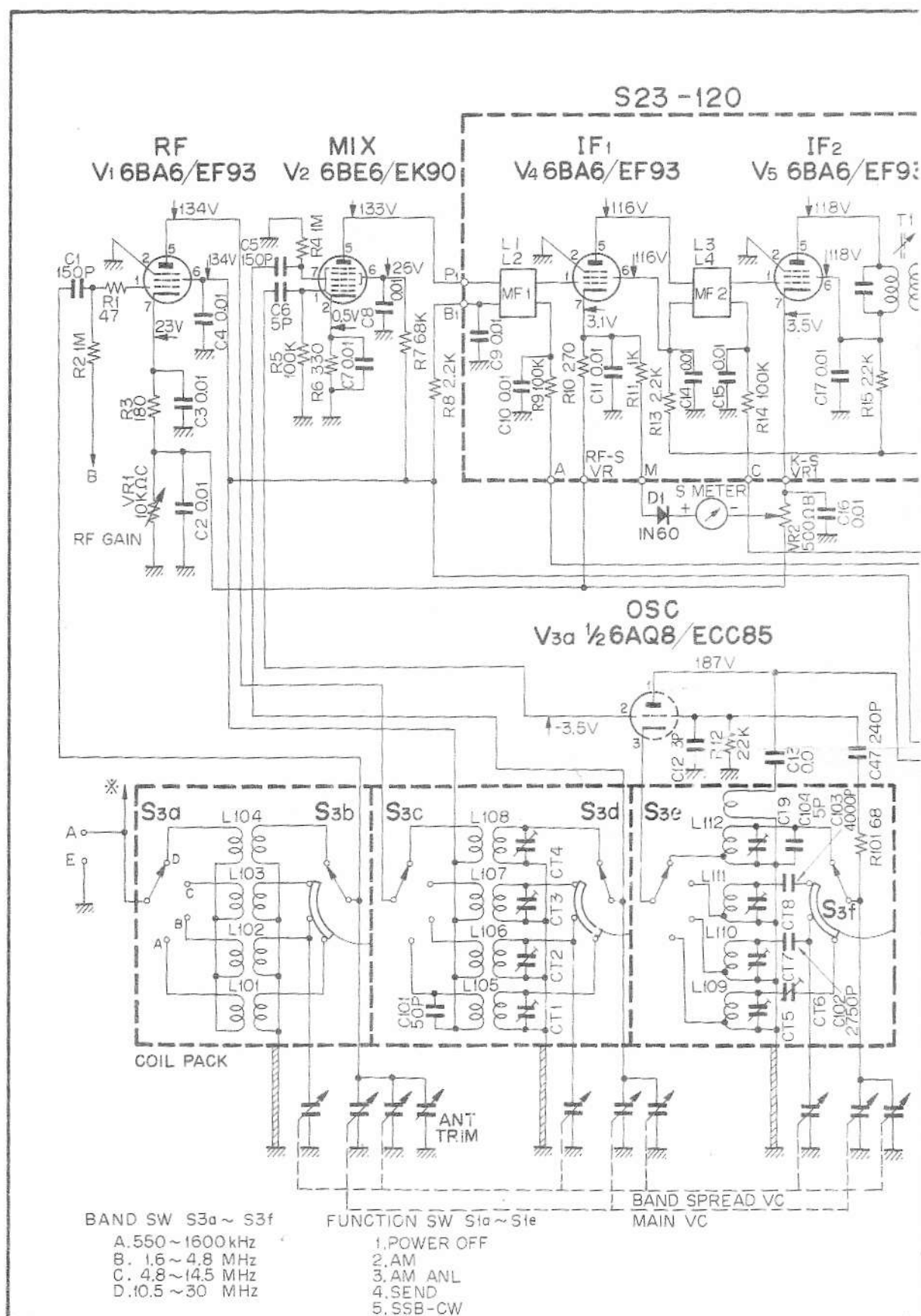
# BLOCK DIAGRAM & DIAL CORD STRINGING







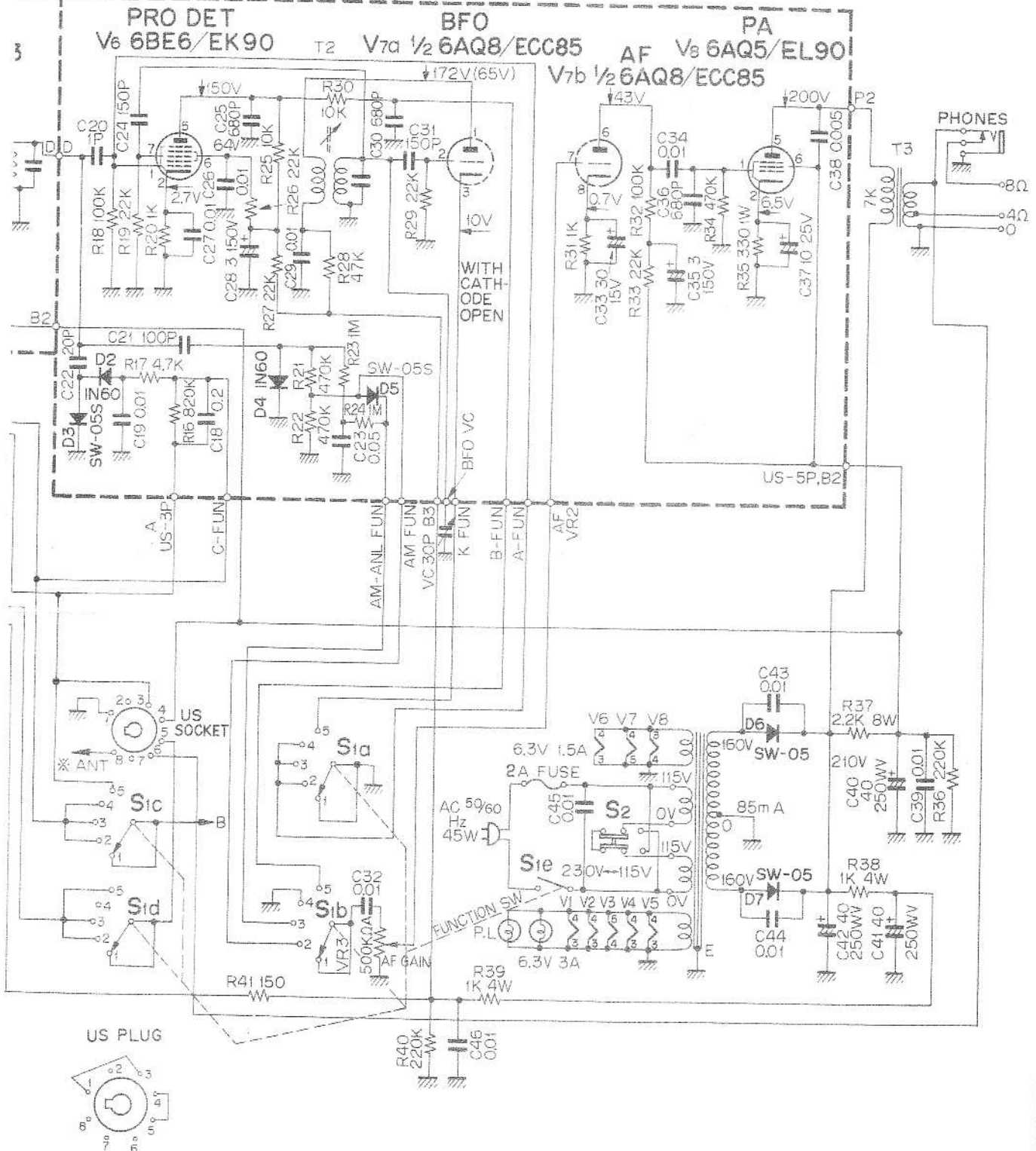






# IATIC DIAGRAM

S23-121



9R-59DE



# ALIGNMENT PROCEDURE WITH

STEP	ALIGNMENT	SIGNAL GENERATOR OUTPUT	BAND SETTING	DIAL SETTING
1	IFT alignment	Inject signal generator output to the point where the G3 lead from the coil kit is connected to the switch. Also connect ground side to the chassis. (Feed 455 kHz signal)	A	No broadcast point
2	'A' band low freq. end OSC circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 600 kHz signal)	A	600 kHz
3	'A' band high freq. end OSC circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 1,400 kHz signal)	A	1,400 kHz
4	'A' band high freq. end ANT circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 1,400 kHz signal)	A	1,400 kHz
5	'B' band low freq. end OSC circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 1.7 MHz signal)	B	1.7 MHz
6	'B' band low freq. end ANT, RF alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 1.7 MHz signal)	B	1.7 MHz
7	'B' band high freq. end OSC circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 4 MHz signal)	B	4 MHz
8	'B' band high freq. end ANT, RF alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 4 MHz signal)	B	4 MHz
9	'C' band low freq. end OSC circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 6 MHz signal)	C	6 MHz
10	'C' band low freq. end ANT, RF coil alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 6 MHz signal)	C	6 MHz
11	'C' band high freq. end OSC circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 12 MHz signal)	C	12 MHz
12	'C' band high freq. end ANT, RF coil alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 12 MHz signal)	C	12 MHz
13	'D' band low freq. end OSC circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 13 MHz signal)	D	13 MHz
14	'D' band low freq. end ANT, RF circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 13 MHz signal)	D	13 MHz
15	'D' band high freq. end OSC circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 26 MHz signal)	D	26 MHz
16	'D' band high freq. end ANT, RF circuit alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 26 MHz signal)	D	26 MHz

**NOTE:** During the adjustment of the RF trimmers in Step 16, a shift of the receiver's oscillator frequency and resultant signal reception point drift may occur due to a "pulling" effect phenomena. In such a case, the band spread dial should be used to keep the signal tuned in at maximum reception point.

A simple lead to tion will



## SIGNAL GENERATOR

ADJUST	OUTPUT INDICATION
Mechanical filter, matching transformer and IFT core	For maximum deflection of the S meter.
'A' band padding condenser	So that 600 kHz signal generator output can be received.
'A' band OSC trimmer	Repeat steps 2 and 3 several times so that 1,400 kHz signal is best received at dialed setting.
'A' band ANT & RF trimmers	For maximum deflection of the S meter. Attenuate signal generator output level if it is excessive.
'B' band OSC coil core	Repeat steps 5 & 7 several times so that 1.7 MHz generator signal is received at indicated dial setting.
'B' band ANT, RF coil core	Repeat steps 6 and 8 several times so that both the 4 MHz and 1.7 MHz generator signals produce maximum deflection of the S meter.
'B' band OSC trimmer	Repeat steps 5 and 7 several times so that 4 MHz generator signal is received at indicated dial setting.
'B' band ANT, RF trimmers	For maximum deflection of the S meter.
'C' band OSC coil core	Repeat steps 9 & 11 several times so that the 6 MHz signal is best received at indicated dial setting.
'C' band ANT & RF coil core	Repeat steps 10 & 12 several times so that 6 MHz and 12 MHz signals produce maximum deflection of the S meter.
'C' band OSC trimmer	So that 12 MHz signal can be received at dialed setting.
'C' band ANT & RF trimmers	For maximum reception of 12 MHz signal.
'D' band OSC coil core	Repeat steps 13 & 15 several times so that the 13 MHz generator signal is received at indicated dial setting.
'D' band ANT & RF coil core	Repeat steps 14 & 16 so that the 13 MHz generator signal produced maximum deflection of the S meter.
'D' band OSC coil trimmer	So that 26 MHz generator signal can be received.
'D' band ANT & RF trimmers	For maximum deflection of the S meter of 26 MHz signal.

check of the RF and ANT trimmer adjustment can be made by connecting a short antenna and bringing it near a fluorescent lamp. Maximum interference reception indicate correct adjustment.