



SERVICE MANUAL

9R-59DS

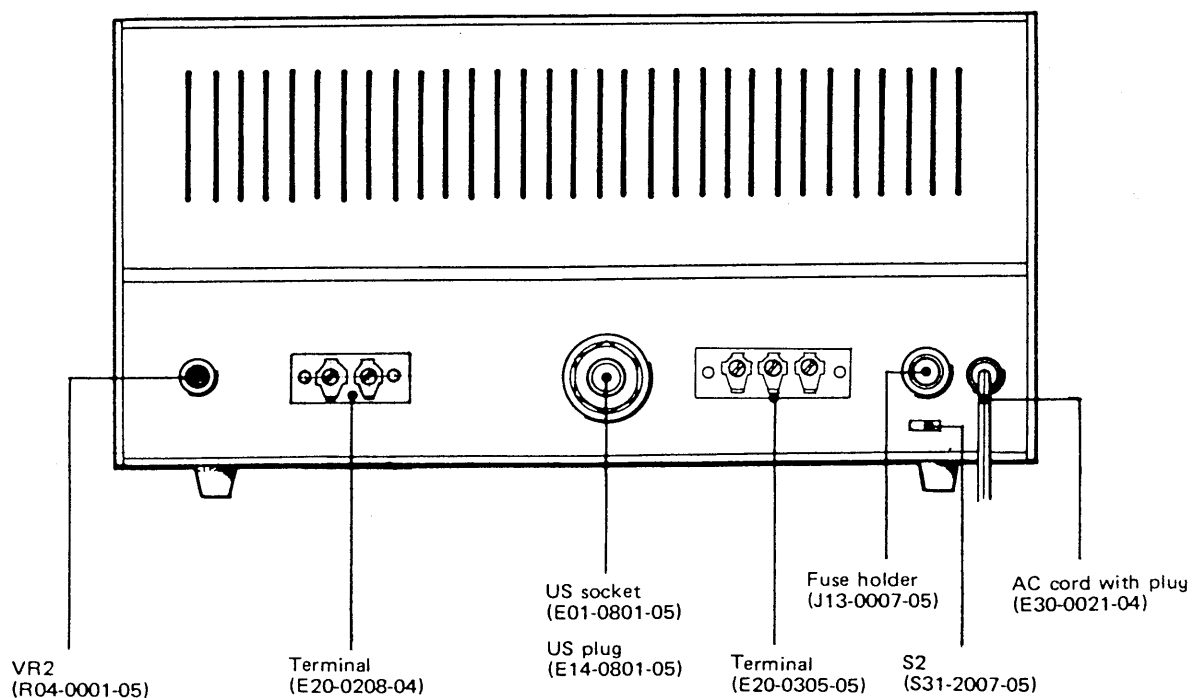
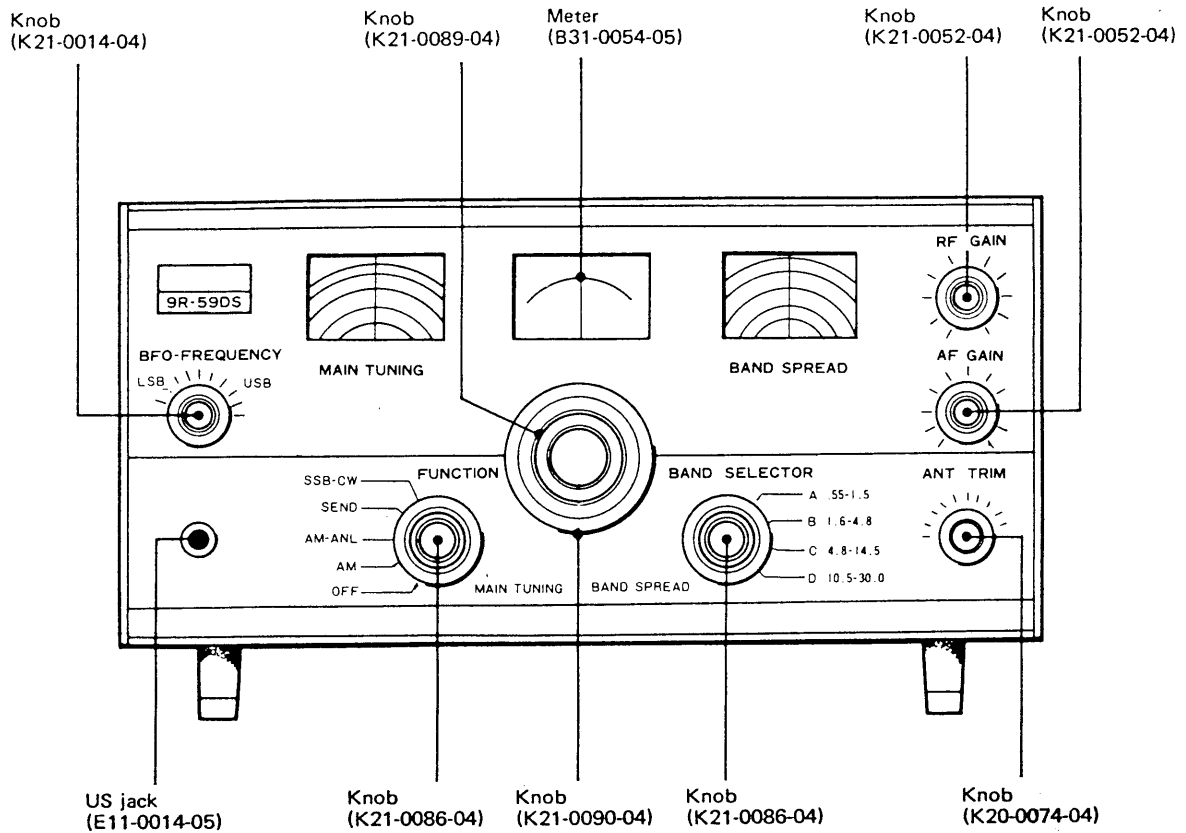


COMMUNICATIONS RECEIVER

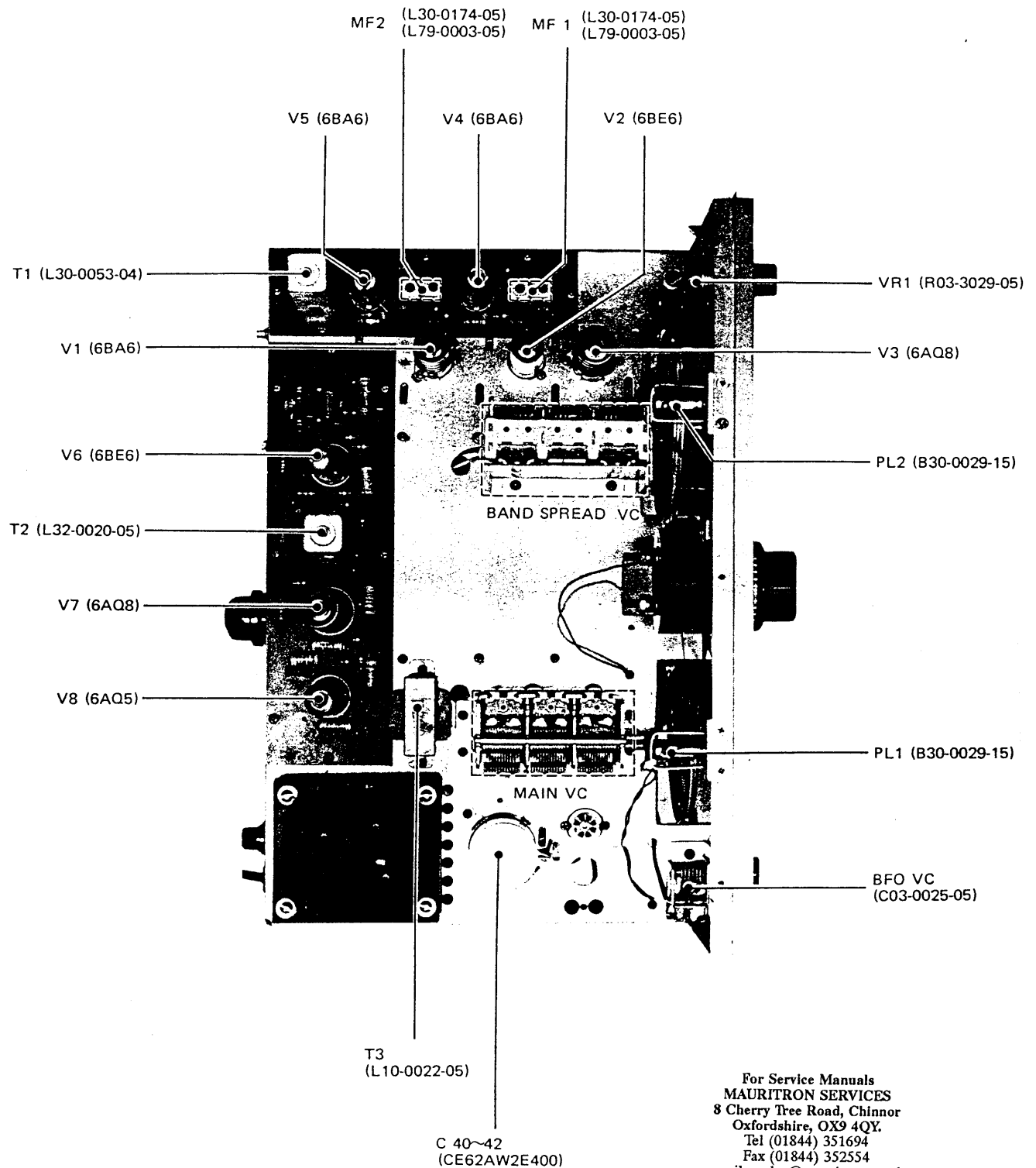
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EXTERNAL VIEW

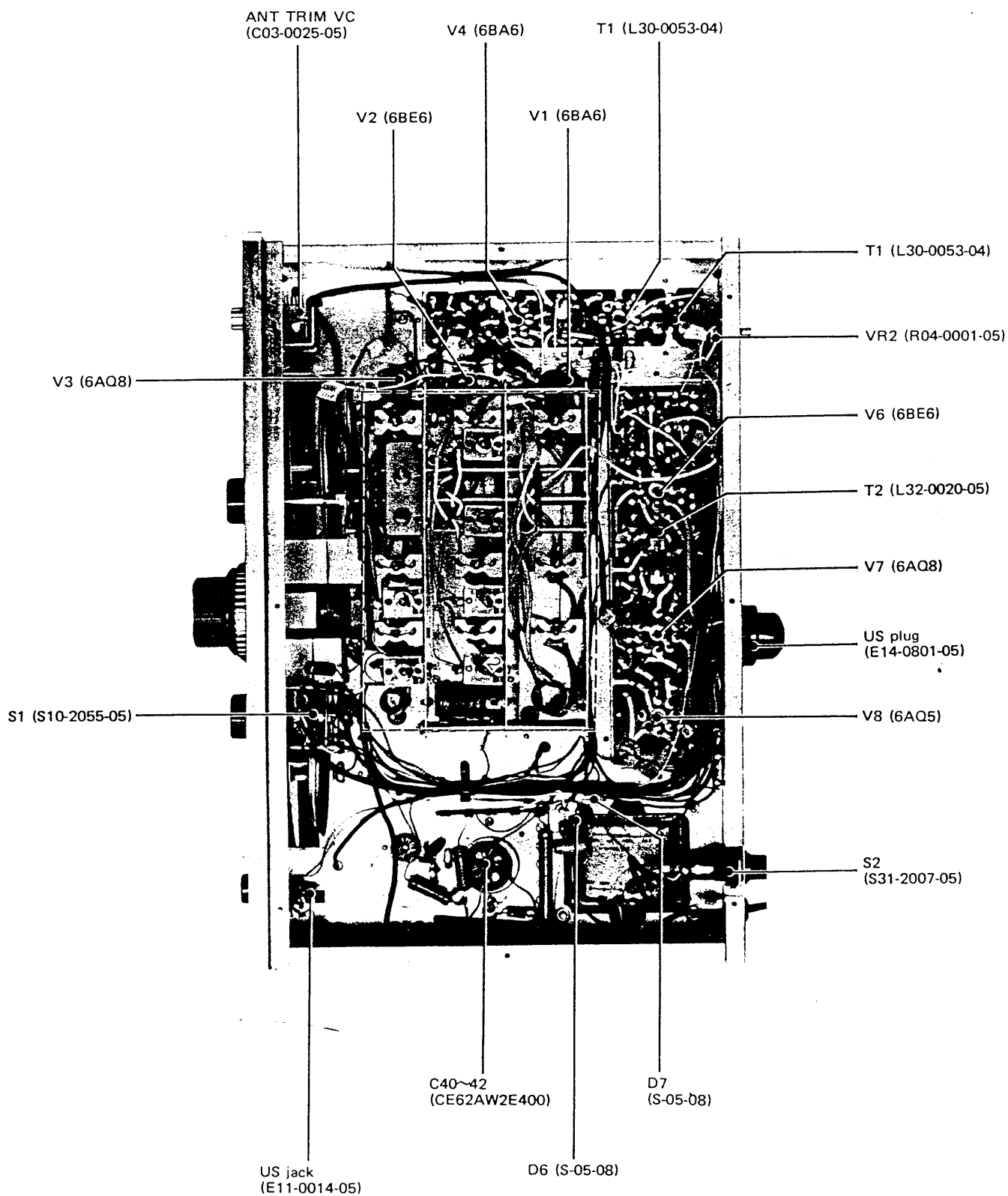


TOP CHASSIS VIEW

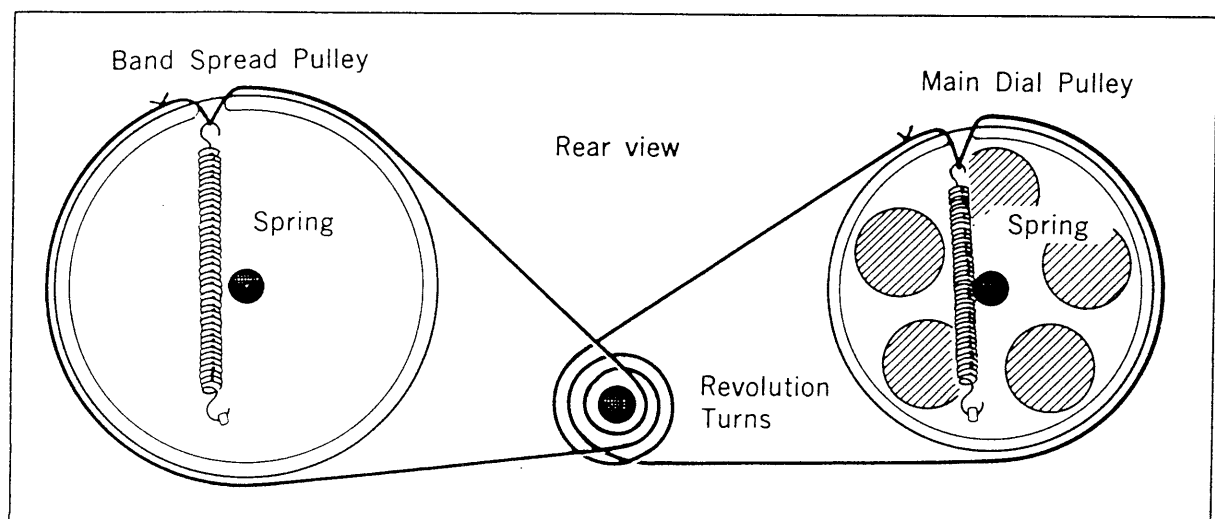
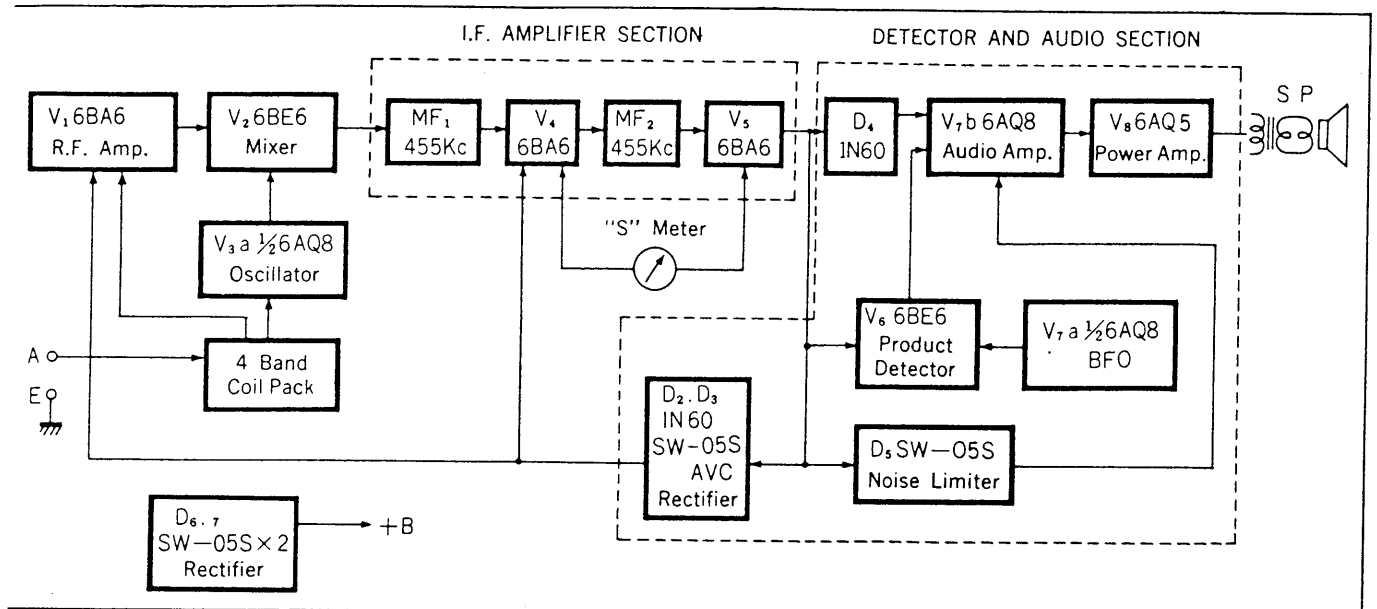


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BOTTOM CHASSIS VIEW



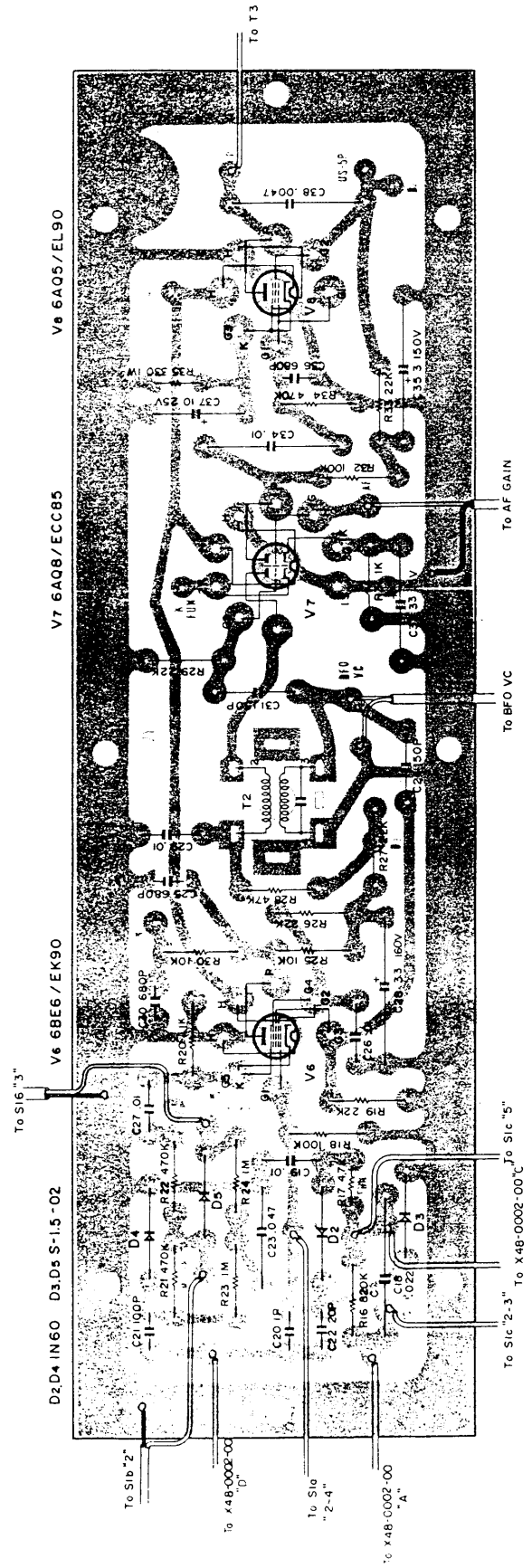
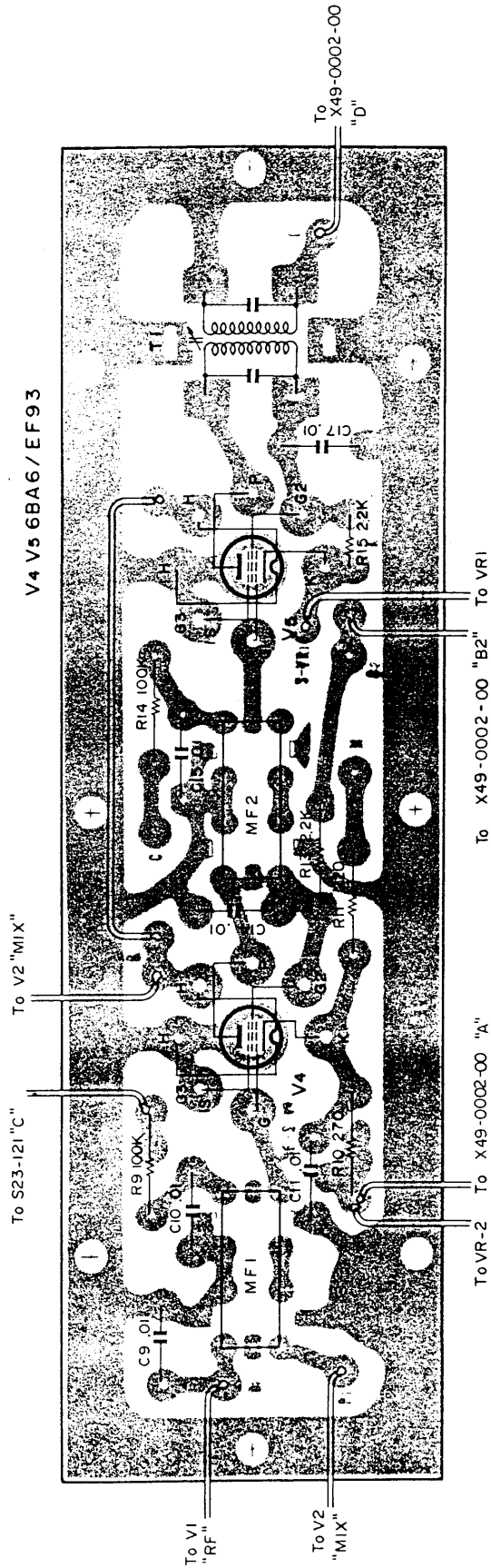
BLOCK DIAGRAM/DIAL CORD STRINGING



PC BOARD

▼ IF UNIT (X48-0002-00)

▼ AF UNIT (X49-0002-00)



PARTS LIST

Circuit No.	Parts No.	Description	Remarks
MISCELLANEOUS			
—	A01-0073-01	Case	
—	A10-0028-01	Chassis	
—	A20-0050-03	Panel	
—	A20-0059-03	Panel assembly	
—	A30-0039-04	Main dial board	
—	A30-0040-04	Sub dial board	
—	A40-0037-02	Bottom plate	
—	B01-0006-04	Side escutcheon	
—	B19-0009-04	Acryl pointer	
—	B30-0029-15	Pilot lamp x 2	
—	B31-0054-05	Meter	
—	B42-0009-04	Passed sticker	
—	B49-0013-00	Adjustment sheet	
—	B48-0011-00	Sticker	
—	B50-0070-00	Operating manual	
—	B50-0437-00	Power caution card	
—	B58-0052-00	Caution card	
—	D15-0031-04	Pulley	
—	D15-0035-14	Pulley	
—	D23-0043-04	Bearing	
—	D32-0021-04	Switch stopper	
—	D40-0047-05	Dual dial shaft	
—	E01-0701-05	7 pin miniature socket	
—	E01-0810-05	US socket	
—	E01-0903-05	9 P MT mould socket	
—	E11-0014-05	US jack	
—	E14-0801-05	US plug	
—	E15-0051-05	Swan socket	
—	E20-0208-04	Terminal (2P)	
—	E20-0305-04	Terminal (3P)	
—	E22-0104-04	Lug board	
—	E22-0206-05	Lug board	
—	E22-0404-05	Lug board x 2	
—	E22-0603-04	Lug board	
—	E30-0034-05	AC cord with plug	
—	F05-2023-05	Fuse (2A)	
—	F10-0242-04	Shield plate	
—	F11-0083-05	Shield case (9P)	
—	F11-0084-05	Shield washer	
—	F11-0088-05	Shield case (7P)	
—	F11-0089-05	Shield washer (7P)	
—	F15-0109-04	Cushion	
—	G01-0045-14	Dial spring	
—	H01-0292-02	Carton case	
—	H03-0020-03	Carton case	
—	H20-0043-00	Protection cover	
—	J02-0010-04	Legs x 4	
—	J02-0016-04	Legs x 2	
—	J13-0007-05	Fuse holder	

PARTS LIST

Circuit No.	Parts No.	Description	Remarks
—	J19-0021-04	Pointer holder (A) x 2	
—	J19-0022-04	Pointer holder (B) x 2	
—	J19-0035-14	Meter holder	
—	J20-0016-14	Pilot lamp stopper	
—	J21-0074-14	Meter mounting hardware	
—	J21-0075-14	Meter mounting hardware	
—	J21-0079-04	Mounting hardware	
—	J21-0272-04	Variable capacitor angle A1	
—	J21-0273-04	Variable capacitor angle A2	
—	J21-0274-04	Variable capacitor angle B	
—	J21-0392-04	Wire holder	
—	J21-0589-04	Shaft grounding hardware	
—	J42-0022-03	Cord bushing	
—	K20-0074-04	Knob (ANT TRIM)	
—	K21-0014-04	Knob (BFO)	
—	K21-0052-04	Knob x 2 (RF, AF)	
—	K21-0086-04	Knob x 2 (BAND, FUNCTION)	
—	K21-0089-04	Knob (SPREAD)	
—	K21-0090-04	Knob (MAIN)	
—	L09-0089-05	Power transformer	
T3	L10-0022-05	Output transformer	
—	L60-0011-05	Coil pack	
CAPACITOR			
C1	CC94SL2H151K	Ceramic 150pF ±10%	
C2~4	CK45E2H103P	Ceramic 0.01μF +100%, -0%	
C5	CC94SL2H151K	Ceramic 150pF ±10%	
C6	CC94SL2H050D	Ceramic 5pF ±0.5pF	
C7, 8	CK45E2H103P	Ceramic 0.01μF +100%, -0%	
C12	CC94SL2H030D	Ceramic 3pF ±0.5pF	
C13, 16	CK45E2H103P	Ceramic 0.01μF +100%, -0%	
C32	CQ05M2G103K	Mylar 0.01μF ±10%	
C39	C90-0161-05	MP 0.47μF 250V	
C40~42	CE62AW2E400	Electrolytic block 40μF x 3 250V	
C43, 44	CK45E2H103P	Ceramic 0.01μF +100%, -0%	
C45	C90-0145-05	MP 0.01μF ±20%	
C46	CK45E2H103P	Ceramic 0.01μF +100%, -0%	
C47	CM91D2H241KY	Mica 240pF ±10%	
C50	CK45E2H103P	Ceramic 0.01μF +100%, -0%	
C51	C90-0174-05	Electrolytic block 100μF 250V	
RESISTOR			
R1	RC05GF2H470K	Carbon 47Ω ±10% 1/2W	
R2	RC05GF2H105K	Carbon 1MΩ ±10% 1/2W	
R3	RC05GF2H181K	Carbon 180Ω ±10% 1/2W	
R4	RC05GF2H105K	Carbon 1MΩ ±10% 1/2W	
R5	RC05GF2H104K	Carbon 100kΩ ±10% 1/2W	
R6	RC05GF2H331K	Carbon 330Ω ±10% 1/2W	
R7	RC05GF2H683K	Carbon 68kΩ ±10% 1/2W	
R8	RC05GF2H222K	Carbon 2.2kΩ ±10% 1/2W	
R12	RC05GF2H223K	Carbon 22kΩ ±10% 1/2W	
R36	RC05GF2H224K	Carbon 220kΩ ±10% 1/2W	
R37	RW14AG3K222J	Wire wound 2.2kΩ ±5% 8W	
R38, 39	RW14AG3G102J	Wire wound 1kΩ ±5% 4W	
R40	RC05GF2H224K	Carbon 220kΩ ±10% 1/2W	

PARTS LIST

Circuit No.	Parts No.	Description	Remarks
R41	RC05GF2H151K	Carbon 150Ω ±10% 1/2W	
SEMICONDUCTOR / TUBE			
D1 D6, 7		1N60 S-05-08	
V1 V2 V3		6BA6 6BE6 6AQ8	
VARIABLE RESISTOR			
VR1	R03-3029-05	10kΩ (C)	
VR2	R04-0001-05	500Ω (B)	
VR3	R03-7014-05	500kΩ (A)	← R03-7003-05 in Lieu
VARIABLE CAPACITOR			
—	C01-0025-05	MAIN	
—	C01-0083-05	BAND SPREAD	
—	C03-0025-05	BFO	
SWITCH			
—	S10-2055-05	Rotary	
—	S31-2007-05	Slide	

IF UNIT (X48-0002-00) PARTS LIST

Circuit No.	Parts No.	Description				Remarks
CAPACITOR						
C9~11	CK94YZ2H103Z	Ceramic	0.01μF	+80%, -20%		
C14, 15, 17	CK94YZ2H103Z	Ceramic	0.01μF	+80%, -20%		
RESISTOR						
R9	RC05GF2H104K	Carbon	100kΩ	±10%	1/2W	
R10	RC05GF2H271K	Carbon	270Ω	±10%	1/2W	
R11	RC05GF2H221K	Carbon	220Ω	±10%	1/2W	
R13	RC05GF2H222K	Carbon	2.2kΩ	±10%	1/2W	
R14	RC05GF2H104K	Carbon	100kΩ	±10%	1/2W	
R15	RC05GF2H222K	Carbon	2.2kΩ	±10%	1/2W	
COIL						
T1	L30-0053-04	IFT				
-	L30-0174-05	Matching transformer				
-	L79-0003-05	Mechanical filter				
TUBE						
V4, 5		6BA6				
MISCELLANEOUS						
-	E10-0702-05	7P socket x 2				
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AF UNIT (X49-0002-00) PARTS LIST

Circuit No.	Parts No.	Description				Remarks
CAPACITOR						
C18	C90-0154-05	MP	0.22μF	250V		
C19	CK94YZ2H103P	Ceramic	0.01μF	+100%, -0%		
C20	CC94SL2H010D	Ceramic	1pF	±0.5pF		
C21	CC94SL2H101K	Ceramic	100pF	±10%		
C22	CC94SL2H220J	Ceramic	22pF	±5%		
C23	CQ93M1H473K	MP	0.047μF	±10%		
C24	CC94SL2H151K	Ceramic	150pF	±10%		
C25	CK94YY2H681M	Ceramic	680pF	±20%		
C26, 27	CK94YZ2H103P	Ceramic	0.01μF	+100%, -0%		
C28	CE02W2C3R3	Electrolytic	3.3μF	160WV		
C29	CK94YZ2H103P	Ceramic	0.01μF	+100%, -0%		
C30	CK94YY2H681M	Ceramic	680pF	±20%		
C31	CC94SL2H151K	Ceramic	150pF	±10%		
C33	CE04W1C330	PC electrolytic	33μF	16WV		
C34	CP02B2J103M	Oil	0.01μF	±20%		
C35	CE02W2C3R3	Electrolytic	3.3μF	160WV		
C36	CK94YY2H681M	Ceramic	680pF	±20%		
C37	CE02W1E100	Electrolytic	10μF	25WV		
C38	CP02B2J472M	Oil	0.0047μF	±20%		
RESISTOR						
R16	RC05GF2H824K	Carbon	820kΩ	±10%	1/2W	
R17	RC05GF2H472K	Carbon	4.7kΩ	±10%	1/2W	
R18	RC05GF2H104K	Carbon	100kΩ	±10%	1/2W	
R19	RC05GF2H223K	Carbon	22kΩ	±10%	1/2W	
R20	RC05GF2H102K	Carbon	1kΩ	±10%	1/2W	
R21, 22	RC05GF2H474K	Carbon	470kΩ	±10%	1/2W	
R23, 24	RC05GF2H105K	Carbon	1MΩ	±10%	1/2W	
R25	RC05GF2H103K	Carbon	10kΩ	±10%	1/2W	
R26, 27	RC05GF2H223K	Carbon	22kΩ	±10%	1/2W	
R28	RC05GF2H473K	Carbon	47kΩ	±10%	1/2W	
R29	RC05GF2H223K	Carbon	22kΩ	±10%	1/2W	
R30	RC05GF2H103K	Carbon	10kΩ	±10%	1/2W	
R31	RC05GF2H102K	Carbon	1kΩ	±10%	1/2W	
R32	RC05GF2H104K	Carbon	100kΩ	±10%	1/2W	
R33	RC05GF2H223K	Carbon	22kΩ	±10%	1/2W	
R34	RC05GF2H474K	Carbon	470kΩ	±10%	1/2W	
R35	RN14AB3A331K	Metal film	330Ω	±10%	1W	
SEMICONDUCTOR/TUBE						
D2		1N60				
D3		S-1.5-02				
D4		1N60				
D5		S-1.5-02				
V6		6BE6				
V7		6AQ8				
V8		6AQ5				
MISCELLANEOUS						
-	E10-0702-05	7 pin miniature socket				
-	E10-1902-05	9 pin miniature socket				
-	F11-0083-05	Shield case				
T2	L32-0020-05	BFO coil (455 kHz)				

STEP	ALIGNMENT	SIGNAL GENERATOR OUTPUT	BAND 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
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
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
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
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
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
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
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
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
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
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	'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
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
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
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
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

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

ADJUSTMENT

ALIGNMENT	SIGNAL GENERATOR OUTPUT	BAND SETTING	DIAL SETTING	ADJUST
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	Mechanical filter, matching transformer and IFT core
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	'A' band padding condenser
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	'A' band OSC trimmer
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	'A' band ANT & RF trimmer
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	'B' band OSC coil core
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	'B' band ANT, RF coil core
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	'B' band OSC trimmer
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	'B' band ANT, RF trimmers
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	'C' band OSC coil core
Low freq. end ANT, RF alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 6 MHz signal)	C	6 MHz	'C' band ANT & RF coil core
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	'C' band OSC trimmer
High freq. end ANT, RF alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 12 MHz signal)	C	12 MHz	'C' band ANT & RF trimmers
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	'D' band OSC coil core
Low freq. end ANT, RF alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 13 MHz signal)	D	13 MHz	'D' band ANT & RF coil core
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	'D' band OSC coil trimmer
High freq. end ANT, RF alignment	Feed signal generator output through 400 ohm resistor across A1 and E terminals. (Feed 26 MHz signal)	D	26 MHz	'D' band ANT & RF trimmers

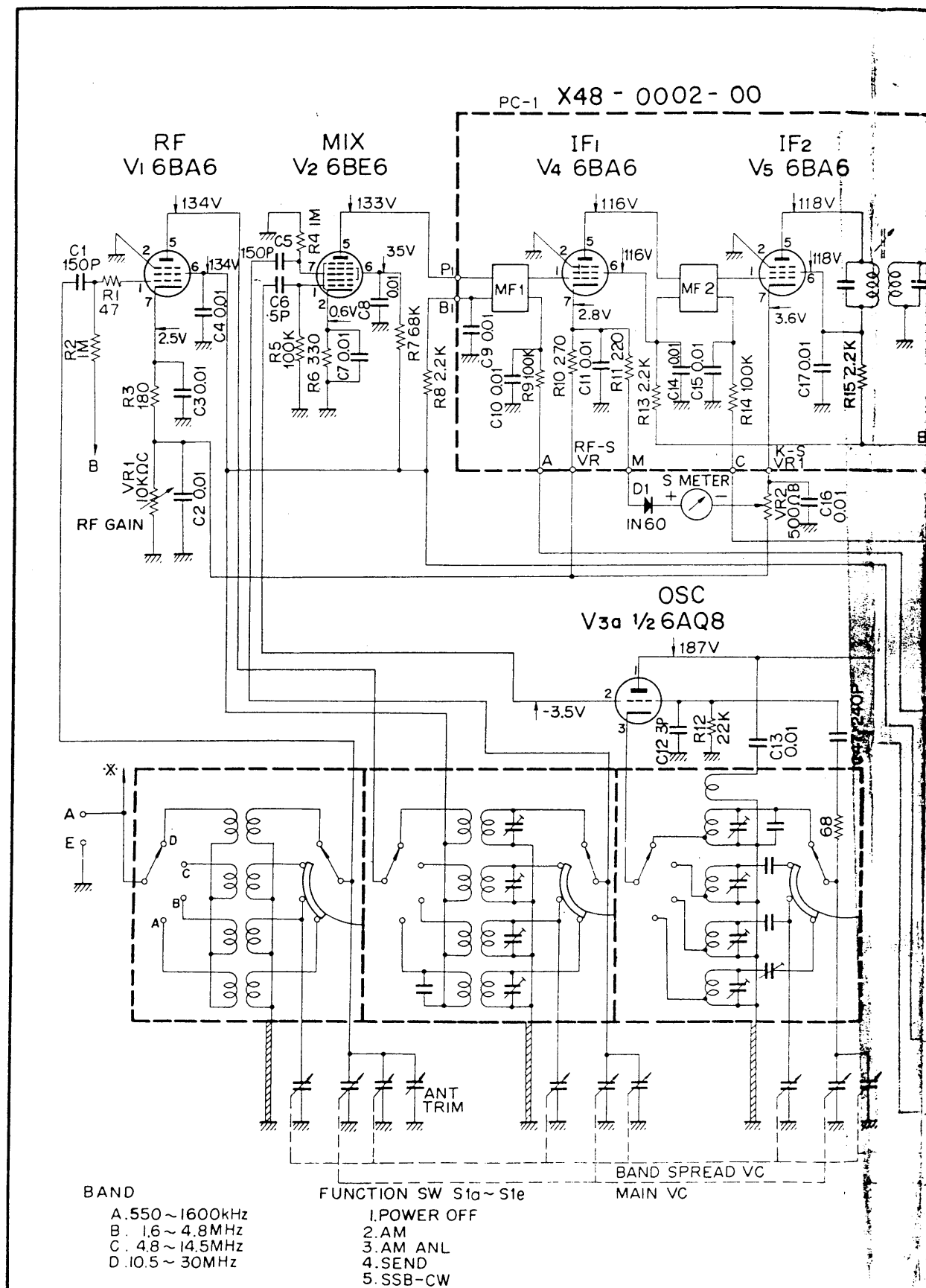
After adjustment of the RF trimmers in Step 16, a shift of the receiver's oscillator frequency and resultant reception point drift may occur due to a "pulling" effect phenomena. In this case, the band spread dial should be used to keep the signal tuned in at maximum reception point. A check of the RF and ANT trimmer adjustment can be made by connecting a short lead to the antenna and holding it near a fluorescent lamp. Interference reception will indicate correct adjustment.

ADJUSTMENT

DIAL SETTING	ADJUST	OUTPUT INDICATION
No broadcast point	Mechanical filter, matching transformer and IFT core	For maximum deflection of the S meter.
600 kHz	'A' band padding condenser	So that 600 kHz signal generator output can be received.
1,400 kHz	'A' band OSC trimmer	Repeat steps 2 and 3 several times so that 1,400 kHz signal is best received at dialed setting.
1,400 kHz	'A' band ANT & RF trimmer	For maximum deflection of the S meter. Attenuate signal generator output level if it is excessive.
1.7 MHz	'B' band OSC coil core	Repeat steps 5 & 7 several times so that 1.7 MHz generator signal is received at indicated dial setting.
1.7 MHz	'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.
4 MHz	'B' band OSC trimmer	Repeat steps 5 and 7 several times so that 4 MHz generator signal is received at indicated dial setting.
4 MHz	'B' band ANT, RF trimmers	For maximum deflection of the S meter.
6 MHz	'C' band OSC coil core	Repeat steps 9 & 11 several times so that the 6 MHz signal is best received at indicated dial setting.
6 MHz	'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.
12 MHz	'C' band OSC trimmer	So that 12 MHz signal can be received at dialed setting.
12 MHz	'C' band ANT & RF trimmers	For maximum reception of 12 MHz signal.
13 MHz	'D' band OSC coil core	Repeat steps 13 & 15 several times so that the 13 MHz generator signal is received at indicated dial setting.
13 MHz	'D' band ANT & RF coil core	Repeat steps 14 & 16 so that the 13 MHz generator signal produced maximum deflection of the S meter.
26 MHz	'D' band OSC coil trimmer	So that 26 MHz generator signal can be received.
26 MHz	'D' band ANT & RF trimmers	For maximum deflection of the S meter of 26 MHz signal.

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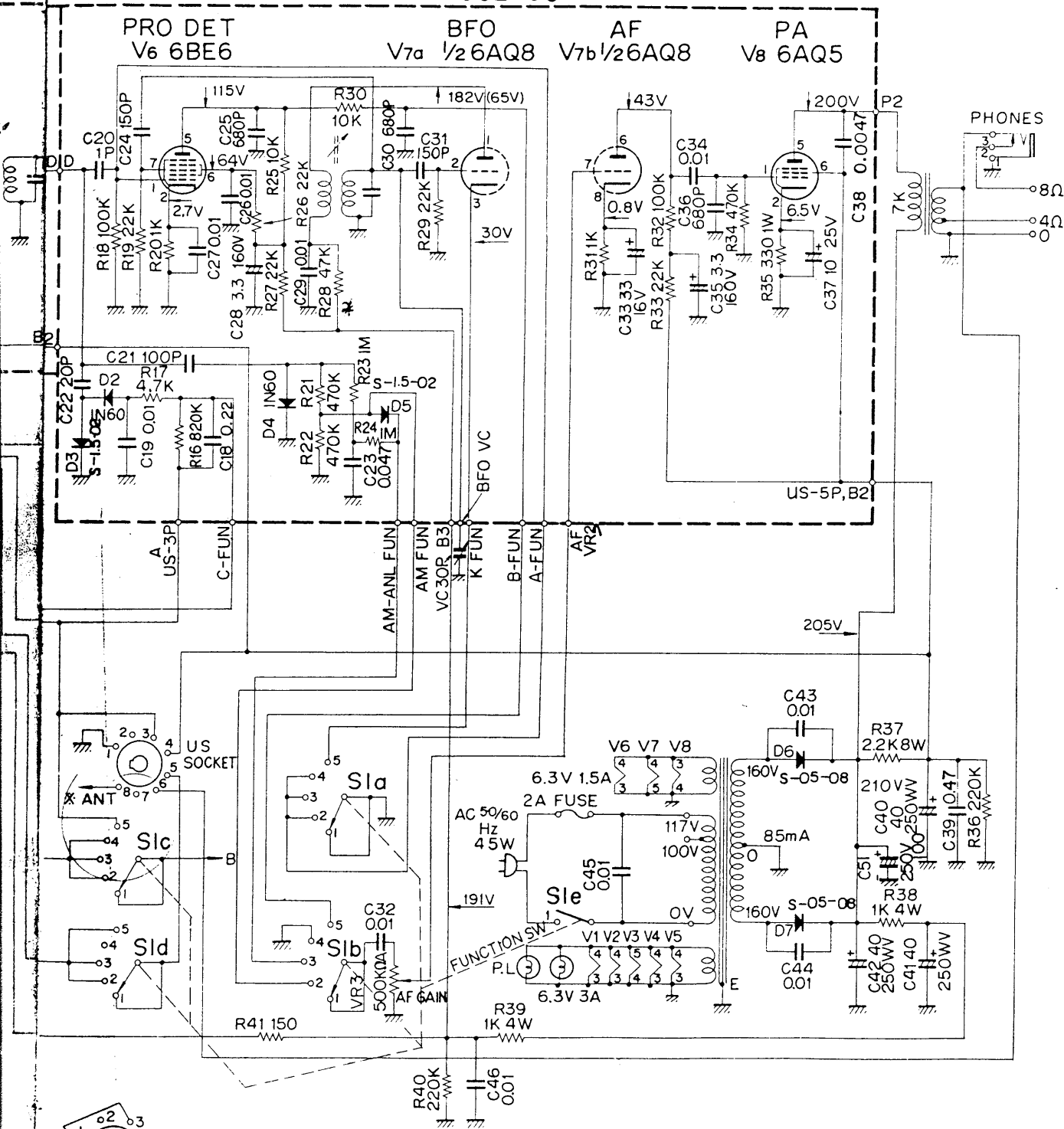
SCHEMA



SCHEMATIC DIAGRAM

Change R28 to 10K Ω

PC-2 X 49-0002-00



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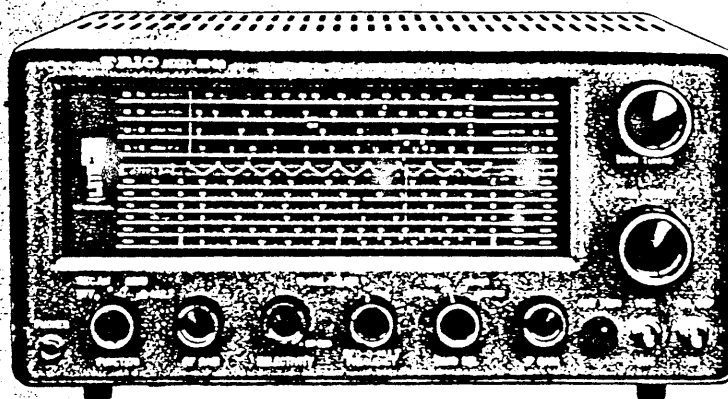
Pin 1 500K 2A 120V 50
120V 50V 120V 50V

SPECIFICATIONS

FREQUENCY RANGES:	550 — 1600 kHz 1.6 — 4.8 MHz 4.8 — 14.5 MHz 10.5 — 30 MHz
BANDSPREAD:	(Direct Reading on Ham Bands) 3.5 MHz 80m 7 MHz 40m 14 MHz 20m 21 MHz 15m 28 MHz 10m
SENSITIVITY:	A, B, C, BANDS — Less than 6 dB (for 10 dB S/N ratio) D BAND — 13 MHz; Less than 18 dB (for 10 dB S/N ratio) 28 MHz; Less than 10 dB (for 10 dB S/N ratio)
SELECTIVITY:	± 5 kHz at -50 dB
AUDIO POWER OUTPUT:	1.5 watts
POWER SUPPLY:	AC 110 — 120 / 220 — 240 V, 50/60 Hz
POWER CONSUMPTION:	45 watts
TUBES & DIODES USED:	6BA6 RF Amplifier 6BE6 Mixer 6AQ8 Oscillator 6BA6 I. F. Amplifier 1N60 Detector S-1.5-02 ANL S-1.5-02 1N60 AVC 1/2 6AQ8 BFO 1/2 6AQ8 Audio Amplifier 6AQ5 Audio Power Output S-05-08 x 2 Rectifier 1N60 For S Meter
RECOMMENDED SPEAKER TYPE:	4 or 8 ohm permanent magnet dynamic speaker (requires no output transformer)
DIMENSIONS:	7" H, 15" W, 10" D
WEIGHT:	18.8 lbs.
BUILT-IN CIRCUITS:	Bandspread Automatic Noise Limiter (ANL) Automatic Volume Control (AVC) Head phone jack

PROFESSIONAL-AMATEUR COMMUNICATIONS RECEIVER

model **9R-59**



33 GNS
RET

FEATURES :

1. 1 RF 2 IF stages for high gain reception.
2. Tunes 550 Kcs to 30 Mcs in four bands.
3. Easy-to-Read, Illuminated, Slide Rule Dial.
4. Built-in Q-Multiplier for crowded phone operation.
5. Antenna Trimmer for optimum performance on all bands.
6. Calibrated Electrical Bandspread on amateur bands 80 through 10 meters.
7. 0-100 Logging Scale for SWL's.
8. Effective Automatic Noise Limiter.
9. AVC-MVC Selector on front panel.
10. Stable Oscillator and BFO for clear CW and SSB reception.
11. Built-in Edgewise S-Meter.

SPECIFICATIONS :

FREQUENCY RANGE :

540 — 1605 Kc
1.6 — 4.8 Mc
4.8 — 14.5 Mc
10.5 — 30 Mc
21Mc 15m
28Mc 10m

3.5Mc and 7Mc bands graduated on 5Kc.

SENSITIVITY :

1 μ V (input at 10Mc, S/N 10dB)

SELECTIVITY :

Variable from 93dB to 60 dB (in "Q-MULTI" operation, with ± 10 Kc detuning)

OUTPUT :

1.5 W

POWER CONSUMPTION :

50 VA

TUBE COMPLEMENT :

V1—6BA6 for RF amplifier
V2—6BE6 for Mixer
V3—6BE6 for Local oscillator
V4, V5—6BA6 for IF amplifier
V6—6AV6 for Detector, AF amplifier, & ANL

V7—6AV6 for Q-multiplier, BFO

V8—6AQ5 for Power amplifier

V9—5Y3GT for Rectifier

BAND SPREAD :

(ham band directly read)

3.5 Mc 80m
7 Mc 40m
14 Mc 20m

RECOMMENDABLE SPEAKER :

Permanent Type Dynamic Speaker (Vc 4 or 8 Ω) without output transformer

DIMENSIONS :

Width 15" X Height 7 1/2"

X Depth 9 3/4"

Weight :

9.3 kg (20.5 lbs.)

AUXILIARY CIRCUITS :

Band spread.

Q-multiplier (high selectivity control)

ANL (Automatic Noise Control Circuit)

AVC-MVC (Automatic/Manual Volume Control)

Phone jack plug

DISTRIBUTOR

MANUFACTURED BY
TRIO CORPORATION
74, CHIDORI-CHO, CHOFU, OHTA-KU, TOKYO, JAPAN

ORIGINAL 9R59

9. AVC AND MVC

Placing the switch from AVC to MVC, you can receive DX, telegraphic carrier modulation, SSB, etc.

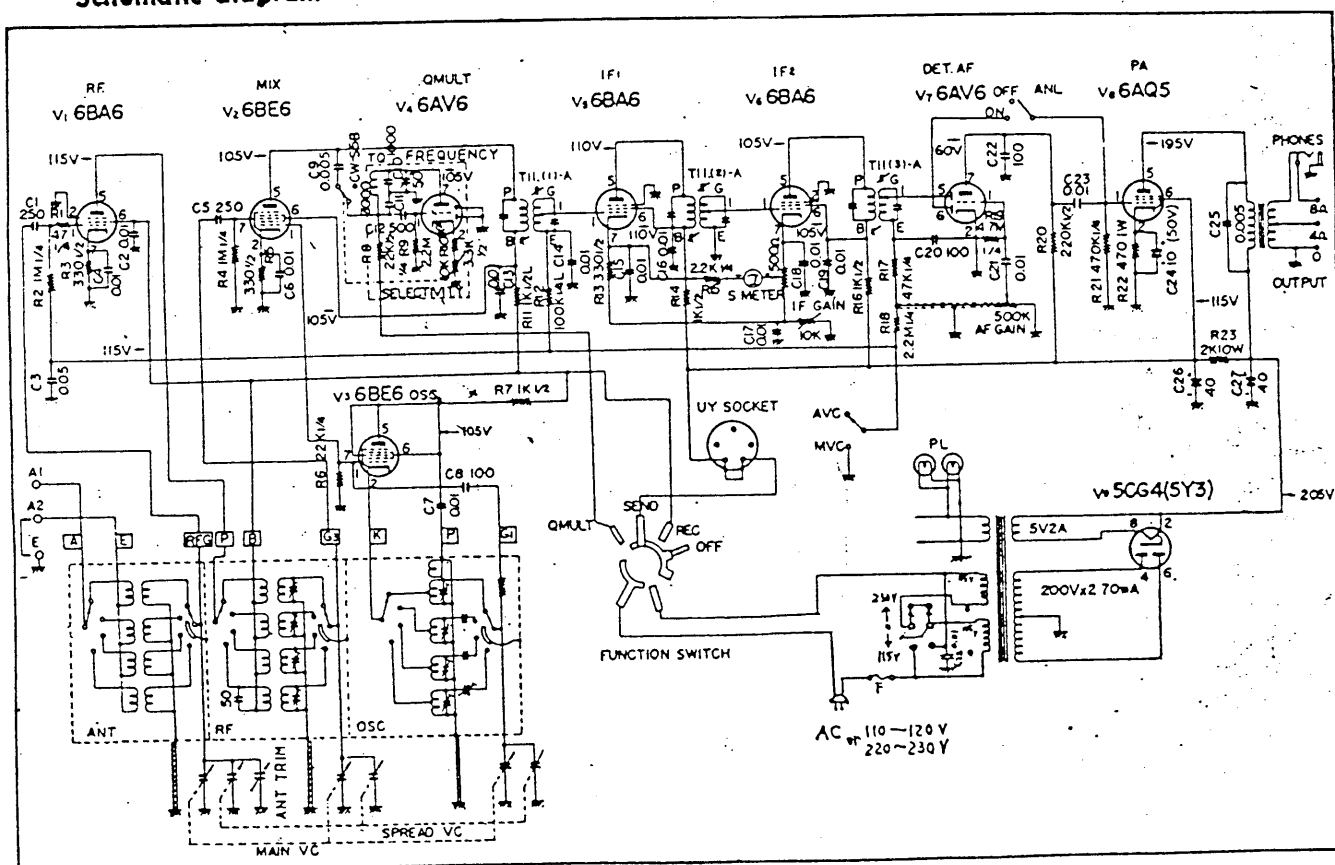
10. Q-MULTIPLIER AND BFO

Selectivity, which depends on the IFT used, can be improved by increasing Q. IFT's Q is ordinarily about 100—150 even if it is fairly large. Q is given by $Q = \omega L/R$ (where ω is $2\pi f$, R = effective resistance of coil). In this equation, Q can be increased by reducing R. If, therefore, a negative resistance $-R'$ is added from outside, the equation becomes $Q = \omega L/(R-R')$, and this gives a higher Q.

Preparing this $-R'$ is the purpose of the Q-multiplier, by the use of which Q can be raised to 3000 or so. The Q-multiplier frequency can be finely adjusted within the range of $455\text{Kc} \pm \text{several Kc}$. A Colpitts oscillator circuit is formed here. When the multiplier is to be used as a BFO, keep the circuit in oscillating condition and connect its output to the IF stage.

Schematic diagram

fig. 1



TERMINAL CONNECTIONS

fig. 2

1. ANTENNA

It is often said that a good antenna is more effective than RF single-stage amplification. In a communications receiver, especially, the choice of the antenna determines whether the receiver can fully show its performance or not. Begin, therefore, with erecting a perfect antenna.

a) Inverted L antenna

The inverted L type of antenna will provide satisfactory performance over the entire tuning

