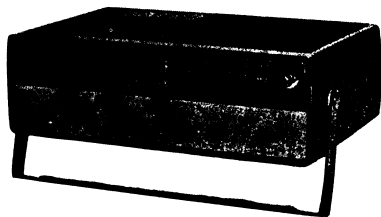


Service Manual



MODEL
FY-25

SPECIFICATIONS

FREQUENCY RANGE

LW	150~ 370KC
MW	530~1605KC
FM	86.5~108MC

Intermediate Frequency

AM	455KC
FM	10.7MC

Power Supply..... 6V (UM-1×4 pcs.)

Power Output

Undistorted	600mW
Maximum	950mW

Speaker..... 4 3/4" P.D.S.

TRANSISTOR COMPLEMENT

TR.1 2SA235	RF Amp.
TR.2 2SA235	FM Conv.
TR.3 2SA12C	FM AFC
TR.4 2SA234	FM 1st IF Amp., AM conv.
TR.5 2SA233	FM 2nd IF Amp., AM 1st IF Amp.
TR.6 2SA233	FM 3rd IF Amp., AM 2nd IF Amp.
TR.7 2SB75	Audio Amp.
TR.8 2SB75	Audio Driver
TR.9 2SB156	Output
TR.10 2SB156	Output

GENERAL DESCRIPTION

The circuitry used in this portable radio incorporates 10 transistors, 5 diodes and 1 thermistor.

A bar antenna feeds the AM broadcast signal to the converter.

After going through 2 IF amplifiers and 1 diode detector, then the signal passes through a 4 transistor audio amplifier circuit.

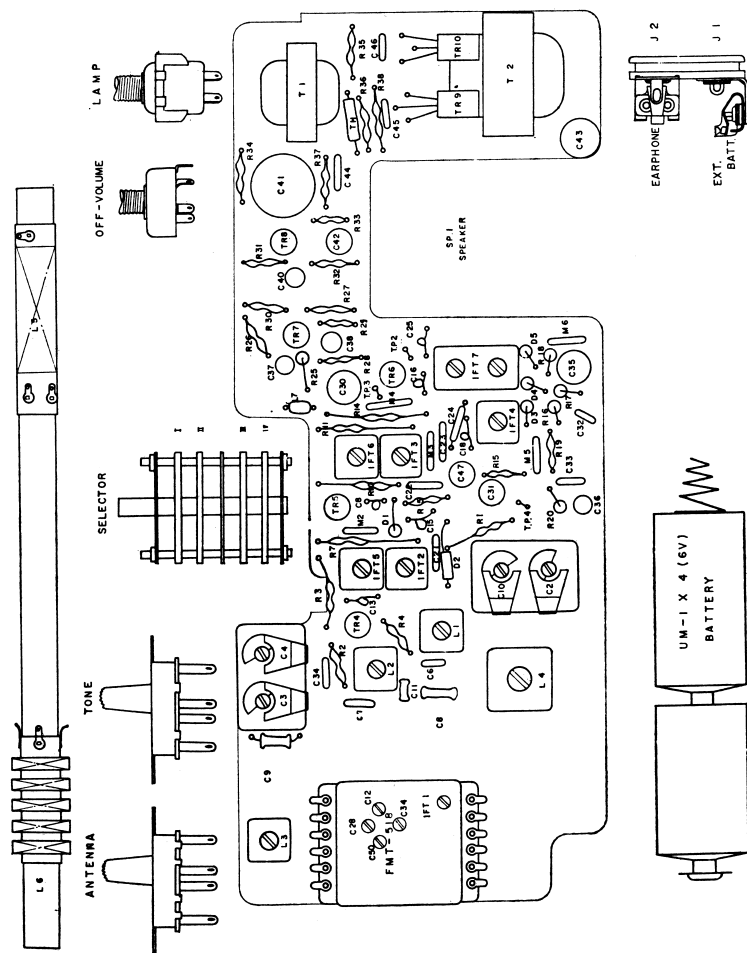
A rod antenna feeds the FM broadcast signal to the RF amplifier. After going through 3 IF amplifiers and FM 2 diodes detector, then the signal passes through a 4 transistor audio amplifier circuit.

An AM AGC voltage is fed back to 1st IF amplifier.

An AFC voltage is fed back to the FM converter.

CHASSIS REMOVAL

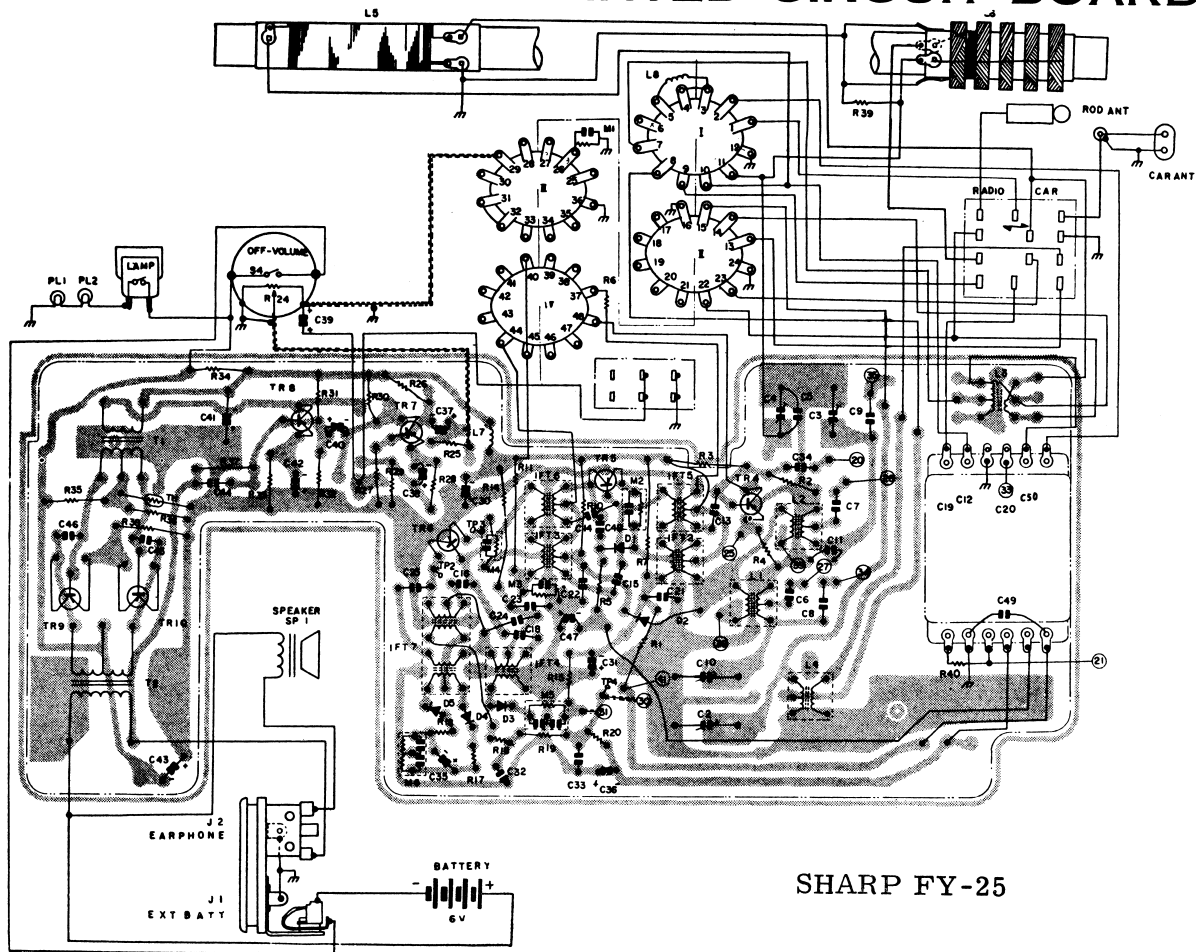
- 1 Pull out 3 control knobs.
- 2 Remove 1 screw located on the back cover and lift back cover off of cabinet.
- 3 Remove 2 screws located at both sides of cabinet.
- 4 Remove 1 screw located at the rod antenna.
- 5 Remove 5 screws located on the chassis.
- 6 Free the chassis from the cabinet and lift the chassis out of the cabinet.



S4.

SHARP MODEL FY-25

BOTTOM VIEW OF PRINTED CIRCUIT BOARD



SHARP FY-25

TR.1
VHF AMP

TR.2
FM CONV

TR.4
FM 1ST IF AMP
AM CONV

TR.5
FM 2ND IF AMP
AM 1ST IF AMP

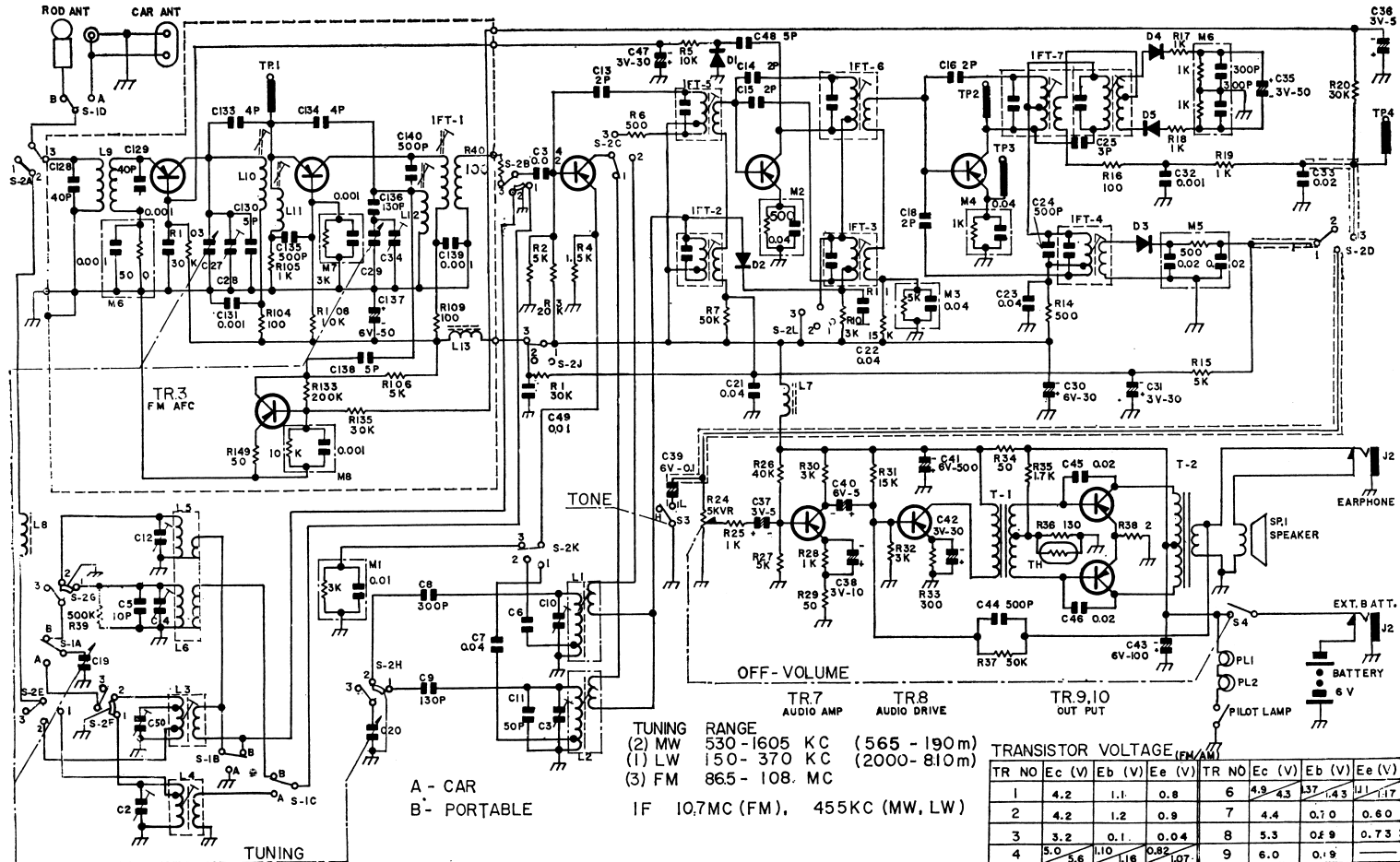
TR.6
FM 3RD IF AMP
AM 2ND IF AMP

TR.3
FM AFC

TR.7
AUDIO AMP

TR.8
AUDIO DRIVE

TR.9,10
OUT PUT



TUNING RANGE
 (1) MW 530 - 1605 KC (565 - 190m)
 (2) LW 150 - 370 KC (2000 - 810m)
 (3) FM 865 - 108. MC
 IF 10.7MC (FM), 455KC (MW, LW)

A - CAR
 B - PORTABLE

TONE

OFF - VOLUME

TR.9,10 OUT PUT

SP1 SPEAKER

EARPHONE

EXT. B. ATT.

BATTERY 6V

PILOT LAMP

TRANSISTOR VOLTAGE (FM/AM)									
TR NO	Ec (V)	Eb (V)	Ee (V)	TR NO	Ec (V)	Eb (V)	Ee (V)	TR NO	Ec (V)
1	4.2	1.1	0.8	6	4.9	4.3	1.4	3	1.1
2	4.2	1.2	0.9	7	4.4	4.0	0.7	0	0.6
3	3.2	0.1	0.04	8	5.3	0.8	0.7	3	0.7
4	5.0	5.6	1.0	9	6.0	0.9	0.82	10	0.82
5	5.6	4.7	0.64	10	6.0	0.19	0.39		

TUNING

ALIGNMENT INSTRUCTION

Should it become necessary at any time to check the alignment of this receiver, proceed as follows;

- 1) Connect an output meter across the speaker voice coil lugs.
- 2) Set volume control to maximum.
- 3) Use the lowest setting of signal generator capable of producing adequate indication on the lowest scale of output meter.
- 4) Use a non-metallic alignment tool.
- 5) Repeat adjustment to insure good results.

AM ALIGNMENT CHART

Signal generator				Receiver		Adjust	
Step	Band	Connection to receiver	Input signal frequency	Dial setting	Remarks		
1	M.W.	Connect signal generator through a 10K Ω dummy to the antenna tuning condenser. Ground lead to the receiver chassis.	Exactly 455KC. (400%, 30% AM modulated.)	Tuning gang fully open. (minimum capacity)	Adjust for maximum output on speaker voice coil lugs.	2nd-IF Trans. core 1st-IF Trans. core	
2	M.W.	Use radiating loop. Loop of several turns of wire, or place generator lead close to receiver for adequate signal pickup. Connect generator output to one end of this wire.	Exactly 520KC. (400%, 30% AM modulated.)	Tuning gang fully closed. (Maximum capacity)	Same as step 1.	MW Oscillator core	
3	M.W.	Same as step 2.	Exactly 1650KC. (400%, 30% AM modulated.)	Tuning gang fully open. (minimum capacity)	Same as step 1.	MW Oscillator trimmer	
4	M.W.	Same as step 2.	Exactly 600KC. (400%, 30% AM modulated.)	600 KC	See NOTE A	MW Antenna coil	
5	M.W.	Same as step 2.	Exactly 1400KC. (400%, 30% AM modulated.)	1400 KC	Same as step 4.	MW Antenna trimmer	
6	M.W.	Repeat steps 2,3,4 and 5 until no further improvement is obtained.					
7	L.W.	Same as step 2.	Exactly 145KC. (400%, 30% AM modulated)	Tuning gang fully closed. (maximum capacity)	Same as step 1.	LW Oscillator coil	
8	L.W.	Same as step 2.	Exactly 380KC. (400%, 30% AM modulated)	Tuning gang fully open. (minimum capacity)	Same as step 1.	LM Oscillator trimmer	
9	L.W.	Same as step 2.	Exactly 180KC. (400%, 30% AM modulated)	180 KC	Same as step 4.	LM Antenna core	
10	L.W.	Same as step 2.	Exactly 350KC. (400%, 30% AM modulated)	350 KC	Same as step 4.	LW Antenna trimmer	
11	L.W.	Repeat steps 7,8,9 and 10 until no further improvement is obtained.					

FM ALIGNMENT CHART

Signal generator				Receiver		Adjust	
Step	Band	Connection to receiver	Input signal frequency	Dial setting	Remarks		
1	F.M.	Connect signal generator through a 10K Ω dummy to converter emitter. test point 1, of TR2 round lead to the receiver chassis.	Exactly 10.7MC (400%, 30% FM modulated)	Tuning gang fully closed. (maximum capacity)	Connect receiver chassis through a 0.05mfd condenser to IF3 collector, test point 2, of TR5.	3rd-IF Trans. core 2nd-IF Trans. core 1st-IF Trans. core	
2	F.M.	Same as step 1.	Exactly 10.7MC (Unmodulated)		Same as step 1.	Discriminator trans. core.	
3	F.M.	Connect signal generator through a 100 Ω , including output impedance of signal generator to the external antenna coil lug. Ground lead to the receiver chassis.	Exactly 86MC (400%, 30% FM modulated)	Tuning gang fully closed. (maximum capacity)	Adjust for maximum output speaker voice coil lugs.	FM Oscillator core	
4	F.M.	Same as step 3.	Exactly 110MC (400%, 30% FM modulated)	Tuning gang fully open. (minimum capacity)	Same as step 3.	FM Oscillator trimmer	
5	F.M.	Same as step 3.	Exactly 88MC (400%, 30% FM modulated)	88 MC	Same as step 3.	FM RF core	
6	F.M.	Same as step 3.	Exactly 108MC (400%, 30% FM modulated)	108 MC	Same as step 3.	FM RF trimmer	
7	F.M.	Repeat steps 3,4,5 and 6 until no further improvement is obtained.					

NOTE

- A Check alignment of receiver antenna coil by bringing a piece of powdered iron (such as a coil slug) near the antenna loop stick, then a piece of brass. If powdered iron increases output, loop requires more inductance. If brass increases output, loop requires less inductance, change loop inductance by sliding the bobbin toward the center of ferrite core to increase inductance, or away to decrease inductance.
- B
- 1) Connect VTVM (0.1 volts range D.C. scale) across volume control of receiver. (Grounded terminal to high side of control.)
 - 2) Adjust discriminator Sec. core for VTVM 0 volt.
 - 3) Change signal generator frequency 10.7MC + 100KC and -100KC approximately.
 - 4) Adjust discriminator Pri. core for balanced peaks. Peak separation should be approximately 200KC.

DIAL CORD STRINGING

