MODEL 40-158, Code 121

SPECIFICATIONS

TYPE OF CIRCUIT: **Model 40-158** is a six (6) tube alternating current (A. C.) operated super-heterodyne radio having two tuning ranges covering standard and police broadcast frequencies. In addition other features of design are: Philco Loktal tubes; special high gain untuned R. F. stage; automatic volume control and a Pentode audio output stage.

TUNING RANGES: 540 to 1600 K. C.; 1.6 to 3.4 M. C.

INTERMEDIATE FREQUENCY: 455 K. C.

POWER SUPPLY: 115 volts A. C., 60 cycle.

POWER CONSUMPTION: 45 watts.

AUDIO OUTPUT POWER: 2 watts.

PHILCO TUBES USED: 7B7, R. F. Amplifier; 7A8, Converter; 7B7, I. F. Amplifier; 7C6, Detector, A. V. C., 1st Audio; 41, Power Output; 84, Rectifier.

CABINET DIMENSIONS:
Height, 38⅞". Width, 28¾". Depth, 10⅝".

AERIAL AND GROUND: This radio is designed to operate efficiently from a Philco Utility Aerial, Part No. 40-6384, or Safety Aerial, Part 40-6370, or a short piece of wire (20 feet). The ground of the set should be connected to a cold water pipe or any other good ground source.

ALIGNING COMPENSATING CONDENSERS

EQUIPMENT REQUIRED

Signal Generator: In order to properly adjust the various R. F. and I. F. padders of this model, a calibrated signal generator such as Philco Model 077 is required.

Aligning Indicating Device: A Vacuum Tube Voltmeter or Audio Output Meter should be used. Philco Models 027 and 028 contain both of these type meters. Procedures for connecting either of these meters are listed below.

Aligning Tools: Fibre handle screw driver, Philco Part No. 45-2610. When using the vacuum tube voltmeter to align the set, an aligning adaptor, Part No. 45-2767, is required.

CONNECTING ALIGNING METERS

Audio Output Meter: Philco Model 027 or 028 Audio Output Meter is connected to the voice coil terminals of the speaker or the plate and screen of the 41 tube and adjusted for the 0 to 10 volt A. C. scale.

Vacuum Tube Voltmeter: To use the Vacuum Tube Voltmeter as an alignment indicator make the following connections:

(1) **Adjusting I. F. Circuit:** Remove the 7B7 R. F. tube from its socket and insert the aligning adaptor, then replace the tube in the adaptor. Connect the negative terminal of the vacuum tube voltmeter to the light colored wire which protrudes from the side of the adaptor. Attach the positive terminal of the vacuum tube voltmeter to the black wire of the adaptor.

(2) **Adjusting R. F. Circuit:** To adjust the R. F. circuit, the aligning adaptor is inserted in the 7C6 second detector tube socket. The vacuum tube voltmeter remains connected to the adaptor as given in the paragraph above. With the voltmeter connected in this manner a very sensitive indication of the A. V. C. voltage is obtained when the padders are adjusted.

After connecting the aligning adaptors, adjust the compensators as shown in the tabulation below. Locations of the compensators are shown in the schematic diagram. If the output meter pointer goes off scale when adjusting the compensators, reduce the strength of the signal from the generator.

Operations in Order	SIGNAL GENERATOR		RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dial Setting	Dial Setting	Control Setting	Adjust Compensators in Order	
1	Antenna Terminal	455 K. C.	580 K. C.	Vol. Cont. Max. Range Switch "Brdcst"	18A, 18B 14A, 14B	Note A
2	Antenna Terminal	1500 K. C.	1500 K. C.	Vol. Cont. Max. Range Switch "Brdcst"	13B, 13A Note B	

NOTE A — DIAL CALIBRATION: In order to adjust the receiver correctly, the dial must be aligned to track properly with the tuning condenser. To do this, proceed as follows: Turn the tuning condenser to the maximum capacity position (plates fully meshed). With the condenser in this position, set the tuning pointer on the extreme left index line at the low frequency end of the broadcast scale.

NOTE B — The oscillator padder (13B) and antenna padder (13A) are located on top of the tuning condenser (13B) at the rear and (13A) at the front of the tuning condenser.

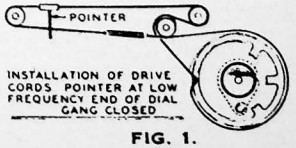

FIG. 1.

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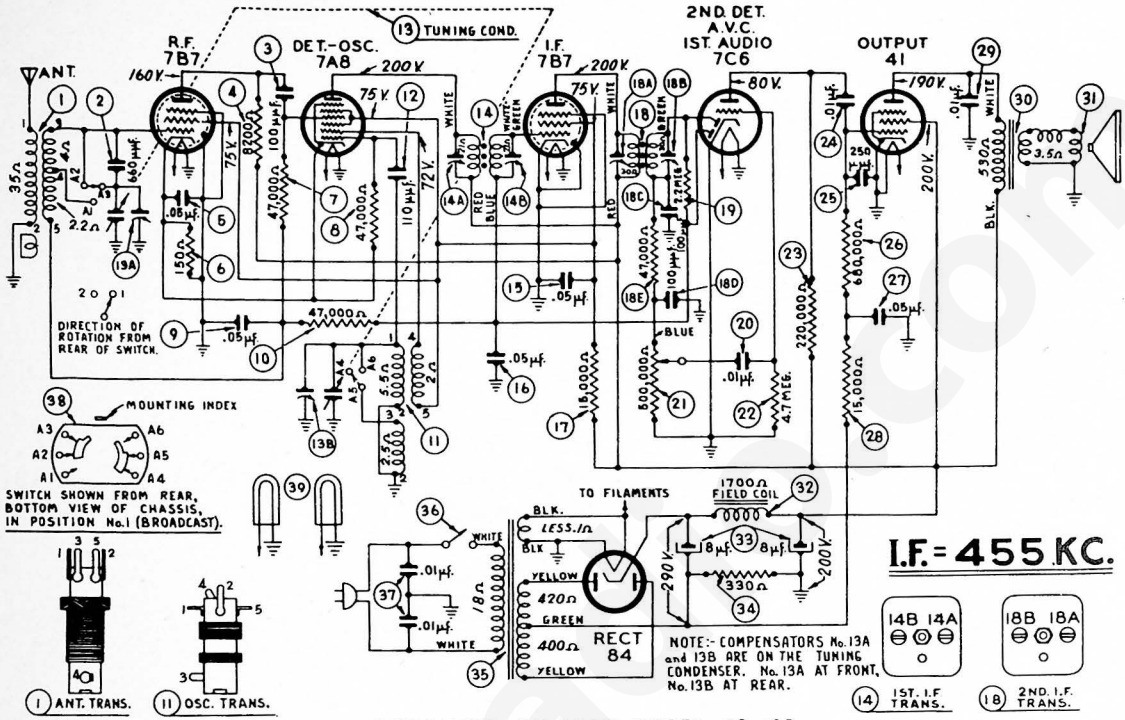

SCHEMATIC DIAGRAM MODEL 40-158

REPLACEMENT PARTS

SCHE. No.	DESCRIPTION	PART No.
1	Antenna Transformer	32-3303
2	Mica Condenser (660 mmfd.)	30-1136
3	Mica Condenser (100 mmfd.)	30-1128
4	Resistor (8200 ohms, ½ watt)	33-282339
5	Tubular Condenser (.05 mfd.)	30-4519
6	Resistor (150 ohms, ½ watt)	33-115339
7	Resistor (47,000 ohms, ½ watt)	33-347339
8	Resistor (47,000 ohms, ½ watt)	33-347339
9	Tubular Condenser (.05 mfd.)	30-4519
10	Resistor (47,000 ohms, ½ watt)	33-347339
11	Oscillator Transformer	32-3255
12	Mica Condenser (110 mmfd.)	30-1130
13	Tuning Condenser Assembly	31-2418
14	1st I. F. Transformer Assy.	32-3361
15	Tubular Condenser (.05 mfd.)	30-4519
16	Tubular Condenser (.05 mfd.)	30-4519
17	Resistor (15,000 ohms, 1 watt)	33-315439
18	2nd I. F. Transformer Assembly	32-3211
19	Resistor (2.2 meg., ½ watt)	33-522339
20	Tubular Condenser (.01 mfd.)	30-4572
21	Volume Control (500,000 ohms)	33-5319
22	Resistor (4.7 meg., ½ watt)	33-547339
23	Resist. (220,000 ohms, ½ watt)	33-422339
24	Tubular Condenser (.01 mfd.)	30-4572
25	Mica Condenser (250 mmfd.)	61-0033
26	Resist. (680,000 ohms, ½ watt)	33-468339
27	Tubular Condenser (.05 mfd.)	30-4519
28	Resist. (15,000 ohms, ½ watt)	33-315339
29	Tubular Condenser (.01 mfd.)	30-4501
30	Output Transformer	32-8056
31	Cone and Voice Coil Assembly (Speak r Part No. 36-1480-3)	36-4086
32	Field Coil (Replace Speaker Part No. 36-1480)	
33	Elec. Cond. (8-8 mfd., 450 V.)	30-2447
34	Resistor (330 ohms, 1 watt)	33-133439
35	Power Transformer (115-130 V., 50-60 cycles)	32-8055
	(115-130 V., 25 cycle)	32-8076
36	A. C. Switch	42-1545
37	Bakelite Cond. (.01-.01 mfd.)	3903-DG
38	Wave Switch	42-1494
39	Pilot Lamps	34-2064

SCHE. No.	DESCRIPTION	PART No.
	MISCELLANEOUS PARTS	
	Bezel	27-4842
	Cabinet	10398C
	Cable and Plug (Power Supply)	L-3199
	Clip (Coil Mounting)	28-5002
	Dial	27-5551
	Drive Cord Assembly (Tuning Condenser)	31-2400
	(Pointer Operation)	31-2382
	Insulating Bushing (Dr. Shaft)	27-9437
	Knobs (A. C. Switch, Volume, Tuning and Wave Switch)	27-4332

SCHE. No.	DESCRIPTION	PART No.
	Pilot Lamp Socket Assembly	38-9904
	Pointer	56-1479
	Rubber Insulator (Drive Shaft)	27-9432
	Socket (5 prong, type 84 tube)	27-6035
	Socket (6 prong, type 41 tube)	27-6036
	Socket (Loktal)	27-6131
	Spring (Drive Cord, Tuning)	27-8751
	Spring (Drive Cord, Pointer)	27-8953
	Spring (Dr. Shaft, Grounding)	27-8955
	Tuning Drive Drum Assembly	38-9883
	Tuning Shaft	56-6052
	Washer ("C" type, tun. shaft)	28-2043

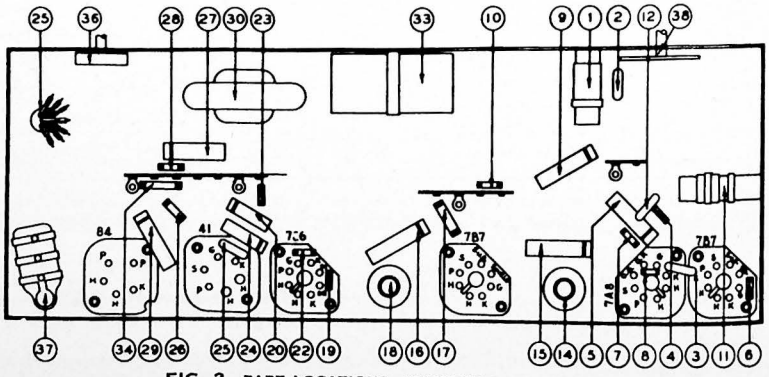

FIG. 2. PART LOCATIONS, UNDERSIDE OF CHASSIS.