Models 42-PT-87, 42-PT-88

SPECIFICATIONS

Models 42-PT-87; 42-PT-88 are five (5) tube portable battery or 115 volt A. C.-D. C. operated super-heterodyne radios with a built-in aerial. In general these models are similar with the exception of the cabinets.

Other features included in this model are: Tuning band from 540 to 1600 K. C.; Automatic Volume Control; beam power pentode audio output stage and a Permanent-Field Speaker.

POWER SUPPLY: This radio is designed to operate from a combination AB battery, Philco Part No. P-87, or from a 115 volts A. C.-D. C. current. To operate on Batteries insert the A. C.-D. C. power plug into the slots on the rear of the chassis. To operate on 115 volts A. C.-D. C. current remove the power plug from the socket and insert the plug into a power receptacle.

INTERMEDIATE FREQUENCY: 455 K. C.

PHILCO TUBES USED: 1A7G, converter; 1N5G, I. F. amplifier; 1H5G, 2nd detector, 1st audio, A. V. C.; 3Q5GT, Audio Output and a 117Z6G, rectifier.

AERIAL AND GROUND: Under ordinary operating conditions an outside aerial or ground is not required. In some locations, however, such as camps, steel reinforced buildings and other shielded areas where signal strength is weak, an outside aerial should be used for maximum performance. Two leads are provided on the inside of the cabinet. Connect the aerial lead to the white wire and the ground lead to the black wire.

Pin jacks are also provided on the side of the cabinet for attaching the Philco Auxiliary Plug-in loop aerial. This aerial is especially designed for portable use in trains, hotels, and any shielded locations. Complete instructions for installation come with each aerial.

ALIGNING R. F. AND I. F. COMPENSATORS

The following procedure covers both models in this Bulletin.

EQUIPMENT REQUIRED

1. **SIGNAL GENERATOR:** Covering the frequency range of the receiver, such as Philco Models 070 or 177.
2. **ALIGNING INDICATOR:** Either a vacuum tube voltmeter or an audio output meter may be used as an aligning indicator. Philco Models 027 and 028 circuit testers contain both these meters.
3. **TOOLS:** Philco Fiber Screw Driver, Part No. 45-2610.

CONNECTING ALIGNING INSTRUMENTS

Audio Output Meter: If this type of aligning meter is used, connect it to the voice coil terminals of the speaker or from the plate of the 3Q5GT tube to the chassis. Adjust the meter for the 0 to 10 volt scale.

Vacuum Tube Voltmeter: To use the vacuum tube voltmeter as an aligning indicator, make the following connections: Attach the negative (—) terminal of the voltmeter to any point in the circuit where the A. V. C. voltage can be obtained. Connect the positive (+) terminal of the vacuum tube voltmeter to the chassis.

Signal Generator: When adjusting the I. F. padders, the high side of the signal generator is connected through a .1 mfd. condenser to the antenna section of the tuning condenser. Connect the ground or low side of the generator to the chassis.

When aligning the R. F. padders a loop is made from a few turns of wire and connected to the signal generator output terminals; the signal generator is then placed close to the loop of the radio.

The aligning compensators should be adjusted with the chassis assembled in the cabinet.

After connecting the aligning instruments adjust the compensators as shown in the tabulation below.

If the indicating meter pointer goes off scale when adjusing the compensators, reduce the strength of the signal from the generator.

These Receivers can be adjusted when operated by Battery or A. C.-D. C.

Operations in Order	SIGNAL GENERATOR		RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dial Setting	Dial Setting	Control Setting	Adjust Compensators in Order	
1	Ant. Section of tuning	455 K. C.	540 K. C. Tuning Cond. Closed	Vol. Max. Range Switch Brdcst.	8A, 8B 16A	
2	Loop see above instructions	1600 K. C.	1600 K. C.	Vol. Max. Range Switch Brdcst.	1B	Note A
3	Loop see above instructions	1500 K. C.	1500 K. C.	Vol. Max. Range Switch Brdcst.	1A	

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 small dot below 550 K. C.

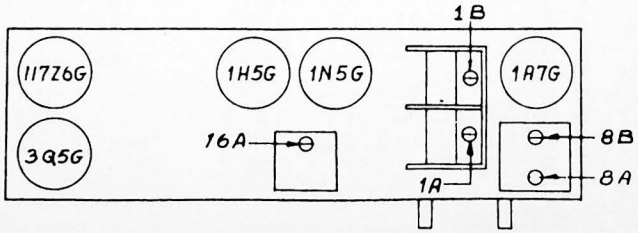
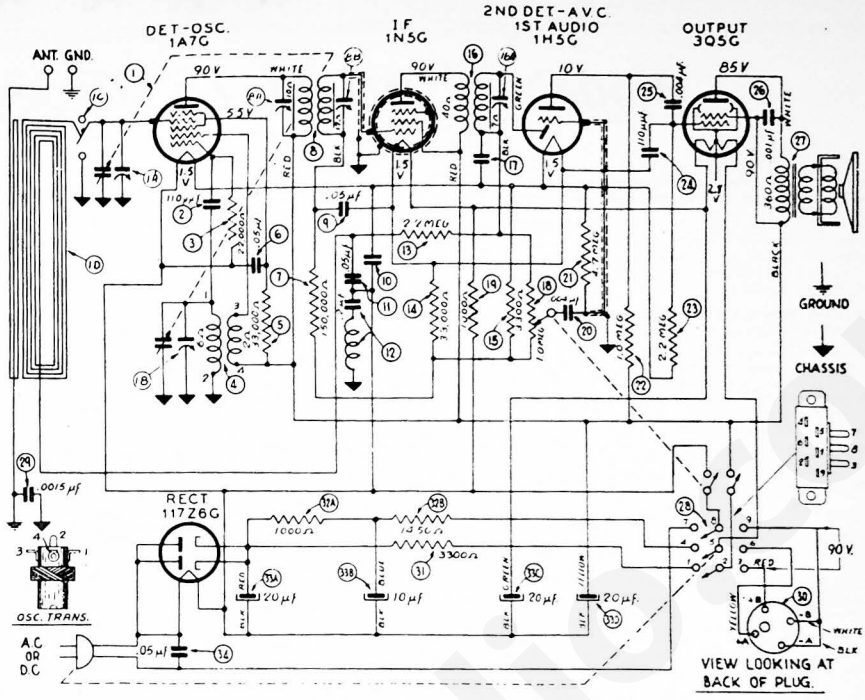


Fig. 1.—TOP VIEW OF CHASSIS SHOWING TUBE & COMPENSATOR LOCATIONS.



SCHEMATIC DIAGRAM—MODEL 42-PT-87, 42-PT-88

THE TUBE SOCKET VOLTAGES INDICATED ON THE DIAGRAM WERE MEASURED WITH A 1000 OHM PER VOLTMETER, PHILCO MODEL 027; BATTERIES IN GOOD CONDITION.

SCHE. NO.	DESCRIPTION	PART NO.
1	—Tuning Condenser	31-2500
	Rubber Mtg. Grommet	54-4020
	Mtg. Nut (Cond.)	W-1543
	Mtg. Screw	W-1974
	Mtg. Nut (Tuning Shaft)	W-2157
	Spring (Tuning Cond.)	28-8751
	Drive Cord	31-2411
	Drive Shaft	76-1036
1A	—Aerial Compensator, Part of 1	
1B	—Oscillator Compensator, Part of 1	
1C	—External Loop Pin Jack Socket	27-6141
1D	—Internal Loop Aerial (Part of Cabinet)	
2	—Condenser (100 mmfd.)	60-110157
3	—Resistor (220,000 ohms)	33-422339
4	—Oscillator Transformer	32-3425
5	—Resistor (33,000 ohms)	33-333339
6	—Condenser (.05 mfd., 200 volts)	30-4519
7	—Resistor (150,000 ohms)	33-415339
8	—1st I. F. Transformer	32-3584
	Mtg. Nut	W-1949
9	—Condenser (.05 mfd., 200 volts)	30-4519
10	—Condenser (.1 mfd., 200 volts)	61-0113
11	—Condenser (.05 mfd., 200 volts)	30-4519
12	—Condenser (.2 mfd.) and R. F. Choke	76-1034
13	—Resistor (2.2 megohms)	33-522339
14	—Resistor (3300 ohms)	33-233339
15	—Resistor (3300 ohms)	33-233339
16	—2nd I. F. Transformer	32-3473
17	—Mica Condenser (250 mmfd.)	60-125157
18	—Volume Control	33-5389
	Mtg. Nut	W-2157
19	—Resistor (1000 ohms)	33-210339
20	—Condenser (.004 mfd., 400 volts)	61-0128
21	—Resistor (4.7 megohms)	33-547339
22	—Resistor (1 megohm)	33-510339
23	—Resistor (2.2 megohms)	33-522339
24	—Mica Condenser (100 mmfd.)	60-110157
25	—Condenser (.004 mfd., 400 volts)	61-0128
26	—Condenser (.0015 mfd., 400 volts)	30-4555
27	—Output Transformer	32-8159
28	—Change-over Switch (Power Supply)	42-1553
	Sleeve Switch Mtg.	57-0194
	Mtg. Screw	W-1395

SCHE. NO.	DESCRIPTION	PART NO.
29	—Condenser (.0015 mfd., 400 volts)	30-4555
30	—Battery Cable	41-3592
31	—Resistor (3300 ohms)	33-233339
32	—Resistor (1000-1450 ohms)	33-3400
	Rivet	W-207
33A	—Electrolytic Condenser (20 mfd., 150 volts)	30-2492
33B	—Electrolytic Condenser (10 mfd., 150 volts) part of 33A	
33C	—Electrolytic Condenser (20 mfd., 25 volts) part of 33A	
33D	—Electrolytic Condenser (20 mfd., 150 volts) part of 33A	
34	—Condenser (.05 mfd., 400 volts)	30-4518
35	—Cone Assembly (For Speaker 36-1521-3)	36-4175

SCHE. NO.	MISCELLANEOUS PARTS	PART NO.
	Cord (Power)	L-3199
	Clip (Coil Mtg.)	28-5002
	Cabinet PT-87	10519B
	Cabinet (PT-88)	10545A
	Dial	27-5672
	Rivet (Dial Mtg.)	97-0065
	Dial Pointer	54-4043
	Knob	27-4970
	Screw (Chassis Mtg.)	W-2030
	Speaker	36-1521
	Socket (Tube)	27-6156
	Socket (1N5G Tube)	27-6162
	Eyelet (Socket Mtg.)	W-1469
	Tube Shield	54-1566
	Tube Shield Ground Clip	54-1567
	Terminal Panel (Chassis)	38-9923
	Washer (Chassis Mtg.)	W-410
	Screw (Chassis Mtg.)	W-2030

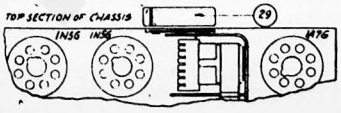


Fig. 3.—TOP SECTION OF CHASSIS

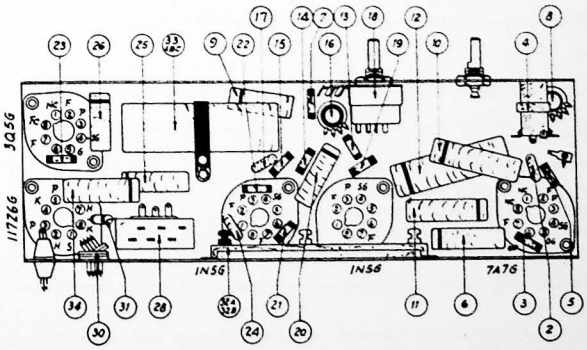


Fig. 2.—LOCATIONS OF PARTS, BOTTOM OF CHASSIS