

# Models 42-121CB, Code 121; 42-122T, Code 121; 42-123F, Code 121

## SPECIFICATIONS

### MODEL 42-121

**TYPE OF CIRCUIT** — Four (4) tube battery operated single band superheterodyne circuit covering 540 to 1720 K.C. In addition, other features included are: pentode audio output stage, automatic volume control, high output permanent magnet speaker, Philco low current drain LOKTAL tubes, and an "ON-OFF" indicator.

**INTERMEDIATE FREQUENCY** — 455 K.C.

**BATTERIES REQUIRED** — Philco combination "A-B" battery type No. P-60B-6L.

**BATTERY VOLTAGE AND CONSUMPTION** — "A" 1.5 volts, 200 Ma.  
"B" 90 volts, 6.9 Ma.

**AUDIO OUTPUT** — 100 milliwatts.

**PHILCO TUBES USED** — 1LA6, converter; 1LN5, 1st I. F. amplifier; 1LH4, 2nd detector, 1st audio; 1LA4, audio output.

### MODELS 42-122T, 42-123F

**TYPE OF CIRCUIT**: Five (5) tube battery operated superheterodyne circuit covering broadcast band and state police frequencies. Other features included are: Push-Pull pentode audio output stage; automatic volume control; OFF-ON indicator; low current drain Philco LOKTAL Tubes and a high output permanent Magnet Speaker especially designed for Farm Radios.

In general these models are similar with the exception of the cabinets and speakers. Model 42-122T is assembled in a Table Type Cabinet, and Model 42-123F in a console (Floor Type) Cabinet.

**TUNING RANGES**: 540 to 1720 K.C.

**INTERMEDIATE FREQUENCY**: 455 K.C.

**PHILCO BATTERY REQUIRED**: Type P-60D-11L Combination "A-B" unit.

**BATTERY VOLTAGE AND CONSUMPTION**: Filament, 1.5 volts; 250 Ma.  
Plate, 90 volts; 10 Ma.

**AUDIO OUTPUT**: 170 milliwatts.

**PHILCO TUBES USED**: 1LA6, converter; 1LN5, I. F. amplifier; 1LH4, 2nd detector, 1st audio; two 1LA4, screen phase inversion Push-Pull audio output.

## AERIAL AND GROUND

To obtain the maximum receiving performance an outside aerial such as the Philco Farm Radio Aerial, Part No. 40-6383, should be used with these models. A good ground connection is also required. The ground connection should be made to a water pipe or a metal rod driven into four feet of moist earth.

### MODELS 42-121, 42-122, 42-123

## ALIGNING R. F. AND I. F. COMPENSATORS

THIS PROCEDURE APPLIES TO ALL MODELS IN THIS BULLETIN

### EQUIPMENT REQUIRED

- Signal Generator**: Covering frequency range of the radios. Philco Model 070 A.C. operated or Model 177 battery operated Signal Generators have frequency ranges required for aligning all models.
- Indicating Device**: To obtain maximum signal strength and accurate adjustment of padders, a vacuum tube voltmeter similar to Philco Models 027 and 028 is recommended. These instruments also contain an audio output meter which may be used as an indicating device. The method of connecting either of these instruments is listed below.
- Aligning Tools**: Fiber handle screwdriver, Philco Part No. 45-2610.

### CONNECTING ALIGNING INSTRUMENTS

**Vacuum Tube Voltmeter**: To use the vacuum tube voltmeter as an aligning indicator it should be connected to the A. V. C. circuit as follows:

- Connect the negative (—) terminal of the vacuum tube voltmeter through a 2 megohm resistor to any point in the circuit where the A. V. C. voltage can be measured.
- Connect the positive (+) terminal to the chassis ground terminal.

**Audio Output Meter**: If this type of meter is used as an aligning indicator, it should be connected to the plate of the output tube and ground.

**Signal Generator**: When adjusting the I. F. padders the high side of the signal generator is connected through a .1 mfd. condenser to the aerial tuning condenser stator lug which connects to the grid of the converter tube. The

ground or low side of the signal generator is connected to the chassis of the receiver.

When aligning the R. F. padders connect the signal generator as given below in the column "Output Connections to Receiver" with a dummy aerial as indicated in "Dummy Aerial" column.

After connecting the aligning meter, adjust the compensators in the order as shown in the tabulation below. Locations of the compensators are shown in the diagram.

If the output pointer goes off scale when adjusting the compensators, reduce the strength of the signal from the generator.

Due to the dial being mounted on the cabinet, it will be necessary to align receiver when mounted in the cabinet.

Operations in Order	SIGNAL GENERATOR			RECEIVER				Special Instructions
	Output Connections To Receiver	Dummy Aerial	Dial Setting	Dial Setting	Control Settings	Adjust Compensators		
						42-121	42-122 42-123	
1	Stator Plate lug-aerial tuning cond.	.1 mfd.	455 K.C.	580 K.C.	Vol. Max.	11B, 8B, 8A	11A, 10B, 10A	Note A
2	Aerial Connection Receiver	225 mmfd.	1700 K.C.	1700 K.C.	Vol. Max.	2B	2B	
3	Aerial Connection Receiver	225 mmfd.	1500 K.C.	1500 K.C.	Vol. Max.	2A	2A	

**NOTE A** — Dial Calibration: Before adjusting the R. F. Compensators, the dial pointer must be adjusted to track properly with the tuning Condenser. To adjust the pointer, turn the tuning Condenser to the closed position (maximum capacity) and set the pointer to the mark at the left hand end of the dial below 550 K.C.

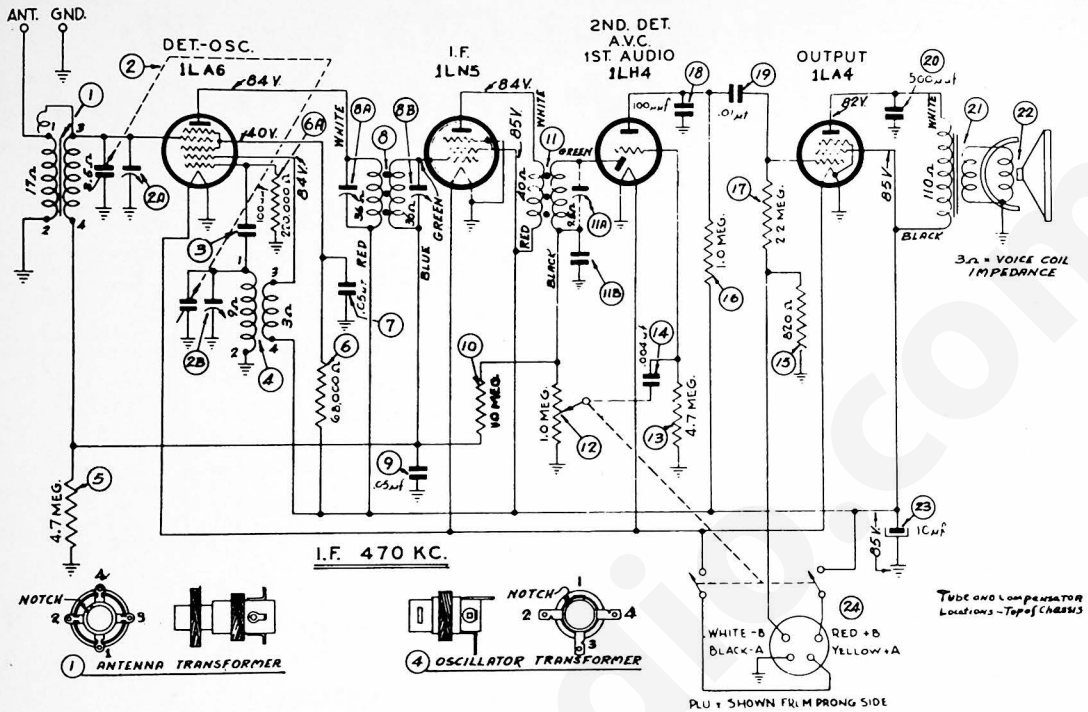


FIG. 1 — SCHEMATIC DIAGRAM — MODEL 42-121, CODE 121

THE D. C. VOLTAGES INDICATED IN THE ABOVE DIAGRAM WERE MEASURED FROM THE TUBE SOCKET CONTACTS TO CHASSIS WITH A 1,000 OHMS PER VOLT VOLTMETER, PHILCO MODEL 027. BATTERIES AT FULL RATED VOLTAGE.

Replacement Parts for Model 42-121 Are Listed on Page 4

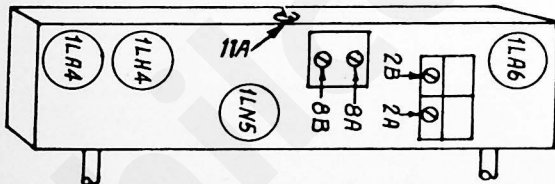
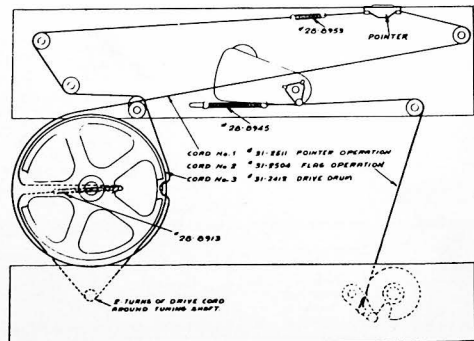


FIG. 2 — TUBE AND COMPENSATOR LOCATIONS, TOP OF CHASSIS, MODEL 42-121.



INSTALLATION OF DRIVE CORDS, POINTER AT LOW FREQUENCY END OF DIAL GANG CLOSED VIEW SHOWN FROM REAR OF CHASSIS

FIG. 3 — INSTALLATION OF DRIVE CORDS, MODEL 42-121.

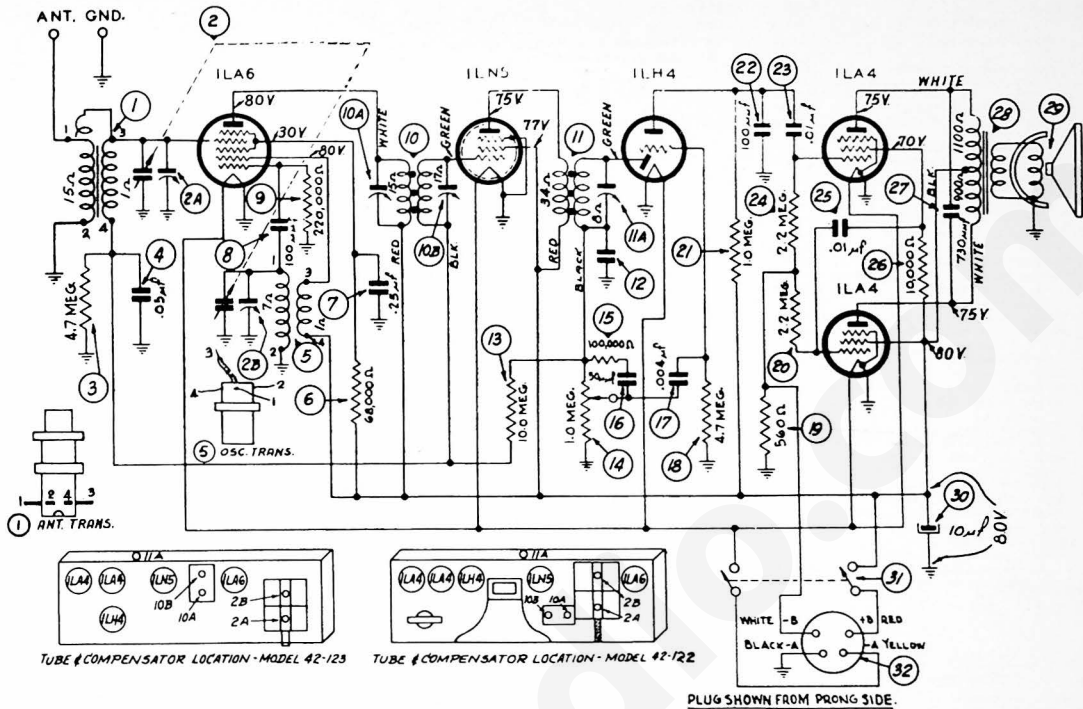


FIG. 4 — SCHEMATIC DIAGRAM — MODELS 42-122, 42-123.

THE D. C. VOLTAGES INDICATED IN THE ABOVE DIAGRAM WERE MEASURED FROM THE TUBE SOCKET CONTACTS TO THE CHASSIS WITH A 1,000 OHMS PER VOLT VOLTMETER, PHILCO MODEL 027, BATTERIES AT FULL RATED VOLTAGE.

**Replacement Parts for Models 42-122, 42-123 Are Listed on Page 4**

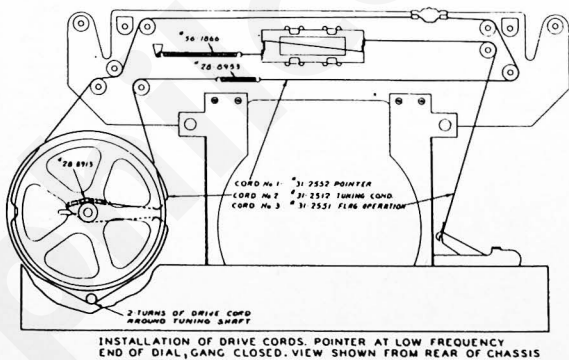


FIG. 5 — INSTALLATION OF DRIVE CORDS, MODEL 42-122.

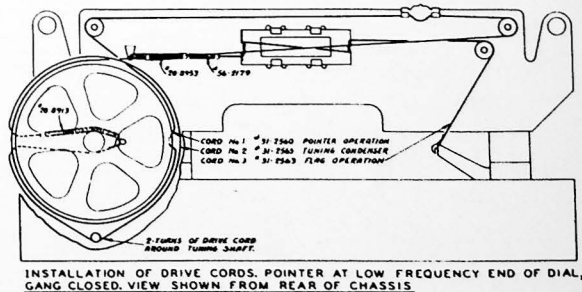


FIG. 6 — INSTALLATION OF DRIVE CORDS, MODEL 42-123.

## REPLACEMENT PARTS — MODEL 42-121CB

SCHEM. No.	DESCRIPTION	PART No.	SCHEM. No.	DESCRIPTION	PART No.	SCHEM. No.	DESCRIPTION	PART No.	
1.	Antenna Transformer	32-3490	23.	Electrolytic Cond. (10 mfd., 150 v.)	30-2396		Drive Cord	31-2504	
	Clip	28-5002		Battery Cable Assembly	41-3505		Cam Assembly	38-9081	
2.	Tuning Condenser Assembly	31-2485	<b>MISCELLANEOUS PARTS</b>						
	Rubber Grommet	27-4610		Baffle & Cloth Assembly	40-6649		Transfer Lever	76-1049	
	Spacer	56-1669		Mtg. Fasteners	56-6082		Spring	28-8945	
	Spring (Tuning Cond.)	28-8913		Cabinet	10478-B		Spring Washer	56-1866	
	Spring (Pointer Drive)	28-8933		Disc Foot	27-4084		Knob Assembly	54-4081	
	Pointer (Dial)	56-2159		Screw (Chassis Mtg.)	W-2068		Speaker	36-1507	
	Drive Cord (Pointer)	31-2511		Dial Scale	27-5714		Drive Screw (Speaker Mtg.)	W-1874	
	Drive Cord (Tuning Cond.)	31-2516		Dial Backing Cover	27-9875		Socket (Tubas)	27-6151	
	Shaft (Tuning)	31-2545		Mtg. Straps	56-1752		Rivet	W-239	
	Drive Drum	76-1176		Mts. Washers	W-152	<b>MOUNTING PARTS</b>			
	Nut (Cond. Mtg.)	W-1543		Mts. Screws	W-2062		Rubber Grommet (Dial Bracket Mtg.)	27-4596	
3.	Mica Condenser (100 mmfd.)	60-110157		Indicator Plug	W-2232		Spacer (Dial Bracket to Cab.)	28-5665	
4.	Oscillator Transformer	32-3491		Indicator	76-1122		Stud (Indicator) & Transfer Lever Arm	28-8942	
5.	Resistor (4.7 meg., ½ watt)	33-547339					Washer (Chassis Mtg.)	W-410	
6.	Resistor (68,000 ohms, ½ watt)	33-368339							
7.	Tubular Condenser (.05 mfd., 200 v.)	30-4519							
8.	1st I. F. Transformer	32-3675							
	Palnut (mounting)	W-1949							
9.	Tubular Condenser (.05 mfd., 200 v.)	30-4519							
10.	Resistor (10.0 meg., ½ watt)	33-610339							
11.	2nd I. F. Transformer	32-3199							
	Palnut (mounting)	W-1949							
11A.	Compensator	part of 11A							
11B.	Compensator	part of 11A							
12.	Volume Control (1.0 meg.)	33-5441							
	Palnut	W-2157							
13.	Resistor (4.7 meg., ½ watt)	33-547339							
14.	Tubular Condenser (.004 mfd., 400 v.)	30-4578							
15.	Resistor (820 ohms, ½ watt)	33-182336							
16.	Resistor (1.0 meg., ½ watt)	33-510339							
17.	Resistor (2.2 meg., ½ watt)	33-522339							
18.	Mica Condenser (100 mmfd.)	60-110157							
19.	Tubular Condenser (.01 mfd., 400 v.)	30-4572							
20.	Mica Condenser (500 mmfd.)	60-150157							
21.	Output Transformer	32-8100							
22.	Cone & Voice Coil Assembly								
	(Speaker Part No. 36-1507-1)	36-4158							
	(Speaker Part No. 36-1507-3)	36-4165							

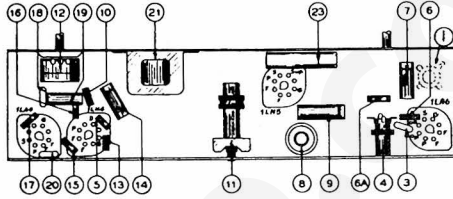


FIG. 7 — LOCATIONS OF PARTS — UNDERSIDE OF CHASSIS — MODEL 42-121.

## REPLACEMENT PARTS — MODELS 42-122, 42-123

SCHEM. No.	DESCRIPTION	PART No.	SCHEM. No.	DESCRIPTION	PART No.	SCHEM. No.	DESCRIPTION	PART No.
1.	Aerial Transformer	32-3708	11A.	Compensator	part of 11		<b>MISCELLANEOUS PARTS</b>	
	Mounting Clip	28-5002	12.	Condenser	part of 11A		Bezel	54-4090
2.	Tuning Condenser (42-122)	31-2548	13.	Resistor (10 megohms)	33-5447		Screw (Bezel Mtg.)	W-2073
	Tuning Shaft Assembly (42-122)	31-2554	14.	Volume Control (10 megohms, 42-122)	33-5447		Cabinet (42-122T)	10544A
	Tuning Condenser (42-123)	31-2564	15.	Volume Control (10 megohms, 42-123)	33-5453		Cabinet (42-123T)	10543A
	Tuning Shaft Assembly (42-123)	31-2566		Nut (Mtg. control)	W-2157		Cable (Speaker 41-123F)	41-3448
	Nut (Shaft Mtg.)	W-1176	16.	Resistor (100,000 ohms)	33-410339		Dial Scale	27-5716
	Drive Drum	76-1176	17.	Condenser (50 mmfd.)	60-550157		Backing Card	27-9875
	Drive Cord (Tuning Cond. 42-122)	31-2512	18.	Condenser (.004 mfd., 400 v.) 42-122	60-0126		Spring Fastener	56-4127
	Drive Cord (Tuning Cond. 42-123)	31-2565	19.	Condenser (.004 mfd., 400 v.) 42-123	30-4623		Indicator (OFF-ON)	56-2180
	Drive Cord (Pointer—42-122)	31-2552	17A.	Resistor (4.7 megohms)	33-547339		Operating Arm (Indicator)	56-2183
	Drive Cord (Pointer—42-123)	31-2560	19.	Resistor (560 ohms)	33-156326		Transfer Lever Arm	56-2184
	Rubber Grommet (Mtg. Tuning Cond. 42-122)	27-4610	20.	Resistor (2.2 megohms)	33-522339		Stud Mtg.	56-6143
	Rubber Grommet (Mtg. Tuning Cond. 42-123)	54-4020	21.	Resistor (1.0 megohms)	33-510339		Drive Cord (Indicator, 42-122)	31-2551
	Spring (Tuning Cond. Drive Cord)	28-8913	22.	Condenser (100 mmfd.)	60-110157		Drive Cord (Indicator, 42-123)	31-2563
	Spring (Pointer Drive)	28-8933	23.	Condenser (.01 mfd., 400 volts)	30-4572		Spring Washer	56-1866
	Pointer	56-2159	24.	Resistor (2.2 megohms)	33-522339		Spring	56-2179
	Nut (Condenser Mtg.)	W-1543	25.	Resistor (.01 mfd., 400 volts)	30-4572		Stud (Indicator Drive)	28-6991
3.	Resistor (4.7 megohms)	33-547339	26.	Resistor (10,000 ohms)	33-310339		Knob	54-4089
4.	Condenser (.05 mfd.)	30-4519	27.	Condenser (730 mmfd.)	60-173127		Screw (Superstructure Mtg.)	W-333
5.	Oscillator Transformer	32-3184	28.	Audio Output Transformer	32-8152		Screw (Chassis Mtg.)	W-2030
6.	Resistor (68,000 ohms)	33-368339		Rivet	97-9065		Socket (Tubas)	27-6177
7.	Condenser (.25 mfd., 100 volts)	61-0112	29.	Cone Assembly (for Speaker 36-1507-1)	36-4158		Rivet	W-239
8.	Mica Condenser (100 mmfd.)	60-110157		Cone Assembly (for Speaker 36-1507-3)	36-4165		Socket (Aerial)	27-6115
9.	Resistor (220,000 ohms)	33-422339		Cone Assembly (for Speaker 36-1488)	36-4129		Rivet	W-207
10.	1st I. F. Transformer (42-122)	32-3706		Cone Assembly (for Speaker 36-1488)	36-4129		Speaker (42-123)	36-1488
	1st I. F. Transformer (42-123)	32-3736	30.	Electrolytic Condenser (10 mfd.)	30-2396		Washer	27-7467
10A.	Compensator	part of 10	31.	Switch part of Volume Control	W-124		Nut	W-239
10B.	Compensator	part of 10	32.	Battery Cable and Plug	41-3505		Terminal Panel (Chassis)	38-8389
11.	2nd I. F. Transformer	32-3199						
	Nut (Mtg.)	W-1949						

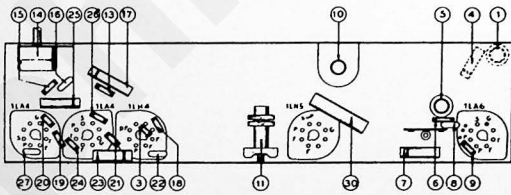


FIG. 8 — LOCATIONS OF PARTS — UNDERSIDE OF CHASSIS — MODEL 42-122.

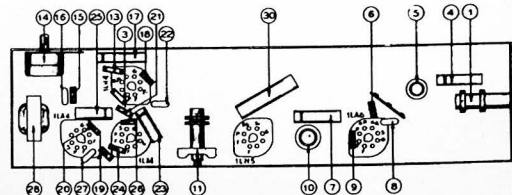


FIG. 9 — LOCATIONS OF PARTS — UNDERSIDE OF CHASSIS — MODEL 42-123.