

# MODEL 42-730, CODE 121

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

**SIGNAL GENERATOR:** Such as Philco Model 070, A. C. operated or Model 117 battery operated. These signal generators cover all frequencies required in aligning these models.

**INDICATING DEVICE:** To obtain maximum signal strength and accurate adjustments of the padders, a vacuum tube voltmeter similar to Philco Models 027 and 028 are recommended. These instru-

ments also contain an audio output meter which may be used as an aligning indicator. The method of connecting either of these instruments is listed below.

**ALIGNING TOOLS:** Fibre handle screw driver, Philco part 215-2610.

### 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:

- 1—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.
- 2—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 terminals of the output tubes. Adjust the meter for the 0 to 30 volt A. C. scale.

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

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

Operations In Order	SIGNAL GENERATOR			RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Radio	Dummy Aerial Note A	Dial Setting	Dial Setting	Control Settings	Adjust Compensators	
1	Lug of aerial tuning cond.	.1 mfd.	455 KC.	580 KC.	Band Switch "Brdest" Volmax	41A, 41B, 40A, 40B	
2	Aerial	400 ohms	22 MC.	22 MC.	Band Switch SW 2	19H, 11B, 11A	Note B Note C
3	Aerial	400 ohms	7 MC.	7 MC.	Band Switch SW 1	19G	Roll tuning cond. Note C
4	Aerial	200 mmfd.	1500 KC.	1500 KC.	Band Switch "Brdest"	19E	Roll tuning cond.
5	Aerial	200 mmfd.	600 KC.	600 KC.	Band Switch "Brdest"	19F	Roll tuning cond.
6	Aerial	200 mmf.	1500 KC.	1500 KC.	Band Switch "Brdest"	19E	Roll tuning cond.
7	Aerial	400 ohms	18 MC.	18 MC.	Band Switch 16 & 19 M.	19C, 19A	Note C
8	Aerial	400 ohms	12 MC.	12 MC.	Band Switch 25 to 31 M.	19D, 19B	Note C

**NOTE A**—The "Dummy Aerial" consists of a condenser or resistor connected in series with the signal generator output lead (highside). Use the capacity or resistance as specified in each step of the above procedure.

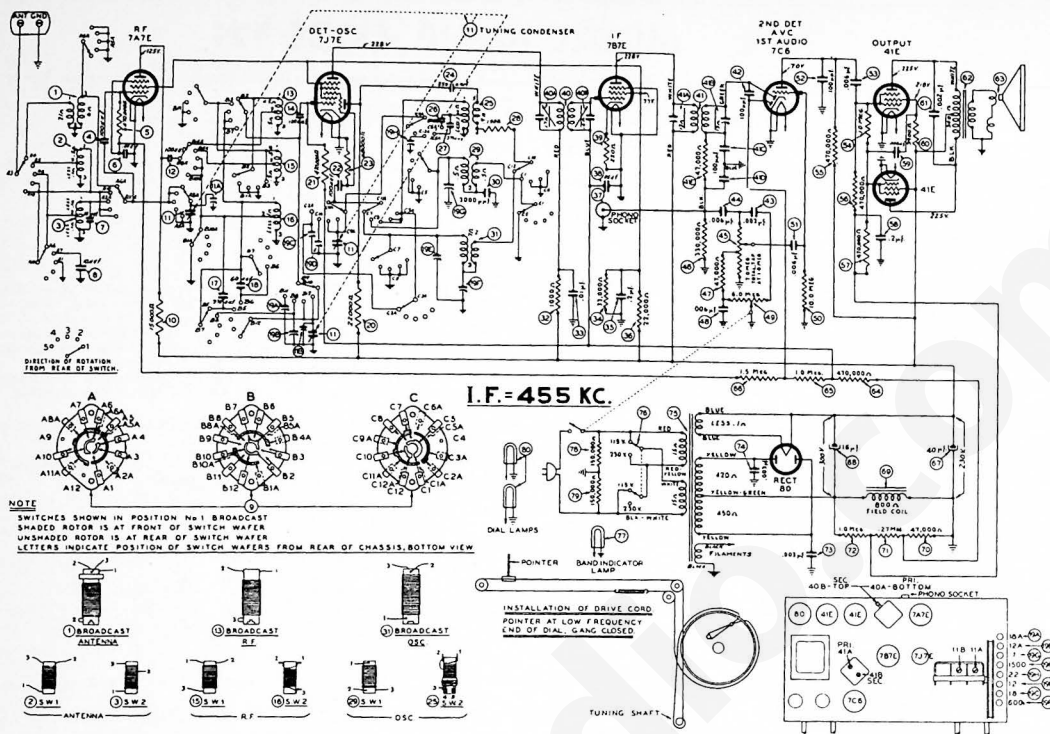
**NOTE B**—Dial Calibration: In order to adjust the receiver correctly the dial must be aligned to track properly with the tuning condenser. To adjust the dial, proceed as follows: With the tuning condenser closed (maximum capacity) set the dial pointer on the

first mark on the left edge (low frequency end) of the broadcast scale.

**NOTE C**—When adjusting the oscillator compensators, be sure to tune in the fundamental signal instead of the image signal. If the compensator is correctly adjusted the image signal will be found by turning the signal generator dial 910 KC. above the fundamental signal.

### REPLACEMENT PARTS MODEL 42-730

Schematic No.	Description	Part No.	Schematic No.	Description	Part No.	Schematic No.	Description	Part No.
1.	Aerial Transformer (Broadcast)	32-3422	19D.	Compensator (Oscillator—	61C.	Condenser (100 mmfd.).		
	Mtg. Clips	28-5002FE11		25 to 31 M. Band), Part of 19A	41D.	Condenser (100 mmfd.).		
2.	Aerial Transformer (SW-1)	32-3693	19E.	Compensator (Oscillator—	41E.	Resistor (100 mmfd.).		
	Mtg. Clip	28-5002FE11		1500 KC.), Part of 19A		Part of 41B		
3.	Aerial Transformer (SW-2)	32-3761	19F.	Compensator (Oscillator—	41E.	Resistor (47,000 ohms), Part of 41		W-1949
	Mtg. Clip	28-5002FE11		600 KC.), part of 19A		Mtg. Nut		W-2157
4.	Mica Condenser (100 mmfd.)	60-110457	19G.	Compensator (Oscillator—	42.	Mica Condenser (100 mmfd.)		60-110257
	Resistor (470,000 ohms)	33-447339		SW-1), Part of 19A	43.	Condenser (.002 mfd., 400 volts)		30-4822
5.	Condenser (.05 mfd., 200 volts)	30-4809	19H.	Compensator (Oscillator—	44.	Condenser (.008 mfd., 400 volts)		30-91
6.	Mica Condenser (10 mmfd.)	60-010237		SW-2), Part of 19A	45.	Volume Control		33-5154
7.	Mica Condenser (10 mmfd.)	60-010237	20.	Resistor (22,000 ohms)	46.	Mtg. Nut		W-2157
8.	Band Switch	32-1877	21.	Resistor (470,000 ohms)	33-322339	Resistor (330,000 ohms)		33-43339
9.	Resistor (15,000 ohms)	33-15339	22.	Mica Condenser (100 mmfd.)	33-447339	Resistor (47,000 ohms)		33-347339
10.	Tuning Condenser	31-2549	23.	Resistor (83,000 ohms)	60-110257	Condenser (.006 mfd., 400 volts)		30-4591
11.	Compensator (R. F.—SW 2),		24.	Mica Condenser (250 mmfd.)	33-38339	Tone Control		31-5455
11A.	Compensator (Aerial—SW 2),		25.	Oscillator Transformer (SW-2)	60-125457	Mtg. Nut		W-2157
	Part of 11		26.	Mica Condenser (80 mmfd.)	32-3735	Resistor (10 megohms)		33-610339
	Drive Cord	31-2575	27.	Mica Condenser (375 mmfd.)	20-008007	Resistor (330,000 ohms), 400 volts)		30-4591
	Spring	28-8751	28.	Mica Condenser (375 mmfd.)	20-037517	Mica Condenser (100 mmfd.)		60-110257
	Drum and Hub Assembly	31-2353	29.	Resistor (150 ohms)	33-115339	Condenser (.006 mfd., 400 volts)		30-4810
	Mtg. Spacer	56-1307	30.	Oscillator Transformer (SW-1)	32-3695	Resistor (1 megohm)		33-510339
	Mtg. Screw & Washer	97-0028	31.	Mtg. Clip	28-5002FE11	55.	Resistor (470,000 ohms)	33-447339
	Pointer	56-1278FC3	30.	Mica Condenser (3000 mmfd.)	60-230124	Resistor (470,000 ohms)		33-447339
	Tuning Shaft	76-1263	31.	Oscillator Transformer (Broadcast)	32-3423	Condenser (.2 mfd., 200 volts)		30-4827
	Mtg. Nut	W-2157	30.	Mtg. Clip	28-5002FE11	57.	Condenser (.008 mfd., 400 volts)	30-4810
12.	Mica Condenser (100 mmfd.)	60-110457	31.	Resistor (1000 ohms)	33-210339	60.	Resistor (.3900 ohms)	30-4822
13.	R. F. Transformer (Broadcast)	32-3417	32.	Condenser (.01 mfd., 400 volts)	30-4572	61.	Output Transformer	32-3179
	Mtg. Clip	28-5002FE11	33.	Resistor (33,000 ohms)	33-333339	62.	Speaker	36-1549-2
14.	Mica Condenser (100 mmfd.)	60-110457	34.	Condenser 2 mfd., 400 volts)	30-4584	63.	Cone Assembly (For Speaker	
15.	R. F. Transformer (SW-1)	28-5002FE11	35.	Resistor (22,000 ohms, 1 watt)	33-322439		36-1549-2)	36-4207
	Mtg. Clip	32-3692	36.	Phonograph Input Socket	27-6149		Mtg. Nut (Speaker)	W-124
16.	R. F. Transformer (SW-2)	28-5002FE11	37.	Condenser .06 m. 200 volts)	30-4609		Speaker Cable	41-3635
	Mtg. Clip	30-07617	38.	Resistor (220 ohms)	33-22339	64.	Resistor (470,000 ohms)	33-447339
17.	Mica Condenser (375 mmfd.)	20-006007	39.	1st I. F. Transformer	32-3696	65.	Resistor (1 megohm)	33-510339
18.	Mica Condenser (60 mmfd.)		40A.	Primary Compensator, Part of 40		66.	Resistor (1.5 megohms)	33-515339
19A.	Compensator (Aerial—16 to 19 M. Band)	31-6417	40B.	Secondary Compensator, Part of 40		67.	Electrolytic Condenser (40 mfd.,	30-2446
19B.	Compensator (Aerial—25 to 31 M. Band), Part of 19A		41A.	2nd I. F. Transformer	W-1949	68.	350 volts D. C.)	30-2465
19C.	Compensator (Oscillator—16 to 19 M. Band), Part of 19A		41B.	Primary Compensator, Part of 41	32-3657		Electrolytic Condenser (16 mfd.)	27-9608
				Secondary Compensator, Part of 41			Mtg. Plate	



SCHEMATIC DIAGRAM, MODEL 42-730, CODE 121

The D. C. voltages indicated at the tube elements in the above diagram were measured with a 1000 ohms per volt voltmeter. Philco Model 027. Line voltage, 117 volts A. C. No signal being received—range switch broadcast.

REPLACEMENT PARTS—Continued  
MODEL 42-730

Schematic No.	Description	Part No.	Schematic No.	Description	Part No.
69.	Field Coll (Replace Speaker 36-1649-2)		76.	Power Transformer (115 volts, 25 cycle)	32-8205
70.	Resistor (47,000 ohms)	33-347339	77.	Band Indicator Lamp	34-20644E
71.	Resistor (270,000 ohms)	33-427339		Socket Assembly	76-1178
72.	Resistor (1 megohm)	33-510339		Arm & Link Assembly	76-1352
73.	Condenser (.003 mfd., 1500 volts D. C.)	30-4608		Light Housing Assembly	76-1262
74.	Condenser (.003 mfd., 1500 volts D. C.)	30-4608	78.	Resistor (150,000 ohms)	33-415359
75.	Power Transformer (115/220 volts, 60 cycle)	32-8178	79.	Resistor (150,000 ohms)	33-415359
			80.	Dial Pilot Lamp	30-20644E
				Socket Assembly	76-1414

MISCELLANEOUS PARTS

- Cabinet
- Cabinet Back
- Mtg. Screw
- Cable (Power)
- Cable Plug
- Band Indicator Dial
- Dial Scale
- Mtg. Clamps
- Knob
- Rubber Corners (Chassis)
- Socket (41E Tube)
- Socket (80 Tubes)
- Socket (Lokalt Tubes)
- Mtg. Rivets
- Terminal Panel (Aerial)
- Mtg. Bolt & Washer
- Wire Panel
- Wire Panel
- Wire Panel

- 10540A
- 318-2575
- W-2076
- L-3274
- L-3275
- 27-4584
- 27-5704
- 66-1745
- 54-4101
- 27-4584
- 27-6036
- 27-6044
- 27-6104
- 27-6168-2
- W-2287
- 38-9729
- 318-1113
- 38-9778
- 38-9810
- 38-9817

SPECIFICATIONS

**Type of Circuit:** Five-tube alternating current (A. C.) operated superheterodyne circuit with five manual tuning bands. Two of the manual tuning bands are used for spread band tuning of the short-wave frequencies, 9.4 to 12 mc. and 15.1 to 18 mc. In addition, this model includes a continuously variable tone control; automatic volume control; pentode audio output stage; R. F. amplifier stage; audio BASS compensation, and an illuminated band indicator.

**Tuning Band Frequencies:**

- Broadcast ..... 540 to 1720 kc.
- SW 1 ..... 2.3 to 7.5 mc.
- SW 2 ..... 7.0 to 22 mc.
- Spread Band 1 ..... 9.4 to 12 mc.
- Spread Band 2 ..... 15.1 to 18 mc.
- Intermediate Frequency: 455 kc.

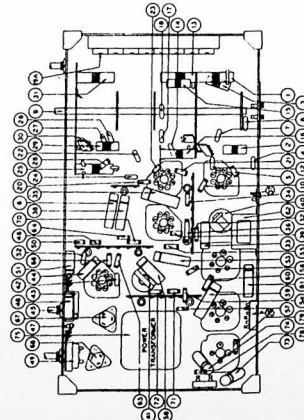
**Power Supply:** Operates on either a 115 or 230 volt, 50 to 60 cycle, A. C. power supply. To use either of the above voltages, change the power transformer primary wiring as indicated on the label at the rear of the chassis and schematic diagram. This model can also be operated on a 115 volt, 25 cycle power supply, by changing the power transformer as indicated in the parts list.

**Power Consumption:** 50 watts.

**Audio Output:** 2.2 watts.

**Philco Tubes Used:** 7A7E, R. F. amplifier; 7J7E, converter; 7B7E, I. F. amplifier; 7C6 2nd detector, 1st audio; two 41E, audio output, and type 80 rectifier.

**Aerial and ground:** To obtain maximum operating performance a Philco Farm Radio Aerial, part No. 40-6383, or Philco Safety Aerial, part No. 40-6370, should be used. In addition a good ground connection to a water pipe or any metal object in moist earth is also required.



PART LOCATIONS—UNDER CHASSIS  
MODEL 42-730