

Model 42-706, Code 121

SPECIFICATIONS

Model 42-706 is a five-tube A.C.-D.C. operated superheterodyne radio with three tuning bands. In addition this model includes automatic volume control; pentode audio output stage; PHILCO LOKTAL tubes; electrodynamic speaker; tuning band indicator and a dial light.

Tuning Bands: Broadcast—540 to 1600 K.C.
SW1 — 2.3 to 7.5 M.C.
SW2 — 7.0 to 22 M.C.

Intermediate Frequency: 455 K.C.

Power Supply: Operates on either a 115 volts or 230 volts A.C.-D.C. power supply. To use either of the power supply voltages, insert the ballast lamp in the socket on the chassis as indicated for each voltage.

Power Consumption: 115 volts, 28 watts.

230 volts, 58 watts.

Philco Tubes: 7ABE, oscillator converter; 7B7E, I.F. amplifier; 7C6 second detector—first audio; 35A5E, audio output and a 35Z3, rectifier.

Audio Output: 1.6 watts.

Aerial and Ground: To obtain maximum operating performance an aerial with an overall length of 100 feet should be used. The Philco Aerial, Part No. 40-6383, is recommended. A good ground connection to a water pipe or any other metal object in moist earth should also be used.

ALIGNING R. F. AND I. F. COMPENSATORS

EQUIPMENT REQUIRED

SIGNAL GENERATOR: such as Philco Model 070, A.C. operated or Model 177 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 instruments 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 #45-2610. Service Aligning Scale, part #45-2952.

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 electrical ground (B—).

AUDIO OUTPUT METER: If this type of meter is used as an aligning indicator, it should be connected to the plate and screen terminals of the 35A5E tube. 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.

NOTE: The dial scale in these models is mounted on the cabinet. For convenience, when aligning the chassis outside of the cabinet, a special service aligning scale, Part No. 45-2952, is available. This service dial scale is attached to the dial background plate. If the radio is aligned in the cabinet, the cabinet dial scale is used.

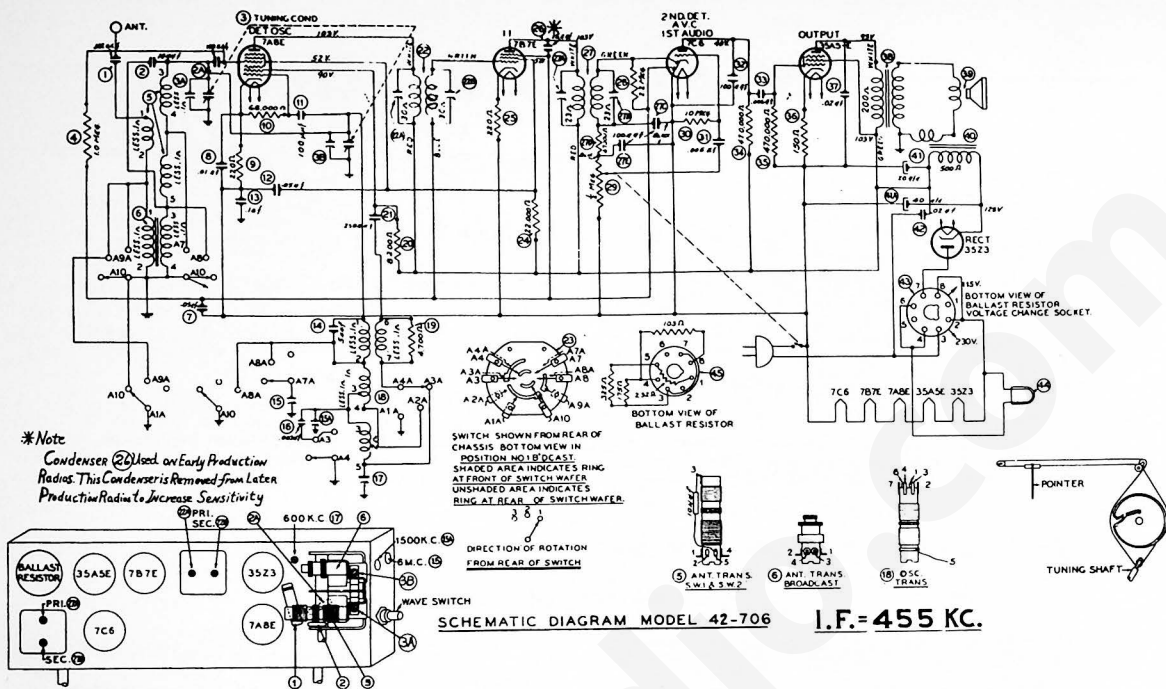
Operations in Order	SIGNAL GENERATOR			RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Radio	Dummy Aerial Note A	Dial Setting	Dial Setting	Control Settings	Adjust Compensators	
1	Lug of aerial tuning	.1 mfd.	455 K.C.	580 K.C.	Band Switch "Brdst" Volmax	27B, 27A, 22B, 22A	
2	Aerial	400 ohms	21 M.C.	21 M.C.	Band Switch S. W. 2	3B, 3A	Note B Note C
3	Aerial	400 ohms	6 M.C.	6 M.C.	Band Switch S. W. 1	15	
4	Aerial	200 mmfd.	1500 K.C.	1500 K.C.	Band Switch "Brdst"	15A	
5	Aerial	200 mmfd.	580 K.C.	580 K.C.	Band Switch "Brdst"	17	Roll tuning condenser
6	Aerial	200 mmf.	1500 K.C.	1500 K.C.	Band Switch "Brdst"	15A	

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 (21 M.C.) instead of the image signal. This frequency is the second signal peak from the closed position of the compensator. If the compensator is correctly adjusted the image signal will be found by turning the signal generator dial 910 K.C. above the fundamental signal which will be 21.910 M.C.



SCHEMATIC DIAGRAM — MODEL 42-706, CODE 121

The tube element voltages indicated on diagram were measured at socket contacts with a 1,000 ohms per volt meter—Philco Model 027.—Line Voltage 117 A.C.

REPLACEMENT PARTS — MODEL 42-706, CODE 121

Schematic No.	Description	Part No.	Schematic No.	Description	Part No.	Schematic No.	Description	Part No.
1	Condenser (.002 mfd.)	30-4622	30	Resistor (10 megohms)	33-610339	44	Pilot Lamp	34-2068E
2	Mica Condenser (10 mmfd.)	60-010237	31	Condenser (.006 mfd., 400 volts)	30-4610	45	Socket Assembly	76-1177
2A	Mica Condenser (100 mmfd.)	60-110457	32	Mica Condenser (100 mmfd.)	60-110257		Ballast Resistor	33-3414
3	Tuning Condenser	31-25719	33	Condenser (.006 mfd., 400 volts)	30-4610	MISCELLANEOUS PARTS		
3A	Compensator (Aerial, 21 M.C.)	Part of 3	34	Resistor (470,000 ohms)	33-447339			
3B	Compensator (Oscillator, 21 M.C.)	Part of 3	35	Resistor (470,000 ohms)	33-447339	Cabinet Back	27-9817	
	Drive Shaft	31-2890	36	Resistor (150 ohms)	33-115336	Mtg. Stud	W-2235FA9	
	Spring	28-8954	37	Condenser (.02 mfd., 400 volts)	30-4516	Cord (Power)	L-3274	
	Drive Shaft	76-1299	38	Output Transformer	32-8164	Plug	L-3275	
	Rubber Grommet	27-4610	39	Speaker	36-1533-4 or 36-1559-4	Dial Scale	27-5692	
	Pointer	56-2076		Cone Assembly	36-4210	Mtg. Screw	W-2249FA3	
	Mtg. Nut (Drive Shaft)	W-2157FA3	40	Field Coil (Replace Speaker)	36-1559-4 or 36-1533-4	Knob (Volume-Tuning)	54-4052	
4	Resistor (1 megohm)	33-510339	41	Electrolytic Condenser (20 mfd.)	30-2510	Knob (Band)	27-4876	
5	Aerial Transformer (S.W.)	32-3753	41A	Electrolytic Condenser (40 mfd.)	Part of 41	Screw (Chassis)	W-1921FA3	
	Mtg. Clip	28-5002	42	Mtg. Clamp	56-1466	Socket (LOKAL Tubes)	27-6177	
6	Aerial Transformer (Brdcast)	32-3166	43	Condenser (.02 mfd., 600 volts)	30-4599	Mtg. Rivet	W-239FA9	
	Mtg. Clip	28-5002		Ballast Resistor Socket	27-6143	Washer (Chassis Mtg.)	28-2615FA9	
7	Condenser (.05 mfd., 200 volts)	36-4609					W-152FA9	
8	Condenser (.01 mfd., 400 volts)	30-4572						
9	Resistor (220 ohms)	33-122339						
10	Resistor (68,000 ohms)	33-368339						
11	Mica Condenser (100 mmfd.)	60-110257						
12	Condenser (.05 mfd., 200 volts)	30-45719						
13	Condenser (.1 mfd., 400 volts)	30-4527						
14	Mica Condenser (.5 mmfd.)	60-005457						
15	Compensator (6 M.C., Osc.)	31-6436						
15A	Compensator (1500 K.C., Osc.)	Part of 15						
16	Mica Condenser (.003 mfd.)	60-230124						
17	Compensator (350 K.C., Osc.)	31-6435						
18	Oscillator Transformer (B.C. and S.W.-1)	32-3427						
	Mtg. Clip	28-5003						
19	Resistor (100 ohms)	33-122339						
20	Resistor (8200 ohms)	33-282339						
21	Mica Condenser (250 mmfd.)	60-125457						
22	First I.F. Transformer	32-3603						
	Mtg. Nut	W-1949FA3						
22A	Primary Compensator	Part of 22						
22B	Secondary Compensator	Part of 22						
23	Band Switch	42-1892						
	Mtg. Nut	W-2157FA3						
24	Resistor (22,000 ohms)	33-222339						
25	Resistor (220 ohms)	33-122339						
26	Mica Condenser (15 mmfd.)	60-013437						
	(See note diagram)	32-3781						
27	Second I.F. Transformer	W-1949FA3						
	Mtg. Nut	Part of 27						
27A	Primary Compensator	Part of 27						
27B	Secondary Compensator	Part of 27						
27C	Condenser (100 mmfd.)	Part of 27A						
27D	Resistor (47,000 ohms—Part of 27)	33-347339						
27E	Condenser (100 mmfd.)	Part of 27A						
27F	Resistor (2.2 megohms)	33-822339						
28	Volume Control	33-5434						
	Mtg. Nut	W-2157FA3						

PART LOCATIONS — UNDER SIDE OF CHASSIS MODEL 42-706