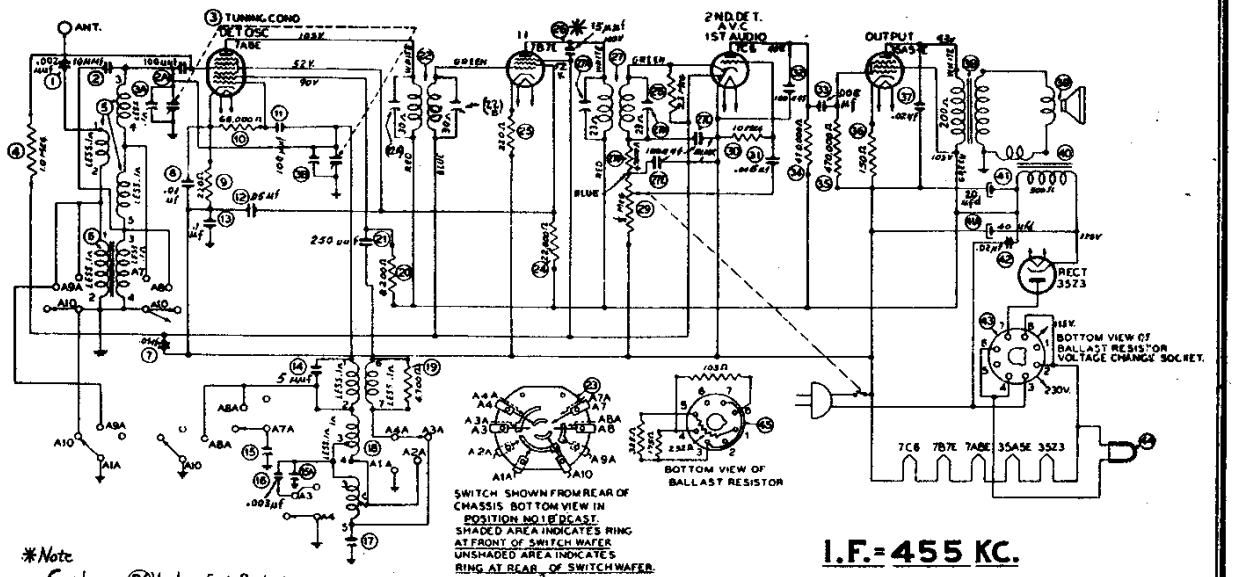
MODEL 42-706

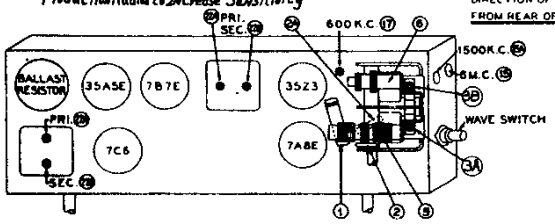
PHILCO RADIO & TELEV. CORP.

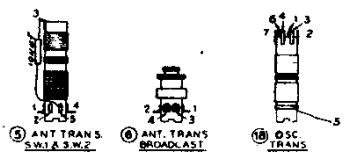


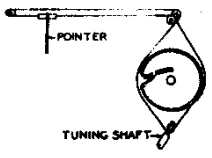
*Note
Condenser (26) Used on Early Production Radios. This Condenser is Removed from Later Production Radios to Increase Sensitivity

I.F. = 455 KC.

FOR ALIGNMENT, SEE INDEX







REPLACEMENT PARTS — MODEL 42-706, CODE 121

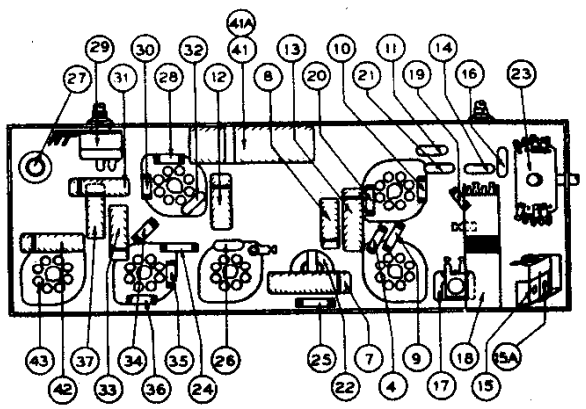
Schematic No.	Description	Part No.
1	Condenser (.002 mfd.)	30-4622
2	Mica Condenser (10 mmfd.)	60-010237
2A	Mica Condenser (100 mmfd.)	60-110457
3	Tuning Condenser	31-2579
3A	Compensator (Aerial, 21 M.C.)	Part of 3
3B	Compensator (Oscillator, 21 M.C.)	Part of 3
	Drive Cord	31-2580
	Spring	28-8934
	Drive Shaft	76-1299
	Rubber Grommet	27-4610
	Pointer	56-2076
	Mtg. Nut (Drive Shaft)	W-2157FA3
4	Resistor (1 megohm)	33-510339
5	Aerial Transformer (S.W.)	32-3753
	Mtg. Clip	28-5002
6	Aerial Transformer (Brdcst)	32-3166
	Mtg. Clip	28-5002
7	Condenser (.05 mfd., 200 volts)	30-4608
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)	30-4519
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 (580 K.C., Osc.)	31-6435
18	Oscillator Transformer (B.C. and S.W.-1)	32-3427
	Mtg. Clip	28-5003
19	Resistor (4,700 ohms)	33-247339
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	42-1682
	Mtg. Nut	W-2157FA3
24	Resistor (22,000 ohms)	33-322339
25	Resistor (220 ohms)	33-122339
26	Mica Condenser (15 mmfd.) (See note diagram)	60-015437
27	Second I.F. Transformer	32-3781
	Mtg. Nut	W-1949FA3
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
28	Resistor (2.2 megohms)	33-522339
29	Volume Control	33-5434
	Mtg. Nut	W-2157FA3

Schematic No.	Description	Part No.
30	Resistor (10 megohms)	33-610339
31	Condenser (.006 mfd., 400 volts)	30-4610
32	Mica Condenser (100 mmfd.)	60-110257
33	Condenser (.006 mfd., 400 volts)	30-4610
34	Resistor (470,000 ohms)	33-447339
35	Resistor (470,000 ohms)	33-447339
36	Resistor (150 ohms)	33-115336
37	Condenser (.02 mfd., 400 volts)	30-4516
38	Output Transformer	32-8164
39	Speaker	36-1533-4 or 36-1559-4
	Cone Assembly	36-4210
40	Field Coil (Replace Speaker)	36-1559-4 or 36-1533-4
41	Electrolytic Condenser (20 mfd.)	30-2510
41A	Electrolytic Condenser (40 mfd.)	Part of 41
	Mtg. Clamp	56-1466
42	Condenser (.02 mfd., 600 volts)	30-4599
43	Ballast Resistor Socket	27-6143

Schematic No.	Description	Part No.
44	Pilot Lamp	34-2068E
	Socket Assembly	76-1177
45	Ballast Resistor	33-3414

MISCELLANEOUS PARTS

Cabinet	16524E
Cabinet Back	27-9817
Mtg. Stud	W-2235FA9
Cord (Power)	L-3274
Plug	L-3275
Dial Scale	27-9062
Mtg. Screw	W-2249FA3
Knob (Volume-Tuning)	54-4052
Knob (Band)	27-4076
Screw (Chassis)	W-1821FA3
Socket (LOKTAL Tubes)	27-6177
Mtg. Rivet	W-239FA5
Washer (Chassis Mtg.)	28-2615FA9
Washer (Chassis Mtg.)	W-152FA9



PART LOCATIONS — UNDER SIDE OF CHASSIS MODEL 42-706

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ALIGNING R. F. AND I. F. COMPENSATORS

(The Procedure is the Same for All Models)

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 #45-2909.

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 and screen terminals of the 6K6EG tube in Model 42-716; 35A5E, Model 42-717; 7B5E, Model 42-718. 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. 45-2909, 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 42 716	42 717	42 718	42 706	
1	Lug of aerial tuning cond.	.1 mfd.	455 K. C.	580 K. C.	Band Switch "Brdcst" Volmax	28A 28B 22A 22B	33A 33B 25A 25B	24A 24B 20A 20B	27B 27A 22B 22A	
2	Aerial	400 ohms	21 M. C.	21 M. C.	Band Switch S. W. 3	13 12A	16 14A	16 12A	38 3A	Note B Note C
3	Aerial	400 ohms	12 M. C.	12 M. C.	Band Switch S. W. 2	6A 6	6A 6	6A 6	OMIT	Note C
4	Aerial	400 ohms	6 M. C.	6 M. C.	Band Switch S. W. 1	13A	16A	16A	15	
5	Aerial	200 mmfd.	1500 K. C.	1500 K. C.	Band Switch "Brdcst"	13C	16C	16C	15A	
6	Aerial	200 mmfd.	580 K. C.	580 K. C.	Band Switch "Brdcst"	13B	16B	16B	17	Roll tuning condenser
7	Aerial	200 mmf.	1500 K. C.	1500 K. C.	Band Switch "Brdcst"	13C	16C	16C	15A	

NOTE A—The "Dummy Aerial" consists of a condenser or resistor connected in series with the signal gengrator 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 aerial compensators, be sure to tune in the fundamental signal (21 M. C.) instead of the image signal. 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.

MODEL A-707, CODE 121

Model A-707 is a five tube A.C.-D.C. operated superheterodyne radio with three tuning bands. This model is identical to Model 42-706 with the exception of the cabinet and several parts. The service information (specifications, aligning instructions, schematic diagram and replacements parts) for Model 42-706 also covers the Model A-707 with the following replacement parts changes:

Schematic No.	Description	Part No.
23	Band Switch Mtg. Nut	42-1721 W-684FA4
26	Not used in Model A-707	

Miscellaneous Parts

Cabinet	10672-B	Knob (Volume-Tuning)	54-4105	
Cabinet Back	54-7010	Knob (Band)	54-4174	
Mtg. Stud	W-2023	Screw (Chassis)	W-2030FA3	
		Washer (Chassis Mtg.)	W-410FA3	
Dial Scale	27-5825			
Mtg. Screw	W-1822			
Mtg. Strap	54-4176			

Model 42-716

TYPE OF CIRCUIT: Five tube alternating current (A.C.) operated superheterodyne circuit with four (4) tuning ranges. In addition this model includes a two point tone control; automatic volume control; pentode audio output circuit; band indicator and dial light.

TUNING RANGES: Broadcast—540 to 1600 K.C.; SW-1—3.0 to 9.5 MC; SW-2—9.4 to 12.0 MC; SW-3—11.8 to 22 MC.

INTERMEDIATE FREQUENCY: 455 K.C.

POWER SUPPLY: Operates on either a 115 or 230 volt, 50 to 60 cycle 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. The model can also be operated on a 115 volt, 25 cycle power supply, by changing the power transformer as indicated in the parts list page.

POWER CONSUMPTION: 35 watts.

PHILCO TUBES USED: 6J8EG, converter; 7B7E, I.F. amplifier; 7C6, 2nd detector-1st audio; 6K6EG, audio output, and a 7Y4 rectifier.

AUDIO OUTPUT: 1.5 Watts.

Model 42-717

TYPE OF CIRCUIT: Five tube A.C.-D.C. operated superheterodyne circuit with four (4) tuning ranges. Included in this model is a two point tone control; automatic volume control; pentode audio output circuit; band indicator and a dial light.

TUNING RANGES: Broadcast—540 to 1600 K.C.; SW-1—3.0 to 9.5 MC; SW-2—9.4 to 12 MC; SW-3—11.8 to 22 MC.

INTERMEDIATE FREQUENCY: 455 K.C.

POWER SUPPLY: Operates on either a 115 volt or 230 volt 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, 33 watts.
230 volts, 67 watts.

PHILCO TUBES USED: 7A8E, converter; 7B7E, I. F. amplifier; 7C6, 2nd detector-1st audio; 35A5E, audio output, and a 35Z3 rectifier.

AUDIO OUTPUT: 1.2 watts D.C. operation.
1.8 watts A.C. operation.

Model 42-718

TYPE OF CIRCUIT: Four (4) tube storage battery (6 volts) operated superheterodyne circuit with four tuning ranges. A synchronous vibrator is used in the power supply circuit for converting the storage battery voltage to a high voltage for plate circuits. Other features included in this model are: two point tone control; automatic volume control; pentode audio output circuit, tuning band indicator; permanent magnet speaker and a dial light.

TUNING RANGES: Broadcast—540 to 1600 K.C.; SW-1—3.0 to 9.5 MC; SW-2—9.4 to 12 MC; SW-3—11.8 to 22 MC.

INTERMEDIATE FREQUENCY: 455 K.C.

POWER SUPPLY: 6 volt storage battery.

PHILCO TUBES USED: 7A8E converter; 7B7E, I. F. amplifier; 7C6 2nd detector-1st audio; 7B5E audio output.

POWER CONSUMPTION: 2 amperes.

AUDIO OUTPUT: .7 Watts.