

# MODEL 40-2725, Code 121

## SPECIFICATIONS

**TYPE CIRCUIT:** Model 40-2725, code 121, is a six (6) tube A. C. operated radio employing a superheterodyne circuit with three tuning ranges for reception of Standard, Long-wave and Shortwave Broadcast Stations. Connections are also provided for attaching a high impedance Electric Phonograph pick-up. In addition other features of design are: Automatic Volume Control; Continuously Variable Tone Control; Bass Compensation, and a Pentode Audio Output.

**POWER SUPPLY:** 100-130 or 200-260 volt, 50-60 cycle, 60 watts. The voltage ranges are selected by inserting the plug as indicated on top of the power transformer.

**TUNING RANGES:**  
150 to 390 K. C.      530 to 1720 K. C.      7.3 to 22 M. C.

**I. F. FREQUENCY:** 455 K. C.

**PHILCO TUBES:** 78E, R. F. Amplifier; 6JSEG, Converter-Oscillator; 78E, I. F. Amplifier; 75, Second Detector, First Audio, and A. V. C.; 41E, Pentode Audio Output; 84, Rectifier.

**AUDIO OUTPUT:** 2.5 watts.

**AERIAL AND GROUND:** To obtain maximum performance from this receiver, the Philco Safety Aerial, Part No. 40-6370, should be used and a good ground connection to the nearest water pipe or any other good ground.

**CABINET DIMENSIONS:**  
Height, 14½".      Width, 18½".      Depth, 9¾".

## ALIGNING COMPENSATING CONDENSERS

### EQUIPMENT REQUIRED

**Signal Generator:** In order to properly adjust the various R. F. and I. F. padders of this receiver, a calibrated signal generator such as Philco Model 077 A. C. operated or Model 177 battery operated is required. These signal generators cover a frequency range of 540 to 36000 K. C.

**Aligning Indicating Device:** A Vacuum Tube Voltmeter or Audio Output Meter, such as Philco Models 027 and 028 is required. Procedures for connecting these instruments are listed below.

**Aligning Tools:** Fiber handle screwdriver, Philco Part No. 45-2610, and Aligning Wrench, Part No. 7695.

### 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 voltmeter through a 2 meg. resistor to the converter grid (6J8G). The resistor must be connected directly to the grid of the tube and the voltmeter wire attached to the resistor.

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 41 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 tabulation below. Locations of the compensators are shown in Fig. 1. If the output meter pointer goes off scale when adjusting the compensators, reduce the strength of the signal from the generator.

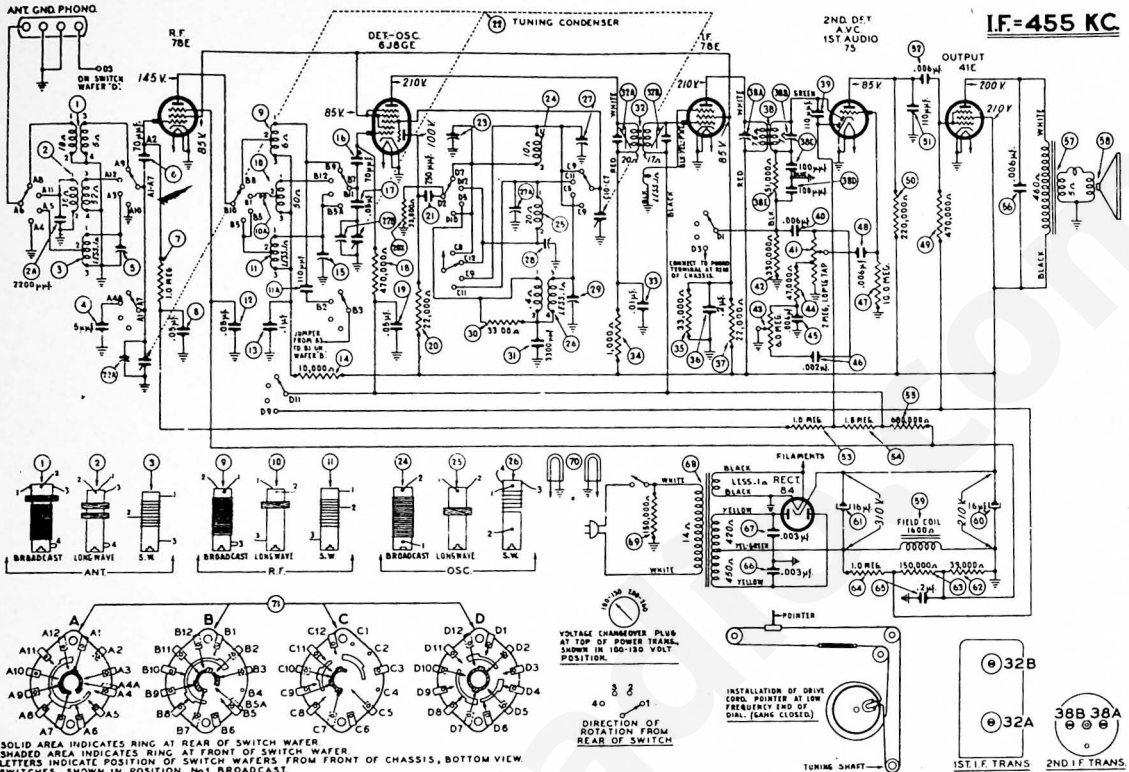
Operations in Order	SIGNAL GENERATOR			RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dummy Antenna Note A	Dial Setting	Dial Setting	Control Settings	Adjust Compensators	
1	6J8G	.1 mfd.	455 K. C.	580 K. C.	Vol. Max. Range Switch "Brdcst"	38B, 38A, 32B, 32A	
2	Antenna and Ground	200 mmfd.	1500 K. C.	1500 K. C.	Range Switch "Brdcst"	27, 22B, 22A	Note B
3	Antenna and Ground	200 mmfd.	580 K. C.	580 K. C.	Range Switch "Brdcst"	23	
4	Antenna and Ground	200 mmfd.	1500 K. C.	1500 K. C.	Range Switch "Brdcst"	27, 22B, 22A	
5	Antenna and Ground	200 mmfd.	300 K. C.	300 K. C.	Range Switch "L.W."	27A	
6	Antenna and Ground	200 mmfd.	175 K. C.	175 K. C.	Range Switch "L.W."	28	
7	Antenna and Ground	200 mmfd.	300 K. C.	300 K. C.	Range Switch "L.W."	27A	
8	Antenna and Ground	400 ohms	21 M. C.	21 M. C.	Range Switch "S.W."	29, 15, 5	Note C

**NOTE A**—The "Dummy Antenna" consists of a condenser or resistance connected in series with the signal generator output lead (high side). 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. See Schematic Diagram.

**NOTE C**—When adjusting compensator (29) 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 910 K. C. below the fundamental signal, which will be 20.090 M. C.

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SCHEMATIC DIAGRAM MODEL 40-2725

## Replacement Parts — Model 40-2725

SCHE. No.	DESCRIPTION	PART No.	SCHE. No.	DESCRIPTION	PART No.	SCHE. No.	DESCRIPTION	PART No.
1	Antenna Transformer (Broadcast)	32-2588	61	Electrolytic Condenser (18 mfd., 400 V.)	30-2884		Cabinet	104178
2	Antenna Transformer (Long Wave)	32-3368	62	Resistor (39,000 ohms, 1/2 watt)	33-339339		Dial Cord Assembly	27-5558
2A	Mica Condenser (2200 mmfd.)	30-1125	63	Resistor (150,000 ohms, 1/2 watt)	33-413339		Drive Cord Assembly	31-2310
3	Antenna Transformer (S. W. 2)	32-3199	64	Resistor (1.0 meg., 1/2 watt)	33-510339		Felt Strip (Bezel Mounting)	27-8225
4	Tubular Condenser (5 mmfd.)	30-1120	65	Tubular Condenser (.2 mfd.)	30-4587		Knob (Tuning)	27-4930
5	Compensator (Antenna S. W. 2)	30-1117	66	Tubular Condenser (.003 mfd.)	30-4808		Knob (Tuning)	27-4862
6	Mica Condenser (.70 mmfd.)	33-510339	67	Tubular Condenser (.003 mfd.)	30-4808		Knob (Tone Control)	27-4872
7	Resistor (1.0 meg., 1/2 watt)	33-510339	68	Power Transformer (100-130 V.)	32-8006		Knobs (Volume and Wave Switch)	27-4332
8	R. F. Transformer (Broadcast)	32-3189	69	Resistor (150,000 ohms, 1/2 watt)	33-413339		Pilot Lamp Socket Assembly	38-9796
9	R. F. Transformer (Long Wave)	32-3369	70	Pilot Lamps	34-2084E		Pointer	56-1276
10	Suppressor Coil	32-3352	71	Wave Switch	42-1504		Screws (Bezel Mounting)	W-2071
10A	R. F. Transformer (S. W. 2)	32-3197					Spring Drive Cord	28-8913
11	Mica Condenser (.10 mmfd.)	30-1118					Spring Clip (Coil Mounting)	28-5002
12	Tubular Condenser (.05 mfd.)	30-4519					Socket (S. promg. type 84 tube)	27-6035
13	Tubular Condenser (.10 mmfd.)	30-4611					Socket (6 promg. type 78, 81, 75 tubes)	27-6036
14	Resistor (10,000 ohms, 1 watt)	33-310439					Socket (Octal, type 6J8G tube)	27-6058
15	Compensator (R. F., S. W. 2)	30-4519					Speaker	38-1452
16	Mica Condenser (.70 mmfd.)	30-1117					Tuning Drum and Coupling	31-2327
17	Tubular Condenser (.05 mfd.)	30-4519					Vernier Drive (Tuning)	31-2329
18	Resistor (470,000 ohms, 1/2 watt)	33-447339						
19	Tubular Condenser (.05 mfd.)	30-4519						
20	Resistor (22,000 ohms, 1/2 watt)	33-223339						
20X	Resistor (39,000 ohms, 1/2 watt)	33-339339						
21	Mica Condenser (.280 mmfd.)	30-1118						
22	Tuning Condenser Assembly	31-2386						
23	Compensator (Broadcast series)	31-6287						
24	Oscillator Transformer (Broadcast)	32-3254						
25	Oscillator Transformer (Long Wave)	32-3127						
26	Oscillator Transformer (S. W. 2)	32-3102						
27	Compensator (Broadcast shunt)	31-6337						
28	Tracking Condenser (Long Wave)	31-6297						
29	Compensator (S. W. 2)	31-6218						
30	Resistor (39,000 ohms, 1/2 watt)	33-233339						
31	Tracking Condenser (.390 mmfd.)	30-4519						
32	1st I. F. Transformer Assembly	32-3187						
33	Tubular Condenser (.10 mmfd.)	30-4519						
34	Resistor (1,000 ohms, 1/2 watt)	33-210339						
35	Resistor (33,000 ohms, 1/2 watt)	33-339339						
36	Tubular Condenser (.2 mfd.)	30-4519						
37	Resistor (22,000 ohms, 1 watt)	33-22439						
38	1st I. F. Transformer Assembly	32-3187						
39	Mica Condenser (.110 mmfd.)	30-1118						
40	Tubular Condenser (.05 mfd.)	30-4519						
41	Volume Control (.2 meg.)	33-5298						
42	Resistor (330,000 ohms, 1/2 watt)	33-433339						
43	Tone Control and On-Off	33-433339						
44	Resistor (47,000 ohms, 1/2 watt)	33-47339						
45	Tubular Condenser (.006 mfd.)	30-4519						
46	Tubular Condenser (.002 mfd.)	30-4577						
47	Resistor (10.0 meg., 1/2 watt)	33-103339						
48	Tubular Condenser (.006 mfd.)	30-4587						
49	Resistor (470,000 ohms, 1/2 watt)	33-47339						
50	Resistor (220,000 ohms, 1/2 watt)	33-223339						
51	Mica Condenser (.110 mmfd.)	30-1118						
52	Tubular Condenser (.006 mfd.)	30-4519						
53	Resistor (1.0 meg., 1/2 watt)	33-510339						
54	Resistor (.8 meg., 1/2 watt)	33-48339						
55	Resistor (880,000 ohms, 1/2 watt)	33-488339						
56	Tubular Condenser (.006 mfd.)	30-4519						
57	Output Transformer	32-8018						
58	Cone and Voice Coil Assembly (Repeater Part No. 38-1452-2)	38-4103						
59	Field Coil (Replace Spkr. Part No. 38-1452)	38-4103						
60	Electrolytic Condenser (18 mfd., 300 V.)	30-2103						

FIG. 2. PART LOCATIONS, UNDERSIDE OF CHASSIS.