



## Models 41-295, 41-300

### SPECIFICATIONS

Models 41-295 and 41-300 are alternating current (A. C.) operated super-heterodyne radios incorporating **Electric Push-Button and Manual Tuning**, and the new **Philco Built-in American and Overseas Aerial system**. These models are also designed to receive the sound of a **television program** tuned in by special type Philco television radios. The models are exceptionally sensitive and selective on all tuning frequencies covered.

In general, these models are similar with the exception of the number of tubes used and cabinet design. Model 41-295 employs eleven (11) tubes and Model 41-300, twelve (12) tubes. Other features of design included in each model are: Philco Loktal tubes; new noise-reducing converter tube (XXL), four (4) tuning bands; two I. F. stages; continuously variable tone control; audio bass compensation in the volume control circuit; degenerative push-pull pentode audio output, operated by a push-pull driver stage; movable band indicator; off-on power switch controlled by a push-button and a new 14" balanced field electro-dynamic speaker.

**ELECTRIC PUSH-BUTTON TUNING:** The automatic tuning mechanism of each model is identical and consists of eight (8) electric tuning push-buttons; seven (7) of the push-buttons are used for selecting broadcast stations, and one as the power control (On-Off switch).

The lowest frequency station push-button labeled "Television" can be adjusted for reception of the sound channel of a television program received by Philco television sets. This push-button may also be used in conjunction with a Philco Wireless Record Player.

**AERIAL CONNECTIONS:** The built-in loop aerial system is designed to operate without an outside aerial or ground, and to give exceptionally sensitive receiving performance on stations on standard and shortwave frequencies. Another feature is its noise-reducing characteristic. The loop can be turned to the position in which it picks up a minimum amount of

interference, or if interference is not present, the loop may be set in the position where best reception is obtained.

When operating the radio in steel reinforced buildings and other shielded locations, the Philco 1941 Outdoor Aerial Part No. 45-2817, is recommended for maximum receiving performance. The outdoor aerial can be easily connected to the radio by inserting the plug attached to the transformer unit into the socket provided at the rear of the chassis. This aerial can be obtained from your local Philco distributor. A ground connection is not required with either type of installation.

**POWER SUPPLY:** 115 volts, 60 cycle A. C.

These models can also be operated on 25 cycle current. To do this it is necessary to replace the 60 cycle power transformer with a 25 cycle transformer as indicated in the parts lists.

**POWER CONSUMPTION:**

Model 41-295 — 110 watts  
Model 41-300 — 110 watts

**FREQUENCY TUNING RANGES:** 540 to 1720 K. C.: 2.3 to 7.0 M. C.: 9.0 to 12.0 M. C.: 13.5 to 18.0 M. C.

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

**AUDIO OUTPUT:** 5 watts.

**PHILCO TUBES USED:** Model 41-295, Eleven tubes: XXL, R. F. Mixer; XXL, oscillator; two 7B7, I. F. amplifiers; 7C6, 2nd detector, 1st audio, A. V. C.; two 37, audio drivers; 37, phase inverter; two 42, audio output; and an 80, rectifier.

Model 41-300, Twelve tubes: XXL, R. F. Mixer; XXL, oscillator; two 7B7, I. F. amplifiers; 7A6, 2nd detector, A. V. C.; 7C6, 1st audio; 37, phase inverter; two 37, audio drivers; two 42, audio output; and an 80, rectifier.

**CABINET DIMENSIONS:**

Model	Height	Width	Depth
41-295	35 1/2"	35"	13 1/8"
41-300	35 1/2"	35 1/2"	14"

### REMOVING CHASSIS

To remove the chassis from the cabinet, it will be necessary to take off the bezel and remove the two screws which hold the front of the chassis to the cabinet. In addition, the four shipping bolts underneath the chassis shelf must also be removed.

### ADJUSTING ELECTRIC PUSH BUTTON TUNING

To adjust the electric push buttons accurately for reception of broadcast stations, a vacuum tube voltmeter such as Philco Models 027 and 028 should be used. In addition, an insulated padding screw driver, Part No. 45-2610, and Loktal aligning adapter, Part No. 45-2767, are required. With this equipment at hand proceed as follows:

Select seven of the most popular stations received in the locality. Insert the station call letters into the spaces above the buttons. The station with the lowest frequency is placed in the second button on the left and the highest frequency is placed in the eighth push button on the right. Each push button is adjusted by two adjusting screws located on the rear of the chassis. Each set of screws is numbered and labeled "Ant.," "Osc.," and covers a frequency range as follows:

Push Button	Frequency Range
1, 2, 3	540-1030 K. C.
4, 5,	650-1160 K. C.
6, 7	900-1600 K. C.

Looking at the front of the cabinet, the second button on the left is adjusted by adjusting screw No. 1. The next push button by adjusting screw No. 2 and the remaining push buttons in order.

1. Remove the 7C6 A. F. tube from its socket and insert the aligning adaptor, then replace the tube in the adaptor. Connect the negative terminal of the vacuum tube voltmeter to the wire which protrudes from the side of the adaptor. Attach the positive terminal of the voltmeter to the chassis.

2. Press in "Off-On" push button. Turn "Band Selector" to "broadcast" position.

3. Set up the Model 077 Station Setter near the receiver and connect a loop aerial (made from a few turns of wire 12 inch in diameter) to the high and ground output jacks of the signal generator. Turn the output controls to maximum and set the modulation control to "MOD. ON."

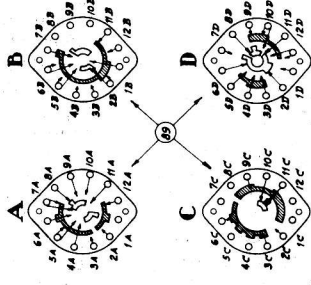
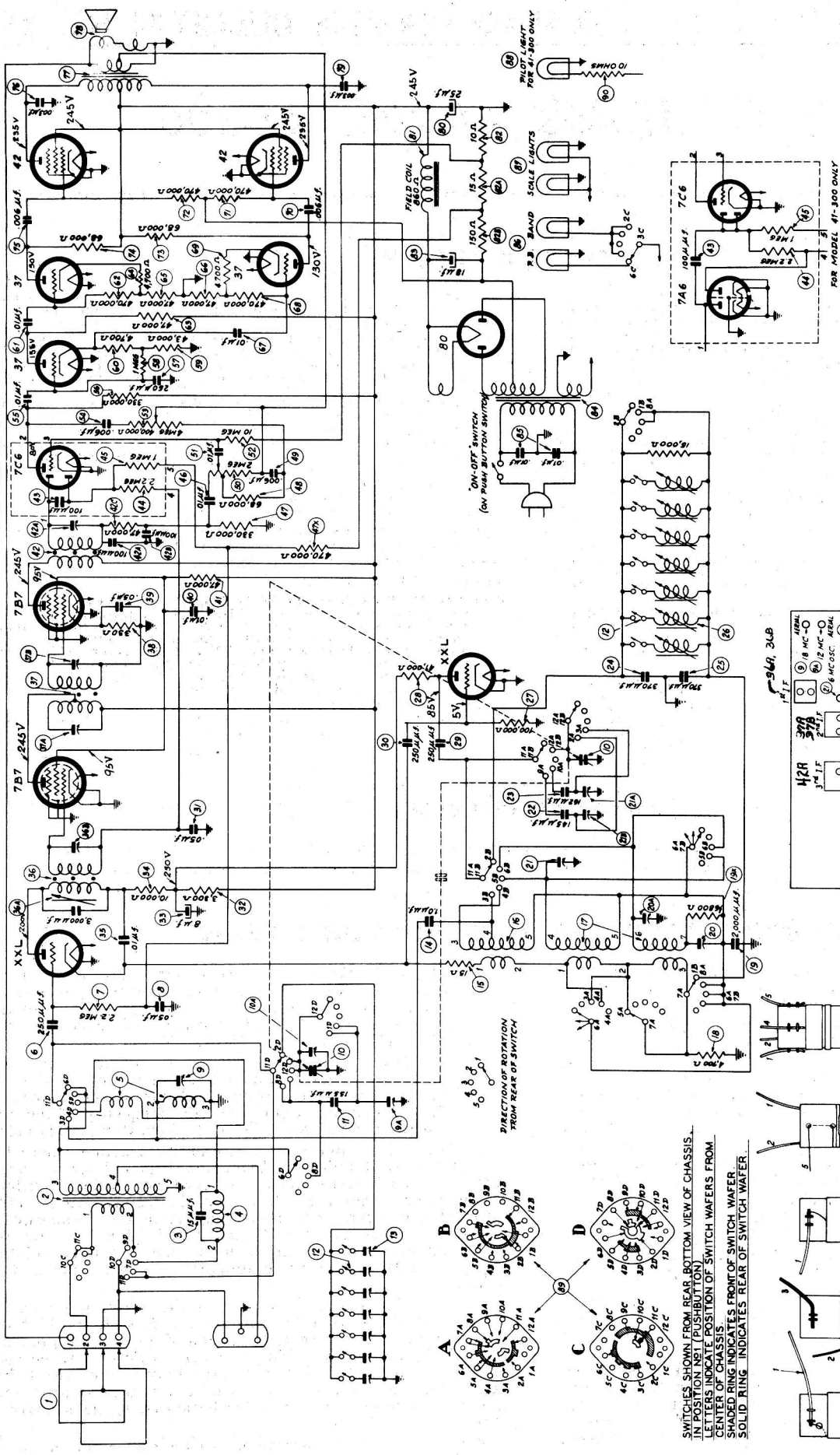
4. Manually tune in the station to be set up on the first push button. After doing this set the indicator of the 077 Signal Generator to the frequency of the station being received. As the indicator approaches the frequency of the station a whistle will be heard; leave the indicator at this point.

5. Turn "Band Selector" down to the position where the call letters are illuminated. Using the insulated screw driver, turn the "Osc." screw until the broadcast station identified by the signal generator is heard; at this point, turn the indicator of the signal generator away from the frequency of the station. Readjust No. 1 "Osc." and "Ant." screws for maximum deflection of the vacuum tube voltmeter pointer. The push button is adjusted properly to the station at this point.

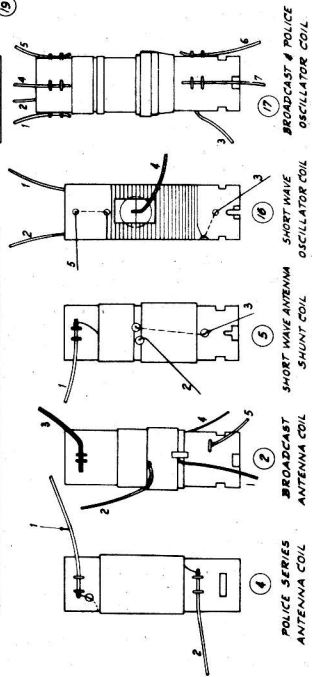
After setting up the first station the same procedure as outlined above is used for the remaining stations. If these models are set up to receive the sound of a television program tuned in by special type Philco Television Sets or to be used in conjunction with a Philco Record Player, the lowest frequency push button should be used. To set up these programs, the same procedure as given for broadcast stations above is used.

Further details for setting up this receiver for operation with Philco Television Sets or Record Players are supplied with the instruments.

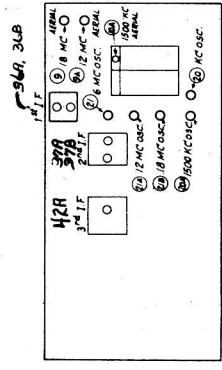
PORTION WITHIN DOTTED LINE FOR 41-295 ONLY SEE INSERT FOR 41-300



SWITCHES SHOWN FROM REAR BOTTOM VIEW OF CHASSIS. IN POSITION NEET (PUSHBUTTON) LETTERS INDICATE POSITION OF SWITCH WAFFERS FROM CENTER OF CHASSIS. SHADED RING INDICATES FRONT OF SWITCH WAFFER. SOLID RING INDICATES REAR OF SWITCH WAFFER.



1 POLICE SERIES ANTENNA COIL  
2 BROADCAST ANTENNA SHUNT COIL  
3 SHORT WAVE ANTENNA OSCILLATOR COIL  
4 BROADCAST & POLICE OSCILLATOR COIL

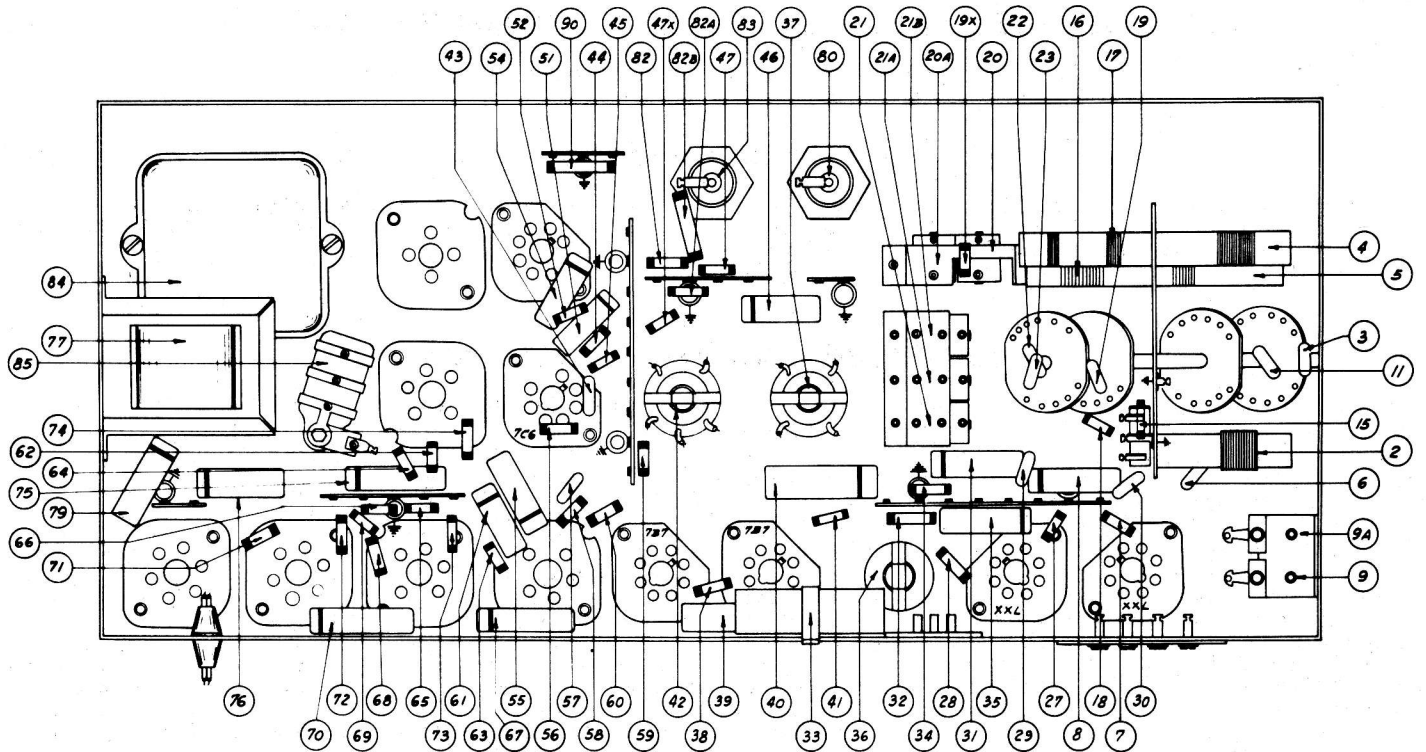


### SCHEMATIC DIAGRAM MODEL 41-295, 41-300

I.F. = 455 KC.

THE VOLTAGES INDICATED WERE MEASURED WITH A PHILCO MODEL O27 VOLTMETER (1000 OHMS PER VOLT)—POWER SUPPLY 115 VOLTS, 60 CYCLE—VOLUME CONTROL MINIMUM NO SIGNAL BEING RECEIVED—RANGE SWITCH "BROADCAST".  
THE ABOVE DIAGRAM IS THE COMPLETE ELECTRICAL CIRCUIT FOR MODEL 41-295. THE SAME GENERAL CIRCUIT IS ALSO USED IN MODEL 41-300 WITH THE EXCEPTION OF THE ADDITIONAL 7A6 TUBE IN THE 2ND DETECTOR A. V. C. CIRCUIT. THE WIRING OF THE ADDITIONAL TUBE IS SHOWN IN THE LOWER RIGHT CORNER OF THE SCHEMATIC.

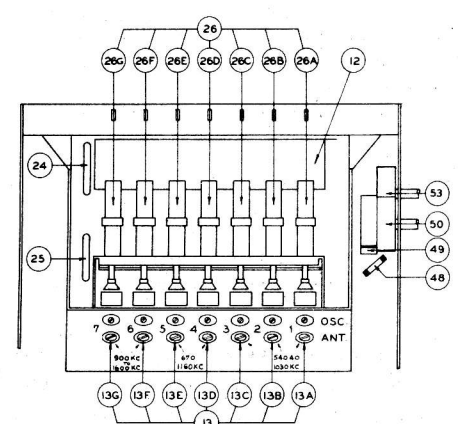
FOR MODEL 41-300 ONLY



PART LOCATIONS — UNDERSIDE OF CHASSIS

Replacement Parts — Models 41-295, 41-300

SCHE. No.	DESCRIPTION	PART No.	SCHE. No.	DESCRIPTION	PART No.
1	Loop Aerial	76-1089	52	Resistor (10 megohms)	33-610339
	Sleeve (1 required)	56-1907	53	Tone Control	33-5325
	Sleeve (2 required)	28-2257	54	Condenser (.006 mfd., 400 volts)	30-4591
	Spring Washer	28-4186	55	Condenser (.01 mfd., 400 volts)	30-4572
	Washer	W-151	56	Resistor (330,000 ohms)	33-433339
	Screw	W-288	57	Mica Condenser (.250 mmfd.)	33-247339
2	Aerial Transformer (Broadcast)	32-3496	58	Resistor (1 megohm)	33-510339
3	Mica Condenser (15 mmfd.)	60-015337	59	Resistor (43,000 ohms)	33-343339
4	Aerial Series Transformer (Police)	32-3498	60	Resistor (4700 ohms)	33-247339
5	Aerial Transformer (Short Wave)	32-3497	61	Condenser (.01 mfd., 400 volts)	30-4572
6	Mica Condenser (250 mmfd.)	60-125157	62	Resistor (470,000 ohms)	33-447339
7	Resistor (2.2 megohms)	33-522339	63	Resistor (47,000 ohms)	33-347339
8	Condenser (.05 mfd., 200 volts)	30-4519	64	Resistor (4700 ohms)	33-247339
9	Compensator (Aerial, 18 M. C.)	31-6359	65	Resistor (47,000 ohms)	33-347339
9A	Compensator (Aerial, S. W., 12 M. C.)	31-2483	66	Resistor (47,000 ohms)	33-347339
10	Tuning Condensers	27-4771	67	Condenser (.01 mfd., 400 volts)	30-2572
	Grommet (Mounting)	31-2291	68	Resistor (470,000 ohms)	33-447339
	Coupling Assembly	31-2291	69	Resistor (4700 ohms)	33-247339
	Cable Drum and Shaft Assembly	38-9716	70	Condenser (.006 mfd., 400 volts)	30-4591
10A	Comp. (Aerial, 1500 K. C.) Part of 10	30-1176	71	Resistor (470,000 ohms)	33-447339
11	Mica Condenser (155 mmfd.)	32-3500	72	Resistor (470,000 ohms)	33-447339
12	Push-button and Power Switch Assem.	42-1592	73	Resistor (68,000 ohms)	33-368339
	Grommet (Push-button Mounting)	27-4596	74	Resistor (68,000 ohms)	33-268339
	Sleeve (Push-button Mounting)	28-3806	75	Condenser (.006 mfd., 400 volts)	30-4591
13	Push-button Compensators Strip Assem.	31-6361	76	Condenser (.003 mfd., 1000 volts)	30-4469
14	Cond. (1 mmfd., Short Wire and Lug from Wafer Cont. 3D to Wafer Cont. 3B)	33-015337	77	Output Transformer	32-1099A
15	Resistor (15 ohms)	32-3500	78	Cone Assembly (For Speaker 36-1515-2)	36-4173
16	Oscillator Transformer (Short Wave)	32-3500	79	Condenser (.003 mfd., 1000 volts)	30-4469
17	Oscillator Transformer (Broadcast, Police)	32-3499	80	Electrolytic Condenser (25 mfd.)	30-2333
18	Resistor (4700 ohms)	33-247339	81	Field Coil (Replace Speaker 36-1515)	30-2333
19	Condenser (2000 mmfd.)	60-220324	82	Bias Resistor (10 ohms)	33-010336
20	Compensator (580 K. C., Oscillator)	31-6365	82A	Bias Resistor (15 ohms)	33-015336
20A	Comp. (1500 K. C., Oscil.) Part of 20	31-6362	82B	Resistor (68,000 ohms)	33-153336
21	Compensator (6 M. C., Oscillator)	31-6362	83	Electrolytic (18 mfd.)	30-2472
21A	Compensator (12 M. C., Oscillator)	31-6362	84	Power Transformer (115 volts, 60 cycle)	32-8115
21B	Compensator (18 M. C., Oscillator)	31-6362	85	Power Transformer (115 volts, 25 cycle)	32-8151
22	Mica Condenser (145 mmfd.)	30-1177	86	Power Trans. (115/220 volts, 60 cycle)	32-8097
23	Mica Condenser (370 mmfd.)	30-1178	87	Condenser (.01, .01 mfd.)	3903-ODG
24	Mica Condenser (370 mmfd.)	30-1157	88	Pilot Lamp (Push-button, Band Indicator)	34-2141
25	Mica Condenser (370 mmfd.)	30-1157	89	Pilot Lamp (Scale Lights)	27-2244
26	Push-button Oscillator Transformers Assembly (7 Transformers)	32-3477	90	Pilot Lamp (Cabinet 41-300 only)	34-2210
26A, B, C, D, E	Push-button Oscillator Transformer (1, 2, 3, 4, 5 Push-buttons)	32-3042	89	Band Switch	42-1582
26F, G	Push-button Oscil. Trans. (6, 7 P. B.)	32-3041	90	Resistor (10 ohms) Model 41-300 only	33-010436
	Iron Core	28-6916			
	Centering Cup	28-6936			
	Coil Mounting Spring	28-8910			
27	Resistor (100,000 ohms)	33-410339			
28	Resistor (47,000 ohms)	33-347339			
29	Mica Condenser (250 mmfd.)	60-125157			
30	Mica Condenser (250 mmfd.)	60-125157			
31	Condenser (.05 mfd., 200 volts)	30-4519			
32	Resistor (330,000 ohms)	33-233439			
33	Electrolytic Condenser (8 mfd.)	30-2473			
34	Resistor (10,000 ohms)	33-310339			
35	Condenser (.01 mfd.)	30-4572			
36	1st I. F. Transformer	32-3493			
37	2nd I. F. Transformer	32-3494			
38	Resistor (330 ohms)	33-133336			
39	Condenser (.05 mfd., 200 volts)	30-4519			
40	Condenser (.1 mfd., 400 volts)	30-4455			
41	Resistor (47,000 ohms)	33-347339			
42	3rd I. F. Transformer	32-3495			
43	Mica Condenser (100 mmfd.)	60-110157			
44	Resistor (2.2 megohms)	33-522339			
45	Resistor (1 megohm)	33-510339			
46	Condenser (.01 mfd., 400 volts)	30-4572			
47	Resistor (330,000 ohms)	33-433339			
48	Resistor (68,000 ohms)	33-368339			
49	Condenser (.006 mfd., 400 volts)	30-4591			
50	Volume Control (2 megohms)	33-5286			
51	Condenser (.01 mfd., 400 volts)	30-4572			



PART LOCATIONS ELECTRIC PUSH-BUTTON TUNING UNIT

SCHE. No.	DESCRIPTION	PART No.
27	Jewel (Cabinet Pilot Lamp—Cabinet)	27-4777
34	Knob (Push-button)	34-0099
27	Rubber Grommet (Chassis Mounting)	27-4571
39	Rubber Grommet (Tuning Unit Mounting)	39-14
39	Rubber Grommet (Tuning Unit Mounting)	39-15
27	Rubber Corner (Chassis Mounting)	27-4564
27	Socket (5 prong)	27-6035
27	Socket (6 prong)	27-6036
27	Socket (4 prong)	27-6044
27	Socket (Loktal—Rubber—Oscillator)	27-6129
27	Socket (Loktal—Bakelite)	27-6131
27	Socket (3 prong—Aerial)	27-6145
38	Socket (Pilot Lamp—Dial)	38-9695
38	Socket (Pilot Lamp—Push-button Light)	38-9904
76	Socket (Pilot Lamp—Cabinet 41-300)	76-1078
36	Speaker	36-1515
40	Tab Kit (Stations)	40-6995
27	Tab (Television)	27-5648
27	Tab (Off-On)	27-5647
28	Washer (Chassis Mounting)	28-5114

MISCELLANEOUS PARTS

40-6598	Bezel and Gasket
W-2073	Screw (Mounting)
W-1345	Bois (Chassis Mounting)
L-3199	Cord (Power)
41-3430	Cable (Speaker)
10499A	Cabinet (41-295)
10500A	Cabinet (41-300X)
28-5002	Clip (Mounting R. F. Coil)
27-5658	Dial Scale
56-1034	Clamp
56-1033	Pointer
31-2316	Drive Cord (Pointer Drive)
31-2315	Drive Cord (Tuning Drum)
28-8013	Spring (Drive Cord)
54-4027	Drum (Tone Control)
54-4028	Drum (Volume Control)
54-4029	Drum (Tuning)
318-2119	Drum (Wave Switch)
28-6924	Set Screw
28-6924	Shaft (Left Hand Control Drum)
56-1036	Shaft Bearing
56-1039	Bracket (Left Hand)
56-1832	Bracket (Right Hand)
28-3976	Washer (Right Hand Drum Shaft)
56-1029	Key Washer (Drum Shaft)
56-1385	Spring Washer (Drum Shaft)
56-1659	Washer, Steel (Drum Shaft)

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

The following procedure is the same for both models:

### EQUIPMENT REQUIRED

1. **SIGNAL GENERATOR:** Covering the frequency range of the receiver, such as Philco Models 077 or 177.
2. **ALIGNING INDICATOR:** Either a vacuum tube voltmeter or an audio output meter may be used as an aligning indicator. Philco Models 027 and 028 circuit testers contain both these meters.
3. **TOOLS:** Philco Fiber Screw Driver, Part No. 45-2610.

### CONNECTING ALIGNING INSTRUMENTS

Either a vacuum tube voltmeter or an audio output meter may be used as a signal indicator when adjusting the receiver.

**Vacuum Tube Voltmeter:** To use the vacuum tube voltmeter as an aligning indicator, make the following connections: Attach the negative (—) terminal of the voltmeter to any point in the circuit where the A. V. C. voltage can be obtained. Connect the positive (+) terminal of the vacuum tube voltmeter to the chassis.

**Audio Output Meter:** Terminal No. 1 is provided on the loop aerial panel for connecting one lead of the audio output meter to the voice coil of the speaker. The other lead of the meter is connected to the chassis. When using these connections, the lowest A. C. scale of the meter must be used. (0 to 10 volts).

The audio output meter can also be connected between the plate of the output tube and the ground of the chassis.

**Signal Generator:** When adjusting the "I. F." padders, the high side of the signal generator is connected through a .1 mfd. condenser to terminal 4 of the loop aerial terminal panel at the rear of the chassis. The ground or low side of the signal generator is connected to the ground of the receiver.

When aligning the R. F. padders a loop is made from a few turns of wire and connected to the signal generator output terminals; the loop is then placed two or three feet from the loop in the cabinet. Do not remove the receiving loop from the cabinet. It is necessary when adjusting the padders, that the receiver be left in the cabinet.

After connecting the aligning indicator, adjust the compensators in the order shown in the tabulation below. Locations of the compensators are shown on the schematic diagram. 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	Dial Setting	Dial Setting	Control Setting	Adjust Compensators in Order	
1	High Side to No. 4 Terminal Loop Panel	455 K. C.	580 K. C.	Vol. Max. Range Switch "S.W.1" Position	36A, 36B, 37A, 37B, 42A	
2	Use Loop on Generator	1500 K. C.	1500 K. C.	Vol. Max. Range Switch "Brdcst"	20A, 10A	Note A
3	Use Loop on Generator	580 K. C.	580 K. C.	Vol. Max. Range Switch "Brdcst"	20	Roll Tuning Condenser Note B
4	Use Loop on Generator	Repeat Operation No. 2				
5	Use Loop on Generator	6 M. C.	6 M. C.	Range Switch "Police"	21	Note C
6	Use Loop on Generator	12 M. C.	12 M. C.	Range Switch "S. W. 1"	21A, 9A	Note D
7	Use Loop on Generator	18 M. C.	18 M. C.	Range Switch "S. W. 2"	21B, 9	Note E

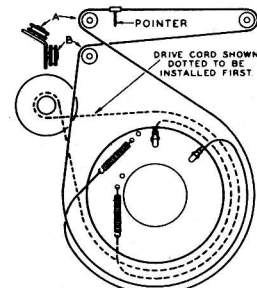
**NOTE A — DIAL CALIBRATION:** In order to adjust the receiver correctly, the dial must be aligned to track properly with the tuning condenser. To adjust the dial, proceed as follows: With the tuning condenser closed (maximum capacity), set the dial pointer on the extreme left index line at the low frequency end of the broadcast scale. The arrangement of the drive cable in this position is shown in the schematic.

**NOTE B —** When adjusting the compensator the receiver Tuning Condenser must be adjusted (rolled) as follows: First tune the compensator for maximum output, then vary the tuning condenser of the receiver for maximum output. Now turn the compensator slightly to the right or left and again vary the receiver tuning condenser for maximum output. This procedure of first setting the compensator and then varying the tuning condenser is continued until maximum output reading is obtained.

**NOTE C —** Adjust compensator (21) to the Second signal peak from the tight (closed) position. The tuning condenser should also be Rolled when the padder is being adjusted on this peak. See Note B on how to Roll the Condenser.

**NOTE D —** Adjust compensator (21A) to the First signal peak from the tight (closed) position. If the compensator is correctly adjusted the image signal will be weakly heard by leaving the receiver dial at 12 M. C. and turning the signal generator to 11.090 M. C.

**NOTE E —** Adjust compensator (21B) to the Second signal peak from the tight (closed) position. If the compensator is correctly adjusted the image signal will be weakly heard by leaving the receiver at 18 M. C. and turning the signal generator to 18.910 M. C. When adjusting compensator (9) roll the tuning condenser. See Note B on how to roll the condenser.



(POINTER AT LOW FREQUENCY END OF DIAL)  
TUNING CONDENSER MAXIMUM CAPACITY  
(FULLY CLOSED)

INSTALLATION OF DRIVE CORD