

PHILCO Model 39-45, Code 121



SERVICE BULLETIN No. 306 for members of RADIO MANUFACTURERS SERVICE

A PHILCO Service Plan

SPECIFICATIONS

TYPE OF CIRCUIT: A. C. operated; superheterodyne circuit with three tuning ranges, covering standard broadcast (540 KC. to 1720 KC.)—police broadcast (1.7 MC. to 5.9 MC.) and short-wave (5.8 MC. to 18.0 MC.) frequencies; Electric Push-Button tuning; Automatic Volume Control; and push-pull pentode output.

The receiver is designed to operate from a "Philco Safety Aerial," part No. 40-6371. This aerial system should be used to obtain maximum performance from the receiver.

POWER SUPPLY: Voltage, 115 volts. Frequency, 50-60 cycles. Power consumption, 85 watts.

INTERMEDIATE FREQUENCY: 470 KC.

TUNING RANGES: 540 KC. to 1720 KC.; 1.7 MC. to 5.9 MC.; 5.8 MC. to 18.0 MC.

PHILCO TUBES USED: 1-78, R. F.; 1-6A7, 1st detector and oscillator; 1-78, I. F.; 1-6J5G, 2nd detector, Automatic Volume Control; 1-6K5G, 1st audio; 1-6J5G, phase inverter; 2-42, push-pull output; and 1-5Y4G, rectifier.

TUNING MECHANISM: Pulley and cable drive for manual tuning. Electric Push-Button for Automatic tuning.

CABINETS: Type "XX."

Adjusting Electric Push-Button Tuning

In order to set the Electric Push-Buttons correctly for each station, the procedure as given below should be carefully followed. Accurate adjustment of the buttons requires the use of a Philco Model 077 Station Setter and a part No. 27-7059 insulated screw driver.

(A) Select eight of the most popular stations received in the locality and remove their call letters from the call letter sheets supplied. Place the call letters in the windows above the buttons, making sure that each button covers the frequency of the station for which it is to be used. Two adjustment screws for each button are located on the rear of the push-button unit. Each set of screws is numbered and covers a frequency range as follows:

Push-Button	Frequency Range
1 and 2	540-1030 KC.
3 and 4	670-1160 KC.
5 and 6	900-1470 KC.
7 and 8	1100-1600 KC.

Looking at the front of the cabinet, the first button on the left is adjusted by set screw No. 1, the next button by set screw No. 2, and the remaining buttons in the same order.

(B) Connect the aerial and ground to the "ANT" and "GND" terminals of the receiver.

(C) Turn the receiver Tuning Range Selector to position 2 (Broadcast) and tune the receiver to the station to be set on the first button.

(D) Plug the output leads of the Station Setter into the "High" and "Gnd" jacks, and turn the output controls to maximum.

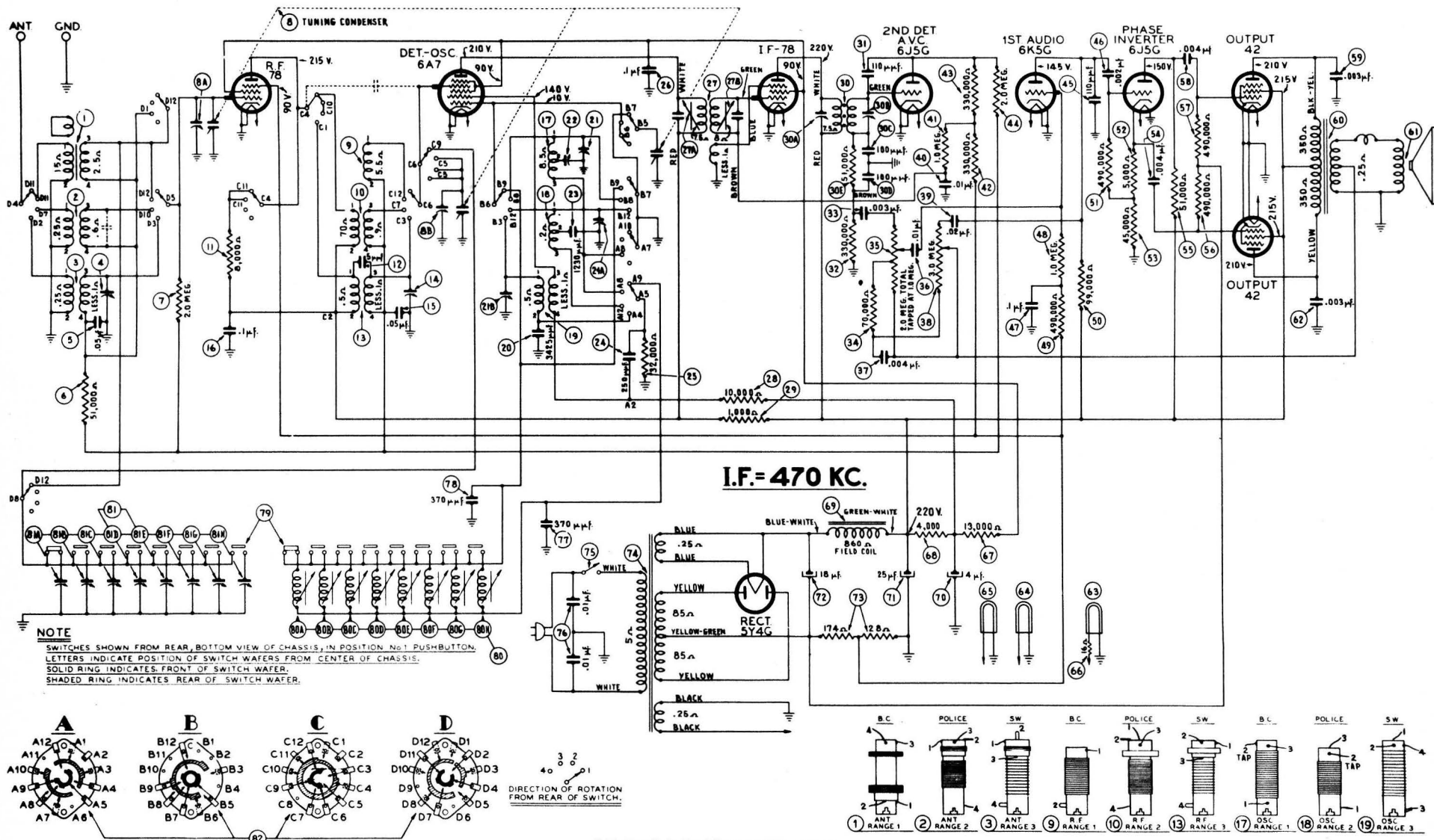
Turn the modulation control to "Modulation On." Connect the output lead of the station setter to the "ANT" and "GND" terminals of the receiver and tune to the frequency of the station being received. As the indicator is slowly tuned through the frequency of the station, there will be two points at which a whistle will be heard, one above and one below the frequency of the station. When the indicator is on the frequency of the station the whistle will be eliminated and the modulated signal of the station setter will then be clearly heard through the receiver.

(E) Turn the receiver Tuning Range Selector to position 1 (Push-Button) and press in the first button. Using the part No. 27-7059 insulated screw driver, turn the No. 1 "OSC" screw until the broadcast station identified by the station setter signal is tuned to Maximum Volume.

(F) Remove the output lead of the station setter from the "ANT" terminal of the receiver and turn the indicator of the station setter off the frequency of the station. The program of the desired station will then be heard in the receiver without the modulated signal.

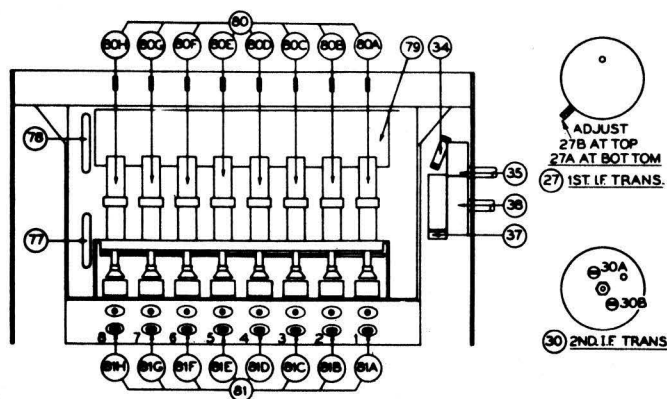
(G) With the volume of the receiver low, slowly turn the No. 1 "OSC" screw back and forth until maximum output is received. Repeat the same procedure for the No. 1 "ANT" screw.

After setting up the first station, the same procedure given under (C) to (G) is used for the other stations.

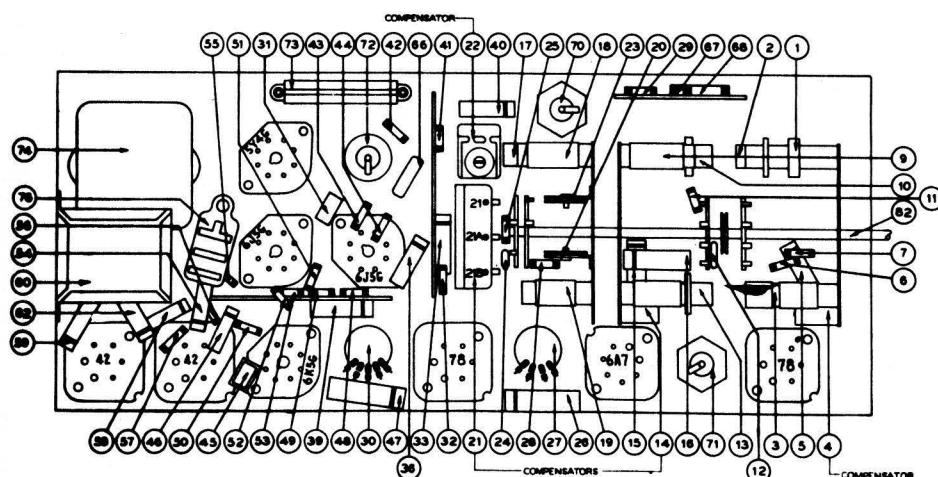


SCHEMATIC DIAGRAM MODEL 39-45

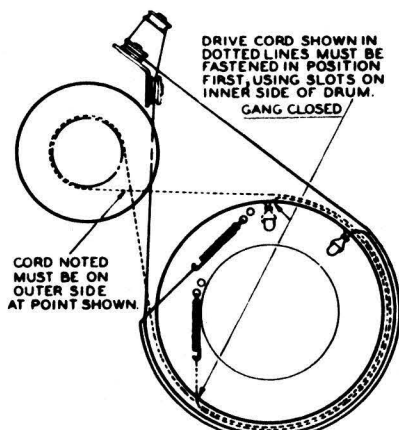
Replacement Parts Model 39-45, Code 121



ELECTRIC AUTOMATIC PUSH BUTTON UNIT



PART LOCATIONS UNDERSIDE OF CHASSIS MODEL 39-45



CORRECT METHOD OF INSTALLING DRIVE CORDS ON TUNING CONDENSER DRUM

Schem. No.	Description	Part No.	Schem. No.	Description	Part No.
1	Ant. Trans. (Range 1), B. C....	32-3056	49	Resistor (490,000 ohms).....	33-449339
2	Ant. Trans. (Range 2), Police..	32-3053	50	Resistor (99,000 ohms).....	33-399339
3	Ant. Trans. (Range 3), S. W....	32-3055	51	Resistor (490,000 ohms).....	33-449339
4	Ant. Compensator (Range 3)...	31-6212	52	Resistor (5000 ohms).....	33-250339
5	Tubular Cond. (.05 mf).....	30-4519	53	Resistor (45,000 ohms).....	33-345339
6	Resistor (51,000 ohms).....	33-351339	54	Tubular Cond. (.004 mf).....	30-4578
7	Resistor (2.0 megohms).....	33-520339	55	Resistor (51,000 ohms).....	33-351339
8	Tuning Cond.	31-2296	56	Resistor (490,000 ohms).....	33-449339
9	R. F. Trans. (Range 1), B. C....	32-2379	57	Resistor (490,000 ohms).....	33-449339
10	R. F. Trans. (Range 2), Police..	32-3054	58	Tubular Cond. (.004 mf).....	30-4578
11	Resistor (8000 ohms).....	33-280339	59	Tubular Cond. (.003 mf).....	30-4469
12	Mica Cond. (5 mmf).....	30-1083	60	Output Trans.	32-7981
13	R. F. Trans. (Range 3), S. W....	32-3046	61	Cone and Voice Coil Assy. for Speaker (Part No. 36-1450)	36-4089
14	R. F. Compensator (Range 3)...	31-6212	62	Tubular Cond. (.003 mf).....	30-4469
15	Tubular Cond. (.05 mf).....	30-4519	63	Pilot Lamp Dial	34-2210
16	Tubular Cond. (.1 mf).....	30-4455	64	Pilot Lamp Dial	34-2210
17	Osc. Trans. (Range 1), B. C....	32-2120	65	Pilot Lamp Power	34-2210
18	Osc. Trans. (Range 2), Police..	32-3052	66	Resistor (16 ohms).....	33-016431
19	Osc. Trans. (Range 3), S. W....	32-3051	67	Resistor (13,000 ohms).....	33-313439
20	Tracking Condenser, Semifixed (3425 mmf)	31-6263	68	Resistor (4000 ohms).....	33-240339
21	Osc. Compensator (Broadcast) ..	31-6266	69	Field Coil, Replace Speaker (Part No. 36-1450)	30-2334
21A	Osc. Compensator (Police, Part of 21).....	31-6266	70	Electrolytic Cond. (4 mf).....	30-2333
21B	Osc. Compensator (s.w. part of 21)	31-6230	71	Electrolytic Cond. (25 mf).....	30-2335
22	Osc. Compensator	31-6230	72	Electrolytic Cond. (18 mf).....	33-3358
23	Tracking Condenser, Semifixed (1230 mmf)	31-6262	73	B. C. Resistor	32-7998
24	Mica Cond. (250 mmf).....	30-1032	74	Power Trans. (115v., 60 cycle) ..	42-1467
25	Resistor (32,000 ohms).....	33-332339	75	A. C. Switch	3903DG
26	Tubular Cond. (.1 mf).....	30-4455	76	Bakelite Cond. (.01 to .01 mfd) ..	30-1110
27	1st I. F. Trans. Assy.	32-3079	77	Silver Mica Cond. (370 mmf).....	30-1110
28	Resistor (10,000 ohms).....	33-310339	78	Silver Mica Cond. (370 mmf).....	42-1462
29	Resistor (1000 ohms).....	33-210339	79	Push-Button Switch	32-3031
30	2nd I. F. Trans. Assy.	32-2582	80	Push-Button Osc. Trans. Assy. (8 coils)	32-3042
31	Mica Cond. (110 mmf).....	30-1031	80A	Coil No. 1 (540-1030 KC.).....	32-3042
32	Resistor (330,000 ohms).....	33-433339	80B	Coil No. 2 (540-1030 KC.).....	32-3042
33	Tubular Cond. (.003 mf).....	30-4580	80C	Coil No. 3 (670-1160 KC.).....	32-3042
34	Resistor (70,000 ohms).....	33-370339	80D	Coil No. 4 (670-1160 KC.).....	32-3042
35	Volume Control	33-5286	80E	Coil No. 5 (900-1470 KC.).....	32-3041
36	Tubular Cond. (.01 mf).....	30-4169	80F	Coil No. 6 (900-1470 KC.).....	32-3041
37	Tubular Cond. (.004 mf).....	30-4578	80G	Coil No. 7 (1100-1600 KC.).....	32-3041
38	Tone Control	33-5287	80H	Coil No. 8 (1100-1600 KC.).....	31-6259
39	Tubular Cond. (.02 mf).....	30-4481	81	Padder Strip	31-6259
40	Tubular Cond. (.01 mf).....	30-4169	81A	Comp. No. 1 (540-1030 KC.).....	31-6259
41	Resistor (1.0 megohm).....	33-510339	81B	Comp. No. 2 (540-1030 KC.).....	31-6259
42	Resistor (330,000 ohms).....	33-433339	81C	Comp. No. 3 (670-1160 KC.).....	31-6259
43	Resistor (330,000 ohms).....	33-433339	81D	Comp. No. 4 (670-1160 KC.).....	31-6259
44	Resistor (2.0 megohms).....	33-520339	81E	Comp. No. 5 (900-1470 KC.).....	31-6259
45	Mica Cond. (110 mmf).....	30-1031	81F	Comp. No. 6 (900-1470 KC.).....	31-6259
46	Tubular Cond. (.002 mf).....	30-4579	81G	Comp. No. 7 (1100-1600 KC.).....	31-6259
47	Tubular Cond. (.1 mf).....	30-4455	81H	Comp. No. 8 (1100-1600 KC.).....	31-6259
48	Resistor (1.0 megohm).....	33-510339	82	Wave Switch	42-1451

Miscellaneous Parts

Bezel	56-1092	Shaft Control Drums	28-6924
Bezel Gasket	27-9245	Socket Assembly Dial Lamp....	38-9694
Bearing (Drum Shaft).....	56-1036	Socket Assembly Dial Lamp....	38-9695
Cable (Power)	L-2778	Socket	38-9696
Cable (Speaker)	41-3430	Socket (Pilot Lamp).....	27-6036
Coupling (Tuning Condenser)...	31-2291	Socket (6-prong) (78-tube).....	27-6086
Dial (Scale)	27-5404	Socket (6-prong) (Octal).....	27-6053
Dial Clamp	56-1034	Socket (7-prong) (Octal).....	27-6107
Dial Gasket	27-9224	Speaker (7-prong) (6A7-tube) ..	36-1450
Dial Gasket	27-9225	Tab Kit	40-6392
Dial Pointer	56-1033	Mounting Parts	
Dial Drive Cord, (Tuning)	31-2315	Grommet	
Dial Drive Cord, Pointer	31-2316	(Mtg. Push-Button Switch)....	27-4610
Dial Drive Cord Spring	28-8913	(Mtg. Tuning Unit Assy.).....	3914
Disc Control (Tuning)	27-4766	(Mtg. Tuning Unit Assy.).....	3915
Disc Control (Range Switch)....	38-9702	Nut (A. C. Switch).....	W-1757
Disc (Tone Control)	27-4764	Nut (Speaker Mtg.).....	W-124
Disc (Volume Control)	27-4765	Screw (Mtg. Chassis).....	W-1345
Drum Assembly		Screw (Bezel)	W-1834
(Tuning Condenser)	38-9661	Washer (Speaker Mtg.).....	27-7467
Drum-Bracket and Bearing		Washer Rubber (Mtg. Chassis) ..	27-4571
(Tuning Condenser)	38-9662	Washer (A. C. Switch)	W-894

Alignment of Compensators

EQUIPMENT REQUIRED:

- (1) Signal Generator; Philco Model 077 Signal Generator which has a fundamental frequency range from 115 to 36,000 KC. is the correct instrument for this purpose.
- (2) Output meter, Philco Model 027 Circuit Tester, incorporates a sensitive output meter and is recommended.
- (3) Philco Fiber Handle Screw Driver, part No. 27-7059 and Fiber Wrench, part No. 3164.

OUTPUT METER: The Philco 027 Output Meter is connected to the plate terminals of the type 42 tubes and adjusted for the 0 to 30 V. A. C. scale. After connecting the output meter, adjust the compensators in the order as shown in the tabulation below. Locations of the compensators are shown on page 3. If the output meter pointer goes off scale when adjusting the compensators, reduce the strength of the signal from the generator.

Operation	SIGNAL GENERATOR			RECEIVER			Special Instructions
	Output Connections to Receiver	Dummy Antenna (Note A)	Dial Setting	Dial Setting	Control Setting	Adjust Compensators to Max. Reading	
1	6A7	.1 mf	470 KC.	470 KC.	Vol. Max. Range Switch Broadcast	30B, 30A, 27B, 27A	
2	Antenna	150 mmf	1550 KC.	1550 KC.	"	21, 8B, 8A	See Note B and C
3	Antenna	150 mmf	580 KC.	580 KC.	"	22	Roll Tuning Condenser
4	Antenna	150 mmf	1550 KC.	1550 KC.	"	21	
5	Antenna	400 ohms	5.0 MC.	5.0 MC.	Range Switch Police	21A	
6	Antenna	400 ohms	18.0 MC.	18.0 MC.	Range Switch S. W.	21B, 14, 4	

NOTE A—The "Dummy Antenna" consists of a condenser connected in series with the signal generator output lead (high side). Use the capacity 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 extreme left index line at the low frequency end of the broadcast scale. The arrangement of the drive cable is shown on page 3.

NOTE C—Compensators (8A) and (8B) are located on top of the tuning condenser. Compensator (8A) is the first one from the tuning drum side.

PHILCO VACUUM TUBE VOLTMETER AND CIRCUIT TESTER



Model 027 For A. C. Operation

Every service test can be made on this new Philco 027 combination Vacuum Tube Voltmeter and Circuit Tester, with a speed, accuracy and simplicity available in no other unit designed for a similar purpose.

The vacuum tube voltmeter (infinite ohms per volt) provides extreme accuracy on the low range voltages—for checking grid voltages, automatic volume control circuits, gain per stage measurements and making other delicate tests of which an ordinary voltmeter or "analyzer" is completely incapable. In addition to performing such precision tests, all ordinary tests of voltage, current, resistance, capacity and output in a receiver, are provided.

A revolutionary feature of the 027 is the automatic push-button design for selecting the type of test and range desired. Eliminates rotary switches, jacks, plugs, etc., and saves time on all tests. Different colored selector buttons tie in with similarly colored scale identifications.

Other features of this outstanding new unit are—new large SQUARE type meter (4 1/8" x 4 5/8") with exceptionally easy reading scales; extra high range ohmmeter (0 to 150 megohms); new type test prods with replaceable points; pilot lamp on vacuum tube voltmeter. Rugged construction throughout; matches other Philco test units in size and general appearance.

Net Dealer Price \$42.00

PHILCO RADIO AND TELEVISION CORPORATION
Parts and Service Division **Philadelphia, Pa.**