

PHILCO SERVICEMAN



RADIO • MANUFACTURERS • SERVICE • NEWS

NOVEMBER, 1941



EDITORIAL

Parts Availability

More work and more profits for the radio serviceman can be forecast by the increasing production difficulties in radio. Material shortage will cause a curtailment in production of new equipment, but there is definite assurance that radio parts for replacement will continue to be available.

Service Priority

Recognizing the importance of keeping existing civilian radio equipment in good operating order, the United States Government has placed a priority rating on radio replacement parts. Servicemen will be called upon to service more and more sets, and they will definitely be in a position to obtain the necessary parts for these repairs.

Largest Stocks

As for the repair and upkeep of Philco sets, the service industry is in an excellent position to handle all requirements. Through Radio Manufacturers Service, the more than 2,000 leading servicemen members have been supplied with complete technical information, diagrams, and parts lists. Philco distributors follow through by maintaining the most adequate stock of parts in the field, and these distributors are backed up at Philco with the largest stock of radio replacement parts in the world.

Increasing Business

Philco parts business is increasing by leaps and bounds because servicemen recognize quality, fair price, and—in these days—AVAILABILITY.

Price Change Model 050 Tube Tester

Due to unavoidable increases in the cost of materials, it has been necessary to increase the selling price of the model 050 Tube Tester. The new dealer net price is \$59.00. At this price it still represents the finest value on the market, because it is up-to-date and it will stay up-to-date. The exclusive built-in selector system will take care of every possible rearrangement of existing tube base connections, and holes are provided in the panel to take care of any new types of bases that the future may bring.

Build Customer Confidence and Increase Your Earnings Through the Use of the New R.M.S. Standard Service Charges



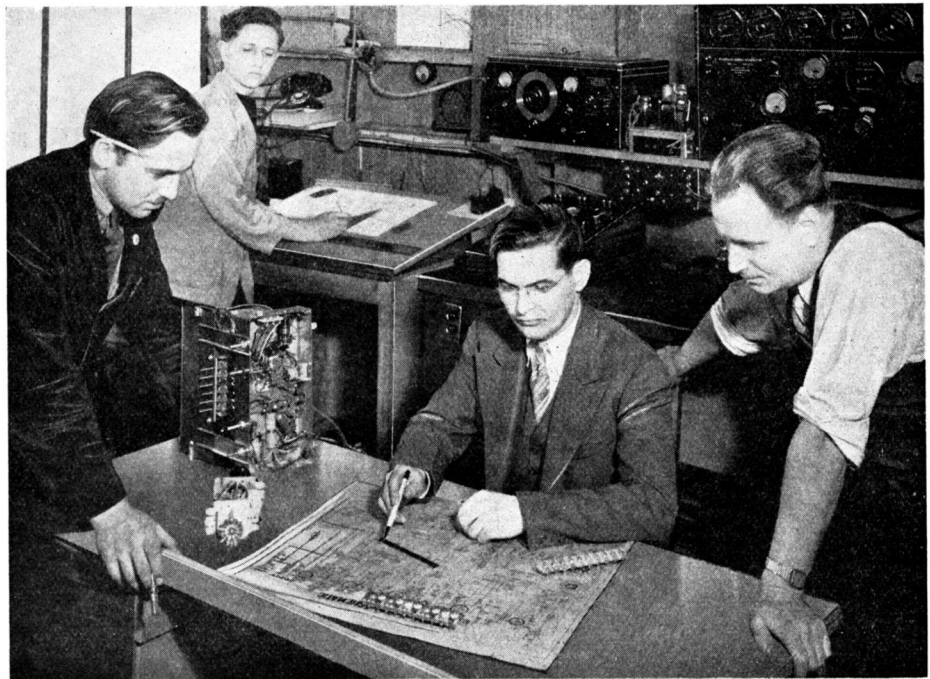
Here is a system of charges that takes into account the skill required to locate trouble in a radio, and shows the customer that the actual LABOUR involved in replacing a part is the least expensive part of radio service work.

New R.M.S. Placard Available

Display this new standard labour charge card in your store to help impress your customers with the business-like manner in which your service work is handled. It is 11" x 14" in size, and is attractively designed in colours.

Part No. PR891C — Net price to R.M.S. members \$.25

ENGINEERS AT WORK



Here's a picture showing a small section of Philco's Toronto Laboratories. In the centre is Gordon Irwin, Philco's Chief Engineer, surrounded by his engineering staff. The boys are justly proud of their work which has culminated in the 1942 line of Philco receivers.

PHILCOPHONE MODEL 908C, 909

PHILCOPHONE—is designed to provide communication between a Master Control Phone unit—Model 908C, and one, two, three, four or five Remote Phone units—Model 909. Model 908C operates from 115 volts D.C. or 25 to 60 cycles A.C. Power Supply. The power consumption is 30 watts.

Model 908C contains the amplifier, talk listen switch, remote phone selector switch, terminal panel, dynamic speaker and volume control.

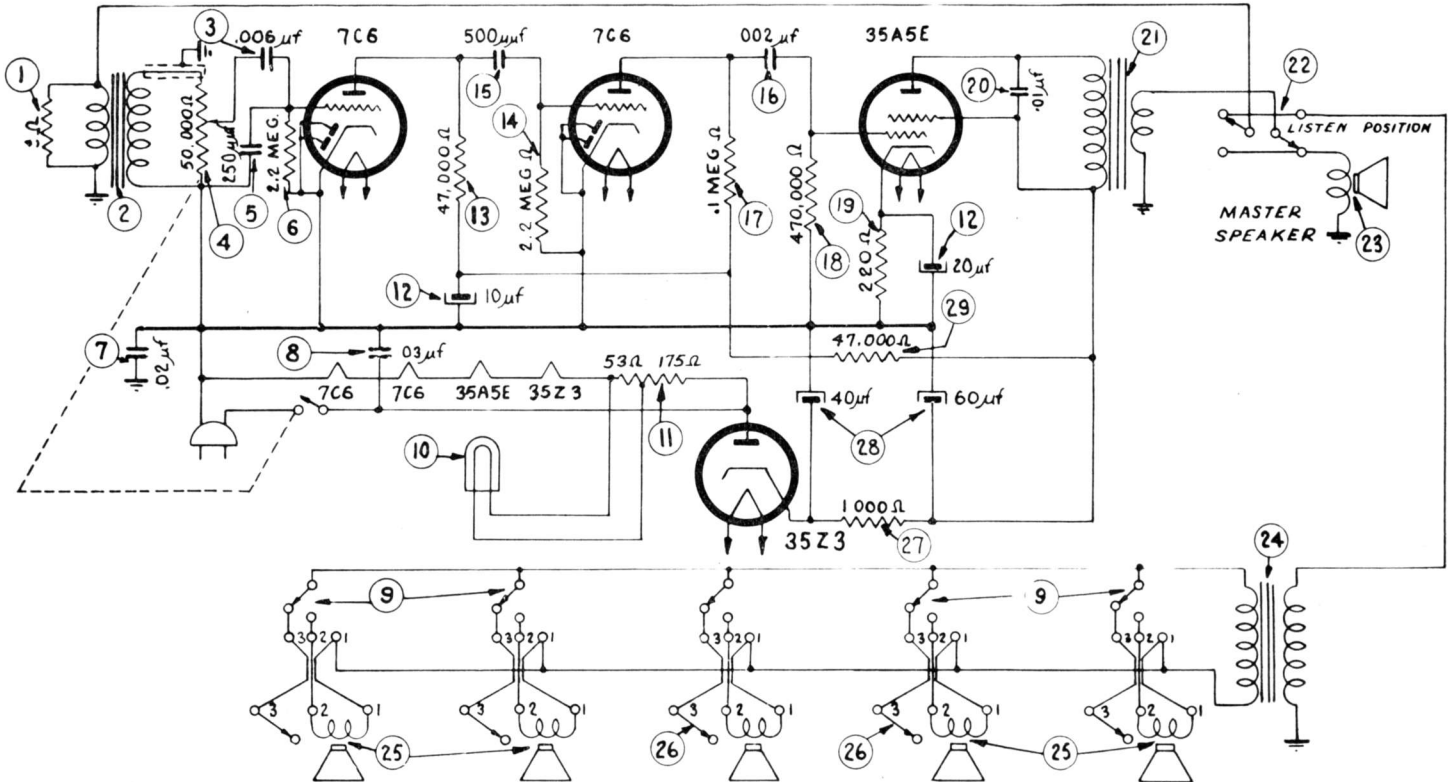
Model 909 Remote Phone unit consists of a dynamic speaker and a "call" button.

Service Notes

In connecting master and remote phones use only PHILCO twisted three wire cable, part No. L3278 or L3283. Do not use untwisted wire.

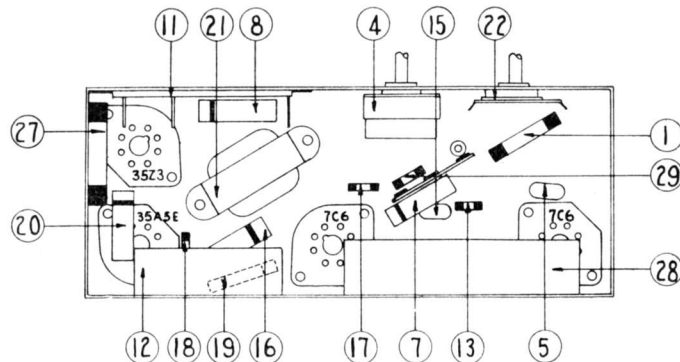
To connect additional remote phones, attach the three wires of the cable to the next row of terminals on the terminal panel at the back of the master phone unit. The coloured wires (red, white and blue) are connected to correspond with the colours engraved on the panel.

SCHEMATIC DIAGRAM



REPLACEMENT PARTS — Models 908C and 909

Schem. No.	Description	Part No.	Schem. No.	Description	Part No.	Schem. No.	Description	Part No.
1	Resistor (3 ohms, 1/2 watt)	33-930356	11	"Talk Listen" Knob	27-4326	21	Front Housing (Extension Speaker)	28-7322
2	Input Transformer	12-0059	12	Acetate Window	27-5684	22	Base (Extension Speaker)	28-7324
3	Tubular Cond. (.006 mfd, 400v)	30-4591	13	"Quiet" Tab	27-5686	23	Rear Housing (Extension Speaker)	28-7328
4	Volume Control (50,000 ohms)	33-5431	14	Tab	27-5687	24	Grille Extension Speaker	56-1966
5	Mica Condenser (250 mmfd.)	60-125157	15	Cardboard Back	27-9824	25	Cone & Voice Ass'y (Master Speaker)	36-4194
6	Resistor (2.2 meg, 1/8 watt)	33-522254	16	Grille Cloth	40-6630	26	Cone & Voice Ass'y (Extension Speak.)	36-4193
7	Tubular Cond. (.02 mfd, 400v)	30-4516	17	Cabinet	10457D	27	Extension Speaker Cable	
8	Tubular Cond. (.03 mfd, 400v)	30-4449	18	Screw (Back Mounting)	W2168FA4	28	50 ft. Length	L3278
9	Push Button Switch	42-1637	19	Screw (Chassis Mounting)	W2176FA3	29	100 ft. Length	L3283
10	Pilot Lamp	34-2068	20	Output Transformer	12-0059			
11	Filament Resistor	33-3367	21	Talk Listen Switch	42-1638			
12	Electrolytic Cond. (10-20 mfd.)	30-2453	22	Master Speaker	36-1536			
13	Resistor (47,000 ohms, 1/8 watt)	33-347254	23	Isolating Transformer	12-0058			
14	Resistor (2.2 meg, 1/8 watt)	33-522254	24	Remote Speaker (Model 909)	36-1532			
15	Mica Cond. (500 mmfd.)	60-150157	25	Remote Speaker Switch	42-1639			
16	Tubular Cond. (.002 mfd, 400v)	30-4579	26	Resistor (1000 ohms, 2 watt)	33-210534			
17	Resistor (100,000 ohms, 1/8 watt)	33-410254	27	Electrolytic Condenser (40-60 mfd.)	30-2449			
18	Resistor (470,000 ohms, 1/8 watt)	33-447254	28	Resistor (47,000 ohms, 1/2 watt)	33-347354			
19	Resistor (220 ohms, 1 watt)	33-122436	29	Terminal Panel	76-1172			
20	Tubular Cond. (.01 mfd, 400v)	30-4572		A.C. Cord	03-0017			
21	Output Transformer	12-0059		Pilot Lamp Assembly	18-0041			
22	Talk Listen Switch	42-1638		Tube Socket	27-6157-2			
23	Master Speaker	36-1536		End Plate	56-1373			
24	Isolating Transformer	12-0058		Pilot Lamp Bracket	56-2055			
25	Remote Speaker (Model 909)	36-1532		P.B. Knob	27-4824			
26	Remote Speaker Switch	42-1639		Volume Knob	54-4005			
27	Resistor (1000 ohms, 2 watt)	33-210534						
28	Electrolytic Condenser (40-60 mfd.)	30-2449						
29	Resistor (47,000 ohms, 1/2 watt)	33-347354						



PART LOCATIONS—BOTTOM VIEW OF CHASSIS

R.M.S. Correspondence

Once again our mail for the past month has brought us dozens of letters from R.M.S. members, in which they have expressed their appreciation for the service data which we have been sending out in our R.M.S. mailings, and in the Philco Serviceman. Here are some comments from just a few of the members:

From Mr. H. E. Davenport, of Prince George, B.C.—“May I take this opportunity to thank you for the great service rendered me by your R.M.S. data. For the past few years and until quite recently I was stationed at Whitehorse, Yukon Territory, and needless to say the service bulletins were invaluable.”

From Mr. A. Clarence Jensen, of Jensen Radio Supply, Calgary, Alta.—“I want to thank you now, as it has always been my intention to write you a letter commenting on the service data and notes that have been mailed to us, keeping us up to date on what's new in Philco, as well as other circuit improvements. Also on the R.M.S., which I am sure that we all admit is one of the finest organizations that we have in the radio service field to-day.”

From Mr. Ralph A. Honsberger, of Vineland, Ontario—“I guess I am just one of those silent partners on the receiving end of the many helpful articles in the Philco Serviceman, as well as the excellent service given by the R.M.S., and I wish to express my sincere thanks.”

From Mr. Henry C. Dyer, of Box 908, Preston, Ontario —“I wish to thank you for the efficient service applications, schematics and data.”

From Mr. R. W. Saunders, of 205 Prospect St. South, Hamilton, Ontario —“Please accept my thanks for the R.M.S. mailings which I look forward to every month.”

Questions and Answers

1. Q.—Is there any way of improving the tone quality of the Philco Model 52F when the defect appears to be a rattle which only shows up on very high volume?

A.—Before replacing the speaker cone in this model, make certain that the rattle only occurs at very high volume, and if so, then the tone quality can be improved by adding inverse feedback. This is done as follows, with reference to Philco Service Bulletin No. 356:

Remove item No. 44, which is a 220,000 ohm resistor, and replace it with a 470,000 ohm resistor. Remove item No. 45 which is a 470,000 ohm resistor (this is erroneously shown in the service bulletin as a 4.7 megohm resistor), and replace it with a 220,000 ohm resistor. Remove item No. 43, which is a 10 megohm resistor, and replace it with a 15 megohm resistor. Remove item No. 51, which is a .02 condenser. Add a 2.2 megohm resistor from the plate of the 6K6EG to the plate of the 7C6.

This completes the inverse feedback connection, and will overcome the rattle in this model which occurs at very high volume.

BATTERY EQUIPMENT OF ALL PHILCO BATTERY OPERATED RADIOS AND TEST EQUIPMENT

Model	Original Philco Equipment	Original and Equivalent			Voltages		
		Eveready Battery	General Battery	Burgess Battery	A	B	C
201T	—	748†	6014	1860	1½	90	—
202T	—	748†	6014	1860	1½	90	—
202F	—	748†	6014	1860	1½	90	—
203T	—	748†	6014	1860	1½	90	—
203F	—	748†	6014	1860	1½	90	—
204T	—	748†	6014	1860	1½	90	—
205F	—	748†	6014	(2 of-21308) (1 of-1030)	1½	90	—
206T	—	748†	6014	1860	1½	90	—
207T	P60B6L*	X330‡	6014	1860	1½	90	—
209	P60D12L**	748†	6014	1860	1½	90	—
210T	P60B6L*	X330‡	6014	3860	1½	90	—
211T	P60D12L**	748†	6014	1860	1½	90	—
212F	P60D12L**	748†	6014	1860	1½	90	—
213K	P60D12L**	748†	6014	1860	1½	90	—
214T	(2-P30F) (1-151-18L)	(2-385) (1-A1300)	(2-3081) (1-151)	(2-21308) (1-1030)	1½	90	—
215T	P60B6L*	X330‡	6014	1860	1½	90	—
216T	P60B6L*	X330‡	6014	1860	1½	90	—
401T	—	X259	41A4FL	441	1½	60	—
402T	—	X260	60A4L	660	1½	90	—
403T	—	(2-482) (1-741)	(2-3021) (1-144)	(2-5308) (1-4FP)	1½	90	—
404P	—	(2-482) (1-741)	(2-3021) (1-144)	(2-5308) (1-4FP)	1½	90	—
405T	P41A4G	X332	41A4G	S862	1½	60	—
406T	P41A4G	X332	41A4G	S862	1½	60	—
407T	P60A8F4	X331	60A8F4	S861	6	90	—
408T	P841	X340	841	S863	7½	90	—
39-371T	—	(2-482) (1-742)	(2-3021) (1-144)	(2-5308) (1-4FP)	1½	90	—
39-3116RX	BB30-12P	X246	41-8016	—	3	45	—
40-372T	—	(2-482) (1-741)	(2-3021) (1-144)	(2-5308) (1-4FP)	1½	90	—

† For longer battery life, Eveready 748 battery may be replaced by 1-A1300 and 2-385 where space permits.

** P60D12L was used instead of P60D11L.

* P60D12L may be substituted for P60B6L giving longer life when space permits.

‡ X330 battery may be replaced by 748 or by one of A1300 and two 385's for longer life.

Eveready battery type 386 may be substituted for type 385, to give longer life.

Model	Storage "A" Battery	or	Air Cell	"B"		"C"	
				Batteries	Batteries	Batteries	Batteries
38-C624X	6 volts	—	—	—	—	—	—
38-C623X	2 volts	—	SA2600	3-45 volts	—	2-4½ volts	—
38-C623T	2 volts	—	SA2600	3-45 volts	—	2-4½ volts	—
38-C324T	2 volts	—	A2600	2-45 volts	—	—	—
39-3B4CB	2 volts	—	A2600	2-45 volts	—	—	—
38-C624T	6 volts	—	—	—	—	—	—
38-C325K	2 volts	—	A2600	3-45 volts	—	2-4½ volts	—
38-C325T	2 volts	—	A2600	3-45 volts	—	2-4½ volts	—
37-3624X	6 volts	—	—	—	—	—	—
37-3624B	6 volts	—	—	—	—	—	—
37-3623J	2 volts	—	SA2600	3-45 volts	—	2-4½ volts	—
37-3623B	2 volts	—	SA2600	3-45 volts	—	2-4½ volts	—
37-338J	2 volts	—	SA2600	3-45 volts	—	2-4½ volts	—
37-338B	2 volts	—	SA2600	3-45 volts	—	2-4½ volts	—
37-333F	2 volts	—	A2600	3-45 volts	—	2-4½ volts	—
37-333B	2 volts	—	A2600	3-45 volts	—	2-4½ volts	—
3623F	2 volts	—	SA2600	3-45 volts	—	2-4½ volts	—
3623B	2 volts	—	SA2600	3-45 volts	—	2-4½ volts	—
338F	2 volts	—	A2600	3-45 volts	—	2-4½ volts	—
338B	2 volts	—	A2600	3-45 volts	—	2-4½ volts	—
339L	2 volts	—	A2600)	3-45 volts	—	3-4½ volts	—
339S	2 volts	—	or SA2600) A2600)	3-45 volts	—	3-4½ volts	—
334L	2 volts	—	or SA2600) SA2600	3-45 volts	—	3-4½ volts	—
334B	2 volts	—	SA2600	3-45 volts	—	3-4½ volts	—
338L	2 volts	—	A2600	3-45 volts	—	2-4½ volts	—
338B	2 volts	—	A2600	3-45 volts	—	2-4½ volts	—
337L	2 volts	—	—	3-45 volts	—	2-4½ volts	—
35H	2 volts	—	—	3-45 volts	—	1-22½ volts	—
35B	2 volts	—	—	3-45 volts	—	1-22½ volts	—
30L	2 volts	—	—	4-45 volts	—	2-4½ volts	—
30H	2 volts	—	—	4-45 volts	—	2-4½ volts	—
3 (Car Radio)	6 volts	—	—	4-45 volts	—	—	—
7 (Car Radio)	6 volts	—	—	3-45 volts	—	—	—

(CONT'D ON PAGE 4)

Lens Assembly Used for Examining Pick-up Jewel

It is often desirable for the serviceman to examine the jewel used in the Philco photo-electric pickup to determine possible causes of faulty reproduction when servicing the instrument.

The double lens assembly used in the photo-electric reproducer makes a perfect magnifying system for this purpose. The magnification obtained with this lens assembly is sufficient to detect the slightest flaw or damage at the jewel's point. The focussing of

the lens system is extremely critical and the jewel must be held approximately ¼" from the lens while looking through the opposite end of the cylinder. The power of this lens system is approximately the same as that used by the factory for inspecting these sapphires.

Very often a serviceman may change a jewel assembly when he merely suspects that the jewel has been damaged. Actual observation of the surface of the jewel will in many cases save considerable unnecessary work in making such changes. This lens assembly is available from Philco under Part No. 76-1109 and lists at \$2.65.

Philco Silvered Mica Condensers

The capacity value of new type Philco Silvered Mica Condensers bearing a part number prefixed by the number 20, and followed by a body of 6 figures (20-000000) can be identified by the part number. The prefix number (20) before the body of 6 figures classifies the condenser as being of the silvered mica type. The capacity value is obtained from the part number as described below. At a later date, the standard colour code may be applied to determine the capacity value also.

First four numbers (after the prefix 20) denote the capacity in micro-microfarads. For example, a silvered mica condenser of 285 Mmfd's would be No. -0285, so that the first part of its part No. would be 20-0285.

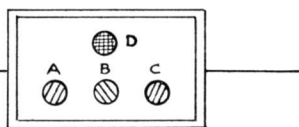
The fifth and sixth numbers are indicative of a factory construction code not required in service.

Example—a 25 micromicrofarad silvered mica condenser would be part No. 20-002500.

Reading Value by Colour Code RMA Colour Code

- | | |
|-----------|-----------|
| 1. Brown | 6. Blue |
| 2. Red | 7. Violet |
| 3. Orange | 8. Gray |
| 4. Yellow | 9. White |
| 5. Green | 10. Black |

The positions of these painted dots on these condensers will be as shown in the diagram.



The first number of the capacity value is indicated by the colour at point A on the sketch.

The second number of the capacity value is indicated by the colour at point B on the sketch.

The number of zeros after the first two numbers of the capacity value is indicated by the C colour.

Colour D is a factory construction code not used in service.

News from the Boys Overseas



All the boys in the Philco Factory in Toronto were delighted the other day to receive a letter from Russ Heagle, now L.A.C. Heagle, R.M. Before his enlistment Russ was a very active member of Toronto's technical staff. The above picture was enclosed in his letter and Russ says "It rather proves that no place is safe from them Philco people". Closer inspection of the picture shows a reflection of Russ in the window. Russ says he's "still at the same place—doing the same job"—which he can't say anything about.

Philco Model 050 Tube Tester Settings for New Tubes

Tube Type	Filament Control	Load Control	Toggle Switch Short Test	Settings Quality Test
1LD6	1	6	ABCDEF	—
3S4	1	6	BCD	E
7V7	6	2	ABCDEF	C
7Z4	6	6	ABCDEF	BC
7Z4	6	6	ABCDEF	CF
XXB	1	6	ABDEF	BMDG
XXB	1	6	ABDEF	MEFG
XXFM	6	12	ABCDEF	C
XXFM	6	12	ABCDEF	ABD
XXFM	6	6	ABCDEF	DE

Note—When testing all tubes of the 1.5 volt and 2.0 volt series, the SHORT TEST should be made with filaments unlighted. When tested with the filaments lighted, the filament is electrostatically attracted to the closely spaced adjacent element and may give a SHORT indication. This condition does not occur in normal operation. To make the SHORT test, set Filament control to No. 17, insert tube in proper socket and check for shorts. Then REMOVE tube from socket, reset Filament Control according to test chart and proceed with the Quality Test. The tube must be removed from the socket to prevent burning out the filament.

BATTERY EQUIPMENT OF ALL PHILCO BATTERY OPERATED RADIOS AND TEST EQUIPMENT

(CONT'D FROM PAGE 3)

Model	Name of Tester	General Battery	Eveready Battery	Burgess Battery
012	Shadow Output Meter	2-#D	2-#950	2-#2
024	Signal Generator	1-#D) & 1-#152)	1-#950) & 1-#768)	1-#2) & 2-#5156)
025	Circuit Tester	2-#152	2-#768	2-#5156
025A	Circuit Tester	1-#D) & 2-#152)	1-#950) & 2-#768)	1-#2) & 2-#5156)
026	Circuit Tester	1-#D) & 2-#152)	1-#950) & 2-#768)	1-#2) & 2-#5156)
028	V.T. Voltmeter	1-#D) & 2-#152)	1-#950) & 2-#768)	1-#2) & 2-#5156)
048	Signal Generator and Circuit Tester	1-#D) & 2-#152)	1-#950) & 2-#768)	1-#2) & 2-#5156)
048A	Signal Generator and Circuit Tester	1-#D) & 3-#152)	1-#950) & 3-#768)	1-#2) & 3-#5156)
059	Bench Tester	1-#6) & 2-#152)	1-#6) & 2-#768)	1-#6) & 2-#5156)
088-1st	Signal Generator	2-#D) & 3-#152)	2-#950) & 3-#768)	2-#2) & 3-#5156)
088-2nd	Signal Generator	2-#D) 1-#152) 1-#V30B)	2-#950) 1-#768) 1-#762)	2-#2) 1-#5156) 1-#5308)
088A	Signal Generator	2-#D) 1-#152) 1-#V30B)	2-#950) 1-#768) 1-#762)	2-#2) 1-#5156) 1-#5308)
091	Crystal Oscillator	1-#311) 1-#V30B)	1-#761) 1-#762)	1-#2370) 1-#5308)
177	Signal Generator	2-#D) 1-#152) 1-#V30B)	2-#950) 1-#768) 1-#762)	2-#2) 1-#5156) 1-#5308)

PHILCO CORPORATION of Canada Limited

PARTS AND SERVICE DIVISION TORONTO

The Philco Serviceman reaches you free of charge with the compliments of your Philco Distributor