



ADJUSTING COMPENSATING CONDENSERS

The compensating should be done with the Receiver turned to some frequency between 1200 and 1400 kilocycles. Either an oscillator signal or a broadcast signal may be used. Connect a good ground to the Receiver. If an oscillator signal is used, connect the oscillator to the ANT terminal. If a broadcast signal is to be used, connect the antenna to the ANT terminal.

When using the ear-method, the signal from the oscillator should be very weak, and the volume control of the Receiver turned on full. Tune the Receiver sharply. Using the fibre-wrench, adjust the fourth Compensating Condenser until maximum volume is obtained. The fourth Condenser is the one nearest the detector tube. Then adjust the other Compensating Condensers in the same manner—proceeding with the third, then the second, and then the first.

If the meter-method is to be used, tune in a strong broadcast signal between 1200 and 1400 kilocycles, using the regular antenna connected to the Receiver. The volume control may be turned down so that the volume is not annoying. Connect the negative terminal of a 250-volt high-resistance voltmeter (preferably 1000 ohms per volt) to the ground terminal of the Receiver. Connect the positive lead of the voltmeter to the screen-grid terminal of the third 24 tube. This can be done by wrapping a fine wire around the prong of the tube, or by using an adaptor such as is commonly used for pick-up work. This tube must be in the socket and operating when making the adjustment, and the tube shield put back in place.

Tune the Receiver sharply. Then check the adjustment of the Compensating Condensers, starting with the fourth. Adjust each one to the point of maximum deflection of the voltmeter needle.

NEW TUNING SCALE ILLUMINATION

The tuning scale used in the Models 96 and 96-A is translucent and is illuminated by means of a pilot lamp placed inside the drum of the tuning condenser. In case it is necessary to replace the pilot lamp, remove the screw fastening the lamp bracket to the condenser housing and bring the bracket out over the top of the condenser. Replace the lamp and fasten the bracket in place again. This can be done without removing the chassis from the cabinet.

REPLACEMENT PARTS

① Antenna Resistor 3526 ⊕ Volume Control 4093 ② First R. F. Transformer 3744-A ⊕ By-Pass Condenser 3615-D ③ Tuning Condenser 4000-D ⊕ Resistor 3768 ④ Compensating Condenser 3722-A ⊕ Resistor 3542 ⊕ By-Pass Condenser 3615-F ⊕ Tone Control 4037-A ♠ Resistor 3542 ⊕ Resistor 3542 ○ Second R. F. Transformer 3744-B ⊕ Resistor 3656 ⊕ By-Pass Condenser and Resistor 3615-C ⊕ Resistor 3656 ⊕ By-Pass Condenser and Resistor 3615-B ⊕ Input Transformer 3537 ⊕ Third R. F. Transformer 3744-C ⊕ On-Off Switch 4095 ⊕ By-Pass Condenser 3615-E ⊕ Power Transformer (60 Cycle) 3752 ⊕ By-Pass Condenser 3615-E ⊕ Power Transformer (25 Cycle) 3753 ⊕ By-Pass Condenser 3615-E ⊕ Cresistor 3636 ⊕ Filter Condenser (60 Cycle) 3763 ⊕ Condenser (60 Cycle) 3754 ⊕ By-Pass Condenser and Resistor 3615-B ⊕ Filter Condenser (60 Cycle) 3754 ⊕ By-Pass Condenser	Figs. 3 and 4 Description Part No. Figs. 3 and 4 Description Part No. ① Antenna Resistor	
① Antenna Resistor 3526 ❸ Volume Control 4093 ② First R. F. Transformer 3744-A ❸ By-Pass Condenser 3615-D ③ Tuning Condenser 4000-D ՙ Resistor 3768 ④ Compensating Condenser 3722-A శ Resistor 3542 ⑤ By-Pass Condenser 3615-F శ Tone Control 4037-A ⑥ Resistor 3542 శ Resistor 3542 ⑤ Second R. F. Transformer 3744-B శ Resistor 3656 ⑥ By-Pass Condenser and Resistor 3615-C ℛ Resistor 3656 ⑥ By-Pass Condenser and Resistor 3615-B ff Input Transformer 3537 ⑩ Third R. F. Transformer 3744-C శ On-Off Switch 4095 ff Fourth R. F. Transformer 3744-C Ք Ower Transformer (20 Cycle) 3753 ff Filter Scondenser 3615-E Ք Ower Transformer (25 Cycle) 3753 ff Filter Condenser 3763 C Resistor 3763 ff Filter Condenser (60 Cycle) 3753 Filter Condenser (60 Cycle) 3753 ff Filter Condenser 3764 Filter Condenser (60 Cycle) 3754 ff Filter Condenser <	① Antenna Resistor . 3526 ② Volume Control . 4093 ② First R. F. Transformer . 3744-A ③ By-Pass Condenser . 3615- ③ Tuning Condenser . 4000-D ② Resistor . 3768 ④ Compensating Condenser . 3722-A ③ Resistor . 3542 ⑤ By-Pass Condenser . 3615-F ② Tone Control . 4037- ⑥ Resistor . 3542 ② Resistor . 3542 ② Second R. F. Transformer . 3744-B ② Resistor . 3766 ③ By-Pass Condenser and Resistor 3615-C ② Resistor . 3656 ④ By-Pass Condenser and Resistor 3615-B ③ Input Transformer . 3537	0.
③ First R. F. Transformer 3744-A ⑤ By-Pass Condenser 3615-D ③ Tuning Condenser 4000-D ⑥ Resistor 3768 ④ Compensating Condenser 3722-A ⑥ Resistor 3542 ⑥ By-Pass Condenser 3615-F ฬ Tone Control 4037-A ⑥ Resistor 3542 ฬ Resistor 3542 ⑦ Second R. F. Transformer 3744-B ฬ Resistor 3766 ⑥ By-Pass Condenser and Resistor 3615-C ฬ Resistor 3656 ⑥ By-Pass Condenser and Resistor 3615-B ฬ Input Transformer 3537 ฬ Third R. F. Transformer 3744-C ฬ On-Off Switch 4095 ฬ By-Pass Condenser 3615-E ฬ Power Transformer (60 Cycle) 3752 ฬ Fourth R. F. Transformer 3744-C ฬ Power Transformer (25 Cycle) 3753 ฬ Resistor 3766 ฬ Choke 3422 ฬ Fifth R. F. Transformer 3775-B ฬ Filter Condenser (60 Cycle) 3754 ฬ By-Pass Condenser and Resistor 3615-B ฬ Filter Condenser (25 Cycle) 3755 ฬ By-Pass Condenser 3769 <td>② First R. F. Transformer . 3744-A ③ By-Pass Condenser . 3615- ③ Tuning Condenser . 4000-D ④ Resistor . 3768 ④ Compensating Condenser . 3722-A ❸ Resistor . 3542 ⑤ By-Pass Condenser . 3615-F ④ Tone Control . 4037 ⑥ Resistor . 3542 ④ Resistor . 3542 ⑦ Second R. F. Transformer . 3744-B ④ Resistor . 3766 ⑥ By-Pass Condenser and Resistor 3615-C ④ Resistor . 3656 ⑨ By-Pass Condenser and Resistor . 3615-B ⑤ Input Transformer . 3537</td> <td></td>	② First R. F. Transformer . 3744-A ③ By-Pass Condenser . 3615- ③ Tuning Condenser . 4000-D ④ Resistor . 3768 ④ Compensating Condenser . 3722-A ❸ Resistor . 3542 ⑤ By-Pass Condenser . 3615-F ④ Tone Control . 4037 ⑥ Resistor . 3542 ④ Resistor . 3542 ⑦ Second R. F. Transformer . 3744-B ④ Resistor . 3766 ⑥ By-Pass Condenser and Resistor 3615-C ④ Resistor . 3656 ⑨ By-Pass Condenser and Resistor . 3615-B ⑤ Input Transformer . 3537	
③ Tuning Condenser 4000-D ② Resistor 3768 ④ Compensating Condenser 3722-A ③ Resistor 3542 ⑤ By-Pass Condenser 3615-F ④ Tone Control 4037-A ⑥ Resistor 3542 ④ Resistor 3542 ⑦ Second R. F. Transformer 3744-B ④ Resistor 3766 ⑥ By-Pass Condenser and Resistor 3615-C ⑰ Resistor 3656 ⑥ By-Pass Condenser and Resistor 3615-B ④ Input Transformer 3537 ⑩ Third R. F. Transformer 3744-C ④ On-Off Switch 4095 ⑪ By-Pass Condenser 3615-E ④ Power Transformer (60 Cycle) 3752 ⑪ Fourth R. F. Transformer 3744-C ④ Power Transformer (25 Cycle) 3753 ⑭ Resistor 3766 ④ Choke 3422 ⑭ Fifth R. F. Transformer 3775-B ④ Filter Condenser (60 Cycle) 3754 ⑭ By-Pass Condenser and Resistor 3615-B ④ Filter Condenser (25 Cycle) 3755 ⑭ By-Pass Condenser and Resistor 3615-B ④ Filter Condenser (25 Cycle) 3754 ⑭ By-Pass Condenser	③ Tuning Condenser . 4000-D ❸ Resistor . 3768 ④ Compensating Condenser . 3722-A ❸ Resistor . 3542 ⑤ By-Pass Condenser . 3615-F ฬ Tone Control . 4037 ⑥ Resistor . 3542 ฬ Resistor . 3542 ⑦ Second R. F. Transformer . 3744-B ฬ Resistor . 3766 ฬ By-Pass Condenser and Resistor . 3615-C ฬ Resistor . 3656 ฬ By-Pass Condenser and Resistor . 3615-B ฬ Input Transformer . 3537	D
⑤ By-Pass Condenser 3615-F ⑥ Resistor 3542] ⑨ Second R. F. Transformer 3744-B ⑨ By-Pass Condenser and Resistor 3615-C ⑥ By-Pass Condenser and Resistor 3615-B ⑨ Third R. F. Transformer 3744-C ⑩ Fourth R. F. Transformer 3744-C ⑩ Power Transformer (60 Cycle) 3752 ⑩ Fourth R. F. Transformer 3744-C ⑩ Power Transformer (25 Cycle) 3753 ⑪ Resistor 3763 ⑭ Resistor 3763 ⑭ Resistor 3766 ⑭ Power Transformer (25 Cycle) 3753 ⑭ Filter Condenser (60 Cycle) 3753 ⑭ Filter Condenser (60 Cycle) 3754 ⑭ By-Pass Condenser and Resistor 3615-B ⊕ Filter Condenser (50 Cycle) 3755 ⑭ By-Pass Condenser and Resistor 3615-C ⊕ Resistor 3764 ⑭ Condenser 3764 ⊕ Out-Put Transformer 2848 ⑭ Resistor 3767 ⊕ Out-Put Transformer 2	 By-Pass Condenser	
	 Resistor	
② Second R. F. Transformer 3744-B ② Resistor 3766 ③ By-Pass Condenser and Resistor 3615-C ② Resistor 3656 ④ By-Pass Condenser and Resistor 3615-B ③ Input Transformer 3537 ⑩ Third R. F. Transformer 3744-C ③ On-Off Switch 4095 ⑪ By-Pass Condenser 3615-E ④ Power Transformer (60 Cycle) 3752 ⑩ Fourth R. F. Transformer 3744-C ④ Power Transformer (25 Cycle) 3753 ⑪ By-Pass Condenser 3615-E ④ Choke 3422 ⑯ Fifth R. F. Transformer 3775-B ④ Filter Condenser (60 Cycle) 3754 ⑯ By-Pass Condenser and Resistor 3615-B ④ Filter Condenser (60 Cycle) 3755 ⑪ By-Pass Condenser and Resistor 3615-C ④ Resistor ③ Filter Condenser (25 Cycle) 3755 ⑪ By-Pass Condenser and Resistor 3615-C ④ Resistor ④ Resistor 3764 ⑭ Resistor 3769 ④ Out-Put Transformer 2848 ⑳ Resistor 3767 ④ Out-Put Transformer 2794-B ㉑ By-Pass Condenser 3769 Woice Coil and Cone 2794-B ՙ Rosistor	 Second R. F. Transformer	·A
(§) By-Pass Condenser and Resistor 3615-C (§) Resistor	 By-Pass Condenser and Resistor 3615-C By-Pass Condenser and Resistor 3615-B Input Transformer	
⑤ By-Pass Condenser and Resistor 3615-B (a) Input Transformer . 3537 (a) Third R. F. Transformer . 3744-C (a) On-Off Switch . 4095 (a) By-Pass Condenser . 3615-E (a) Power Transformer (60 Cycle) . 3752 (a) By-Pass Condenser . 3615-E (a) C Resistor . 3763 (b) By-Pass Condenser . 3615-E (a) C Resistor . 3763 (b) Resistor . 3766 (a) C Resistor . 3422 (a) Fifth R. F. Transformer . 3775-B (a) Filter Condenser (60 Cycle) . 3754 (a) By-Pass Condenser and Resistor 3615-B (a) Filter Condenser (25 Cycle) . 3755 (a) By-Pass Condenser and Resistor 3615-C (a) Resistor . 3764 (a) Condenser . 3764 (a) B Resistor . 3762 (a) Resistor . 3767 (a) Out-Put Transformer . 2848 (a) Resistor <t< td=""><td>By-Pass Condenser and Resistor 3615-B Input Transformer 3537</td><td></td></t<>	By-Pass Condenser and Resistor 3615-B Input Transformer 3537	
(1) Third R. F. Transformer 3744-C (2) (30) On-Off Switch	By-Pass Condenser and Resistor 3615-B Input Transformer 3537 Third R. F. Transformer	
10 By-Pass Condenser . 3615-E (a) Power Transformer (60 Cycle) . 3752 12 Fourth R. F. Transformer . 3744-C (a) Power Transformer (25 Cycle) . 3753 13 By-Pass Condenser . 3615-E (a) C Resistor . 3763 14 C Resistor . 3766 (a) Choke . 3422 15 Fifth R. F. Transformer . 3775-B (a) Filter Condenser (60 Cycle) . 3754 16 By-Pass Condenser and Resistor 3615-B (a) Filter Condenser (60 Cycle) . 3754 16 By-Pass Condenser and Resistor 3615-B (a) Filter Condenser (60 Cycle) . 3754 16 By-Pass Condenser and Resistor 3615-C (a) Filter Condenser (25 Cycle) . 3755 17 By-Pass Condenser . 3764 (a) B Resistor . 3764 18 Resistor . 3767 (a) B Resistor . 3767 (a) Pilot Lamp . 2848 19 Resistor . 3767 (a) Pilot Lamp . 3463 Anob Pilot Lamp . 3763 Anob	Third P F Transformer 2744 C On Off Switch	
® Fourth R. F. Transformer 3744-C ® Power Transformer (25 Cycle) 3753 ® By-Pass Condenser 3615-E © C Resistor 3763 ® Resistor 3766 © Choke 3422 ® Fifth R. F. Transformer 3775-B © Filter Condenser (60 Cycle) 3754 ® By-Pass Condenser and Resistor 3615-B © Filter Condenser (25 Cycle) 3755 © By-Pass Condenser and Resistor 3615-C © Resistor 3764 © Condenser 3774 © B Resistor 3762 © Resistor 3769 © Out-Put Transformer 2848 © Resistor 3767 © Field Coil 2850 © Resistor 3767 © Voice Coil and Cone 2794-B © By-Pass Condenser 3583 © Pilot Lamp 3463 © Resistor 3768 Knob (Vol. Control) 3579 © Resistor 3769 Knob (Tuning Condenser) 3580 © By-Pass Condenser 3082 Dial Indicator 4006 © By-Pass Condenser 3082 Scale 4118		
(3) By-Pass Condenser . 3615-E (4) C Resistor . 3763 (4) Resistor		
(4) Resistor 3766 (4) Choke 3422 (5) Fifth R. F. Transformer 3775-B (4) Filter Condenser (60 Cycle) 3754 (6) By-Pass Condenser and Resistor 3615-B (5) Filter Condenser (25 Cycle) 3755 (7) By-Pass Condenser and Resistor 3615-C (6) Resistor 3764 (8) Condenser 3774 (6) B Resistor 3762 (6) Resistor 3769 (6) Out-Put Transformer 2848 (6) Resistor 3767 (7) Field Coil 2850 (8) Resistor 3767 (7) Voice Coil and Cone 2794-B (8) By-Pass Condenser 3583 (9) Pilot Lamp 3463 (8) Resistor 3767 (9) Condenser (LOC) 3793-B (8) Resistor 3768 Knob (Vol. Control) 3579 (8) Resistor 3769 Knob (Tuning Condenser) 3580 (8) By-Pass Condenser 3082 Dial Indicator 4006 (9) By-Pass Condenser 3082 Scale 4118		
(B) Fifth R. F. Transformer . 3775-B (a) Filter Condenser (60 Cycle) . 3754 (B) By-Pass Condenser and Resistor 3615-B (a) Filter Condenser (60 Cycle) . 3755 (b) By-Pass Condenser and Resistor 3615-C (a) Resistor . 3764 (b) Condenser	(a) By-Pass Condenser	
(B) By-Pass Condenser and Resistor 3615-B (B) Filter Condenser (25 Cycle) 3755 (B) By-Pass Condenser and Resistor 3615-C (B) Resistor 3764 (B) Condenser 3774 (B) B Resistor 3762 (B) Resistor 3762 (B) B Resistor 3762 (B) Resistor 3767 (C) Field Coil 2850 (B) Resistor 3767 (C) Voice Coil and Cone 2794-B (B) By-Pass Condenser 3583 (D) Filot Lamp 3463 (B) Resistor 3767 (D) Condenser (LOC) 3793-B (B) Resistor 3768 Knob (Vol. Control) 3579 (B) Resistor 3769 Knob (Tuning Condenser) 3580 (B) By-Pass Condenser 3082 Dial Indicator 4006 (B) By-Pass Condenser 3082 Scale 4118	(i) Resistor	
⑤ By-Pass Condenser and Resistor 3615-C ⑥ Resistor 3764 ⑥ Condenser		
(B) Condenser 3774 (a) B Resistor 3762 (b) Resistor 3769 (a) Out-Put Transformer 2848 (a) Resistor 3767 (b) Field Coil 2850 (a) Resistor 3767 (c) Voice Coil and Cone 2794-B (a) By-Pass Condenser 3583 (a) Pilot Lamp 3463 (a) Resistor 3767 (a) Condenser (LOC) 3793-B (a) Resistor 3768 Knob (Vol. Control) 3579 (a) Resistor 3769 Knob (Tuning Condenser) 3580 (a) By-Pass Condenser 3082 Dial Indicator 4006 (a) By-Pass Condenser 3082 Scale 4118		
(i) Resistor		
® Resistor 3767 © Field Coil 2850 ® Resistor		
② Resistor		
② By-Pass Condenser . 3583 ② Pilot Lamp . 3463 ③ Resistor . 3767 ③ Condenser (LOC) . 3793-B ④ Resistor . 3768 Knob (Vol. Control) . 3579 ⑤ Resistor . 3769 Knob (Tuning Condenser) . 3580 ⑥ By-Pass Condenser . 3082 Dial Indicator . 4006 ⑨ By-Pass Condenser . 3082 Scale . 4118		
② Resistor	- D D C 1	
② Resistor		
(a) Resistor	(a) Resistor	·B
 By-Pass Condenser 3082 By-Pass Condenser 3082 By-Pass Condenser	(a) Resistor	
(a) By-Pass Condenser 3082 Dial Indicator	(2) Resistor	
27 By-Pass Condenser 3082 Scale 4118	By-Pass Condenser 3082 Dial Indicator 4006	
O C 1 D1 1 C11 (C1 1) T 11 C1	(2) By-Pass Condenser 3082 Scale	
© Condenser Speaker Plug and Cable (Short) L-1101-A		·A
® Resistor	(29) Resistor	·A

Note: The first two Compensating Condensers @ are 3772-A; the third and fourth Condensers are 3968-A.

PHILADELPHIA STORAGE BATTERY COMPANY

Ontario and C Streets, Philadelphia, Pa.



Radio Service Bulletin-No. 14

Models 96 and 96 A Receivers

Model 96 Receivers are for operation on 110-120 volt, 50-60 cycle AC lines Model 96 A Receivers are for operation on 110-120 volt, 25-60 cycle AC lines

Table 1-Tube Socket Readings Taken with AC Set Tester AC Line-115 volts

TUBE		FILAMENT	PLATE	SCREEN GRID	CONTROL GRID	CATHODE	PLATE MILLI-
ТҮРЕ	CIRCUIT	VOLTS	VOLTS	VOLTS	VOLTS	VOLTS	AMPERES
24	1st R. F.	2.15	155	95	0	5.3	4
24	2d R. F.	2.15	155	95	0	5.3	4
24	3d R. F.	2.15	155	95	0	5.3	4
27	Det.	2.15	0		5	.7	0
27	Det. Amp.	2.15	27	zi.	5	5.5	0
27	1st A. F.	2.15	85		-2.0*	5.5	2.5
45	2d A. F.	2.2	250		41		28
45	2d A. F.	2.2	250		41		28
80	Rectifier	4.5					43/Plate

*This is read with Volume Control off.

NOTE: Do not allow receiver to oscillate while taking readings. Keep R. F. shield on and tune to eliminate oscillation. Have antenna and ground connected.

Table 2-POWER TRANSFORMER VOLTAGES

TERMINALS	A.C. VOLTS	
1-2 3 4 $5-6$ $7-8$ $9-12$ $10-11$ Rubber Covered Lead	2.67 2.68 750. 5.0	Primary Center Tap 80 Tube Center Tap 45 Tubes Heaters for 24 and 27 Tubes Filaments for 45 Tubes Plates 80 Tube Filament 80 Tube Center Tap for 24 and 27 Tubes

Table 3-RESISTOR DA	ATA
---------------------	-----

No. on Figs. 3 and 4	Resistance	Color
1	5,000	Golden Yellow
(14) - (36)	13,000	Belgium Blue
37)	25,000	Auto Buff
6 - 33 - 35	70,000	Jade Green
20 - 21 - 23	100,000	Silver Gray
(24) - (32)	250,000	White
(19 - (25 - (29)	500,000	Battleship Gray
45)	8,300	Long Tubular
41)	800	Short Tubular
44	70	Flat Wire Wound
		•

Table 4 – CONDENSER DATA (Other Than Filter Block)

No. on	(Other Than Filter Block)	Volts D.C. With Receiver	
Figs. 3 and 4	Capacity MFD	Turn	ed On
(5)-(11)-(13)	.05		
9 - 16	.05 with 250 ohm Resis	stor	160
8 - 17	.05 with 250 ohm Resis	stor	110
18	.00005		
22	.50		
26	.00025		
(27)	.00025		30
28	.015		30
<u>(31)</u>	.05		66
50	.015		• • •

MODEL 96 CONDENSER BLOCK PART No. 3754

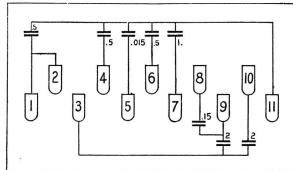


Fig. 1

MODEL 96-A CONDENSER BLOCK PART No. 3755

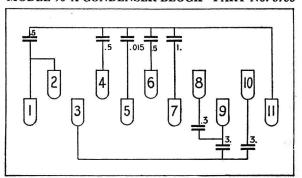


Fig. 2

Note: Filter Condensers—Parts No. 3754 and 3755—formerly had 1 mfd. capacity between terminals 1-11 and 6-11. The old and new condensers are interchangeable.