

# PHILCO

REG. U.S. PAT. OFF.

## Service Bulletin—No. 57-B

### Models 70 and 70-A Receivers

(Above Serial No. B-22,000)

Model 70 Receivers are for operation on 100-130 volt, 50-60 cycle AC lines  
 Model 70A Receivers are for operation on 100-130 volt, 25-60 cycle AC lines

Table 1—Tube Socket Readings Taken with A.C. Set Tester—AC Line—115 volts

| Tube |                    | Filament Volts | Plate Volts | Control Grid Volts | Screen Grid Volts | Cathode Volts | Plate Milli-amperes |
|------|--------------------|----------------|-------------|--------------------|-------------------|---------------|---------------------|
| Type | Circuit            |                |             |                    |                   |               |                     |
| 35   | R. F.              | 2.25           | 250         | 5                  | 70                | 6             | 4.3                 |
| 24   | OSC & 1st Det.     | 2.25           | 250         | 8                  | 12                | 8             | .5                  |
| 35   | I. F.              | 2.25           | 250         | 20                 | 70                | 0             | 1.7                 |
| 27   | Rectifier Detector | 2.25           | ...         | 0                  | 0                 | 0             | 0                   |
| 35   | Audio Amplifier    | 2.25           | 50          | 0                  | 60                | 0             | 1.0                 |
| 47   | Output             | 2.25           | 240*        | 4*                 | 255*              | .             | 28*                 |
| 80   | Rectifier          | 4.70           | 260/plate   | ..                 | ...               | .             | ...                 |

\*These readings must be taken from the underside of the chassis, using test prods and leads unless the set checker is specially equipped for testing pentode tubes.

Table 2—Power Transformer Voltages

| Terminals | A.C. Volts | Circuit                 | Color                |
|-----------|------------|-------------------------|----------------------|
| 1-2       | 105 to 125 | Primary                 | White                |
| 3-5       | 2.5        | Filament of 24 and 35's | Black                |
| 6-8       | 2.5        | Filament of 47          | Dark Green           |
| 9-10      | 5.         | Filament of 80          | Blue                 |
| 11-13     | 700        | Plates of 80            | Yellow               |
| 4         | ...        | Center Tap of 3-5       | Black, Yellow Tracer |
| 7         | ...        | Center Tap of 6-8       | Black, Green Tracer  |
| 12        | ...        | Center Tap of 11-13     | Yellow, Green Tracer |

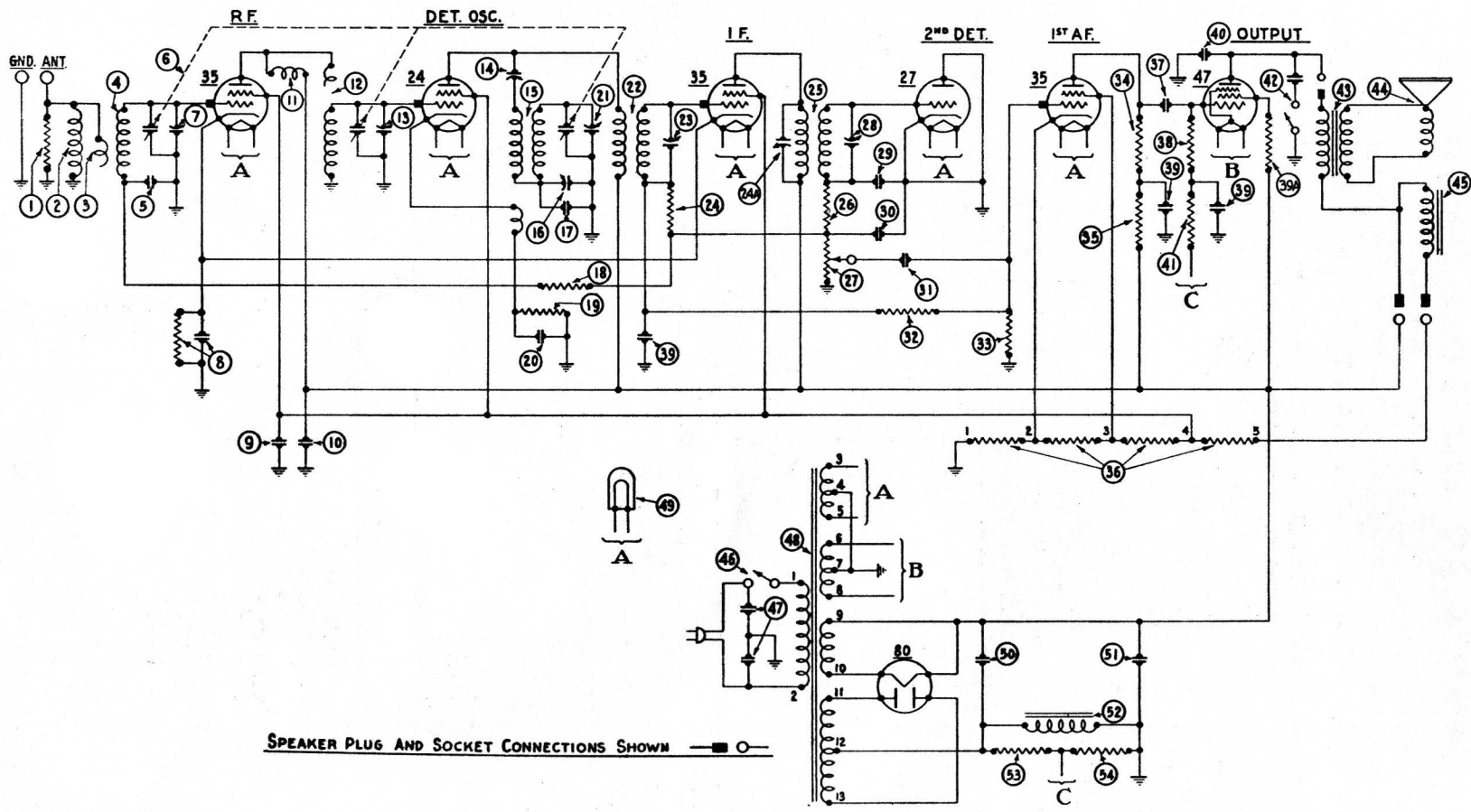
Table 3—Condenser Data

| Nos. on Figs. 1 and 2 | Capacity (mfd.) | Container         |
|-----------------------|-----------------|-------------------|
| 29, 30                | .00011          | Blue and Yellow   |
| 17                    | .00041          | Yellow and Orange |
| 20                    | .0007           | White and Yellow  |
| 5                     | .003            | Orange and White  |
| 31, 37, 40            | .01             | Black Bakelite    |
| 47                    | .015 (Double)   | Black Bakelite    |
| 6, 10                 | .05             | Black Bakelite    |
| 30                    | .05, .25, 1.5   | Metal             |
| 8                     | .09 & 200 Ohms  | Black Bakelite    |
| 9                     | .5              | Metal             |
| 50, 51 (50-60 cycles) | 6               | Electrolytic      |
| 51 (25-40 cycles)     | 10              | Electrolytic      |
| 50 (25-40 cycles)     | 14              | Electrolytic      |

Table 4—Resistor Data

| Nos. on Figs. 1 and 2 | Power (watts)                                      | Resistance (ohms)                         | Color        |        |        |
|-----------------------|--|---|--------------|--------|--------|
|                       |  |   | Body         | Tip    | Dot    |
| 30                    | Terminals { 1-2 }<br>{ 2-3 }<br>{ 3-4 }<br>{ 4-5 } | { 26 }<br>{ 850 }<br>{ 1650 }<br>{ 1060 } | Long Tubular |        |        |
| 2                     | .5   | 1,000                                     | Brown        | Black  | Red    |
| 39 A                  | .5   | 2,900                                     | Red          | White  | Red    |
| 1, 19                 | .5   | 10,000                                    | Brown        | Black  | Orange |
| 35                    | .5   | 25,000                                    | Red          | Green  | Orange |
| 53                    | .5   | 51,000                                    | Green        | Brown  | Orange |
| 34                    | .5   | 70,000                                    | Violet       | Black  | Orange |
| 26                    | .5   | 99,000                                    | White        | White  | Orange |
| 41                    | .5   | 330,000                                   | Red          | Yellow | Yellow |
| 38, 54                | .5   | 490,000                                   | Yellow       | White  | Yellow |
| 33                    | .5   | 1,000,000                                 | Brown        | Black  | Green  |
| 18, 24                | .5   | 2,000,000                                 | Red          | Black  | Green  |
| 32                    | .5   | 4,000,000                                 | Yellow       | Black  | Green  |

### MODELS 70 AND 70-A



SPEAKER PLUG AND SOCKET CONNECTIONS SHOWN

Fig. 1

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## MODELS 70 AND 70-A

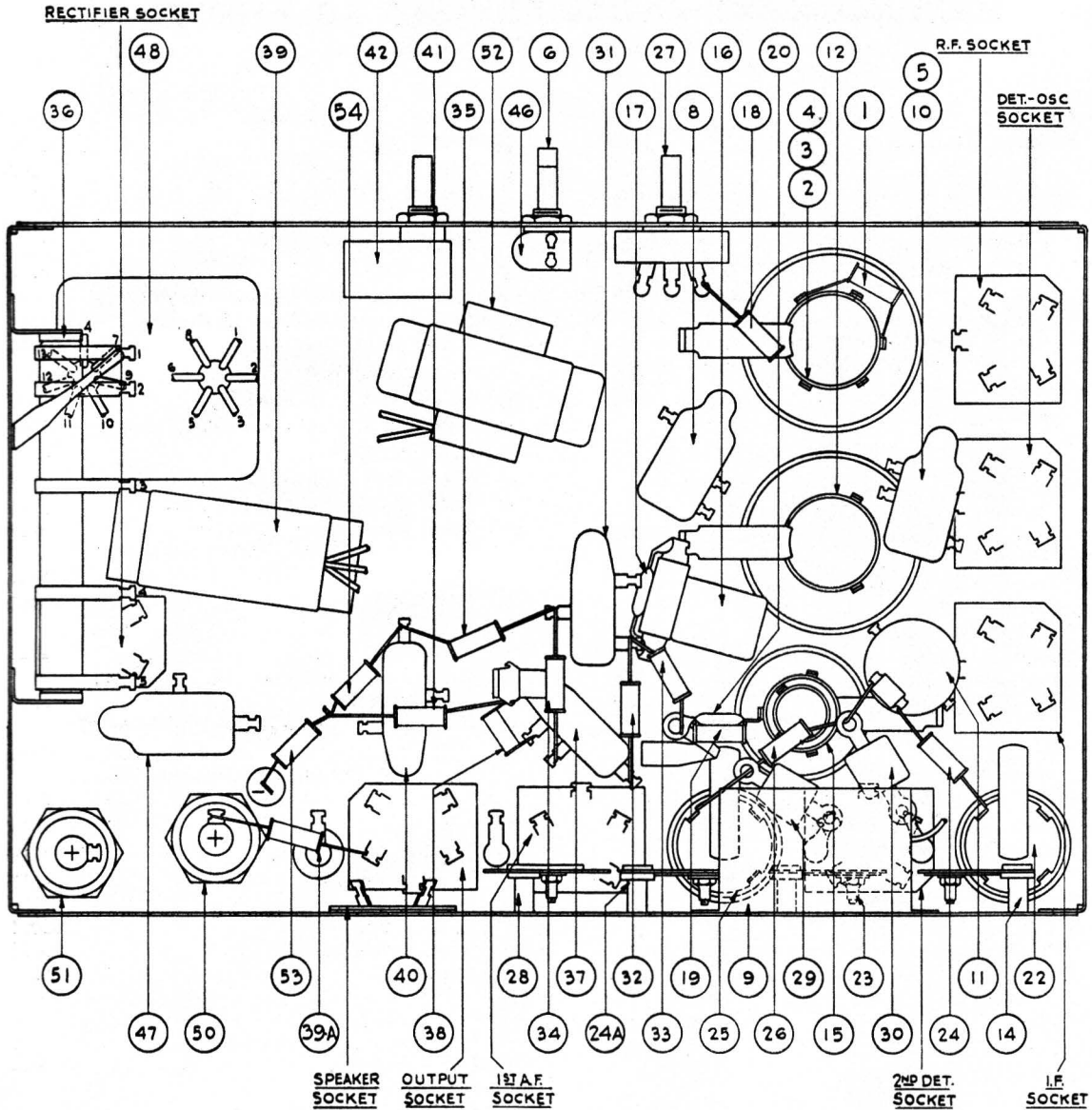


Fig. 2

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## ADJUSTMENT OF MODELS 70 AND 70-A

These receivers are accurately adjusted at the factory prior to shipment. Under no circumstances are the compensating condensers to be changed in the field unless the proper instructions and equipment are available. This adjustment requires special oscillator equipment which can be obtained from all Philco distributors.

## REPLACEMENT PARTS MODELS 70 AND 70-A

(Above Serial No. B-22,000)

| No. on<br>Figs. 3 and 4 | Description   | Part No. | No. on<br>Figs. 3 and 4 | Description                                       | Part No. |
|-------------------------|---|----------|-------------------------|---|----------|
| ①                       | Resistor (10,000 ohms)  | 4112     | ③⑥                      | B. C. Resistor                                    | 04196    |
| ②                       | Antenna Coil  | 04339    | ③⑦                      | Condenser (.01 mfd.)                              | 3903-T   |
| ③                       |   |          | ③⑧                      | Resistor (490,000 ohms)                           | 4517     |
| ④                       |   |          | ③⑨                      | Filter Condenser Block (.05, .25, 1.5 mfd.)       | 04194    |
| ⑤                       |   |          | ③⑩                      | A Resistor (3 000 ohms)                           | 5309     |
| ⑥                       | Condenser (.05 mfd.) double   | 3615-AF  | ④①                      | Condenser (.01 mfd.)                              | 3903-U   |
| ⑦                       | Tuning Condenser Assembly 50-60 cycles  | 04164    | ④②                      | Resistor (330,000 ohms) 50-60 cycles              | 6046     |
| ⑧                       | Tuning Condenser Assembly 25-40 cycles  | 04165    | ④③                      | Resistor (490,000 ohms) 25-40 cycles              | 4517     |
| ⑨                       | Compensating Condenser — Antenna —<br>(Part of Tuning Condenser Assembly)           |          | ④④                      | Tone Control                                      | 03637    |
| ⑩                       | Condenser (.09 mfd. and 200 ohm Resistor)   | 4989-L   | ④⑤                      | Output Transformer                                | 2673     |
| ⑪                       | Condenser (.5 mfd.)   | 3583     | ④⑥                      | Voice Coil & Cone Assembly                        | 02996    |
| ⑫                       | Combined with ⑥   |          | ④⑦                      | Field Coil Assembled with Pot                     | 02966    |
| ⑬                       | R. F. Choke   | 04198    | ④⑧                      | On-Off Switch                                     | 4095     |
| ⑭                       | Interstage Coil   | 04185    | ④⑨                      | Condenser (.015 mfd. Double)                      | 3793-H   |
| ⑮                       | Compensating Condenser — Detector —<br>(Part of Tuning Condenser Assembly)          |          | ⑤①                      | Power Transformer (50-60 cycles)                  | 5117     |
| ⑯                       | Compensating Condenser—Coupling   | 04000-M  | ⑤②                      | Power Transformer (25-40 cycles)                  | 5118     |
| ⑰                       | Oscillator Coil   | 04186    | ⑤③                      | Power Transformer (50-60 cycles, 230<br>volts)    | 5119     |
| ⑱                       | Compensating Condenser — Low Fre-<br>quency   | 04000-F  | ⑤④                      | Pilot Light                                       | 3463     |
| ⑲                       | Condenser (410 mmf.)  | 5120     | ⑤⑤                      | Electrolytic Condenser (6 mfd.) 50-60<br>cycles   | 4916     |
| ⑳                       | Resistor (2,000,000 ohms)   | 5872     | ⑤⑥                      | *Electrolytic Condenser (14 mfd.) 25-40<br>cycles | 5725     |
| ㉑                       | Resistor (10,000 ohms)  | 4412     | ⑤⑦                      | Electrolytic Condenser (6 mfd.) 50-60<br>cycles   | 4916     |
| ㉒                       | Condenser (700 mmf.)  | 4520     | ⑤⑧                      | *Electrolytic Condenser (10 mfd.) 25-40<br>cycles | 5142     |
| ㉓                       | Compensating Condenser — High Fre-<br>quency—(part of Tuning Condenser<br>Assembly) |          | ⑤⑨                      | Filter Choke                                      | 4819     |
| ㉔                       | First I. F. Transformer   | 04190    | ⑤⑩                      | Resistor (51,000 ohms)                            | 4518     |
| ㉕                       | Compensating Condenser—First I. F.  | 04000-M  | ⑤⑪                      | Resistor (490,000 ohms)                           | 4517     |
| ㉖                       | Resistor (2,000,000 ohms)   | 5872     | ⑤⑫                      | Tube Shield                                       | 04168    |
| ㉗                       | A Compensating Condenser 2nd I.F. Primary   | 04000-M  | ⑤⑬                      | Knob (Large)                                      | 03064    |
| ㉘                       | Second I. F. Transformer  | 03038    | ⑤⑭                      | Knob (Small)                                      | 03437    |
| ㉙                       | Resistor (99,000 ohms)  | 4411     | ⑤⑮                      | Knob Spring                                       | 4147     |
| ㉚                       | Volume Control  | 6015     | ⑤⑯                      | Grid Clip   | 4897     |
| ㉛                       | Compensating Condenser—Second I. F.   | 04000-M  | ⑤⑰                      | Five Prong Socket Assembly                        | 4956     |
| ㉜                       | Condenser (110 mmf.)  | 4519     | ⑤⑱                      | Four Prong Socket Assembly                        | 4955     |
| ㉝                       | Condenser (110 mmf.)  | 4519     | ⑤⑲                      | Dial Complete                                     | 03031    |
| ㉞                       | Condenser (.01 mfd.)  | 3903-G   | ⑤⑳                      | Bezel   | 5312     |
| ㉟                       | Resistor (4,000,000 ohms)   | 6010     | ⑤㉑                      | Chassis Mounting Screw                            | W-468    |
| ㊱                       | Resistor (1,000,000 ohms)   | 4409     | ⑤㉒                      | Mounting Washer                                   | W-315    |
| ㊲                       | Resistor (70,000 ohms)  | 5385     | ⑤㉓                      | Rubber Washer                                     | 5189     |
| ㊳                       | Resistor (25,000 ohms)  | 4516     |                         |   |          |

\*For 25-40 cycle operation the physical positions and the electrical wiring for ⑤① and ⑤② are reversed.

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## Service Department