# PHILCO TRANSITONE
# SERVICE BROADCAST

JANUARY, 1936

## MODEL 816 RECEIVER

THE PHILCO Transitone Model 816 is Philco's newest automobile radio. It is a highly developed superheterodyne single-unit type Receiver with all the outstanding features required in such a fine instrument.

THE NEW RECEIVER IS EQUIPPED WITH AN ADJUSTABLE ANTENNA STAGE, WHICH MAKES IT POSSIBLE TO OPERATE THE RECEIVER AT MAXIMUM EFFICIENCY ON ANY ROOF-TYPE OR UNDER-CAR TYPE ANTENNA.

The Receiver, speaker and full-wave PHILCO Vibrator are housed in a rugged, compact, fully shielded container, which is designed for quick and easy installation on the dash of all automobiles. When installed in the car, the loud speaker faces the front seat, so that the extremely powerful PHILCO electro-dynamic speaker, concealed behind an artistic grille, delivers its full-toned reproduction toward the occupants of the car with utmost fidelity.

All tubes used are the latest PHILCO high-effiiciency tubes, designed especially for automobile radio.

PHILCO's system of automatic volume control used in this Receiver not only gives that smooth, elastic control which counteracts fading while driving along and prevents blasting of local stations, but also subdues the harsh interference usually present between stations.

The new Receiver is ALL-ELECTRIC, operating entirely from the car battery system. The full-wave PHILCO Vibrator is built in as an integral part of the Receiver.

Interference filters to cut out the motor interference set up by the car ignition system and specially designed shielding make the Receivers especially easy to install.

The Model 816 Receiver is furnished with the new streamline "wide vision" control which can be installed on the edge of the instrument board. This control unit is exceptionaly attractive and is designed to blend harmoniously with the instrument boards of practically all cars. The circuit and layout of the Models 816B-816C and 816P Receivers are the same as the Model 816. However, these Receivers are equipped with a special 'customed" control unit which matches the instrument board fittings, and is designed for installation in the space provided for radio control in the instrument board of the 1936 Buick, Chevrolet and Pontiac cars.

## I. F. TRANSFORMERS AND PADDERS

The I. F. transformers are assembled complete with padding condensers.

Both the primary and the secondary padders are placed side by side in the top of the transformer shield can. The adjusting screws are accessible thru the holes in the top of the shield. (See Figure 2).

The coil windings terminate in leads instead of terminals or lugs. The color scheme of the leads is given in Figure 1.

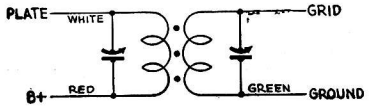


FIGURE 1

If replacements are ever necessary, replace the entire coil assembly, 32-1928 for the first I. F. stage and 32-1929 for the second I. F. stage. Neither the coil nor the padders will be furnished separately. Order only by the above numbers.

## MODEL 816 ADJUSTMENTS

All padding adjustments are carefully made at the factory and ordinarily no readjustments are necessary. However, when readjustments are required, the procedure given below must be followed in detail.

### *Equipment*

Fully charge heavy duty storage battery or 6-volt power pack, 048A Philco Set Tester, 3164 Padding wrench, 27-7159 Padding screw driver.

### *General*

OUTPUT METER—The output meter must be connected by means of an adapter to the plate of the type 41 output tube and to the Receiver chassis.

SIGNAL GENERATOR—With the Receiver and signal generator set up for operation at the prescribed frequency, turn the Receiver volume control on full and set the signal generator attenuator so that a half scale reading is obtained on the output meter. The signal in the speaker should be audible but not loud.

The shielding on the signal generator output lead must be connected to the Receiver housing.

### *Procedure*

I. F.—Set the signal generator at exactly 260 K. C. Connect the generator lead to the grid cap of the 78 I. F. tube (without removing the grid cap) in series with a .1 mfd. condenser.

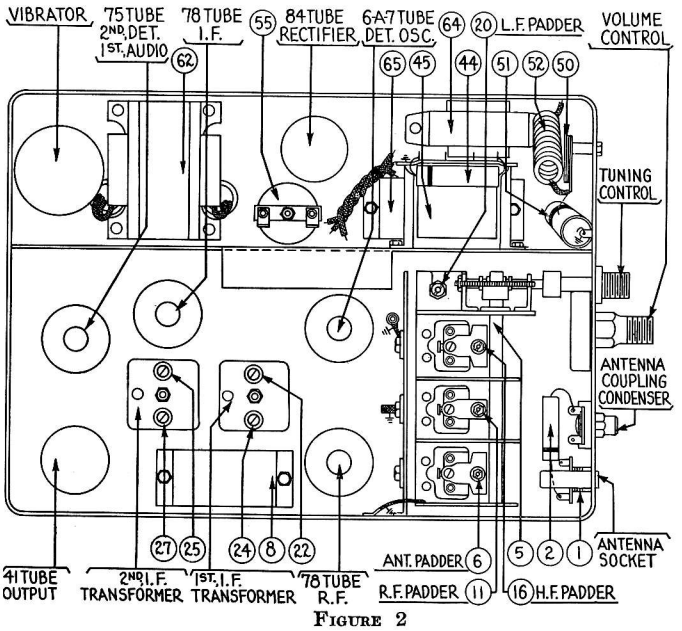


FIGURE 2

Adjust the secondary screw padder (27) on the second I. F. transformer for maximum reading on the output meter. Then adjust the primary screw padder (25) for maximum reading. (See Figure 2 for location of padders).

Remove the generator lead from the 78 tube.

Connect the generator lead to the grid cap of the 6A7 tube (without removing the grid cap) in series with a .1 mfd. condenser. Adjust the secondary screw padder (24) on the first I. F. transformer for maximum reading on the output meter. Then adjust the primary screw padder (22) for maximum reading. (See Figure 2 for location of padders).

HIGH FREQUENCY AND R. F.—After padding the first I. F. stage remove the generator lead from the 6A7 tube.

Set the signal generator at 1550 K. C. and then connect the generator lead to the grid cap of the 78 R. F. tube (without removing the grid cap) in series with a .1 mfd. condenser.

Turn the tuning condenser plates out of mesh as far as they will go. With the tuning condenser in this position, adjust the high frequency padder (16) and the R. F. padder (11) until

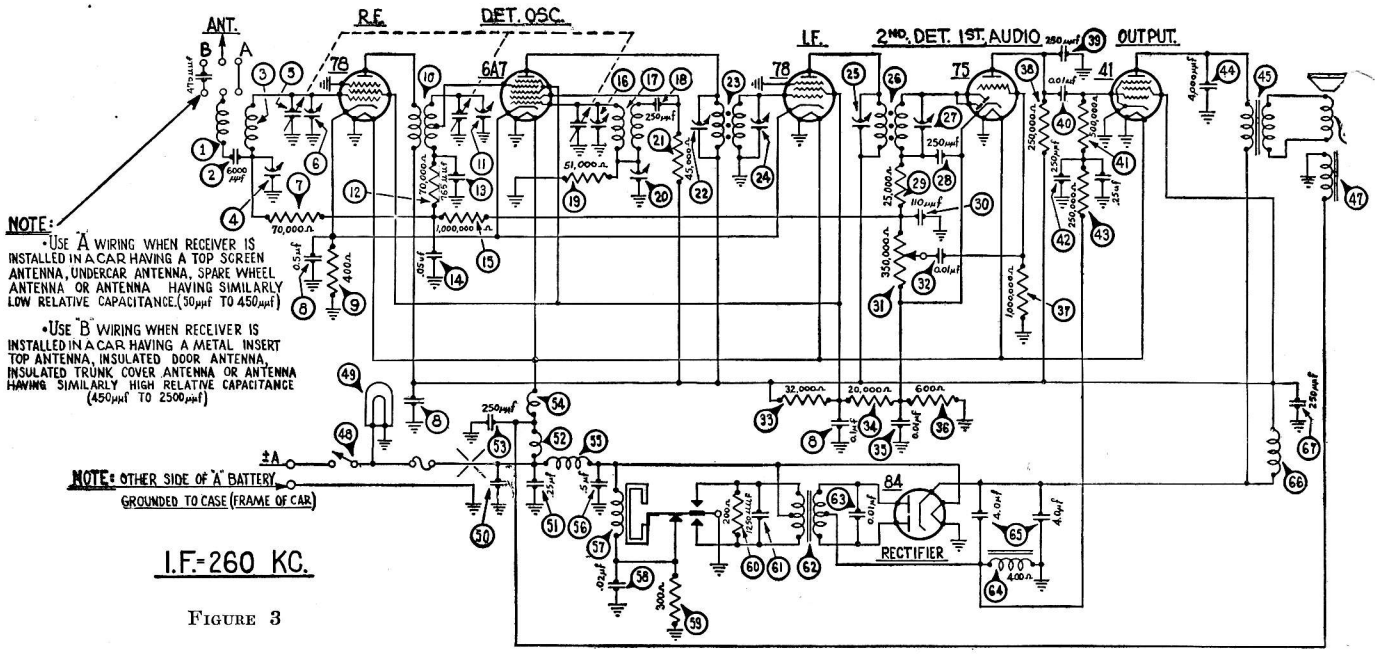


FIGURE 3

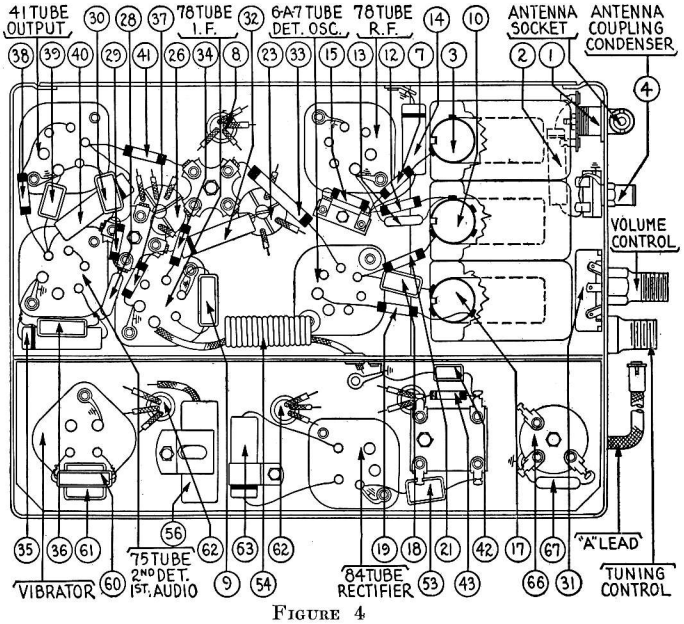


FIGURE 4

the maximum reading is obtained on the output meter. This is the true setting for 1550 K. C., 155 on the dial scale.

LOW FREQUENCY—Turn the tuning condenser plates in mesh to approximately 580 K. C., 58 on the dial scale and set the signal generator at 580 K. C. Roll the tuning condenser and adjust the low frequency padder screw ⑳ for maximum reading on the output meter.

HIGH FREQUENCY RE-ADJUSTMENT—Turn the tuning condenser plates out of mesh as far as they will go and set the signal generator at 1550 K. C. Then adjust the high frequency padder ⑯ again for maximum reading on the output meter.

ANTENNA—Connect the generator lead to the antenna cable assembly (made up of Part No. L1915 loom, 1-27-7133 terminal and 40 inches of 16 strand No. 30 wire), using a 200 mmfd. condenser in series between the two leads. Place the connector plug in the antenna socket on the Receiver. Plug the cable into the antenna socket.

Turn the tuning condenser in mesh to 580 K. C., and adjust the signal generator for 580 K. C. Adjust the Antenna coupling condenser ④ for maximum reading.

Turn the tuning condenser to 1400 K. C. and set the generator for 1400 K. C. Adjust the padders ⑪ and ⑥ for the maximum reading on the output meter.

When the antenna stage adjustment is made with the Receiver installed in the car, the Receiver antenna lead must be connected to the car antenna in the usual manner. The signal generator output lead should be connected to a wire placed near the car antenna but not connected to it.

If this procedure has been carefully followed and an accurately calibrated oscillator or signal generator has been used, the Receiver will be adjusted properly.

## MODEL 816 PARTS LIST

| No. | Description | Part No. |
|---|---|---|
| ① | Antenna Choke | 38-7516 |
| ② | Condenser (6000 mmfd.) | 30-4125 |
| ③ | Antenna Transformer | 32-1984 |
| ④ | Antenna Coupling Condenser | 31-6082 |
| ⑤ | Tuning Condenser | 31-1767 |
| ⑥ | First Padder (on Tun. Cond.) | |
| ⑦ | Resistor (70,000 ohms) | 33-370334 |
| ⑧ | Condenser (.1-.25-.25-.5 mfd.) | 30-4374 |
| ⑨ | Resistor (400 ohms) | 33-1211 |
| ⑩ | R. F. Transformer | 32-1985 |
| ⑪ | Second Padder (on Tun. Cond.) | |
| ⑫ | Resistor (70,000 ohms) | 33-370334 |
| ⑬ | Condenser (765 mmfd.) | 30-1069 |
| ⑭ | Condenser (.05 mfd.) | 30-4020 |
| ⑮ | Resistor (1,000,000 ohms) | 33-510344 |
| ⑯ | Third Padder (on Tun. Cond.) | |
| ⑰ | Oscillator Transformer | 32-1986 |
| ⑱ | Condenser (250 mmfd.) | 30-1032 |
| ⑲ | Resistor (51,000 ohms) | 33-351344 |
| ⑳ | Low Frequency Padder | 31-6083 |
| ㉑ | Resistor (45,000 ohms) | 33-345344 |
| ㉒ | Padder (Pri. 1st I. F. Trans.) | |
| ㉓ | First I. F. Transformer | 32-1928 |
| ㉔ | Padder (Sec. 1st I. F. Trans.) | |
| ㉕ | Padder (Pri. 2nd I. F. Trans.) | |
| ㉖ | Second I. F. Transformer | 32-1929 |
| ㉗ | Padder (Sec. 2nd I. F. Trans.) | |
| ㉘ | Condenser (250 mmfd.) | 30-1032 |
| ㉙ | Resistor (25,000 ohms) | 33-325344 |
| ㉚ | Condenser (110 mmfd.) | 30-1031 |
| ㉛ | Volume Control (350,000 ohms) | 33-5148 |
| ㉜ | Condenser (.01 mfd.) | 30-4124 |
| ㉝ | Resistor (32,000 ohms) | 33-332433 |
| ㉞ | Resistor (20,000 ohms) | 33-320334 |
| ㉟ | Condenser (.01 mfd.) | 30-4124 |
| ㊱ | Resistor (600 ohms) | 33-1212 |
| ㊲ | Resistor (1,000,000 ohms) | 33-510344 |
| ㊳ | Resistor (250,000 ohms) | 33-424344 |
| ㊴ | Condenser (250 mmfd.) | 30-1032 |
| ㊵ | Condenser (.01 mfd.) | 30-4145 |
| ㊶ | Resistor (500,000 ohms) | 33-449344 |
| ㊷ | Condenser (250 mmfd.) | 30-1032 |
| ㊸ | Resistor (250,000 ohms) | 33-424344 |
| ㊹ | Condenser (4000 mmfd.) | 30-4185 |
| ㊺ | Output Transformer | 32-7495 |
| ㊻ | Cone and Voice Coil | 36-3526 |
| ㊼ | Field Coil Assembly | 32-9236 |
| ㊽ | "On" and "Off" Switch | 42-1160 |
| ㊾ | Pilot Lamp | 34-2039 |
| ㊿ | Condenser (450 mmfd.) | 31-6065 |
| (51) | Condenser (.25 mfd.) | 30-4146 |
| (52) | "A" Choke | 32-1464 |
| (53) | Condenser (250 mmfd.) | 30-1032 |
| (54) | Filament Choke | 32-1930 |
| (55) | Vibrator Choke | 32-1968 |
| (56) | Condenser (.5 mfd.) | 30-4047 |
| (57) | Vibrator | 38-5036 |
| (58) | Condenser (.02 mfd.) | 30-4039 |
| (59) | Resistor (300 ohms) | 33-3130 |
| (60) | Resistor (200 ohms) | 33-1210 |
| (61) | Condenser (1250 mmfd.) | 5886 |
| (62) | Power Transformer | 32-7482 |
| (63) | Condenser (.01 mfd.) | 30-4381 |
| (64) | Filter Choke | 32-7491 |
| (65) | Filter Condenser (4-4 mfd.) | 30-2145 |
| (66) | R. F. Choke | 32-1932 |
| (67) | Condenser (250 mmfd.) | 30-1032 |
| | Four Prong Socket | 27-6044 |
| | Five Prong Socket | 27-6035 |
| | Six Prong Socket | 27-6036 |
| | Seven Prong Socket | 27-6037 |
| | Clamps (Speaker Mtg.) | 29-3131 |
| | Speaker Cable | 41-3180 |
| | Control Assembly (816) | 42-5534 |
| | Scale Assembly | 42-5539 |
| | Interference Condenser (½ mfd.) | 30-4007 |
| | Distributor Resistor | 33-1196 |
| | Tuning and Volume Shaft | 28-8495 |
| | Tee Bolt (Receiver Mtg.) | 28-6161 |
| | Nuts (Receiver Mtg.) | W58A |
| | Bracket (Control Mtg.) | 29-3711 |
| | Fuse | 7227 |
| | Fuse Insulator | 27-7729 |
| | Antenna Loom Assembly (816) | 41-3191 |
| | Antenna Connector | 29-6423 |
| | Antenna Connector Insulator | 27-8199 |
| | Condenser Plug | 30-4412 |
| | Control Assembly (816B-C) | 42-5561 |
| | Control Assembly (816P) | 42-5562 |
| | Scale Assembly (816B-C) | 42-5570 |
| | Scale Assembly (816P) | 42-5540 |
| | Knob (816P) | 27-4299 |
| | Knob (816-816B-C) | 27-4288 |
| | Knob Base | 28-3698 |

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