

Radio-Phonograph Models

42-1002, Codes 121-122; 42-1003, Codes 121-122.

SPECIFICATIONS

MODEL 42-1002, CODES 121-122

MODEL 42-1002, Codes 121-122 are six tube alternating current operated superheterodyne radio-phonograph combinations.

In general Codes 121 and 122 of this model are similar in design with the exception of the speakers, rectifier tubes and rectifier circuits. Code 121 contains a six-inch permanent magnet dynamic speaker and a type 35Z3 rectifier tube. The complete schematic diagram for code 121 is shown on page 3. Code 122 chassis incorporates a six-inch electrodynamic speaker and a type 50Y6GT rectifier tube. The rectifier circuit for code 122 is shown on page 2.

PHONOGRAPH SECTION

The phonograph consists of a rim drive turntable motor and a manually operated crystal pickup which uses a jewel needle. The phonograph is operated through the audio system of the radio.

The sound output of the radio and phonograph is controlled by a special dual volume control combined in one unit. The "ON-OFF" power switch is also included in the volume control. The phonograph motor is automatically started when the pickup is lifted from its rest and is designed to operate on 115 volts, 60 cycle, or 115 volts, 50 cycle A.C. power supply. When operating on 115 volts, 50 cycle current, a special spring collar, part No. 28-8999 must be placed on the motor driveshaft pulley.

RADIO SECTION

Features of design included in the radio are: Built-in loop aerial; automatic volume control; beam power pentode audio output; two position tone control; Philco LOKTAL tubes; and a Permanent Magnet Speaker.

TUNING RANGE FREQUENCY: 540 to 1600 K.C.

INTERMEDIATE FREQUENCIES: 455 K.C.

AUDIO OUTPUT: 1.5 watts.

POWER SUPPLY: 115 volts, 60 cycle A.C.

PHILCO TUBES USED: 7C7, R. F. amplifier; 7A8, converter; 7B7, I. F. amplifier; 7C6, 2nd detector—1st audio; 50 L6GT, audio output, and a 35Z3, rectifier (code 121), 50Y6GT, rectifier (code 122).

OUTSIDE AERIAL: Under ordinary operating conditions, the loop aerial has sufficient pickup for reception, of stations. In some locations, however, such as steel reinforced buildings, and other shielded areas where signal strength is weak, an additional outside aerial should be used. The Philco Safety Aerial, Part No. 40-6370 is recommended for use with this model.

The outside aerial connection consisting of a wire and lug is located on the rear lower left corner of the chassis; remove the lug from under the screw and attach the aerial.

MODEL 42-1003, CODES 121-122 LIGHT-BEAM REPRODUCER ADJUSTMENTS

To reproduce the sound from a record, the light beam of the reproducer must be carefully positioned on the light sensitive cell. If the light beam is not carefully set, the sound reproduction will be distorted, weak or, if the light beam is completely on or off the cell, the phonograph will be silent. If any of these conditions exist, the following adjustment procedure should be made:

NOTE—These adjustments should be made with the power line voltage at 117 volts A.C.

A. ADJUSTING WIDTH OF LIGHT BEAM

To make this adjustment push the lamp socket assembly into its holder until a clear image of the lamp filament appears on the light cell. The socket should then be slightly pushed in beyond this point until the rectangular spot of light is $5/32$ " in width. The socket assembly is now rotated so that the spotlight is vertical.

B. POSITIONING THE LIGHT BEAM

To position the light beam on the light cell, turn the adjusting screw at the lower left side of the reproducer until the spot is half on the cell and half on the metal frame surrounding the cell.

MODEL 42-1003, CODES 121-122

Model 42-1003, Codes 121-122 are alternating current operated superheterodyne radio-phonograph combinations. In general, Code 121 and 122 of this model are similar in design with the exception of the number of tubes, speaker types and rectifier circuits. Code 121 consists of a seven-tube chassis using a six-inch permanent magnet dynamic speaker and a single rectifier tube circuit.

Code 122 chassis contains eight tubes, a six-inch electrodynamic speaker and two tubes in the rectifier circuit. One tube type 50Y6GT supplies plate voltage for the other tubes and a 50L6GT excites the field coil of the electrodynamic speaker.

PHONOGRAPH SECTION

The phonograph incorporates a self-starting rim drive turntable motor, and a manually operated Philco Photo-Electric reproducer, which operates through the audio system of the radio. The phonograph motor is automatically started when the photo-electric reproducer is lifted from its rest. The motor is designed to operate on 115 volts, 60 cycle, or 115 volts, 50 cycle A.C. power supplies. When operating on 115 volt, 50 cycle current, a special spring collar, Part No. 28-8999 must be placed on the motor drive shaft pulley.

RADIO SECTION

The radio features in this model are a built-in loop aerial; two tuning ranges; two I. F. amplifier tubes; automatic volume control; two position tone control, mounted on the motor board; audio BASS compensation in the volume control circuit; beam power pentode audio output stage and Philco LOKTAL tubes.

TUNING BAND FREQUENCIES: 540 to 1720 K.C. and 9 to 15.5 M.C.

INTERMEDIATE FREQUENCY: 455 K.C.

AUDIO OUTPUT: 1.5 watts.

POWER SUPPLY: 115 volts, 60 cycle A.C.

PHILCO TUBES USED

Code 121 chassis—XXD, R. F. converter and phonograph pre-amplifier; 50L6GT, oscillator; 7B7, 1st. I. F. amplifier; 7B7, 2nd I. F. amplifier; 7C6, second detector, first audio; 50L6GT audio output and a 50Y6GT rectifier.

Code 122 chassis—XXD, R. F. converter and phonograph pre-amplifier; 50L6GT, oscillator; 7B7, 1st I. F. amplifier; 7B7, 2nd I. F. amplifier; 7C6 second detector, first audio; 50L6GT audio output; 50Y6GT rectifier 50L6GT rectifier.

EXTERNAL AERIAL CONNECTIONS

The built-in low-impedance loop aerial system of this model is designed to operate without an outside aerial or ground, and to give exceptional receiving performance under average conditions.

To operate the radio, however, in steel reinforced buildings and other shielded locations, where signal strength is weak, the Philco outdoor aerial Part No. 45-2817 is recommended for maximum receiving performance. The outdoor aerial can be easily connected to the radio by inserting the plug attached to the transformer (supplied with the aerial) into the socket provided at the rear of the radio. This aerial can be obtained from your local Philco Distributor.

C. ADJUSTING INTENSITY OF LAMP

When shipped from the factory, the lamp of the reproducer is adjusted for best operating efficiency. The intensity of the light from the lamp is adjusted by Compensator No. 30 located on the radio chassis. Under ordinary circumstances, an adjustment will not be necessary. When replacing the reproducer or lamp, however, it may be necessary to readjust the light intensity. In this case the compensator is adjusted as follows:

1. Turn volume control on full, set tone control to "BASS" position and play a record.
2. While the record is playing, turn Compensator 30 in the direction necessary to obtain the best operating point without distortion. By turning the compensator the strength of the pick-up output is increased or decreased.

D. INSTALLING NEW LAMP

When installing a new lamp in the socket, there are two positions in which the lamp can be inserted. Ordinarily, either of these positions can be used. In some cases, however, due to the lamp filament being off center, the lamp must be inserted in the position that gives the best centering of the spot of light on the vibrating mirror.

