



SERVICE BULLETIN No. 310 for members of RADIO MANUFACTURERS SERVICE

A PHILCO Service Plan

SPECIFICATIONS

Model 39-55

TYPE CIRCUIT: Philco Model 39-55, code 121, is an 11-tube receiver employing a superheterodyne circuit for reception of standard broadcast stations with Philco Mystery Control for Electric Automatic Tuning of eight (8) stations. The Philco Mystery Control also controls Volume and turns off set without any connections between receiver and Control Unit. In addition, other, features of design are—Automatic Volume Control; Continuously Variable Tone Control; Bass Compensations; Degenerated Push-pull Pentode Audio Output Circuit, and Compensators selected for minimum drift.

POWER SUPPLY: 115 volts, 50 to 60 cycles, A.C.

POWER CONSUMPTION: 180 watt.

TUNING RANGES: 540 to 1720 K.C.

I.F. FREQUENCY: 470 K.C.

PHILCO TUBES USED: Receiver—6J8G, First Detector Oscillator; 78, I.F. Amplifier; 6Q7G, Second Detector, A.V.C. and first Audio; two (2) 42 Audio Output, and one 80 Rectifier.

Mystery Tuning Control Amplifier—78, First Control Amplifier; 6J7G, Second Control Amplifier; A.V.C.; 6ZY5G, A.V.C. and a 2A4G Thyatron Rectifier.

Mystery Control Unit—One type 30.

AUDIO OUTPUT: 10 watts.

CABINET DIMENSIONS:	Height	Width	Depth
Console	38 $\frac{3}{8}$ "	29 $\frac{1}{2}$ "	14 $\frac{3}{8}$ "
Mystery Control	5 $\frac{1}{2}$ "	7 $\frac{1}{4}$ "	9 $\frac{1}{8}$ "

Note: The Schematic Diagram and Replacement Parts List for Model 39-55 will be found in Bulletin 310 A.

Model 39-116

TYPE CIRCUIT: Philco Model 39-116, code 121, is a 14-tube receiver employing a superheterodyne circuit with three tuning ranges for reception of standard and short wave broadcast stations and Philco Mystery Control for Electric Automatic Tuning of eight (8) standard broadcast stations. The Philco Mystery Control also controls the volume and turns the set

"off" without any connections between the receiver and control unit. In addition, other features of design are—Automatic Volume Control; Continuously Variable Tone Control; Bass Compensation Degenerated Push-pull Pentode Audio Output Circuit, and Compensators selected for minimum drift.

POWER SUPPLY: 115 volts, 50 to 60 cycles, A.C.

POWER CONSUMPTION: 190 watts.

TUNING RANGES: 540 to 1720 K.C.; 1.7 to 5.8 M.C.; 5.8 to 18 M.C.

I.F. FREQUENCY: 470 K.C.

PHILCO TUBES USED: Receiver—6K7G, R.F. Amplifier; 6A8G, First Detector Oscillator; 78, I.F. Amplifier; 6Q7G, Second Detector, A.V.C. and first Audio; 37, Phase Inverter; two (2) 42, Audio Output, and one 80, Rectifier.

Mystery Control Amplifier—78, First Control Amplifier; 6J7G, Second Control Amplifier; 6J5G, A.V.C.; 6ZY5G, and a 2A4G, Thyatron Rectifier.

Mystery Control Unit—One type 30.

AUDIO OUTPUT: 10 watts.

AERIAL AND GROUND: To obtain maximum performance from this receiver, the Philco Safety Aerial, Part No. 40-6370, should be used. The antenna circuit of this receiver is especially designed for use with this aerial. When installing the aerial, care should be taken to keep the aerial lead-in wire away from the horizontal inductor coil located in the bottom of the cabinet.

Do not coil up any excess lead-in and drop it in the back of the cabinet. Run the aerial lead-in directly to the "Ant" terminal post on the back of the receiver. A good ground connection should be connected to the terminal post marked "Gnd." When this is done, the link connecting to the "Gnd" terminal should be disconnected and swung around so that it does not touch the "Gnd" post. If, however, no ground is used this link should be connected to the "Gnd" terminal.

CABINET DIMENSIONS:	Height	Width	Depth
Console	36 $\frac{3}{8}$ "	34 $\frac{3}{8}$ "	14 $\frac{3}{8}$ "
Mystery Control	5 $\frac{1}{2}$ "	7 $\frac{1}{4}$ "	9 $\frac{1}{8}$ "

Adjusting Mystery Control for Reception of Stations

The procedure for setting up stations on the Mystery Control receivers is similar to the procedure followed in setting up Philco Electric Automatic Tuning Models. The eight (8) stations, however, are automatically dialed by the remote control unit instead of by pushing buttons.

To set up stations on Mystery Tuning, proceed as follows:

1. Select and remove the desired eight (8) station call letters from the station tab card supplied with the receiver. Insert the station tabs in the apertures (windows) of the bezel. The lowest frequency station is placed in the first window on the left, and the remaining station tabs in the order of increasing frequency.
2. Connect a Model 077 Signal Generator to the "Ant" and "Gnd" terminals of the receiver, set the Signal Generator with modulation "On." Turn the range selector switch to "Broadcast" and tune in the lowest frequency station. This should be between 540 and 1030 K.C. Then adjust the Signal Generator to the frequency of the station until a beat note is heard.
3. Leaving the Signal Generator connected, turn the Range Selector Disc of the receiver to "Automatic." Now, using a padding screw driver, adjust the first 540 to 1030 K.C. oscillator padder (bottom row of holes) at the rear of the chassis, until the station

identified by the modulated signal of the generator is tuned in to maximum signal. Next, adjust the first 540 to 1030 K.C. Antenna Padder (top row of holes) for maximum signal.

4. Turn the Signal Generator off the station frequency and readjust the "Ant" and "Osc" Padders for maximum output. This should be done with the volume control adjusted for low volume. This procedure is repeated for each of the remaining stations. The next station, of course, will be the next highest in frequency, that is within the 540 to 1030 K.C. range of the second set of padders. The Third Station is adjusted by the third set of padders under 670 to 1160 K.C. and the remaining stations in the order of increasing frequency.
5. Now, insert the small call letter tab of the first station in the third aperture of the bezel on the remote Mystery Control unit. Celluloid tabs are also supplied to be placed over each call letter. The remaining call letter tabs are then placed in the order of increasing frequency around the bezel from right to left (counter clockwise).
6. Insert the "loud" and "soft" tabs in the first and second apertures on the right hand side of the bezel. See instructions supplied with each model for dialing stations and controlling volume.

Replacement Parts Model 39-116

Table with 3 columns: Schem. No., Description, Part No. Lists parts 1 through 70 including Antenna Transformer, various resistors, capacitors, and coils.

Table with 3 columns: Schem. No., Description, Part No. Lists parts 71 through 123 including Field Coil, Power Transformer, Pilot Lamp, and various control components.

Mystery Control Unit

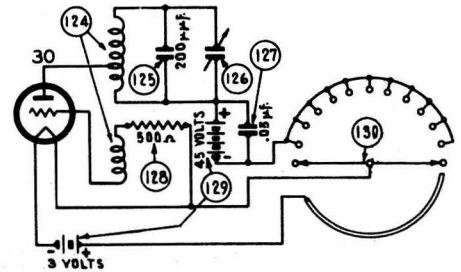
Table with 3 columns: Schem. No., Description, Part No. Lists parts 124 through 130 including Primary Inductor, Silver Mica Cond., and Dial Unit.

Miscellaneous Parts

Table with 3 columns: Description, Part No. Lists various assembly and control parts like Bezel Assembly, Bezel Screws, and Speaker.

Mystery Control Unit

Table with 3 columns: Description, Part No. Lists parts for the Mystery Control Unit including Bezel, Bezel Screws, and various tuning components.



Mystery Control Unit Diagram

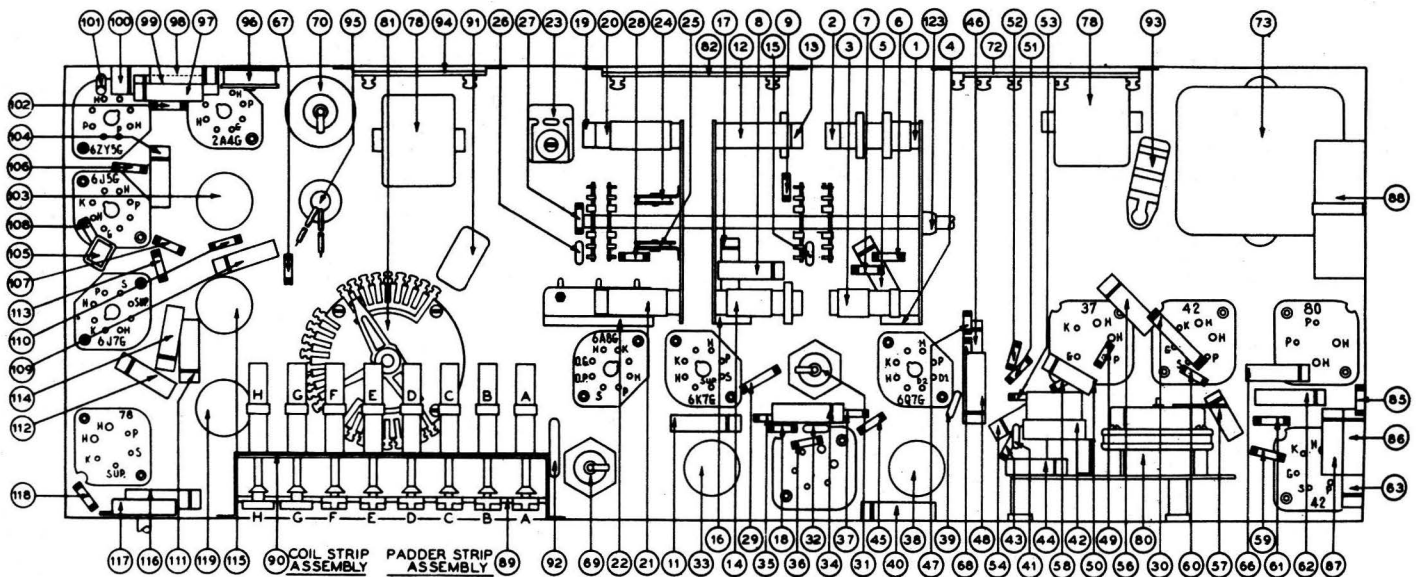


FIG. 1—Model 39-116 Part Locations Underside of Chassis

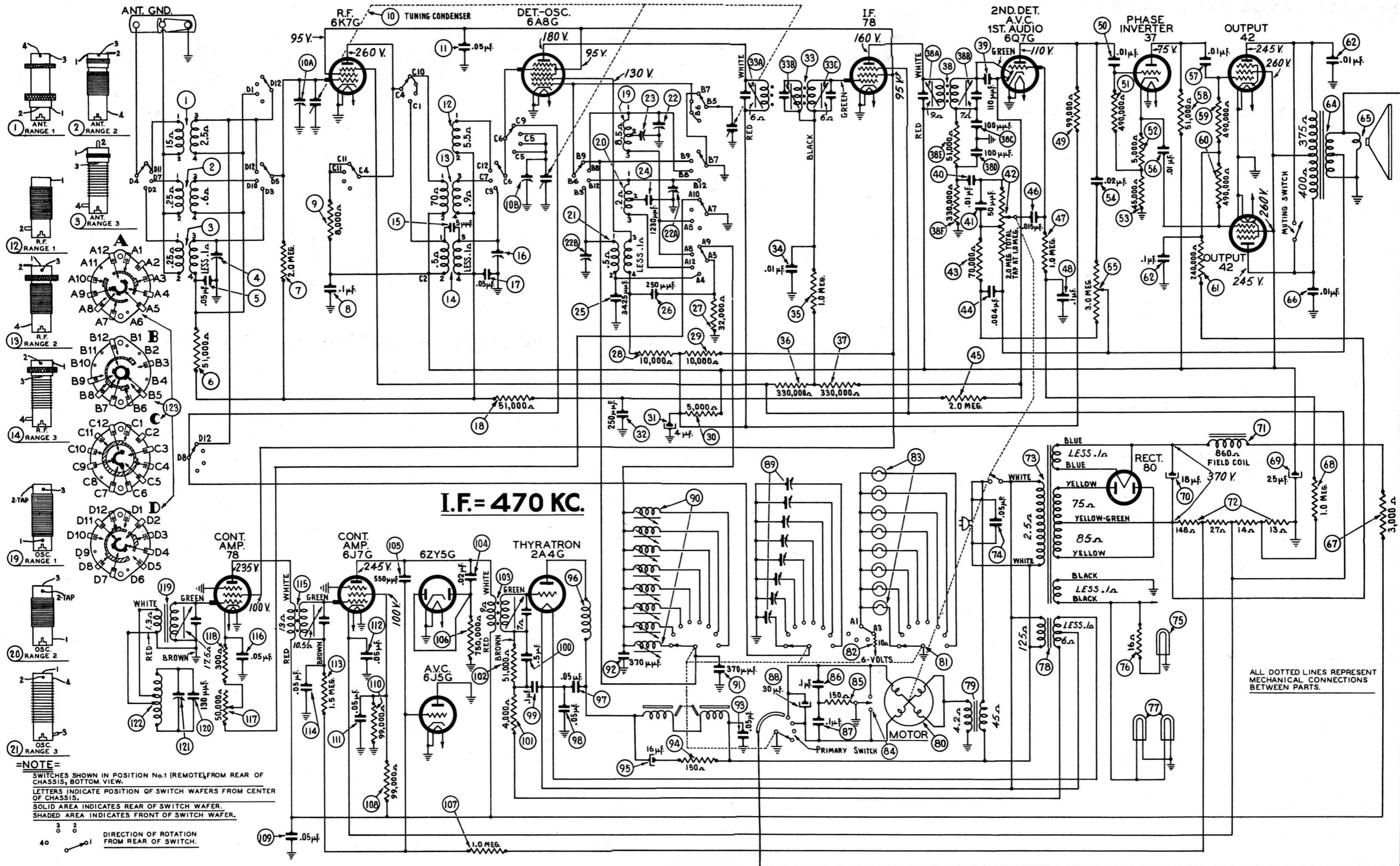


FIG. 2—Model 39-116 Diagram and Socket Voltages

See Bulletin 310 A for 39-55 Schematic and Parts List.

Socket Voltage Measured for Socket Contacts to Chassis, Line Voltage 115 VAC, Volume Minimum, Range Selector (Broadcast)

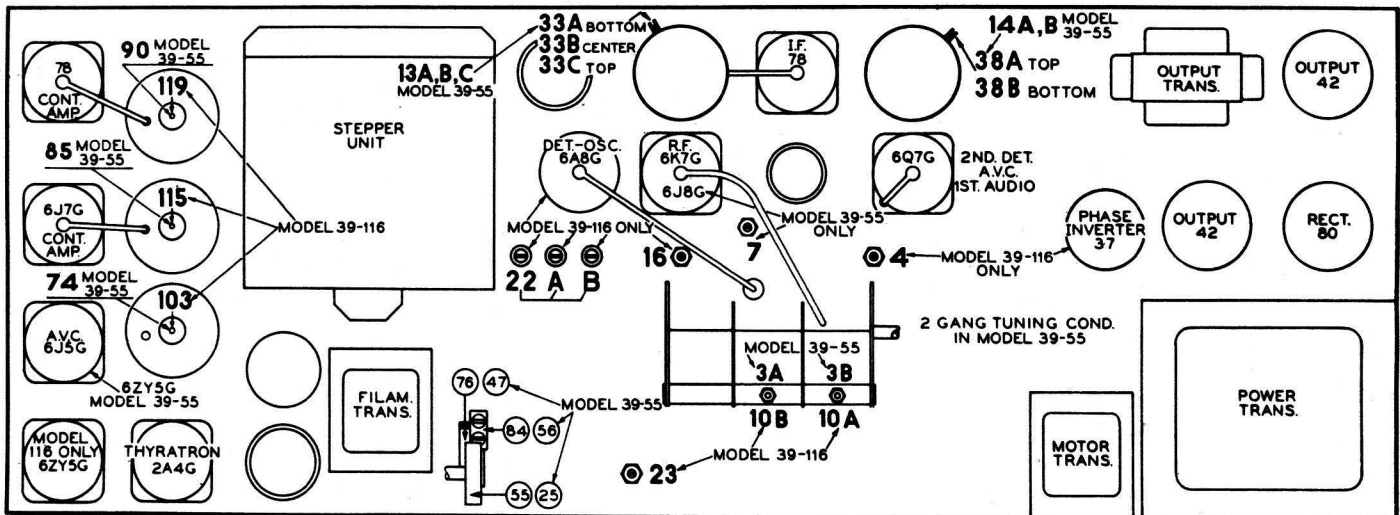


FIG. 4—Locations of Compensators—Model 39-55 and 39-116

Adjusting Control Frequency Amplifier

The Mystery Control receivers are shipped with five (5) different control frequencies which range from 350 to 400 K.C. These are identified by code numbers appearing on the serial number ticket and on the rear of the chassis. These code numbers and frequencies are as follows:

- Code 5—355 K.C.
- Code 6—367 K.C.
- Code 7—375 K.C.
- Code 8—383 K.C.
- Code 9—395 K.C.

The purpose of the different control frequencies is to prevent interaction between two Mystery Control receivers which are on the same floor or are exceptionally close together. When several Mystery Control receivers are to be located close together, it will be necessary to use different control frequencies to avoid interaction between the receivers. In order to prevent interaction between receivers, there should be a difference of 20 K.C. between their control frequencies.

If three receivers are to be operated at the same time and are closely situated, it will be advisable to adjust the control frequency of the first set to 355 K.C., the second set to 375 K.C. and the third to 395 K.C.

When realigning or changing the control frequency of the Mystery Control circuit, a Philco Model 077 Signal Generator with a coil of wire (about 4 or 5 turns—12" in diameter) attached to the output terminals is required. The leads between the coil of wire and Signal Generator should be long enough so that the coil of wire can be placed near the large secondary inductor in the bottom of the receiver cabinet.

With this apparatus, the Control Frequency is adjusted as follows:

1. With the temporary coil of wire in the center of (or near) the secondary inductor, the control frequency to which the Mystery Control Amplifier is tuned can be determined by tuning the Signal Generator between 350 and 400 K.C. When the Signal Generator is tuned to the control frequency, the Thyatron (2A4G) tube will glow (blue haze). If this frequency is to be used, leave the Signal Generator indicator at this point or turn the indicator to any other frequency desired between 350 and 400 K.C.
2. When the control frequency is selected, turn the sensitivity control (117) in Model 116 and (89) Model 55

located on the left rear of the chassis—towards the position marked "extreme." Using the 2A4G Thyatron tube as a resonance indicator, adjust padders (103), (115), (119) in Model 116 and (74), (85), (90) in Model 55 for maximum signal. This will be indicated by the brilliance of the glow in the 2A4G Thyatron tube. As the padders are adjusted, gradually turn the sensitivity control to the "near" position or reduce the output from the Signal Generator. When the padders are correctly adjusted to maximum, the Thyatron will glow with the sensitivity control (117) at the "near" position and with a very weak signal from the Signal Generator.

3. Next, adjust the padding condenser (121) in Model 116 and (92) in Model 55 on the secondary inductor located in the bottom of the receiver. The padding condenser is located in one corner of the secondary inductor and is encased in a cardboard container. This padding condenser should be carefully adjusted for maximum glow in the 2A4G tube. Use the weakest signal possible from the Signal Generator that will cause the 2A4G to glow. Also, have the sensitivity control as close as possible to the "near" position. Extreme care should be used in adjusting the padder to the exact point of resonance, as the secondary inductor is a very sharply tuned circuit. After adjusting the circuit, remove the Signal Generator and loop from the receiver.
4. The Mystery Control unit is now adjusted as follows:
 - A. Dial any one of the stations indicated on the remote unit by pulling the selector to the "Stop" position. Then, as the dial is released at the "Stop," press the "Stop" down and hold it in this position.
 - B. Holding the "Stop" in this position, bring the Mystery Control unit close to the receiver. Using the padding wrench, tune the padding screw (126) located on the bottom of the unit until the 2A4G Thyatron in the receiver glows at full brilliance.

Now, turn the sensitivity control on the receiver towards the "near" position until a point is reached where the 2A4G tube almost stops glowing. Then, readjust the padder (126) of the unit again for maximum brilliance in the 2A4G tube. The Mystery Control unit should now be adjusted to the same frequency as the control frequency in the receiver.