# OPERATING INSTRUCTIONS PHILCO® RF SIGNAL GENERATOR MODEL 7200



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### SPECIFICATIONS

RF Calibration: 100 KC to 280 MC  $\pm 1\%$ 

Band Coverage: A—100 KC to 300 KC

B-300 KC to 900 KC

C-900 KC to 3000 KC

D-2.7 MC to 11 MC

E—10 MC to 38 MC

F-38 MC to 140 MC

"F" band calibration includes second harmonic markings from 140 MC to 280 MC.

Audio Output: 400 c.p.s. Maximum audio output at least

3 volts peak-to-peak.

Power Requirement: 110-120 volts AC, 25 watts.

RF Output Circuit: Shielded 70 ohm multiplier isolated by

cathode follower.

Tube Complement: 1—6BZ7 RF Oscillator — Cathode

Follower

1—6C4 Modulator

1—6X4 Rectifier

# GENERAL FEATURES

This generator is designed for precision alignment of radio and television equipment. Its continuous calibration from 100 KC to 280 MC meets all requirements, including Channel 13 television tuner work on 40 MC IF systems. The outer calibration is marked in degrees from 0 to 190. This calibration is used in conjunction with the vernier markings on the pointer to establish the "precise" frequencies regularly used.

In designing and manufacturing Model 7200, special attention was given to control of modulation percentage and freedom from modulation distortion. Consequently, the user can make "point to point" checks while observing BOTH gain and distortion.

### OPERATION

### Caution:

Many "AC/DC" and "transformerless" radio and television receivers have direct connections between the chassis and/or negative bus and the power line. To prevent shock and equipment damage, power should be supplied to these receivers by an isolation transformer.

### Power Switch:

The lower left control contains the main power switch and modulation "off-on" switch. The generator should be turned on at least 10 minutes before it is used for work involving accurate frequency settings.

### Selector Switch:

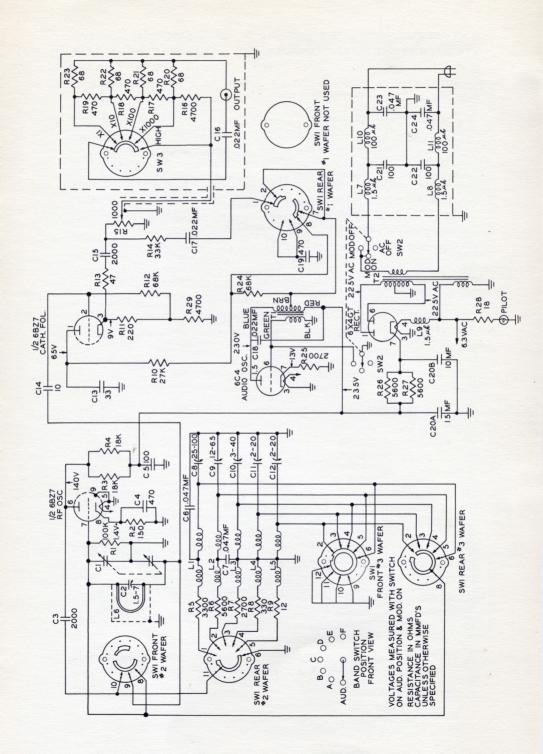
This is located at lower center of the front panel and has seven positions. The letter markings correspond to the dial scale designations. The "AUD" position at full counterclockwise connects the 400 cycle modulation source to the output cable.

# Output Controls:

Two are provided. The "Attenuator" is a potentiometer in the cathode follower circuit. The "Multiplier" consists of a four-step "ladder attenuator" (70 ohms impedance), plus a "MAX" or full output position. These controls are operable in all Selector Switch positions.

## Output Connector:

Connect the cable supplied with Model 7200 between this connector and the equipment under test. See manufacturer's maintenance instructions for procedures and methods of connection.



# REPLACEMENT PARTS LIST

| C1 C1  | Reference<br>Symbol | Description                         | Service<br>Part No. |
|--|---------------------|-------------------------------------|---------------------|
| C2 C3, C15 Capacitor, Variable Trimmer, 1.5-7 μμf. C3, C15 Capacitor, 2000 μμf., 500V C4, C19 Capacitor, 2000 μμf., 500V C5, C21, C22 Capacitor, 100 μμf., 500V C6, C7, C23, C24 Capacitor, 0.47 μf., 400V C8 Capacitor, 100 μμf., 500V C7, C23, C24 Capacitor, 0.47 μf., 400V C8 Capacitor, Variable Trimmer, 12-65 μμf. C9 Capacitor, Variable Trimmer, 25-100 μμf. C10 Capacitor, Variable Trimmer, 2-60 μμf. C11, C12 Capacitor, Variable Trimmer, 2-70 μμf. C13 Capacitor, Variable Trimmer, 2-70 μμf. C14 Capacitor, 100 μμf., 500V C15 Capacitor, 100 μμf., 500V C16, C17, C18 Capacitor, 0.22 μf., 400V C17, C18, L19 Coil, Oscillator (Band A) C19, C3, C3, C3, C3, C3, C3, C4, C4, C4, C4, C4, C4, C4, C4, C4, C4  |                     | Tuning Condenser                    | 321-0003            |
| C4, C19 C5, C21, C22 C6, C7, C23, C24 C6, C7, C23, C24 C7 C8 C9 C9 Capacitor, Variable Trimmer, 25-100 μμf. C10 C11, C12 Capacitor, Variable Trimmer, 2-20 μμf. C11, C12 Capacitor, Variable Trimmer, 2-20 μμf. C13 Capacitor, Variable Trimmer, 2-20 μμf. C14 C15 C15 C16 C17, C18 Capacitor, Variable Trimmer, 2-20 μμf. C17 C18 Capacitor, Variable Trimmer, 2-20 μμf. Capacitor, Variable Trimer, Variable Trimer, Variable Trimer, Variable Trimer, Varia  | C2                  |                                     | 31-6480-2           |
| C4, C19 C5, C21, C22 C6, C7, C23, C24 C6, C7, C23, C24 C7 C8 C9 C9 Capacitor, Variable Trimmer, 25-100 μμf. C10 C11, C12 Capacitor, Variable Trimmer, 2-20 μμf. C11, C12 Capacitor, Variable Trimmer, 2-20 μμf. C13 Capacitor, Variable Trimmer, 2-20 μμf. C14 C15 C15 C16 C17, C18 Capacitor, Variable Trimmer, 2-20 μμf. C17 C18 Capacitor, Variable Trimmer, 2-20 μμf. Capacitor, Variable Trimer, Variable Trimer, Variable Trimer, Variable Trimer, Varia  | C3. C15             | Capacitor, 2000 µµf., 500V          | 60-20205314         |
| C5, C21, C22 C6, C7, C23, C24 C6, C7, C23, C24 C6, C7, C23, C24 C7, C23, C24 C8 C8 C8 C9 C9 C10 C10 C10 C2pacitor, Variable Trimmer, $2-100 \mu \mu f$ . C11, C12 C2pacitor, Variable Trimmer, $2-100 \mu f$ . C11, C12 C3 C2pacitor, Variable Trimmer, $2-20 \mu f$ . C13 C2pacitor, Variable Trimmer, $2-20 \mu f$ . C14 C15 C17, C18 C2pacitor, 10 $\mu f$ . C2pacitor, 15 $\mu f$ . C2pacitor, 15 $\mu f$ . C2pacitor, 10 $\mu f$ . C2pacitor, 15 $\mu f$ . C2pacitor, 10 $\mu f$ . C2pacito |                     | Capacitor, 470 µµf., 500V           | 60-10475017         |
| C6, C7, C23, C24 C8 Capacitor, Variable Trimmer, 25·100 μμf. C10 Capacitor, Variable Trimmer, 12·65 μμf. C11, C12 Capacitor, Variable Trimmer, 3·40 μμf. C13 Capacitor, Variable Trimmer, 2·20 μμf. C14 Capacitor, Variable Trimmer, 2·20 μμf. C15 C17, C18 Capacitor, Variable Trimmer, 2·20 μμf. C16, C17, C18 Capacitor, 10 μμf., 500V Capacitor, 10 μμf., 500V Capacitor, 10 μμf., 500V Capacitor, 10 μμf., 500V Capacitor, 10 μμf., 450V; 10 μf., 450V C16, C17, C18 C20 (C20A, C20B) Capacitor, Cilectrolytic, 15 μf., 450V; 10 μf., 450V C16, C20 (C20A, C20B) Capacitor, Cilectrolytic, 15 μf., 450V; 10 μf., 450V C16, C31, Oscillator (Band B) C17 C18 C19 C10, Oscillator (Band B) C19 C10, Oscillator (Band B) C20, Oscillator (Band B) C20, Oscillator (Band B) C20, Oscillator (Band B) C20, Oscillator (Band E) C20, Oscillator (Band F) C21, Uscillator (Band F) C22, Outpack C2495 C2496 C2495 C2495 C2496 C2495 C2496 C  |                     | Capacitor, $100 \mu\mu f.$ , $500V$ | 60-10105417         |
| C8 Capacitor, Variable Trimmer, 25-100 μμf. C10 Capacitor, Variable Trimmer, 21-65 μμf. C11, C12 Capacitor, Variable Trimmer, 21-65 μμf. C13 Capacitor, Variable Trimmer, 3-40 μμf. C14 Capacitor, Variable Trimmer, 3-40 μμf. C15 Capacitor, Say μμf., 500V C16, C17, C18 Capacitor, 10 μμf., 500V C16, C17, C18 Capacitor, 10 μμf., 450V C20 (C20A, C20B) C16, C17, C18 Capacitor, 10 μμf., 450V C20 (C20A, C20B) C20 (C20A, C20B) C20 (C20A, C20B) C30 (C20A, C20B) C30 (C20A, C20B) C4 Capacitor, Electrolytic, 15μf., 450V; 10μf., 450V C5 C  |                     |                                     | 30-4650-45          |
| C9 Capacitor, Variable Trimmer, $12-65$ μμf. $31-6534-3$ $16534-$  |                     |                                     | 31-6534-4           |
| C10 C1, C12 Capacitor, Variable Trimmer, 3-40 μμf. 31-6534-2 C13 Capacitor, Variable Trimmer, 2-20 μμf. 31-6534-1 C14 Capacitor, 10 μμf., 500V 60-00335417 C15 C16, C17, C18 Capacitor, 10 μμf., 500V 60-00105420 C16, C17, C18 Capacitor, 10 μμf., 500V 30-4650-43 C20 (C20A, C20B) Capacitor, Electrolytic, 15μf., 450V; 10μf., 450V 30-4550-43 C20 (C20A, C20B) Capacitor, Electrolytic, 15μf., 450V; 10μf., 450V 30-2552 L1 Coil, Oscillator (Band B) 322-0075 L2 Coil, Oscillator (Band B) 322-0076 L3 Coil, Oscillator (Band C) 322-0077 L4 Coil, Oscillator (Band E) 322-0079 Coil, Oscillator (Band E) 322-0079 L5 Coil, Oscillator (Band F) 322-0079 L6 Coil, Oscillator (Band F) 32-4295 L7, L8, L9 Choke, 1.5 μh 32-4178 L10, L11 Choke, 100 μh R1 Resistor, 100K ohms, ½W, 10%, Carbon 66-1158340 R2 Resistor, 150 ohms, ½W, 10%, Carbon 66-3183340 R8, R8, R4 Resistor, 18K ohms, ½W, 10%, Carbon 66-2383340 R8,  |                     |                                     | 31-6534-3           |
| C11, C12 C13 C2  | C10                 |                                     | 31-6534-2           |
| C13 C14 C16, C17, C18 C20 (C20A, C20B) C3 (C20A, C20B) C3 (C20A, C20B) C4 (C20A, C20B) C5 (C20A, C20B) C5 (C20A, C20B) C6 (C20A, C20B) C7 (C20A, C20B) C7 (C20A, C20B) C8 (C20A, C20B) C8 (C20A, C20B) C8 (C20A, C20B) C8 (C20A, C20B) C9 (C2  | C11, C12            |                                     | 31-6534-1           |
| C14 C16, C17, C18 C20 (C20A, C20B) C20 (C20A, C20B) C30 (C20A, C20B) C30 (C20A, C20B) C41 C51 (C51A, C51B) C52 (C51A, C51B) C53 (C51A, C51B) C54 (C51A, C51B) C55 (C51A, C51B) C55 (C51A, C51B) C56 (C51A, C51B) C57 (C51A, C51B) C58 (C51A, C51B) C58 (C51A, C51B) C59 (C51A, C51B) C50 (C51A, C51B)   |                     | Capacitor, 33 µµf., 500V            | 60-00335417         |
| C20 (C20A, C20B)         Capacitor, Electrolytic, 15μf., 450V; 10μf., 450V         30-2552           L1         Coil, Oscillator (Band A)         322-0075           L2         Coil, Oscillator (Band B)         322-0076           L3         Coil, Oscillator (Band C)         322-0077           L4         Coil, Oscillator (Band D)         322-0079           L5         Coil, Oscillator (Band E)         32-4079           L6         Coil, Oscillator (Band F)         32-4295           L7, L8, L9         Choke, 1.5 μh         32-4178           L10, L11         Choke, 1.5 μh         32-4011           R1         Resistor, 100K ohms, ½w, 10%         66-4108340           R2         Resistor, 150 ohms, ½w, 10%         66-4108340           R5,         Resistor, 18K ohms, ½w, 10%, Carbon         66-3185340           R5,         Resistor, 33K ohms, ½w, 10%, Carbon         66-2338340           R6,         Resistor, 33K ohms, ½w, 10%, Carbon         66-2278340           R7, R25         Resistor, 27K ohms, ½w, 10%, Carbon         66-2278340           R8         Resistor, 37 ohms, ½w, 10%, Carbon         66-1228340           R10         Resistor, 40 ohms, ½w, 10%, Carbon         66-3274240           R11         Resistor, 68K ohms, ½w, 10%, Carbon         6   |                     |                                     | 60-00105420         |
| C20 (C20A, C20B)         Capacitor, Electrolytic, 15μf., 450V; 10μf., 450V         30-2552           L1         Coil, Oscillator (Band A)         322-0075           L2         Coil, Oscillator (Band B)         322-0076           L3         Coil, Oscillator (Band C)         322-0077           L4         Coil, Oscillator (Band D)         322-0079           L5         Coil, Oscillator (Band E)         32-4079           L6         Coil, Oscillator (Band F)         32-4295           L7, L8, L9         Choke, 1.5 μh         32-4178           L10, L11         Choke, 1.5 μh         32-4011           R1         Resistor, 100K ohms, ½w, 10%         66-4108340           R2         Resistor, 150 ohms, ½w, 10%         66-4108340           R5,         Resistor, 18K ohms, ½w, 10%, Carbon         66-3185340           R5,         Resistor, 33K ohms, ½w, 10%, Carbon         66-2338340           R6,         Resistor, 33K ohms, ½w, 10%, Carbon         66-2278340           R7, R25         Resistor, 27K ohms, ½w, 10%, Carbon         66-2278340           R8         Resistor, 37 ohms, ½w, 10%, Carbon         66-1228340           R10         Resistor, 40 ohms, ½w, 10%, Carbon         66-3274240           R11         Resistor, 68K ohms, ½w, 10%, Carbon         6   |                     |                                     | 30-4650-43          |
| L1   |                     |                                     | 30-2552             |
| Coil, Oscillator (Band B)   322-0076   |                     |                                     | 322-0075            |
| L3 L4 Coil, Oscillator (Band C) Coil, Oscillator (Band D) L5 Coil, Oscillator (Band E) Coil, Oscillator (Band F) Coil, Oscillator (Band E) Coil, Oscillator (Carbon (Band E) Coil, Oscillator (Carbon (Band E) Coil, Oscillator (B   |                     |                                     |                     |
| L4   |                     |                                     |                     |
| L5 L6 Coil, Oscillator (Band E) Coil, Oscillator (Band F) Coil, Oscillator (Band F) Coil, Oscillator (Band F) Choke, 1.5 μh Choke, 1.00 μh R1 R2 Resistor, 100K ohms, ½W, 10% Resistor, 150 ohms, ½W, 10% R5, Resistor, 18K ohms, ½W, 10%, Carbon R6 R6 Resistor, 18K ohms, ½W, 10%, Carbon R6 Resistor, 2.7K ohms, ½W, 10%, Carbon R6 Resistor, 47 ohms, ½W, 10%, Carbon R6 Resistor, 47 ohms, ½W, 10%, Carbon R6 R13 R14 Resistor, 47 ohms, ½W, 10%, Carbon R6 Resistor, 47 ohms, ½W, 10%, Carbon Resistor, 48 Resistor, 47 ohms, ½W, 10%, Carbon Resistor, 48 Resistor, 48 Resistor, 49, 10%, Carbon Resistor, 41 ohms, ½W, 10%, Carbon Resistor, 41 ohms, ½W, 10%, Carbon Resistor, 42 ohms, ½W, 10%, Carbon Resistor, 48 Resistor, 49, 10%, Carbon Resistor, 41 ohms, ½W, 10%, Carbon Resistor, 41 ohms, ½W, 10%, Carbon Resistor, 42 ohms, ½W, 10%, Carbon Resistor, 41 ohms, ½W, 10%, Carbon Resistor, 42 ohms, ½W, 10%, Carbon Resistor, 43 ohms, ½W, 10%, Carbon Resistor, 44 ohms, ½W, 10%, Carbon Resistor, 45 ohms, ½W, 10%, Carbon Resistor, 46 ohms, ½W, 10%, Carbon Resistor, 47 ohms, ½W, 10%, Carbon Resistor, 48 Resistor, 48 Resistor, 49, 10%, Carbon Resistor, 49, 10%, Carbon Resistor, 40, 10%, Carbon Resistor, 40, 10%, Carbon Resistor, 41, 10%, Carbon Resistor, 41, 10%, Carbon Resistor, 42, 10%, Carbon Resistor, 42, 10%, Carbon Resistor, 4  |                     |                                     |                     |
| L6 L7, L8, L9 L10, L11 R1 R2 R2 R8istor, 100K ohms, 1/2W, 10% Resistor, 150 ohms, 1/2W, 10% R6 R7, R8istor, 18K ohms, 1/2W, 10%, Carbon R8istor, 2.7K ohms, 1/2W, 10%, Carbon R8istor, 3.7K ohms, 1/2W, 10%, Carbon R9istor, 3   |                     |                                     |                     |
| L7, L8, L9 L10, L11 R1 R1 Resistor, 100K ohms, ½W, 10% Resistor, 150 ohms, ½W, 10% Resistor, 18K ohms, 2W, 10%, Carbon R5, R6 R7, R25 R8 R8 R8 R8 R8 Resistor, 2.7K ohms, ½W, 10%, Carbon R9 R8 Resistor, 12 ohms, ½W, 10%, Carbon R10 R11 Resistor, 220 ohms, ½W, 10%, Carbon R11 R12, R24 R13 R14 R28 R15 R16, R29 R17, R18, R19 R20, R21, R22, R23 R26, R27 R28 R29 R20   |                     |                                     |                     |
| L10, L11 R1 R2 Resistor, 100K ohms, ½W, 10% Resistor, 150 ohms, ½W, 10% Resistor, 18K ohms, ½W, 10%, Carbon R5, R6 Resistor, 3.3K ohms, ½W, 10%, Carbon R6-238340 R7, R25 R8 R8 R8: Resistor, 2.7K ohms, ½W, 10%, Carbon R10 R11 R12, R24 R13 R14 R15 R15 R16, R29 R17, R18, R19 R20, R21, R22, R23 R26 R27 R28 R29 R20  |                     |                                     |                     |
| R1 Resistor, 100K ohms, 1/2W, 10% 66-4108340 R2 Resistor, 150 ohms, 1/2W, 10% 66-1158340 R3, R4 Resistor, 18K ohms, 2W, 10%, Carbon 66-3185340 R5, Resistor, 3.3K ohms, 1/2W, 10%, Carbon 66-238340 R6 Resistor, 5.6K ohms, 1/2W, 10%, Carbon 66-2568340 R7, R25 Resistor, 2.7K ohms, 1/2W, 10%, Carbon 66-2278340 R8 Resistor, 330 ohms, 1/2W, 10%, Carbon 66-128340 R9 Resistor, 12 ohms, 1/2W, 10%, Carbon 66-128340 R10 Resistor, 27K ohms, 1W, 5%, Carbon 66-3274240 R11 Resistor, 220 ohms, 1/2W, 10%, Carbon 66-3274240 R12, R24 Resistor, 68K ohms, 1/2W, 10%, Carbon 66-328340 R13 Resistor, 47 ohms, 1/2W, 10%, Carbon 66-338340 R14 R15 Potentiometer, 1200 ohms 33-5533-1 R16, R29 Resistor, 47 ohms, 1/2W, 10%, Carbon 66-338340 R17, R18, R19 Resistor, 470 ohms, 1/2W, 10%, Carbon 66-2478340 R20, R21, R22, R23 Resistor, 470 ohms, 1/2W, 10%, Carbon 66-2478340 Resistor, 5.6K ohms, 1/2W, 10%, Carbon 66-264340 Resistor, 68 ohms, 1/2W, 10%, Carbon 66-264340 Resistor, 5.6K ohms, 1/2W, 10%, Carbon 66-264340 Resistor, 68 ohms, 1/2W, 10%, Carbon 66-28365 Transformer, Modulation 8 Power 42-1769 Switch, Modulation 8 Power 42-1769 Switch, Modulation 7 32-8276-2 Tube 7 Tube 7 Tube 6627   |                     |                                     |                     |
| R2       Resistor, 150 ohms, 1/2W, 10%, Carbon       66·1158340         R3, R4       Resistor, 18K ohms, 2W, 10%, Carbon       66·3185340         R5,       Resistor, 3.3K ohms, 1/2W, 10%, Carbon       66·2338340         R6       Resistor, 5.6K ohms, 1/2W, 10%, Carbon       66·2568340         R7, R25       Resistor, 2.7K ohms, 1/2W, 10%, Carbon       66·2278340         R8       Resistor, 330 ohms, 1/2W, 10%, Carbon       66·128340         R10       Resistor, 27K ohms, 1W, 5%, Carbon       66·3274240         R11       Resistor, 220 ohms, 1/2W, 10%, Carbon       66·1228340         R11       Resistor, 220 ohms, 1/2W, 10%, Carbon       66·388340         R13       Resistor, 47 ohms, 1/2W, 10%, Carbon       66·388340         R14       Resistor, 33K ohms, 1/2W, 10%, Carbon       66·378340         R15       Resistor, 31K ohms, 1/2W, 10%, Carbon       66·3338340         R15       Resistor, 47 ohms, 1/2W, 10%, Carbon       66·3338340         R17, R18, R19       Resistor, 47K ohms, 1/2W, 10%, Carbon       66·2478340         R20, R21, R22, R23       Resistor, 48 ohms, 1/2W, 10%, Carbon       66·2478340         R28       Resistor, 18 ohms, 1/2W, 10%, Carbon       66·2564340         Resistor, 18 ohms, 1/2W, 10%, Carbon       66·2564340         Resistor, 18 ohms, 1/2W, 10   |                     |                                     |                     |
| R3, R4 R5, R6 Resistor, 18K ohms, 2W, 10%, Carbon R6 R6 Resistor, 3.3K ohms, 1/2W, 10%, Carbon R6 R7, R25 Resistor, 2.7K ohms, 1/2W, 10%, Carbon R8 R8 Resistor, 330 ohms, 1/2W, 10%, Carbon R9 Resistor, 12 ohms, 1/2W, 10%, Carbon R10 R11 R12, R24 R13 R14 R15 R15 R16, R29 R17, R18, R19 R20, R21, R22, R23 R28 R28 R29 R20 R20 R21 R20 R21 R21 R22 R23 R24 R25 R25 R25 R26 R27 R28 R28 R28 R29 R20 R21, R22 R21 R22 R23 R24 R25 R25 R25 R25 R25 R26 R27 R28 R28 R29 R20 R21, R22 R21 R22 R23 R24 R25 R25 R25 R25 R25 R26 R27 R28 R28 R29 R29 R20 R20 R21, R22 R21 R22 R23 R24 R25 R25 R25 R25 R26 R27 R27 R28 R28 R28 R29 R29 R20 R20 R21 R21 R22 R23 R24 R25 R25 R25 R25 R25 R26 R27 R27 R28 R28 R28 R29 R29 R20 R20 R20 R20 R21 R21 R22 R23 R24 R25 R25 R25 R25 R25 R26 R27 R27 R28 R28 R28 R29 R29 R20 R20 R20 R20 R20 R20 R21 R21 R22 R23 R24 R25 R25 R25 R25 R25 R26 R27 R27 R28 R28 R28 R28 R29 R29 R20   |                     |                                     |                     |
| R5,       Resistor, 3.3K ohms, ½W, 10%, Carbon       66-2388340         R7, R25       Resistor, 5.6K ohms, ½W, 10%, Carbon       66-2568340         R8       Resistor, 2.7K ohms, ½W, 10%, Carbon       66-2278340         R9       Resistor, 330 ohms, ½W, 10%, Carbon       66-1388340         R10       Resistor, 27K ohms, 1W, 5%, Carbon       66-3274240         R11       Resistor, 27K ohms, 1W, 5%, Carbon       66-1228340         R12, R24       Resistor, 220 ohms, ½W, 10%, Carbon       66-328340         R13       Resistor, 47 ohms, ½W, 10%, Carbon       66-3688340         R14       Resistor, 33K ohms, ½W, 10%, Carbon       66-3338340         R15       Resistor, 47 ohms, ½W, 10%, Carbon       66-3338340         R16, R29       Resistor, 470 ohms, ½W, 10%, Carbon       66-378340         R17, R18, R19       Resistor, 470 ohms, ½W, 10%, Carbon       66-1478340         R20, R21, R22, R23       Resistor, 68 ohms, ½W, 10%, Carbon       66-1478340         R28       Resistor, 5.6K ohms, ½W, 10%, Carbon       66-0488340         R81       Resistor, 5.6K ohms, ½W, 10%, Carbon       66-0488340         R29       Resistor, 5.6K ohms, ½W, 10%, Carbon       66-0488340         R20       R21, R22, R23       R23       R24-1738         R20       R27   |                     |                                     |                     |
| R6       Resistor, 5.6K ohms, 1/2W, 10%, Carbon       66.2568340         R7, R25       Resistor, 2.7K ohms, 1/2W, 10%, Carbon       66.2278340         R8       Resistor, 330 ohms, 1/2W, 10%, Carbon       66.1338340         R9       Resistor, 12 ohms, 1/2W, 10%, Carbon       66.0128340         R10       Resistor, 27K ohms, 1W, 5%, Carbon       66.3274240         R11       Resistor, 220 ohms, 1/2W, 10%, Carbon       66.1228340         R13       Resistor, 68K ohms, 1/2W, 10%, Carbon       66.3688340         R13       Resistor, 47 ohms, 1/2W, 10%, Carbon       66.3338340         R14       Resistor, 33K ohms, 1/2W, 10%, Carbon       66.3338340         R15       Potentiometer, 1200 ohms       33.5533.1         R16, R29       Resistor, 4.7K ohms, 1/2W, 10%, Carbon       66.2478340         R17, R18, R19       Resistor, 4.7K ohms, 1/2W, 10%, Carbon       66.1478340         R20, R21, R22, R23       Resistor, 68 ohms, 1/2W, 10%, Carbon       66.1478340         R28       Resistor, 5.6K ohms, 1/2W, 10%, Carbon       66.0688340         R81       Resistor, 5.6K ohms, 1/2W, 10%, Carbon       66.0188340         R29       Resistor, 86 ohms, 1/2W, 10%, Carbon       66.0188340         R20       Resistor, 86 ohms, 1/2W, 10%, Carbon       66.0188340         R21  |                     |                                     | 66-2338340          |
| R7, R25 R8 Resistor, 2.7K ohms, ½W, 10%, Carbon R9 Resistor, 330 ohms, ½W, 10%, Carbon R66-138340 R10 R10 Resistor, 27K ohms, ½W, 10%, Carbon Resistor, 27K ohms, ½W, 10%, Carbon R11 R12, R24 R13 Resistor, 220 ohms, ½W, 10%, Carbon Resistor, 220 ohms, ½W, 10%, Carbon R14 R15 R16, R29 R17, R18, R19 R20, R21, R22, R23 R26, R27 R28 SW1 SW1 SW1 SW2 SW1 SW2 SW3 SW1 SW2 SW3 SW1 SW4 SW4 SW5 SW5 SW5 SW5 SW6 SW6 SW7 SW6 SW7  |                     |                                     |                     |
| R8       Resistor, 330 ohms, ½W, 10%, Carbon       66·1338340         R9       Resistor, 12 ohms, ½W, 10%, Carbon       66·0128340         R10       Resistor, 27K ohms, 1W, 5%, Carbon       66·3274240         R11       Resistor, 220 ohms, ½W, 10%, Carbon       66·1228340         R12, R24       Resistor, 68K ohms, ½W, 10%, Carbon       66·0478340         R13       Resistor, 47 ohms, ½W, 10%, Carbon       66·0478340         R14       Resistor, 33K ohms, ½W, 10%, Carbon       66·3338340         R15       Potentiometer, 1200 ohms       33·5533-1         R16, R29       Resistor, 4.7K ohms, ½W, 10%, Carbon       66·2478340         R17, R18, R19       Resistor, 470 ohms, ½W, 10%, Carbon       66·1478340         R20, R21, R22, R23       Resistor, 68 ohms, ½W, 10%, Carbon       66·1478340         R28       Resistor, 5.6K ohms, ½W, 10%, Carbon       66·0688340         R81       Resistor, 5.6K ohms, ½W, 10%, Carbon       66·0688340         R29       Resistor, 5.6K ohms, ½W, 10%, Carbon       66·1478340         R20, R21       R27       Resistor, 68 ohms, ½W, 10%, Carbon       66·0688340         R20       R20       R20       R20       R20         R20       R20       R20       R20       R20       R20 <td< td=""><td></td><td></td><td>66-2278340</td></td<>   |                     |                                     | 66-2278340          |
| R9       Resistor, 12 ohms, ½W, 10%, Carbon       66.0128340         R10       Resistor, 27K ohms, 1W, 5%, Carbon       66.3274240         R11       Resistor, 220 ohms, ½W, 10%, Carbon       66.1228340         R12, R24       Resistor, 68K ohms, ½W, 10%, Carbon       66.3688340         R13       Resistor, 47 ohms, ½W, 10%, Carbon       66.0478340         R14       Resistor, 33K ohms, ½W, 10%, Carbon       66.3338340         R15       Potentiometer, 1200 ohms       33.5533.1         R16, R29       Resistor, 4.7K ohms, ½W, 10%, Carbon       66.2478340         R17, R18, R19       Resistor, 470 ohms, ½W, 10%, Carbon       66.1478340         R20, R21, R22, R23       Resistor, 470 ohms, ½W, 10%, Carbon       66.1478340         R28       Resistor, 5.6K ohms, ½W, 10%, Carbon       66.0688340         R81       Resistor, 5.6K ohms, ½W, 10%, Carbon       66.0564340         R28       Resistor, 5.6K ohms, ½W, 10%, Carbon       66.2564340         R82       Resistor, 5.6K ohms, ½W, 10%, Carbon       66.0188340         SW1       Switch, Band       42.0022         SW2       Switch, Modulation       22.0022         SW3       Transformer, Modulation       32.8365         T2       Transformer, Power       42.1738         Tub  |                     |                                     |                     |
| R10       Resistor, 27K ohms, 1W, 5%, Carbon       66·3274240         R11       Resistor, 220 ohms, ½W, 10%, Carbon       66·1228340         R12, R24       Resistor, 68K ohms, ½W, 10%, Carbon       66·0478340         R13       Resistor, 47 ohms, ½W, 10%, Carbon       66·0478340         R14       Resistor, 33K ohms, ½W, 10%, Carbon       66·3338340         R15       Potentiometer, 1200 ohms       33·55331         R16, R29       Resistor, 4.7K ohms, ½W, 10%, Carbon       66·2478340         R20, R21, R22, R23       Resistor, 470 ohms, ½W, 10%, Carbon       66·1478340         R26, R27       Resistor, 68 ohms, ½W, 10%, Carbon       66·0688340         R28       Resistor, 5.6K ohms, ½W, 10%, Carbon       66·2564340         R83       Resistor, 18 ohms, ½W, 10%, Carbon       66·2564340         SW1       Switch, Band       422·0022         SW2       Switch, Modulation & Power       42·1769         SW3       Switch, Modulation & Power       42·1738         T1       Transformer, Modulation       32·8365         T2       Transformer, Power       48.7         Tube       6827         Tube       6827           Total Company       66.4   |                     |                                     | 66-0128340          |
| R11 R12, R24 R13 R14 R15 R16, R29 R17, R18, R19 R20, R21, R22, R23 R26 R28 R28 R29 R20 R21 R20 R21 R20 R21 R21 R22 R23 R24 R25 R25 R25 R25 R26 R27 R28 R28 R29 R20 R20 R21 R20 R21 R20 R21 R20 R21 R20 R21 R20 R21 R20 R20 R21 R20   | R10                 |                                     | 66-3274240          |
| R12, R24       Resistor, 68K ohms, 1/2W, 10%, Carbon       66·3688340         R13       Resistor, 47 ohms, 1/2W, 10%, Carbon       66·0478340         R14       Resistor, 33K ohms, 1/2W, 10%, Carbon       66·3338340         R15       Potentiometer, 1200 ohms       33·5533-1         R16, R29       Resistor, 4.7K ohms, 1/2W, 10%, Carbon       66·2478340         R20, R21, R22, R23       Resistor, 470 ohms, 1/2W, 10%, Carbon       66·1478340         R26, R27       Resistor, 68 ohms, 1/2W, 10%, Carbon       66·0688340         R28       Resistor, 5.6K ohms, 1W, 10%, Carbon       66·2564340         R8sistor, 18 ohms, 1/2W, 10%, Carbon       66·2564340         SW1       Switch, Band       422·0022         SW2       Switch, Modulation & Power       42·1769         SW3       Switch, Multiplier       42·1738         T1       Transformer, Modulation       32·8365         T2       Transformer, Power       32·8276·2         Tube       Tube       6624  | R11                 |                                     | 66-1228340          |
| R13 R14 R15 R15 R16, R29 R17, R18, R19 R20, R21, R22, R23 R28 R28 R29 R20 R20 R21 R20  |                     |                                     | 66-3688340          |
| R14       Resistor, 33K ohms, 1/2W, 10%, Carbon       66-3338340         R15       Potentiometer, 1200 ohms       33-5533-1         R16, R29       Resistor, 4.7K ohms, 1/2W, 10%, Carbon       66-2478340         R20, R21, R22, R23       Resistor, 470 ohms, 1/2W, 10%, Carbon       66-1478340         R26, R27       Resistor, 68 ohms, 1/2W, 10%, Carbon       66-0688340         R28       Resistor, 5.6K ohms, 1W, 10%, Carbon       66-2564340         SW1       Switch, Band       422-0022         SW2       Switch, Modulation & Power       42-1769         SW3       Switch, Multiplier       42-1738         T1       Transformer, Modulation       32-8365         T2       Transformer, Power       32-8276-2         Tube       Tube       66-4  |                     |                                     |                     |
| R16, R29 R17, R18, R19 R20, R21, R22, R23 R26, R27 R28 SW1 SW1 SW2 SW3 SW3 T1  | R14                 |                                     | 66-3338340          |
| R17, R18, R19 R20, R21, R22, R23 R26, R27 R28 SW1 SW2 SW2 SW3 T1 Transformer, Modulation T2 Tube Tube  Resistor, 470 ohms, 1/2W, 10%, Carbon Resistor, 470 ohms, 1/2W, 10%, Carbon Resistor, 5.6K ohms, 1W, 10%, Carbon Resistor, 18 ohms, 1/2W, 10%, Carbon Resistor, 470 ohms, 1/2W, 10%, Carbon Resistor, 47   |                     |                                     |                     |
| R20, R21, R22, R23       Resistor, 68 ohms, ½, W, 10%, Carbon       66.0688340         R26, R27       Resistor, 5.6K ohms, 1W, 10%, Carbon       66.2564340         R28       Resistor, 18 ohms, ½W, 10%, Carbon       66.0188340         SW1       Switch, Band       422.0022         SW3       Switch, Modulation & Power       42.1769         Switch, Multiplier       42.1738         T1       Transformer, Modulation       32.8365         T2       Transformer, Power       6827         Tube       Tube       6C4  |                     |                                     |                     |
| R26, R27       Resistor, 5.6K ohms, 1W, 10%, Carbon       66.2564340         R28       Resistor, 18 ohms, ½W, 10%, Carbon       66.0188340         SW1       Switch, Band       422.0022         SW2       Switch, Modulation & Power       42.1769         SW3       Switch, Multiplier       42.1738         T1       Transformer, Modulation       32.8365         T2       Transformer, Power       32.8276.2         Tube       6BZ7         Tube       6C4   |                     |                                     |                     |
| R28         Resistor, 18 ohms, ½W, 10%, Carbon         66.0188340           SW1         Switch, Band         422.0022           SW2         Switch, Modulation & Power         42.1769           SW3         Switch, Multiplier         42.1738           T1         Transformer, Modulation         32.8365           T2         Transformer, Power         32.8276-2           Tube         6BZ7           Tube         6C4  |                     |                                     |                     |
| SW1         Switch, Band         422-0022           SW2         Switch, Modulation & Power         42-1769           SW3         Switch, Multiplier         42-1738           T1         Transformer, Modulation         32-8365           T2         Transformer, Power         32-8276-2           Tube         6827           Tube         6C4  |                     |                                     |                     |
| SW2     Switch, Modulation & Power     42.1769       SW3     Switch, Multiplier     42.1738       T1     Transformer, Modulation     32.8365       T2     Transformer, Power     32.8276.2       Tube     6BZ7       Tube     6C4  |                     |                                     |                     |
| T1 Transformer, Modulation 32.8365 T2 Transformer, Power 32.8276.2 Tube 6BZ7 Tube 6C4  |                     |                                     |                     |
| T2 Transformer, Power 32.8276.2 Tube 6BZ7 Tube 6C4   |                     |                                     |                     |
| Tube 6827<br>Tube 6C4  |                     |                                     |                     |
| Tube 6C4   | 12                  |                                     |                     |
|  |                     |                                     |                     |
|  |                     |                                     |                     |

### REPLACEMENT PARTS LIST (Continued)

| Description     | Part<br>Number | Description                 | Part<br>Number |
|-----------------|----------------|-----------------------------|----------------|
| Cable, Output   | 76-3624        | Lamp, Pilot #51             | 32-2040        |
| Connector       | 76-3601        | Panel, Front                | 228-0091       |
| Cord, Line      | L2183          | Pointer Assembly            | 328-0120       |
| Foot (4)        | 227-0014       | Screw, 6/32 x 1/4 (14)      | 1W46764FA39    |
| Handle Assembly | 328-0005       | Shield, Tube                | 56-5629-22     |
| Housing         | 228-0089       | Socket, 7 Pin Miniature (2) | 27-6203        |
| Instructions    | 329-0260       | Socket, 9 Pin Miniature     | 27-6203-19     |
| Knob (4)        | 54-4281        | Socket Assembly, Pilot      | 76-1658        |
| Knob. Tuning    | 227-0036-1     |                             |                |

# Standard Warranty

"We warrant Philco Test Equipment to be free from defects in material and workmanship under normal use and service, our obligation under this warranty being limited to making good any part or parts thereof which shall, within one (1) year after delivery of such product to the original purchaser, be returned to us through our distributor with transportation charges prepaid, and which our examination shall disclose to our satisfaction to have been thus defective; this warranty being expressly in lieu of all other warranties expressed or implied, and of all other obligations or liabilities on our part, and we neither assume nor authorize any representative or other person to assume for us any other liability in connection with the sale of our products.

"We reserve the right to make changes in design or to make additions to or improvements upon this product, without incurring any obligation to modify such previously manufactured product.

"This warranty shall not apply to any product which shall have been repaired or altered in any way so as, in our judgment, to affect its stability or reliability, nor which has been subject to misuse, negligence or accident, nor which has had the serial number altered, effaced or removed. Neither shall this warranty apply to any product which has been connected otherwise than in accordance with the instructions furnished by us."

# PHILCO CORPORATION

Accessory Division

Philadelphia 34, Pennsylvania

Part No. 329-0260 Printed in U.S.A.