

PHILCO-TROPIC RADIO MODEL 3202

SPECIFICATIONS

CABINET	Table model, brown, molded plastic
CIRCUIT	5-tube, 5-band superheterodyne
FREQUENCY RANGES	
STANDARD BROADCAST	540—1600 kc.
SHORT WAVE 1	2.3—5.8 mc.
SHORT WAVE 2	5.7—9.3 mc.
SHORT WAVE 3	9.2—12 mc.
SHORT WAVE 4	11.6—22 mc.
INTERMEDIATE FREQUENCY	455 kc.
AUDIO OUTPUT	1.1 watts with 6.3-volt battery; 1.6 watts at 117 volts, a.c.; and 2.0 watts at 234 volts, a.c.
OPERATING VOLTAGES	6.3 volts (storage battery); 105—125 volts, a.c. or d.c.; and 210—250 volts, a.c. or d.c.
POWER CONSUMPTION	2.6 amperes with 6.3-volt battery; 31 watts at 117 volts, a.c. or d.c.; and 52 watts at 234 volts, a.c. or d.c.
PHILCO TUBES	14S7 converter, 7B7 i-f amplifier, 7C6 detector, a-v-c, and 1st audio, 50A5 output, 6G6G output (battery only), 35Y4 rectifier.
AERIAL	Conventional "L" type, such as Philco Outdoor Aerial, Part No. 45-1494

CAUTION! ONE SIDE OF THE POWER LINE IS CONNECTED TO THE CHASSIS. DO NOT GROUND.

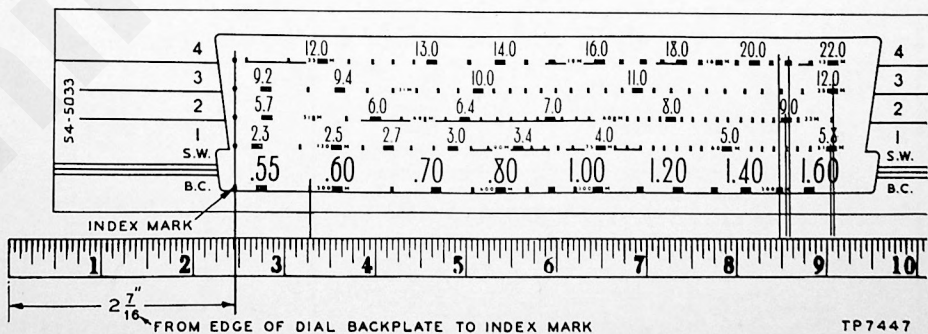


Figure 1. Dial-Calibration Measurements

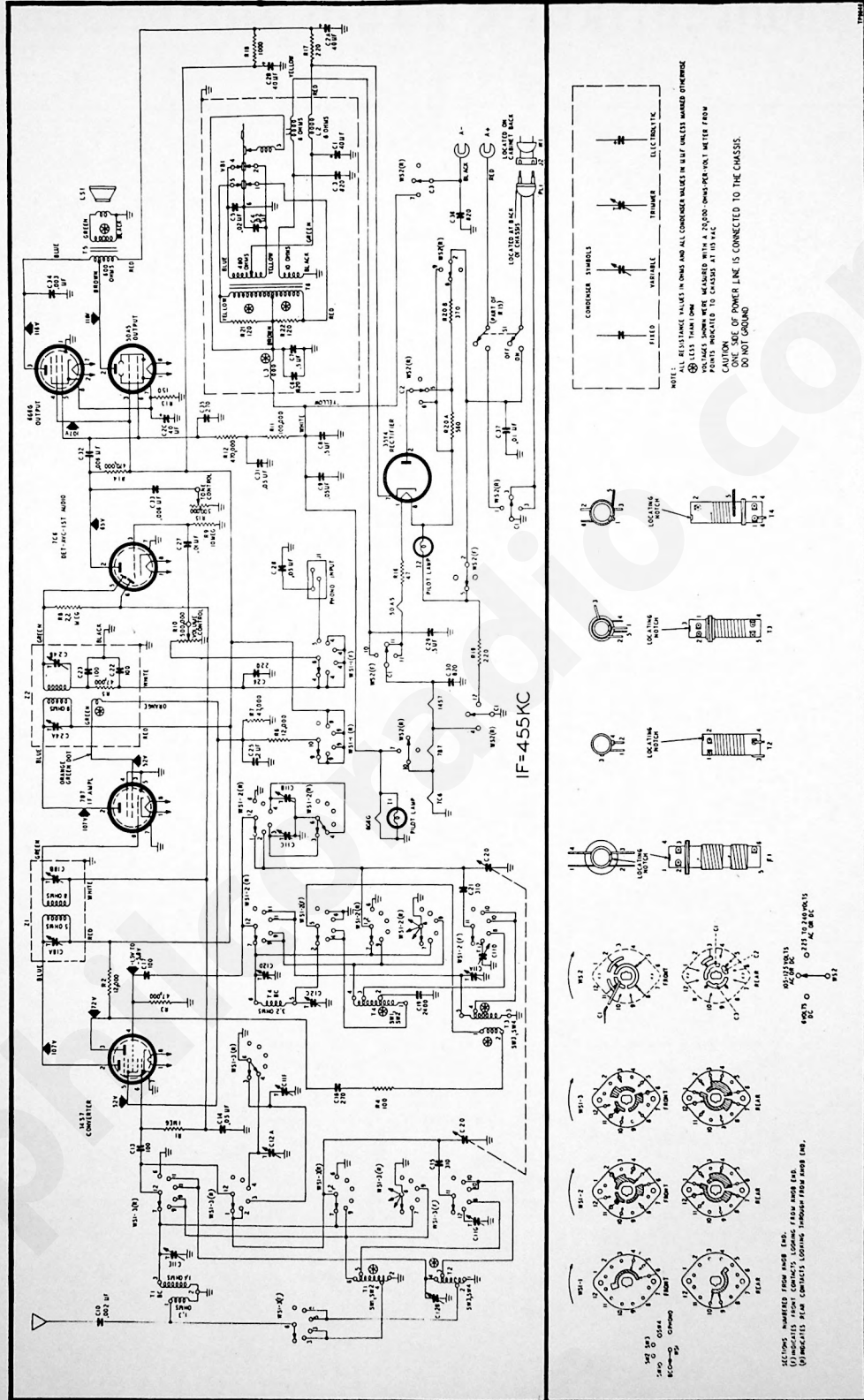


Figure 3. Philco-Tropic Radio Model 3202. Schematic Diagram

ALIGNMENT PROCEDURE

CAUTION—Before connecting the radio to the power source, make certain that the voltage change-over switch, located on the rear of the chassis, is correctly set for the line voltage.

DIAL POINTER—With the tuning condenser fully meshed, adjust the dial pointer to coincide with the index mark just to the left of "55" (BC). See figure 1.

SIGNAL GENERATOR—Connect the ground lead to the chassis, and the output lead as indicated in the chart. Use modulated output.

RADIO CONTROLS—Set the volume control to maximum, and the tone control counterclockwise (without turning set off). Set the band switch, tuning control, and signal generator as indicated in the chart.

OUTPUT METER—Connect across the speaker voice-coil terminals. **OUTPUT LEVEL**—During alignment, the signal-generator output must be attenuated to hold the output-meter indication below 1.25 volts.

NOTE: Allow 15 minutes for the radio and signal generator to warm up before starting alignment.

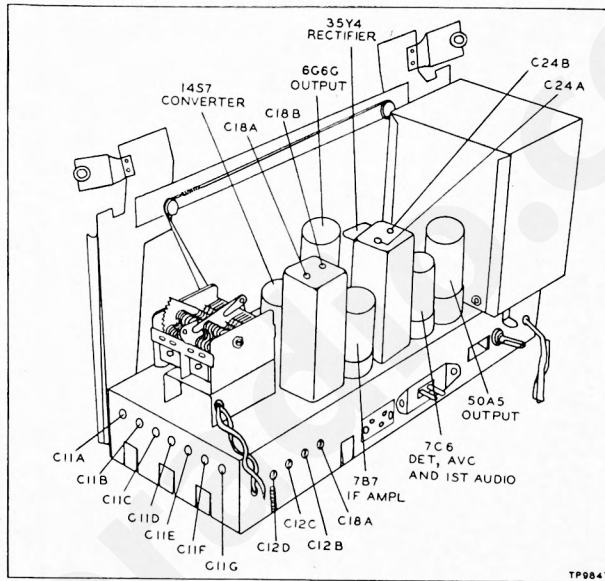


Figure 3. Top View, Showing Trimmer Locations

STEP	SIGNAL GENERATOR		RADIO			ADJUST
	CONNECTION TO RADIO	DIAL SETTING	BAND SWITCH	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Through a .05- μ f. condenser to pin 6 of the 1457.	455 kc.	BC	Gang fully meshed.	Adjust, in order given, for maximum output.	C24B—2nd i-f sec. C24A—2nd i-f pri. C18B—1st i-f sec. C18A—1st i-f pri.
2	Through a 400-ohm resistor to external aerial lead.	21 mc.	SW4	21 mc.	Same as step 1.	C11A—SW4 osc. C12B—SW4 aerial
3	Same as step 2.	11.5 mc.	SW3	11.5 mc.	Same as step 1.	C11B—SW3 osc. C12A—SW3 aerial
4	Same as step 2.	9 mc.	SW2	9 mc.	Same as step 1.	C11C—SW2 osc. C11F—SW2 aerial
5	Same as step 2.	5.5 mc.	SW1	5.5 mc.	Same as step 1.	C11D—SW1 osc. C11G—SW1 aerial
6	Through a 200- μ f. condenser to external aerial lead.	1500 kc.	BC	1500 kc.	Same as step 1.	C12D—BC osc. (shunt) C11E—BC aerial
7	Same as step 6.	580 kc.	BC	580 kc.	Adjust for maximum while rocking gang.	C12C—BC osc. (series)

ALINEAMIENTO

PRECAUCION—Antes de conectar el radio a la fuente de energía, asegúrese de que el conmutador para cambio de voltaje, situado en la parte posterior del chasis, está en la posición correcta para el voltaje usado.

INDICADOR DEL CUADRANTE—Con el condensador de sintonización completamente cerrado (capacidad máxima), ajústese el indicador de modo que coincida con la marca índice que está a la izquierda del "55" (BC). Véase la figura 1.

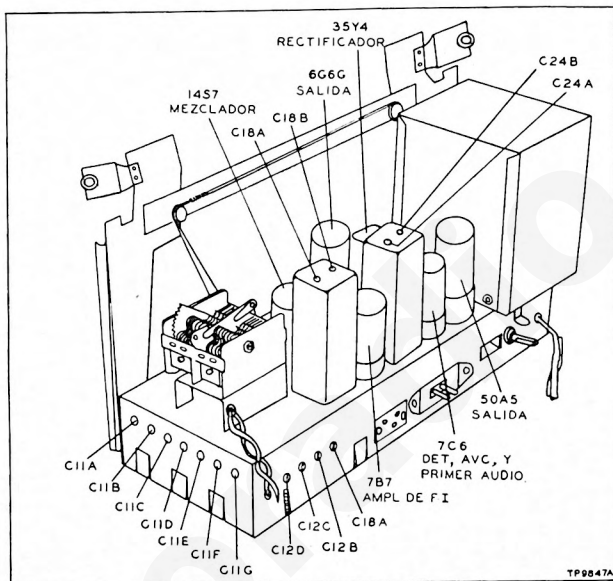
GENERADOR DE SEÑALES—Conéctese el cable de tierra al chasis, y el cable de salida como se indica en la tabla. Usese salida modulada.

CONTROLES DEL RADIO—Gírese el control de volumen al máximo, y el control de tono hacia la izquierda (sin apagar el radio). Fijense el conmutador de bandas, el control de sintonización, y la frecuencia del generador de señales como se indica en la tabla.

MEDIDOR DE SALIDA—Conéctese a los terminales de la bobina de voz.

INTENSIDAD DE LA SALIDA—Durante el alineamiento, atenúese la salida del generador de señales de modo que la indicación sea siempre menor de 1.25 voltios.

NOTA—Permitase que el radio y el generador de señales se calienten durante 15 minutos antes de comenzar el alineamiento.



Vista Superior, Mostrando la Ubicación de los Compensadores

PASO	GENERADOR DE SEÑALES		RADIO			AJUSTENSE
	CONEXION AL RADIO	FRECUENCIA	CONMUT. DE BANDAS	FRECUENCIA	INSTRUCCIONES ESPECIALES	
1	Al alfiler 6 del 14S7, a través de un cond. de .05 μ f.	455 kc.	BC	Cond. de sint. cerrado	Ajústense, en el orden dado, para salida máxima.	C24B—sec. 2da f-i C24A—prim. 2da f-i C18B—sec. 1ra f-i C18A—prim. 1ra f-i
2	Al cable de antena exterior, a través de una resist. de 400 ohms.	21 mc.	SW4	21 mc.	Igual que el paso 1.	C11A—osc. SW4 C12B—ant. SW4
3	Igual que el paso 2.	11.5 mc.	SW3	11.5 mc.	Igual que el paso 1.	C11B—osc. SW3 C12A—ant. SW3
4	Igual que el paso 2.	9 mc.	SW2	9 mc.	Igual que el paso 1.	C11C—osc. SW2 C11F—ant. SW2
5	Igual que el paso 2.	5.5 mc.	SW1	5.5 mc.	Igual que el paso 1.	C11D—osc. SW1 C11G—ant. SW1
6	Al cable de antena exterior, a través de un cond. de 200 μ f.	1500 kc.	BC	1500 kc.	Igual que el paso 1.	C12D—osc. BC (shunt) C11E—ant. BC
7	Igual que el paso 6.	580 kc.	BC	580 kc.	Ajústese para salida máxima, mientras se mueve el cond. de sint. levemente de un lado a otro.	C12C—osc. BC (serie)

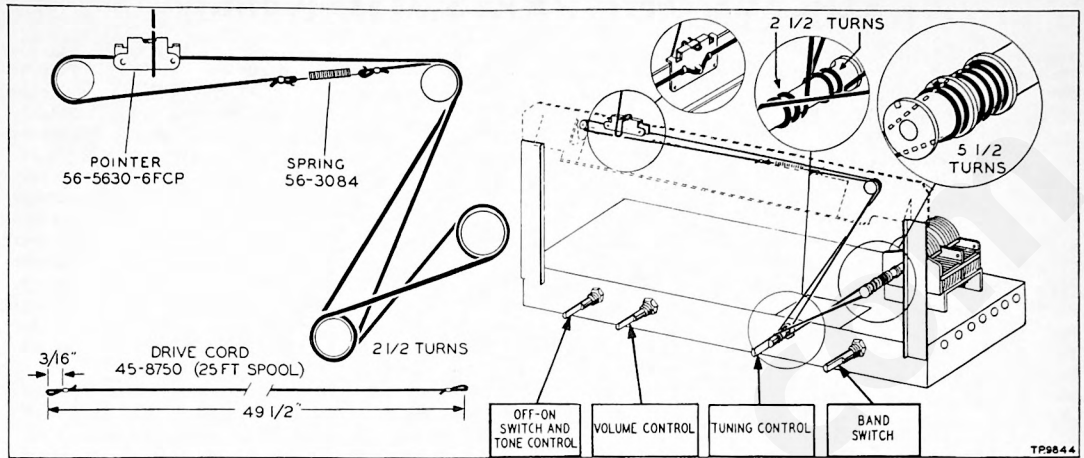


Figure 4. Drive-Cord-Installation Details

REPLACEMENT PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory assemblies; also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation of the radio will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Reference Symbol	Description	Service Part No.	Reference Symbol	Description	Service Part No.
C1	Condenser, electrolytic, filter, 40 μ f., 200v	45-3018-9	C14	Condenser, a-v-c by-pass, .05 μ f.	30-1226
C2	Condenser, electrolytic, 3-section	30-2570-30	C15	Condenser, silver mica, fixed padder, 310 μ f.	30-1220-11
C2A	Condenser, electrolytic, filter, 40 μ f., 200v	Part of C2	C16	Condenser, mica, d-c blocking, 270 μ f.	60-10275407
C2B	Condenser, electrolytic, filter, 40 μ f., 200v	Part of C2	C17	Condenser, mica, d-c blocking, 100 μ f.	60-10105407
C2C	Condenser, electrolytic, cathode by-pass, 40 μ f., 25v	Part of C2	C18A	Condenser, trimmer	Part of Z1
C3	Condenser, hum filter, 820 μ f.	60-10825401	C18B	Condenser, trimmer	Part of Z1
C4	Condenser, spark filter, .02 μ f.	61-0108*	C19	Condenser, mica, fixed padder, 2400 μ f.	60-20245304
C5	Condenser, spark filter, .02 μ f.	61-0108*	C20	Condenser, tuning gang	31-2723-2
C6	Condenser, hash filter, 820 μ f.	60-10825401	C21	Condenser, silver mica, fixed padder, 310 μ f.	30-1220-11
C7	Condenser, hash filter, .5 μ f.	61-0137*	C22	Condenser, filter	Part of Z2
C8	Condenser, battery filter, .5 μ f.	61-0137*	C23	Condenser, filter	Part of Z2
C9	Condenser, battery filter, .05 μ f.	61-0122*	C24A	Condenser, trimmer	Part of Z2
C10	Condenser, aerial coupling, .002 μ f.	61-0062*	C24B	Condenser, trimmer	Part of Z2
C11	Condenser, trimmer, 7-section	31-6414-5	C25	Condenser, screen by-pass, 2 μ f.	45-3500-3*
C11A	Condenser, oscillator trimmer, SW4	Part of C11	C26	Condenser, ceramic, r-f filter, 220 μ f.	62-122001001
C11B	Condenser, oscillator trimmer, SW3	Part of C11	C27	Condenser, d-c blocking, .01 μ f.	61-0120*
C11C	Condenser, oscillator trimmer, SW2	Part of C11	C28	Condenser, phono isolation, .05 μ f.	61-0122*
C11D	Condenser, oscillator trimmer, SW1	Part of C11	C29	Condenser, filament filter, .5 μ f.	61-0137*
C11E	Condenser, aerial trimmer, BC	Part of C11	C30	Condenser, hum filter, 820 μ f.	60-10825401
C11F	Condenser, aerial trimmer, SW2	Part of C11	C31	Condenser, bias filter, .05 μ f.	30-1226
C11G	Condenser, aerial trimmer, SW1	Part of C11	C32	Condenser, d-c blocking, .006 μ f.	30-1226-2
C12	Condenser, trimmer, 4-section	31-6414-2	C33	Condenser, tone compensation, .006 μ f.	30-1226-2
C12A	Condenser, aerial trimmer, SW3	Part of C12	C34	Condenser, plate by-pass, .003 μ f.	30-1226-3
C12B	Condenser, aerial trimmer, SW4	Part of C12	C35	Condenser, mica, r-f by-pass, 270 μ f.	60-10275407
C12C	Condenser, oscillator padder, BC	Part of C12	C36	Condenser, mica, hash filter, 820 μ f.	60-10825401
C12D	Condenser, oscillator trimmer, BC	Part of C12			
C13	Condenser, mica, d-c blocking, 100 μ f.	60-10105407			

(Continued on page 8)

REPLACEMENT PARTS LIST (Cont.)

Reference Symbol	Description	Service Part No.
C37	Condenser, line filter, .01 μ f.	30-1226-1
I1	Pilot lamp, 6-8v	34-2068
I2	Pilot lamp, 117v	34-2605
J1	Socket, phono input	27-6126
J2	Adaptor, a-c plug	L3275
L1	Choke	32-2925
L2	Choke	32-2925
L3	Choke	32-4170
LS1	Speaker	36-1615-9
PL1	Socket, power input	27-6240
R1	Resistor, grid return, 1 megohm	66-5103340*
R2	Resistor, plate load, 12,000 ohms	66-3123340*
R3	Resistor, grid return, 47,000 ohms	66-3473340*
R4	Resistor, oscillator stabilizing, 100 ohms	66-1103340*
R5	Resistor, filter, 47,000 ohms	Part of Z2
R6	Resistor, screen dropping, 12,000 ohms	66-3123340*
R7	Resistor, screen voltage divider, 47,000 ohms	66-3473340*
R8	Resistor, a-v-c filter, 2.2 megohms	66-5223340*
R9	Resistor, grid return, 10 megohms	66-5103340*
R10	Resistor, volume control, 500,000 ohms	33-5565
R11	Resistor, bias filter, 100,000 ohms	66-4103340*
R12	Resistor, grid return, 470,000 ohms	66-4473340*
R13	Resistor, cathode bias, 150 ohms	66-1153340*
R14	Resistor, plate load, 470,000 ohms	66-4473340*
R15	Resistor, tone control, 500,000 ohms	33-5538-45
R16	Resistor, line dropping, 47 ohms, 2w	66-0475340*
R17	Resistor, filter, 220 ohms, 1w	66-1224340*
R18	Resistor, filter, 1,000 ohms, 1/2w	66-2103340*
R19	Resistor, current limiter, 220 ohms, 1w	66-1224340*
R20	Resistor, 2-section, wire-wound	33-3444
R20A	Resistor, line dropping, for 220v, 560 ohms	Part of R20
R20B	Resistor, line dropping, for 110v, 370 ohms	Part of R20
R21	Resistor, damping, 120 ohms	66-1123340*
R22	Resistor, damping, 120 ohms	66-1123340*
S1	Switch, on-off	Part of R15

Reference Symbol	Description	Service Part No.
T1	Transformer, aerial, BC, SW1, SW2	32-4330
T2	Transformer, aerial, SW3, SW4	32-4195
T3	Transformer, oscillator, SW3, SW4	32-4194
T4	Transformer, oscillator, BC, SW1, SW2	32-4329
T5	Transformer, output	32-8363-1
T6	Transformer, power	32-8369
VB1	Vibrator	38-9910
W1	Line cord	41-3865
WS1	Switch, wafer, wave	42-1879
WS2	Switch, wafer, voltage change-over	42-1880
Z1	Transformer, 1st i:f	32-4345
Z2	Transformer, 2nd i:f	32-4346

MISCELLANEOUS

Description	Service Part No.
Back, cardboard	54-7398-3
Backplate, assembly, scale	76-4343
Baffle assembly, speaker	40-9161
Cabinet	10666D
Clamp, vibrator	57-1637FA3
Dial scale	54-5033
Drive cord (25-foot spool)	45-8750*
Knob, control (4 required)	54-4227-2
Knob, voltage change-over	54-4227-3
Lamp assembly, pilot	27-6233
Lamp assembly, pilot	27-6233-23
Mount, rubber (backplate to cabinet)	27-4596
Pointer	56-5630-6FCP
Scale, regional (diffusing panel)	54-5036
Shaft, drive	31-2738
Socket, Loktal	27-6138
Socket, octal	27-6174
Socket, vibrator	27-6168
Spring, scale mounting (2 required)	56-3841
Spring, gang and pointer	56-3084
Strap, scale, L. H.	56-4031FCP
Strap, scale, R. H.	56-4032FCP