

# PARTS LIST and SERVICE INFORMATION

## PHILCO-TROPIC MODEL 3212

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." Do not use the "Reference Symbol."

Reference Symbol	Description	Service Part No.	Reference Symbol	Description	Service Part No.
C1	Condenser, hum filter, 220 $\mu\text{f}$ .	60-10225417*	R3	Resistor, grid return, 47,000 ohms	66-3478340
C2	Condenser, electrolytic, 3-section	30-2570-47	R4	Resistor, oscillator stabilizing, 100 ohms	66-1108350*
C2A	Condenser, electrolytic, filter, 40 $\mu\text{f}$ , 200v	Part of C2	R5	Resistor, filter, 47,000 ohms	Part of Z2
C2B	Condenser, electrolytic, filter, 30 $\mu\text{f}$ , 200v	Part of C2	R6	Resistor, screen dropping, 12,000 ohms	66-3128340
C2C	Condenser, electrolytic, filter, 20 $\mu\text{f}$ , 200v	Part of C2	R7	Resistor, damping, 120 ohms	66-1128340*
C3	Condenser, buffer, 015 $\mu\text{f}$ .	30-4661-4	R8	Resistor, a-v-c filter, 2.2 megohms	66-5228340*
C4	Condenser, filter, 2 $\mu\text{f}$ .	45-3500-3*	R9	Resistor, grid return, 10 megohms	66-6108340*
C5	Condenser, filter, 2 $\mu\text{f}$ .	45-3500-3*	R10	Resistor, volume control, 500,000 ohms	33-5565
C6	Condenser, plate by-pass, .0033 $\mu\text{f}$ .	45-3505-4*	R11	Resistor, bias filter, 100,000 ohms	66-4108340*
C7	Condenser, battery filter, .0003 $\mu\text{f}$ .	30-1235	R12	Resistor, grid return, 470,000 ohms	66-4473340*
C8	Condenser, battery filter, .5 $\mu\text{f}$ .	61-0134	R13	Resistor, filter, 1200 ohms	66-2128340*
C9	Condenser, r-f by-pass, 220 $\mu\text{f}$ .	62-122001001*	R14	Resistor, plate load, 470,000 ohms	66-4473340*
C10	Condenser, tone compensation, .0068 $\mu\text{f}$ .	45-3505-40*	R15	Resistor, tone control, 500,000 ohms	33-5538-45
C11	Condenser, trimmer, 7-section	31-6414-5	R16	Resistor, filter, 220 ohms	66-1224540
C11A	Condenser, oscillator trimmer, SW4	Part of C11	R17	Resistor, damping, 120 ohms	66-1128340*
C11B	Condenser, oscillator trimmer, SW3	Part of C11	S1	Switch, on-off	Part of R15
C11C	Condenser, oscillator trimmer, SW2	Part of C11	T1	Transformer, aerial, BC, SW1, SW2	32-4456
C11D	Condenser, oscillator trimmer, SW1	Part of C11	T2	Transformer, aerial, SW3, SW4	32-4195
C11E	Condenser, aerial trimmer, BC	Part of C11	T3	Transformer, oscillator, SW3, SW4	32-4194
C11F	Condenser, aerial trimmer, SW2	Part of C11	T4	Transformer, oscillator, BC, SW1, SW2	32-4329
C11G	Condenser, aerial trimmer, SW1	Part of C11	T5	Transformer, output	32-8427
C12	Condenser, trimmer, 4-section	31-6414-2	T6	Transformer, power	32-8426
C12A	Condenser, aerial trimmer, SW3	Part of C12	VB1	Vibrator	83-0033
C12B	Condenser, aerial trimmer, SW4	Part of C12	WS1	Switch, water, wave	42-1879-2
C12C	Condenser, oscillator padder, BC	Part of C12	Z1	Transformer, 1st lf.	32-4345
C12D	Condenser, oscillator trimmer, BC	Part of C12	Z2	Transformer, 2nd lf.	32-4346-1
C13	Condenser, mica, d-c blocking, 100 $\mu\text{f}$ .	60-10105017	<b>MISCELLANEOUS</b>		
C14	Condenser, a-v-c by-pass, .047 $\mu\text{f}$ .	45-3505-28*	<b>Description</b>	<b>Service Part No.</b>	
C15	Condenser, silver mica, fixed padder, 310 $\mu\text{f}$ .	30-1220-11	Back, cardboard	54-8055	
C16	Condenser, mica, d-c blocking, 270 $\mu\text{f}$ .	60-10275417*	Backplate assembly, scale	76-4343	
C17	Condenser, mica, d-c blocking, 100 $\mu\text{f}$ .	60-10105017	Baffle assembly, speaker	40-9161	
C18A	Condenser, trimmer	Part of Z1	Cabinet	10666D	
C18B	Condenser, trimmer	Part of Z1	Clamp, vibrator	57-1637-3	
C19	Condenser, mica, fixed padder, 2400 $\mu\text{f}$ .	60-20245314	Dial scale	54-5081	
C20	Condenser, tuning gang, 2-section	31-2723-2	Drive cord (25-foot spool)	45-8750*	
C21	Condenser, silver mica, fixed padder, 310 $\mu\text{f}$ .	30-1220-11	Knob, control, Off-On and Band Selector Controls (2)	54-4718-8	
C22	Condenser, filter	Part of Z2	Knob, control, Volume and Tuning Controls (2)	54-4718-9	
C23	Condenser, filter	Part of Z2	Lamp assembly, pilot	27-6233-23	
C24A	Condenser, trimmer	Part of Z2	Mount, rubber, backplate to cabinet (2)	27-4596	
C24B	Condenser, trimmer	Part of Z2	Pointer	56-5630-6FCP	
C25	Condenser, screen by-pass, .2 $\mu\text{f}$ .	45-3500-3*	Scale, regional (diffusing panel)	54-5082	
C26	Condenser, ceramic, r-f filter, 220 $\mu\text{f}$ .	62-122001001*	Shaft, drive	31-2738	
C27	Condenser, d-c blocking, .01 $\mu\text{f}$ .	45-3505-41*	Socket, Loktal	27-6207	
C28	Condenser, d-c blocking, .01 $\mu\text{f}$ .	45-3505-41*	Socket, miniature	27-6203	
C29	Condenser, bias filter, .02 $\mu\text{f}$ .	61-0108*	Socket, vibrator	27-6245-1	
C30	Condenser, filter, .033 $\mu\text{f}$ .	45-3505-44*	Spring, scale mounting (2)	56-3841	
C31	Condenser, battery filter, .5 $\mu\text{f}$ .	61-0183*	Spring, gang and pointer	56-3084	
I1	Pilot lamp, 6-8v	34-2068	Strap, scale, L.H.	56-4031FCP	
J1	Socket, phono input	27-6126	Strap, scale, R.H.	56-4032FCP	
L1	Choke	32-4170-4	Battery cable	41-3976	
L2	Choke	32-2925	Sleeve (tuning-cond. mtg.)	56-1307FA4	
LS1	Speaker	36-1615-9	Stud (back mtg.)	W2235FA9	
R1	Resistor, grid return, 1 megohm	66-5108340*	Plate, adapter (socket)	56-4033-1FA3	
R2	Resistor, plate load, 12,000 ohms	66-3128340			

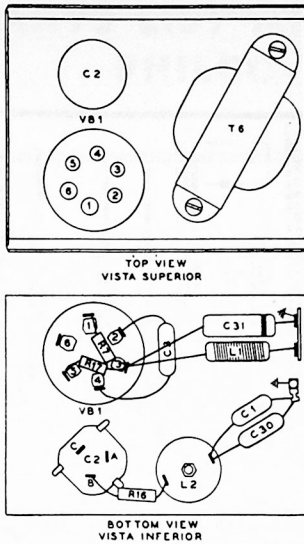


Figure 3. Power-Supply Sub-Chassis  
Figura 3. Sub-Chassis de la Fuente de Poder

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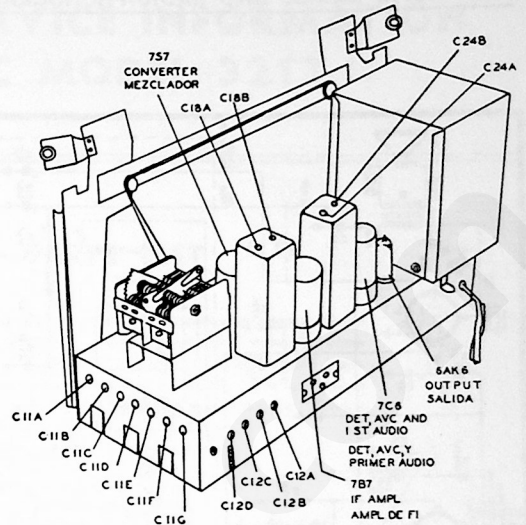


Figure 4. Top View, Showing Trimmer Locations  
Figura 4. Vista Superior, Mostrando la Ubicación de los Condensadores

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STEP PASO	SIGNAL GENERATOR GENERADOR DE SEÑALES		RADIO			ADJUST AJUSTENSE
	CONNECTION TO RADIO CONEXION AL RADIO	DIAL SETTING FRECUENCIA	BAND SWITCH CONMUT. DE BANDAS	DIAL SETTING FRECUENCIA	SPECIAL INSTRUCTIONS INSTRUCCIONES ESPECIALES	
1	Through a .05- $\mu$ f. condenser to pin 6 of the 7S7. Al alfiler 6 del 7S7, a través de un cond. de .05 $\mu$ f.	455 kc.	BC	Gang fully meshed. Cond. de sint. cerrado.	Adjust, in order given, for maximum output. Ajustense, en el orden dado, para salida máxima.	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. Al cable de antena exterior, a través de una resist. de 400 ohms.	21 mc.	SW4	21 mc.	Same as step 1. Igual que el paso 1.	C11A—SW4 osc. C12B—SW4 ant.
3	Same as step 2. Igual que el paso 2.	11.5 mc.	SW3	11.5 mc.	Same as step 1. Igual que el paso 1.	C11B—SW3 osc. C12A—SW3 ant.
4	Same as step 2. Igual que el paso 2.	9 mc.	SW2	9 mc.	Same as step 1. Igual que el paso 1.	C11C—SW2 osc. C11F—SW2 ant.
5	Same as step 2. Igual que el paso 2.	5.5 mc.	SW1	5.5 mc.	Same as step 1. Igual que el paso 1.	C11D—SW1 osc. C11G—SW1 ant.
6	Through a 200- $\mu$ f. condenser to external aerial. Al cable de antena exterior, a través de un cond. de 200 $\mu$ f.	1500 kc.	BC	1500 kc.	Same as step 1. Igual que el paso 1.	C12D—BC osc. (shunt) C11E—BC ant.
7	Same as step 6. Igual que el paso 6.	580 kc.	BC	580 kc.	Adjust for maximum while rocking gang. Ajustese para salida máxima mientras se mueve el cond. de sint. levemente de un lado a otro.	C12C—BC osc. (series)

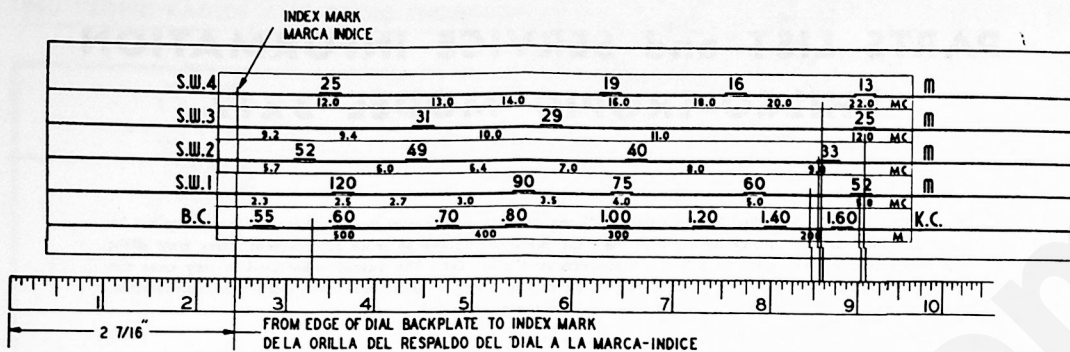


Figure 1. Dial-Calibration Measurements  
Figura 1. Medidas Para la Calibración del Cuadrante

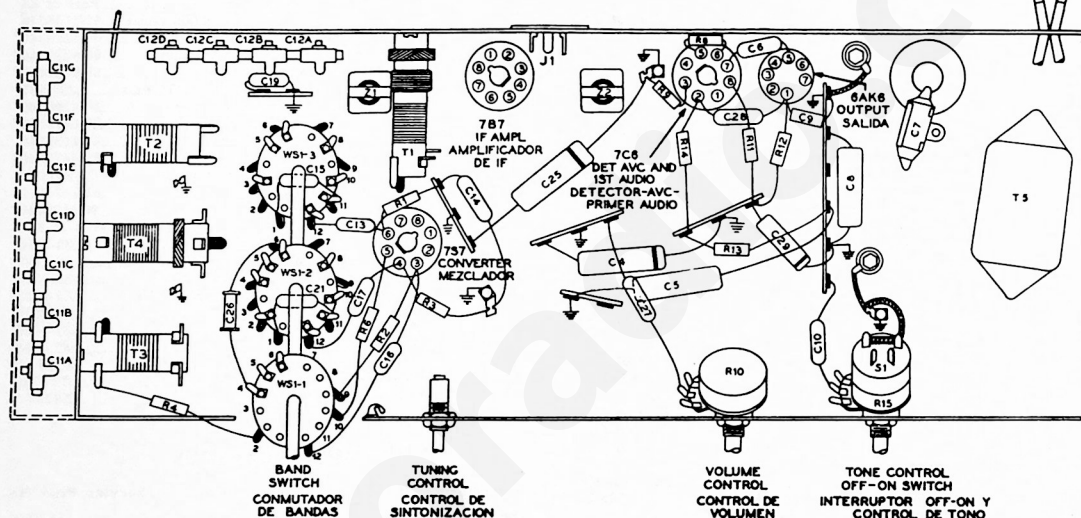


Figure 2. Symbolized Chassis, Showing Parts Placement  
Figura 2. Vista del Chassis, Mostrando la Ubicación de las Partes

## ALIGNMENT PROCEDURE

**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.

## ALINEAMIENTO

**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.

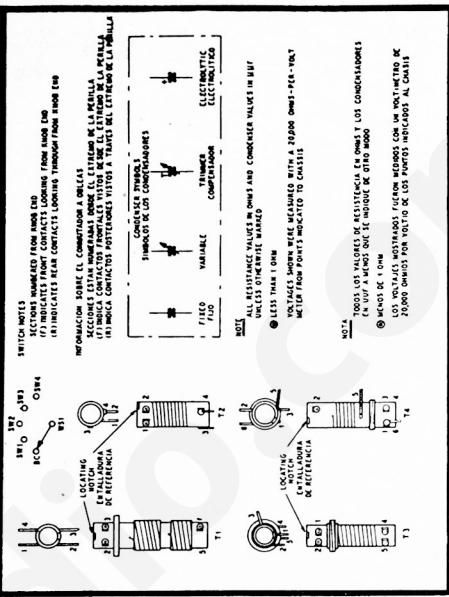
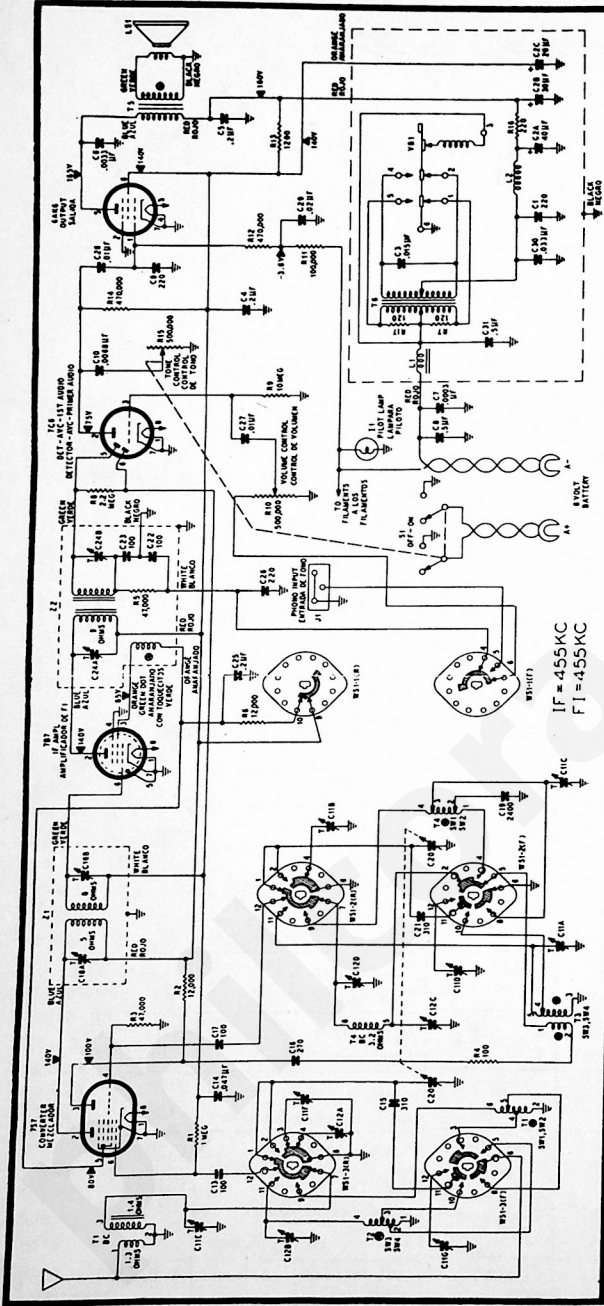
**GENERADOR DE SEÑALES**—Conéctese el cable de tierra al chassis, y el cable de salida como se indica en la tabla. Úsese salida modulada.

**CONTROLES DEL RADIO**—Gírese el control de volumen al máximo, y el control de tono hacia la izquierda (sin apagar el radio). Fíjense 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.

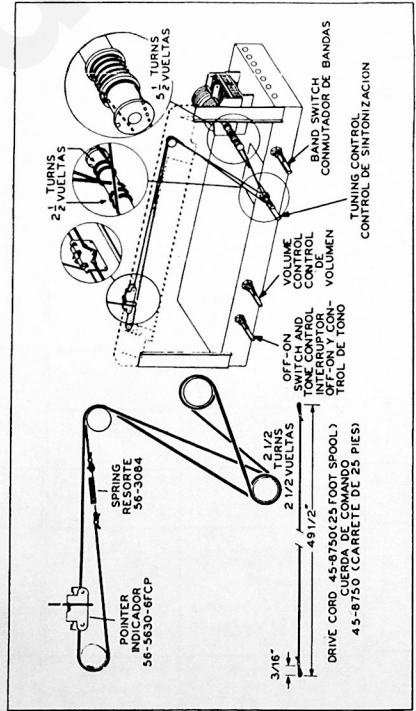
**INTENSIDAD DE LA SALIDA**—Durante el alineamiento, atenúese la salida del generador de señales de modo que la indicación sea siempre menor de 1.25 voltios.

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



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Figure 5. Schematic Diagram, Philco-Tropic Model 3212.  
Figura 5. Diagrama Esquemático, Modelo Philco Tropic 3212



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Figure 6. Drive-Cord Installation Details.  
Figura 6. Detalles Sobre la Instalación de la Cuerda de Comando