

PARTS LIST AND SERVICE INFORMATION FOR PHILCO-TROPIC MODEL 3421

REPLACEMENT PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. 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 will be unchanged. When ordering replacements, use only the "Service Part No."

Reference Symbol	Description	Service Part No.	Reference Symbol	Description	Service Part No.
C1	Condenser, a-v-c isolating, 100 $\mu\mu\text{f}$.	62-110009001	R20	Resistor, tone compensation, 150,000 ohms	86-4158340*
C2	Condenser, a-v-c filter, .047 μf .	45-3505-45*	R21	Resistor, filter, 22,000 ohms	66-3224340*
C3	Condenser, tuning, 2-section	31-2768	S1	Switch, change-over, 115 or 230 volts	42-1893-1
C3A	Condenser, trimmer, aerial (SW)	Part of C3	S2	Switch, power on-off	Part of R9
C3B	Condenser, trimmer, osc. (SW)	Part of C3	T1	Transformer, aerial	32-4461-1
C4	Condenser, d-c blocking, 56 $\mu\mu\text{f}$.	62-056490001	T2	Transformer, oscillator	32-4554
C5	Condenser, screen by-pass, .047 μf .	45-3505-45*	T3	Transformer, output	32-8559
C6	Condenser, trimmer, 3-section	31-6477-15	T4	Transformer, filament	32-8558
C6A	Condenser, trimmer, osc. series (BC)	Part of C6	TC1A	Tuning core, primary, 1st i-f	Part of Z1
C6B	Condenser, trimmer, osc. shunt (BC)	Part of C6	TC1B	Tuning core, secondary, 1st i-f	Part of Z1
C6C	Condenser, trimmer, aerial (BC)	Part of C6	TC2A	Tuning core, primary, 2nd i-f	Part of Z2
C7	Condenser, d-c blocking, .0068 μf .	45-3505-40*	TC2B	Tuning core, secondary, 2nd i-f	Part of Z2
C8	Condenser, tone compensation, 100 $\mu\mu\text{f}$.	62-110009001	W1	Line cord	41-3865
C9	Condenser, d-c blocking, .0068 μf .	45-3505-40*	WS	Switch, band	42-1973
C10	Condenser, tone compensation, .0047 μf .	45-3505-56*	WS-1	Switch, wafer, front section	Part of WS
C11	Condenser, tone compensation, .01 μf .	45-3505-41*	WS-2	Switch, wafer, rear section	Part of WS
C12	Condenser, plate by-pass, 220 $\mu\mu\text{f}$.	62-122001001	Z1	Transformer, 1st i-f	32-4377-2
C13	Condenser, d-c blocking, .0068 μf .	45-3505-40*	Z2	Transformer, 2nd i-f	32-4378
C14	Condenser, d-c blocking, .0068 μf .	45-3505-40*			
C15	Condenser, electrolytic, 4-section	30-2570-57			
C15A	Condenser, filter, 10 μf .	Part of C15			
C15B	Condenser, filter, 10 μf .	Part of C15			
C15C	Condenser, filter, 20 μf .	Part of C15			
C15D	Condenser, filter, 40 μf .	Part of C15			
C16	Condenser, tone compensation, .0033 μf .	45-3505-55*			
C17	Condenser, line filter, .01 μf .	45-3505-58*			
C18	Condenser, filter, 20 μf .	30-2568-56			
C19	Condenser, electrolytic, 2-section	30-2584-10			
C19A	Condenser, filter, 20 μf .	Part of C19			
C19B	Condenser, filter, 10 μf .	Part of C19			
C20	Condenser, cathode by-pass, 10 μf .	30-2417-8			
C21	Condenser, antenna coupling, .0022 μf .	45-3505-54			
C22	Condenser, neutralizing, 2.2 $\mu\mu\text{f}$.	30-1221-6			
C23	Condenser, screen by-pass, .047 μf .	45-3505-45*			
CR1	Selenium Rectifier	34-8003			
CR2	Selenium Rectifier	34-8003			
II	Lamp, pilot light, 6-8 volts	34-2068			
LS1	Speaker, p.m.	36-1639-10			
R1	Resistor, BC primary loading, 22,000 ohms	66-3228340*			
R2	Resistor, a-v-c filter, 1 megohm	66-5108340*			
R3	Resistor, suppressor, 68 ohms	66-0689340*			
R4	Resistor, grid return, 33,000 ohms	66-338340*			
R5	Resistor, a-v-c filter, 2.2 megohms	66-5228340*			
R6	Resistor, diode load, 330,000 ohms	66-4338340*			
R7	Resistor, filter, 56,000 ohms	66-3564340*			
R8	Resistor, grid return, 10 megohms	66-6108340*			
R9	Volume control, 2 megohms	33-5563-47			
R10	Resistor, bass compensation, 56,000 ohms	66-3568340*			
R11	Tone control, 5 megohms	Part of R9			
R12	Resistor, plate load, 220,000 ohms	66-4228340*			
R13	Resistor, grid return, 470,000 ohms	66-4478340*			
R14	Resistor, cathode bias, 22,000 ohms	66-3228340*			
R15	Resistor, cathode bias, 270 ohms	66-1274340*			
R16	Resistor, plate load, 56,000	66-3568340*			
R17	Resistor, filter, 1000 ohms	66-2105340*			
R18	Resistor, filter, 220 ohms	66-1224340*			
R19	Resistor, tone compensation, 680,000 ohms	66-4688340*			

MISCELLANEOUS

Description	Service Part No.
Cabinet Parts	
Hinge, 2 required	56-6603
Stud, hinge mtg., 8 required	56-6296
Knob, tone control	54-4841-10
Knob, tuning control	54-4841-9
Knob, band switch	54-4842-6
Knob, off-on volume control	54-4842-7
Lid support	56-7947
Mounting foot, 4 required	56-7778-1
Rubber foot, 4 required	54-5479
Continental a-c adapter plug	L-3275
Conversion kit (50/60 cycles)	40-8680
Dial scale	54-5107-2
Diffusing panel	54-8575
Drive cord (25-foot spool)	45-8750*
Pointer	56-5630-45
Pointer-rail assembly	76-7218
Spring, pointer	27-8751-2
Speed clips, scale mtg., 5 required	1W56920FE7
Spring clips, diffusing panel, 2 required	56-3587-1
Grommet, tuning-condenser mtg., 4 required	27-4596
Record Changer Parts (Model M-22)	
Driver, 45 r-p-m record	56-7747
Sleeve, rubber, changer mtg., 3 required	54-7798
Speednut, changer mtg., 3 required	W-2554
Spring, changer mtg. (bottom), 3 required	56-7059FA9
Spring, changer mtg. (top), 3 required	56-7059-1FCP
Socket assembly, pilot lamp	27-6233-6
Stud, pilot-lamp cover, 2 required	W-2235-1FA9
Socket, 7-pin miniature, 4 required (6AV6, 6BJ6, 6BE6, 6AQ5, tubes)	27-6203
Socket, 7-pin miniature, 1 required (6C4 tube)	27-6203-14
Tuning-shaft assembly	56-9333

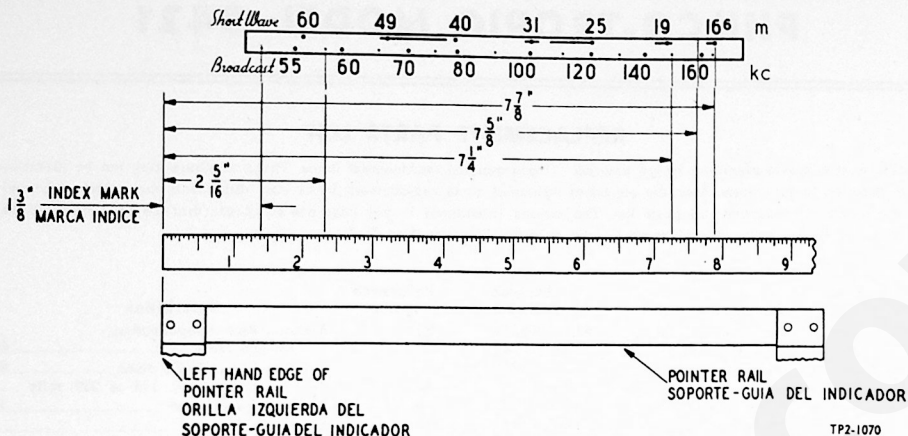


Figure 1. Dial-Calibration Measurements
 Figura 1. Medidas para Calibración del Cuadrante

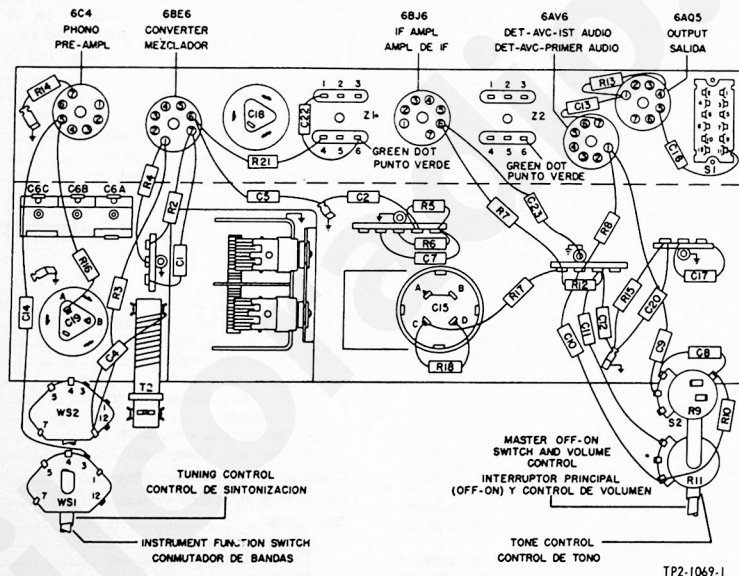


Figure 2. Symbolized Chassis, Showing Parts Placement
 Figura 2. Vista del Chasis, Mostrando la Ubicación de las Partes

ALIGNMENT

DIAL POINTER—With tuning-condenser plates fully meshed, adjust dial pointer to coincide with index mark at left-hand corner of dial (just to the left of the "55" mark).

SIGNAL GENERATOR—Connect ground lead to chassis through a .01 μ f. isolating condenser; connect output lead as indicated in chart. Use modulated output.

RADIO CONTROLS—Set volume control to maximum. Set band switch, tuning control, and signal-generator frequency as indicated in chart.

OUTPUT METER—Connect to lugs indicated on rear of chassis.

OUTPUT LEVEL—During alignment, signal-generator output must be attenuated to hold output-meter reading below 1.5 volts.

ALINEAMIENTO

INDICADOR DEL CUADRANTE—Con el condensador de sintonización completamente cerrado, ajústese el indicador del cuadrante de modo que coincida con la marca índice en la esquina izquierda del cuadrante (a la izquierda del "55").

GENERADOR DE SEÑALES—Conéctese el cable de tierra al chasis, a través de un condensador de .01 μ f., y el cable de salida como se indica en la tabla. Use salida modulada.

CONTROLES DEL RADIO—Póngase el control de volumen al máximo. 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 indicados en la parte posterior del chasis.

INTENSIDAD DE LA SALIDA—Durante el alineamiento, atenuése la salida del generador de señales para que la indicación en el medidor sea siempre menor de 1.5 voltios.

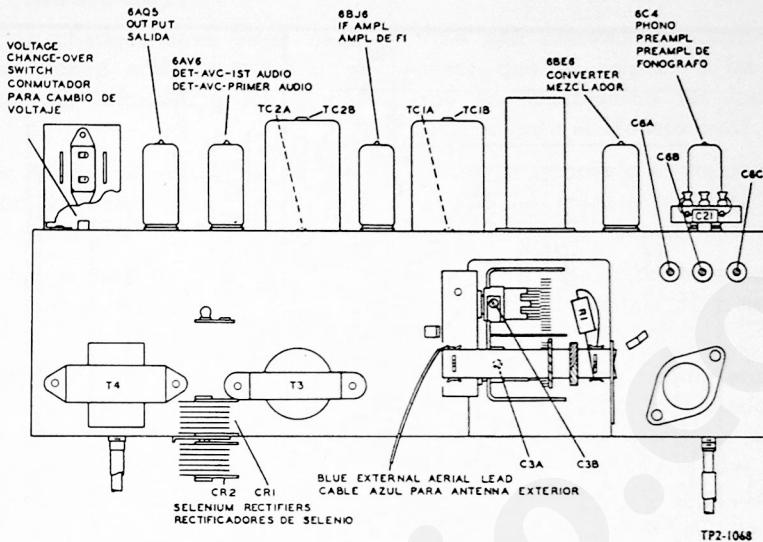
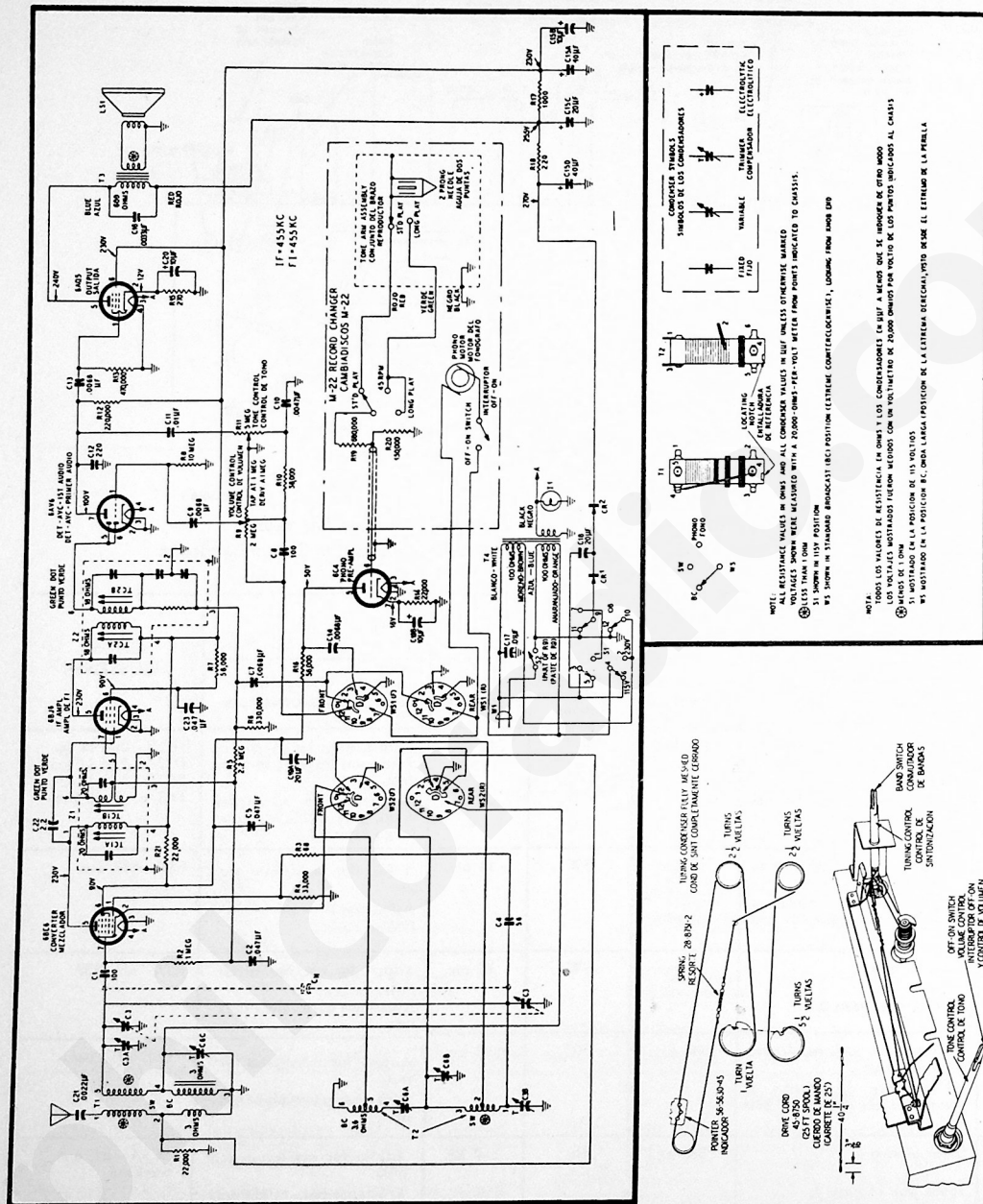


Figure 3. Top View of Chassis, Showing Trimmer Locations
 Figura 3. Vista Superior del Chasis, Mostrando la Posición de los Compensadores

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 .1 μ f. condenser to rear section of tuning condenser. A la sección posterior del cond. de sintonización, a través de un cond. de .1 μ f.	455 kc.	BC	580 kc.	Adjust, in order given, for maximum output; then repeat. Ajústense, en el orden dado, para salida máxima; luego repítase.	TC2B—2nd i-f sec. TC2A—2nd i-f pri. TC1B—1st i-f sec. TC1A—1st i-f pri.
2	Through 400-ohm resistor to aerial lead. Al alambre de antena, a través de una resist. de 400 ohms.	18 mc.	SW	18 mc.	Adjust for maximum output. Ajústense para salida máxima.	C3B—SW osc.
3	Same as step 2. Igual que el paso 2.	17 mc.	SW ₉	17 mc.	Adjust for maximum output. Ajústense para salida máxima.	C3A—ant. SW
4	Through 200 μ f. condenser to aerial lead. Al alambre de antena, a través de un cond. de 200 μ f.	1500 kc.	BC	1500 kc.	Adjust for maximum output. Ajústense para salida máxima.	*C6B—BC osc.
5	Same as step 4. Igual que el paso 4.	580 kc.	BC	580 kc.	Adjust for maximum output. Ajústense para salida máxima.	*C6A—BC osc. tracking
6	Repeat step 4. Repítase el paso 4.	1500 kc.	BC	1500 kc.	Adjust for maximum output. Ajústense para salida máxima.	C6C—BC ant.
7	Repeat steps 5 and 6 until no further improvement results. Repítanse los pasos 5 y 6 hasta que no se obtenga mejoría alguna.					

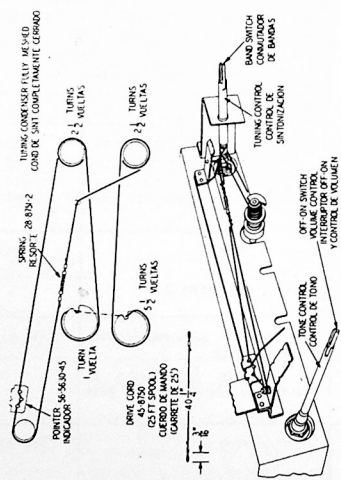
*Rock tuning condenser while adjusting.

*Muévase el condensador de sintonización levemente de un lado a otro mientras se hace este ajuste.



1P2-1067-1

Figure 4. Philco-Tropic Model 3421, Schematic Diagram
 Figura 4. Radio Philco-Tropic Modelo 3421, Diagrama Esquemático



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Figure 5. Drive-Cord-Installation Details
 Figura 5. Detalles Sobre la Instalación de la Cuerda de Mando

**ADDENDUM TO USERS' SERVICE
INFORMATION FOR PHILCO EXPORT
MODEL 3421**

The following changes have been made since first production and the printing of the users' service information for Model 3421.

1. Condenser C22, 2.2 $\mu\text{mf.}$ has been removed from between lug 1 and lug 6 of 1st i-f transformer Z1.
2. Voltage change-over switch S1 and its associated circuit have been rewired as follows:
 - a. The jumper lead between pins 6 and 3 on switch S1 has been removed. The jumper from the junction of the white lead of power transformer T4 and line filter condenser C17 to pin 3 of switch S1 has been removed from pin 3 of switch S1 and connected to pin 6 of switch S1.
 - b. A 22-ohm, 2-watt resistor, Part No. 66-0225360, has been added between pin 3 of voltage change-over switch S1 and the junction of the white lead of the power transformer and filter condenser C17.

**SUPLEMENTO PARA LA INFORMACION
DE SERVICIO DEL MODELO 3421**

Se han realizado los siguientes cambios desde que se empezó a fabricar y desde que se imprimieron las instrucciones de servicio para el Modelo 3421.

1. Se ha removido el condensador C22 de 2.2 $\mu\text{mf.}$ entre el terminal 1 y el terminal 6 del primer transformador de FI Z1.
2. Se han realambrado el conmutador de cambio de voltaje S1 y su circuito como sigue:
 - a. El alambre puente entre los alfileres 6 y 3 del conmutador S1 ha sido removido. El puente de la unión del alambre blanco del transformador de poder T4 y el condensador de filtro de línea C17 ha sido removido del alfiler 3 y reconectado al alfiler 6.
 - b. Se ha añadido una resistencia de 22 ohms, 2 watts, parte número 66-0225360, entre el alfiler 3 del conmutador de cambio de voltaje S1 y la unión del alambre blanco del transformador de poder y el condensador de filtro C17.

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