

PHILCO AUTO RADIO

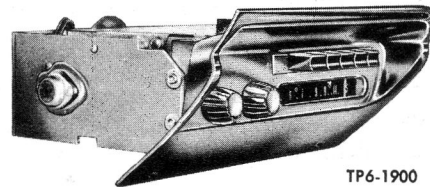
SERVICE MANUAL

MODEL — C-5705—P-5701

PHILCO
Factory-Supervised
Service

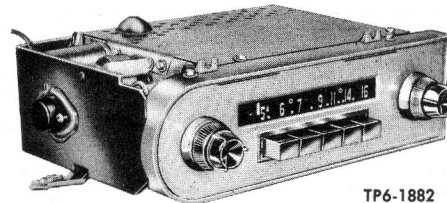
SPECIFICATIONS

CIRCUIT	5-tube superheterodyne (plus transistor)
FREQUENCY	540 kc. to 1605 kc.
AUDIO OUTPUT	2 watts
PUSH BUTTONS	5 Station selectors
POWER INPUT	1.7 amp. at 13.8 volts, d.c.
AERIAL	Vertical whip, fender mounting (40 μ f. series, 40 μ f. shunt)
INTERMEDIATE FREQUENCY	262.5 kc.
PHILCO TUBES USED	12BL6, r-f ampl.; 12AD6, converter; 12BL6, i-f ampl.; 12AE6, 2nd det., a.v.c., 1st audio; 12AE7, audio driver
PHILCO TRANSISTOR	AR5, audio output



TP6-1900

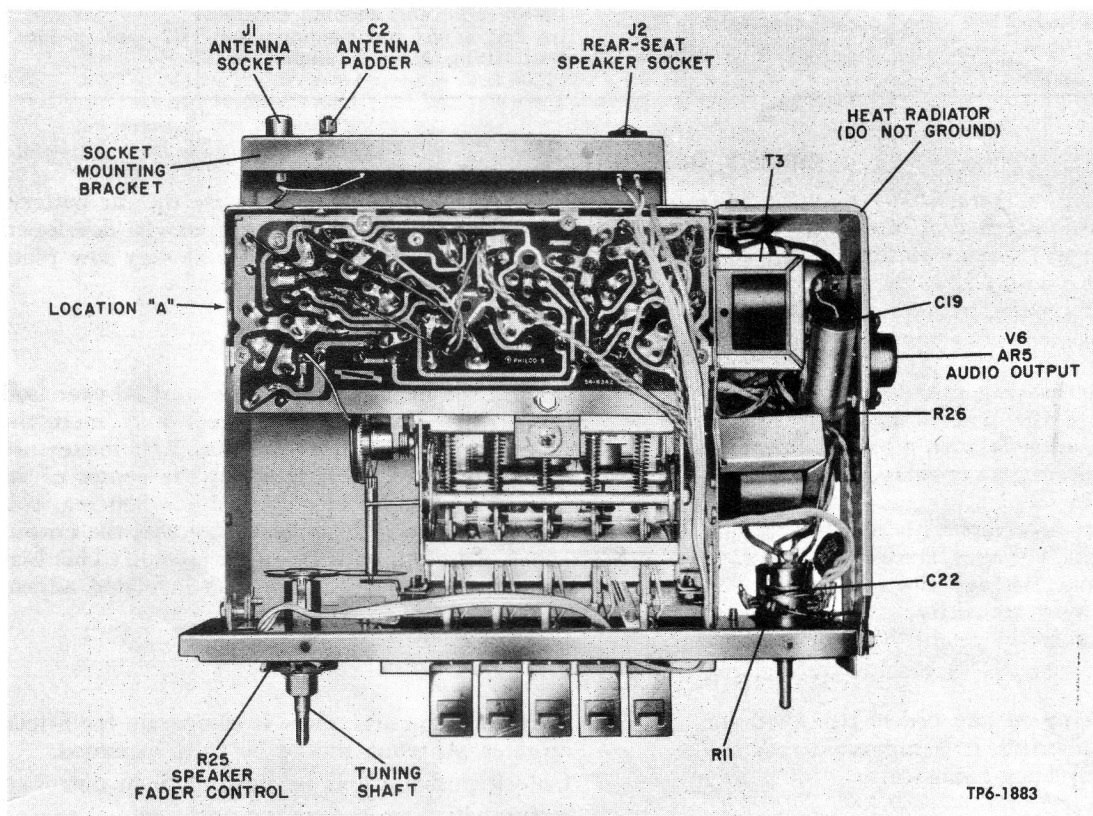
Figure 1. Philco Model P5701 (Chryco-849)



TP6-1882

Figure 2. Philco Model C5705 (Chryco 847)

IMPORTANT: When connecting radio to "A" supply, either in car or on test bench, polarity must be observed. "A+" lead is positive, "A—" is chassis ground.



TP6-1883

Figure 3. Bottom View of Philco Model C5705, Showing Location of Parts

NOTE: Model P5701 is the same as Model C5705 with the following exceptions: the socket mounting bracket, the rear-seat speaker socket (J2), the speaker fader control (R25) and the tone control (R24) (with C22 & C23) are omitted; the antenna socket (J1) and the antenna padder (C2) are placed at location "A".

ALIGNMENT PROCEDURE

GENERAL—The cover must be removed in order to perform the alignment procedure. Allow the set and the test equipment to warm up for fifteen minutes before starting the alignment procedure. Make sure that all plugs and cables are connected to their proper receptacles.

OUTPUT INDICATOR—Connect the output indicator (an oscilloscope or a 1000-ohm-per-volt, a-c voltmeter) across the voice-coil terminals.

SIGNAL GENERATOR—Use an AM r-f signal generator with 30% modulation. Connect the ground lead to the chassis, and the output lead as indicated in the alignment chart.

OUTPUT LEVEL—Attenuate the signal-generator output throughout the procedure to hold the output indication below 1 volt.

RADIO CONTROLS—Set the volume control to maximum. Set the tone control to mid-range (in C5705 only). Set the tuning control as indicated in the alignment chart.

DUMMY ANTENNA—When making the r-f and antenna tuning adjustments, connect the signal-generator output lead through a 40- μ f. condenser to the antenna receptacle, and connect another 40- μ f. condenser from the antenna receptacle to the chassis.

ALIGNMENT CHART					
SIGNAL GENERATOR			RADIO		
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Through a .05 μ f. condenser to mixer grid, pin 7, of 12AD6.	262.5 kc.	1605 kc.	Adjust in order given for maximum output.	T2 (top) — 2nd i-f secondary T2 (bottom) — 2nd i-f primary
2	Same as step 1.	262.5 kc.	1605 kc.	Same as step 1.	T1 (top) — 1st i-f secondary T1 (bottom) — 1st i-f primary
3	Through dummy antenna to J1 (antenna socket).	1605 kc.	1605 kc.	Adjust for maximum output.	C9—osc. padder C2—ant. padder C6—r-f padder
4				With radio and antenna installed in car, adjust for maximum output, using a weak station near 1200 kc.	C2—ant. padder

CIRCUIT DESCRIPTION

Models P5701 (Chryco-849) and C5705 (Chryco 847) are electrically identical except that Model C5705 has two pilot lamps, a rear seat speaker socket, a fader control, and a tone control (with C22 & C23).

All power to these receivers, including the plate and

screen circuits, is supplied directly by the car battery. This is made possible by utilizing newly developed tubes especially designed to operate at very low plate and screen voltages.

SERVICING PRECAUTIONS

A-C leakage from measuring instruments or soldering irons may damage the transistor. All transistor measurements should be made with a battery-operated instrument. When soldering is necessary, disconnect set from power source.

Do not operate these receivers with the speaker disconnected, as transient voltages across an unloaded output transformer may damage the transistor.

When installing a new transistor, a good physical and electrical contact must be established between the

collector and the heat radiator; care must be exercised when soldering, since excessive heat may melt the internal junctions. To adjust the bias, first make sure that the bias control, R21, is set at the center of its range. Then adjust the bias control for 500 ma. collector current, or for 1.25 volts, d.c., across the output transformer primary, with no input signal. (This bias control is "HOT" to ground — use insulated adjustment tool).

SETTING PUSH BUTTONS

Stations may be set up in any order. However, for convenience in remembering, it is suggested that stations be set up in frequency sequence.

NOTE: In metropolitan areas, it is recommended that the push buttons be set in a shielded place where signals are weak, such as under a viaduct or in a steel-constructed building. In this way, accuracy of adjustment is assured.

1. Turn radio on and allow it to operate for fifteen minutes. Antenna should be fully extended.
2. Unlock push buttons by pulling them out.
3. Accurately tune in a station with manual tuning knob.
4. Lock one push button to that station by pushing firmly in.
5. Repeat above procedure for remaining push buttons.

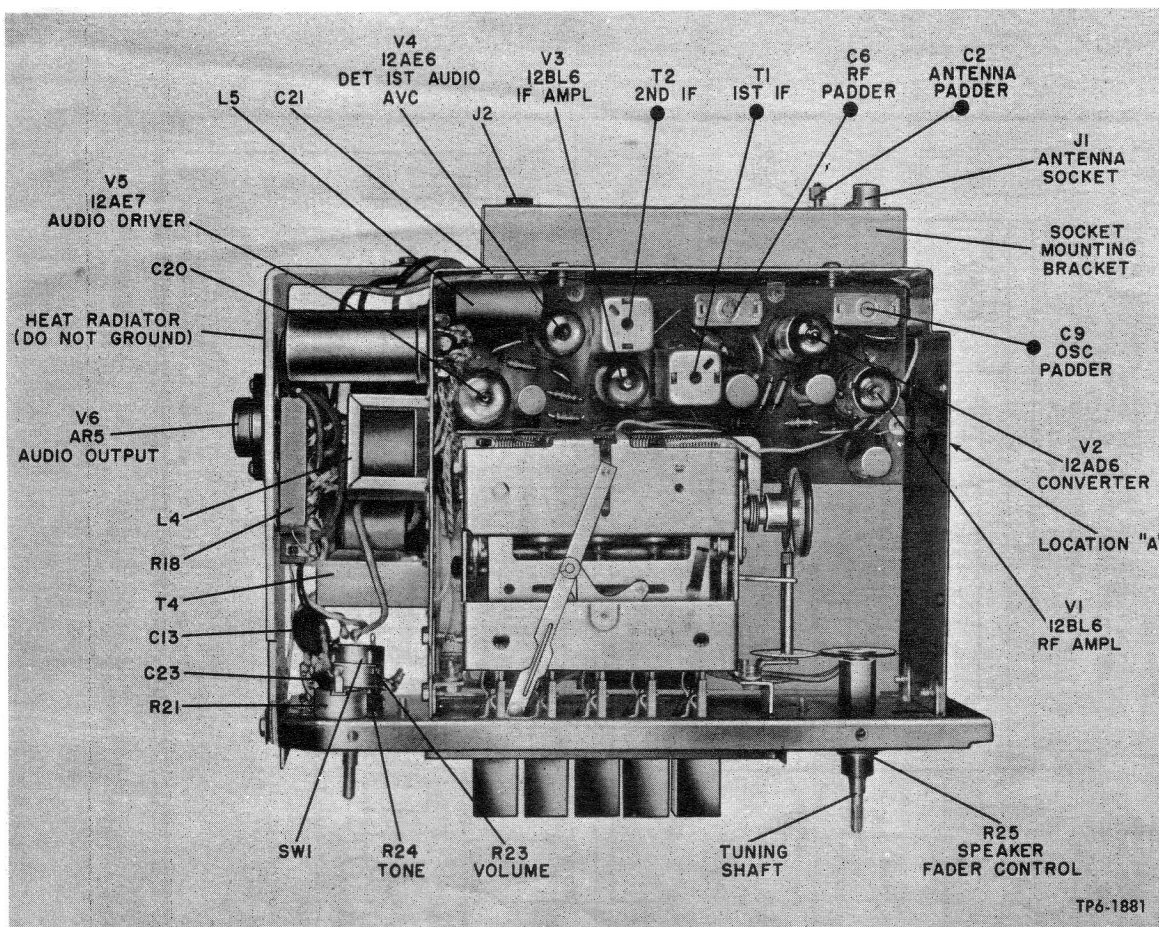


Figure 4. Top View of Philco Model C5705, Showing Alignment Points, Tubes, and Location of Parts

NOTE: Model P5701 is the same as Model C5705 with the following exceptions: the socket mounting bracket the rear-seat speaker socket (J2), the speaker fader control (R25) and the tone control (R24) (with C22 & C23) are omitted; the antenna socket (J1) and the antenna padder (C2) are placed at location "A".

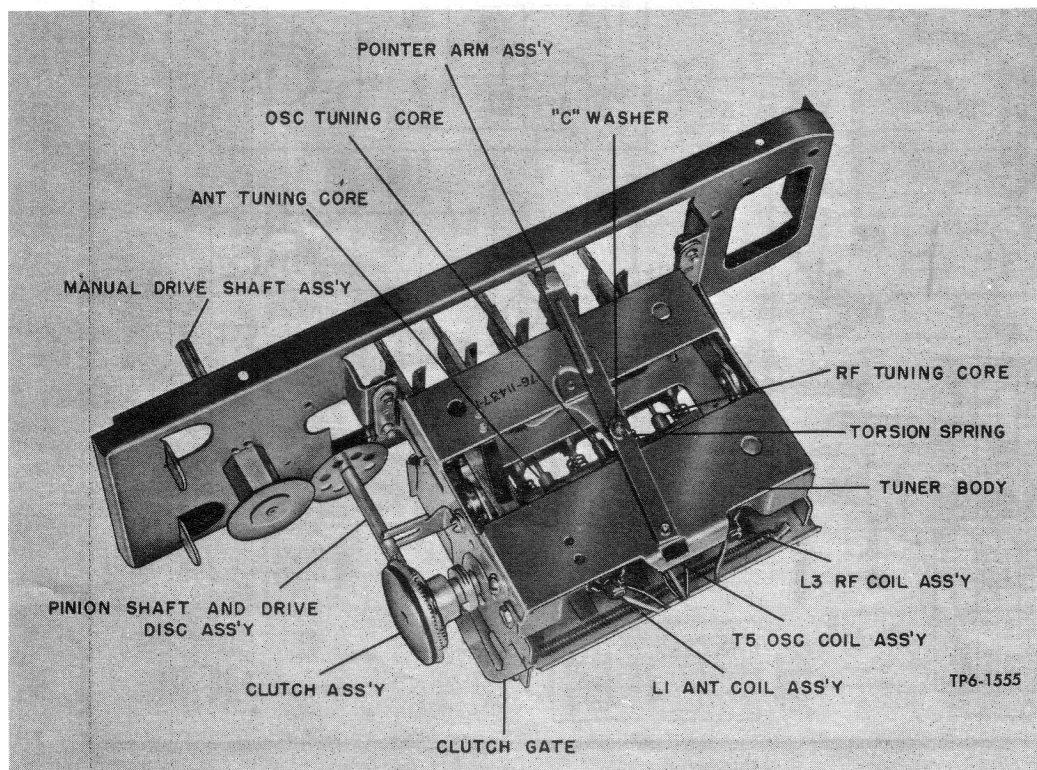


Figure 5. Tuner Used in Philco Model C5705, Showing Replacement Parts

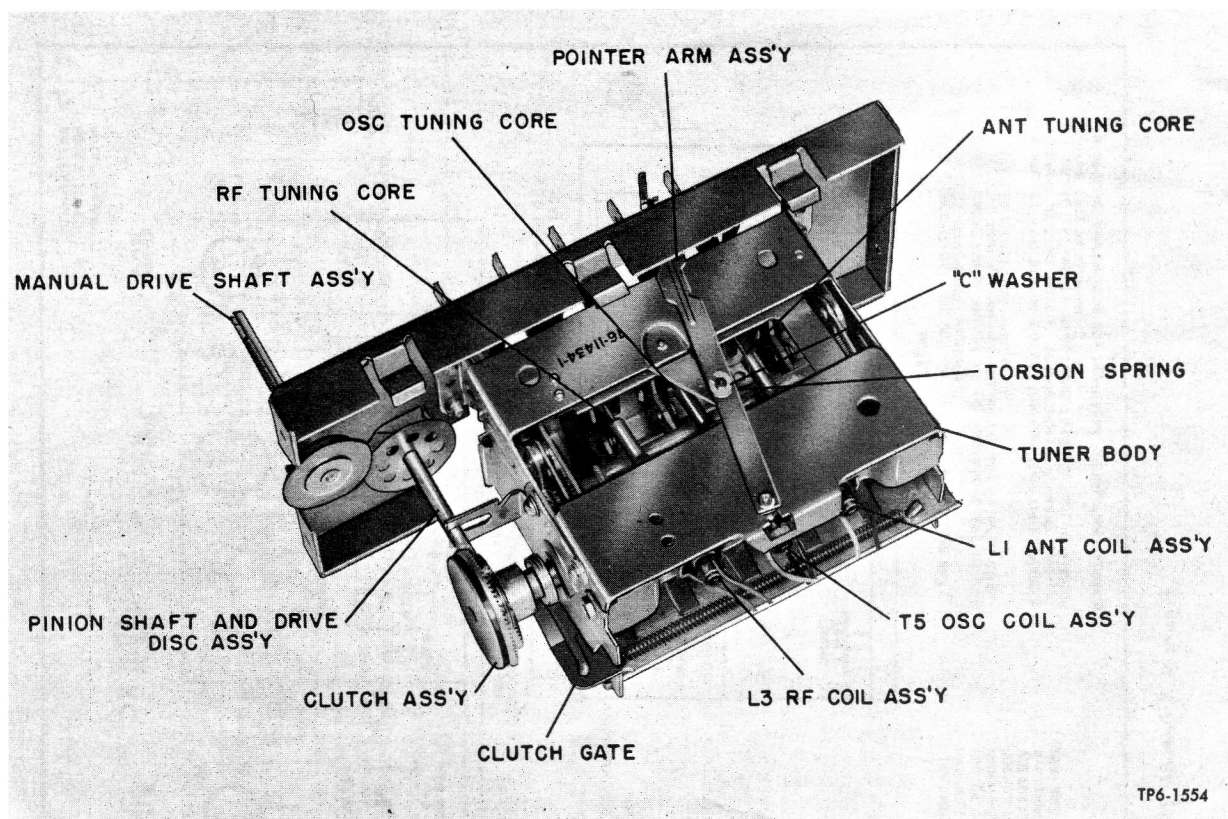


Figure 6. Tuner Used in Philco Model P5701, Showing Replacement Parts

REPLACEMENT PARTS LIST MODELS P5701 AND C5705

(CONTINUED FROM BACK PAGE)

Reference Symbol	Description	Service Part No.	MISCELLANEOUS	Service Part No.
	Tuning core antenna and r-f (P5701)			
	For tuner assembly 76-11434-1	28-10522	Background plate, dial (C5705)	28-11693-1
	For tuner assembly 76-11434-2	28-10591	Bezel (P5701)	28-11669-1
	Tuning core antenna and r-f (C5705)		Bezel (C5705)	28-11689
	For tuner assembly 76-11437-1	28-10522	Cover, tube side (P5701)	28-11753
	For tuner assembly 76-11437-2	28-10591	Cover, wiring side (P5701)	76-11445
	Tuning core oscillator (P5701)		Cover, wiring side (P5701)	76-11390-1
	For tuner assembly 76-11434-1	28-10522-1	Dial scale (P5701)	28-11758
	For tuner assembly 76-11434-2	28-10591-2	Dial scale (C5705)	54-9991
	Tuning core oscillator (C5705)		Fuse	45-2656-53
	For tuner assembly 76-11437-1	28-10522-1	Fuse lead	45-4244-2
	For tuner assembly 76-11437-2	28-10591-2	Knob, tone and fader (C5705)	28-11691
*Tuner body (P5701)			Knob, tuning and volume (P5701)	27-4687-24
	For tuner assembly 76-11434-1	76-11515-3	Knob, tuning and volume (C5705)	27-4687-25
	For tuner assembly 76-11434-2	76-11515-4	Shield, tube	56-5629-11
*Tuner body C5705			Socket, antenna	57-1243FA3
	For tuner assembly 76-11437-1	76-11515-5	Socket, 7-pin	27-6309-1
	For tuner assembly 76-11437-2	76-11515-6	Socket, 9-pin	27-6309-2
Washer "C" type P5701			Socket assembly, pilot lamp (P5701)	76-2142-16
	For tuner assembly 76-11434-1	28-10523	Socket assembly, dual pilot lamp (C5705)	76-11462-1
	For tuner assembly 76-11434-2	28-10593	Window (P5701)	54-6343
Washer "C" type C5705				
	For tuner assembly 76-11437-1	28-10523		
	For tuner assembly 76-11437-2	28-10593		

*The tuner body is the tuner assembly minus all other parts listed under the TUNER ASSEMBLY section of the parts list.

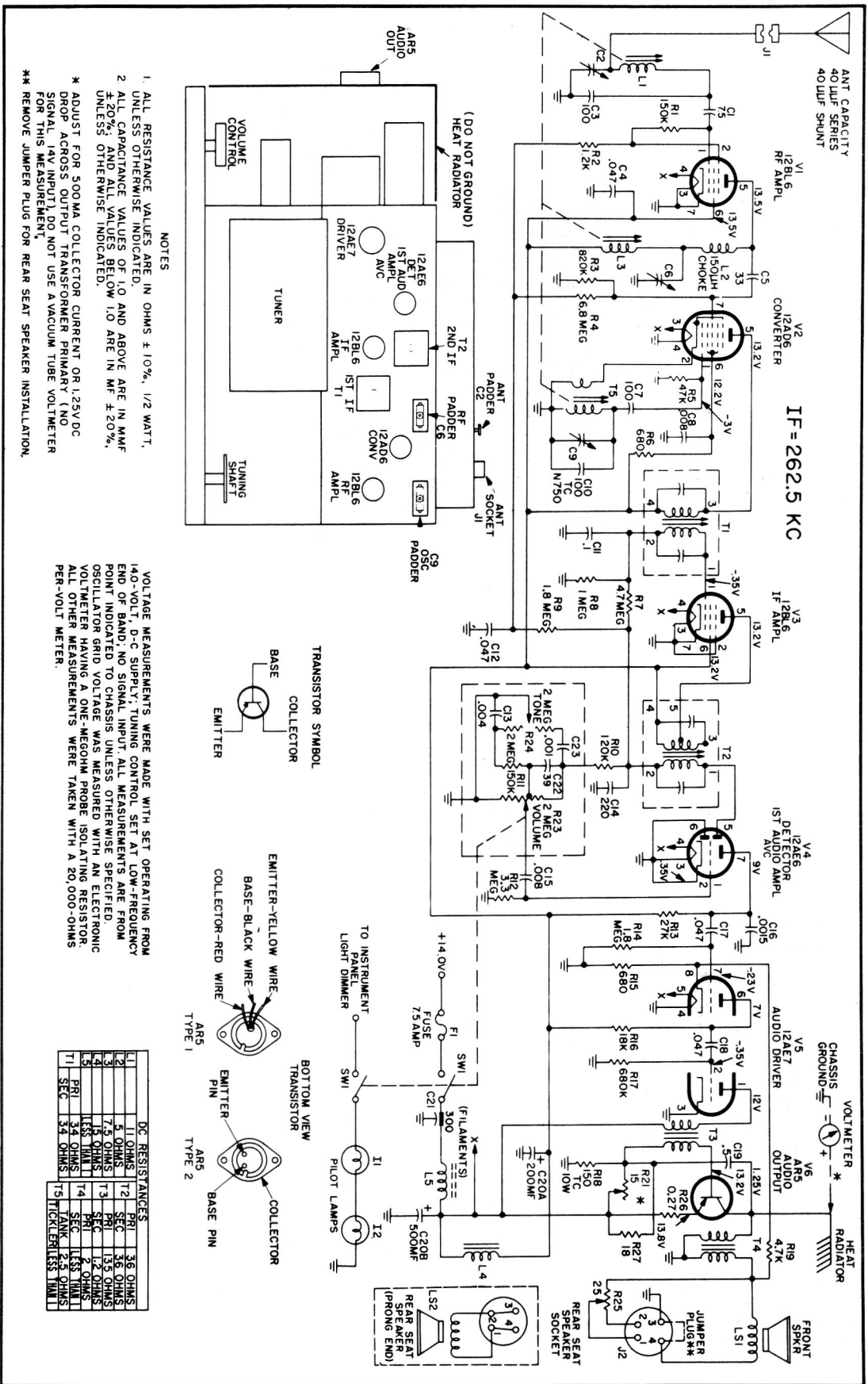


Figure 9. Schematic Diagram, Philco Model C5705 (Chryco 847)

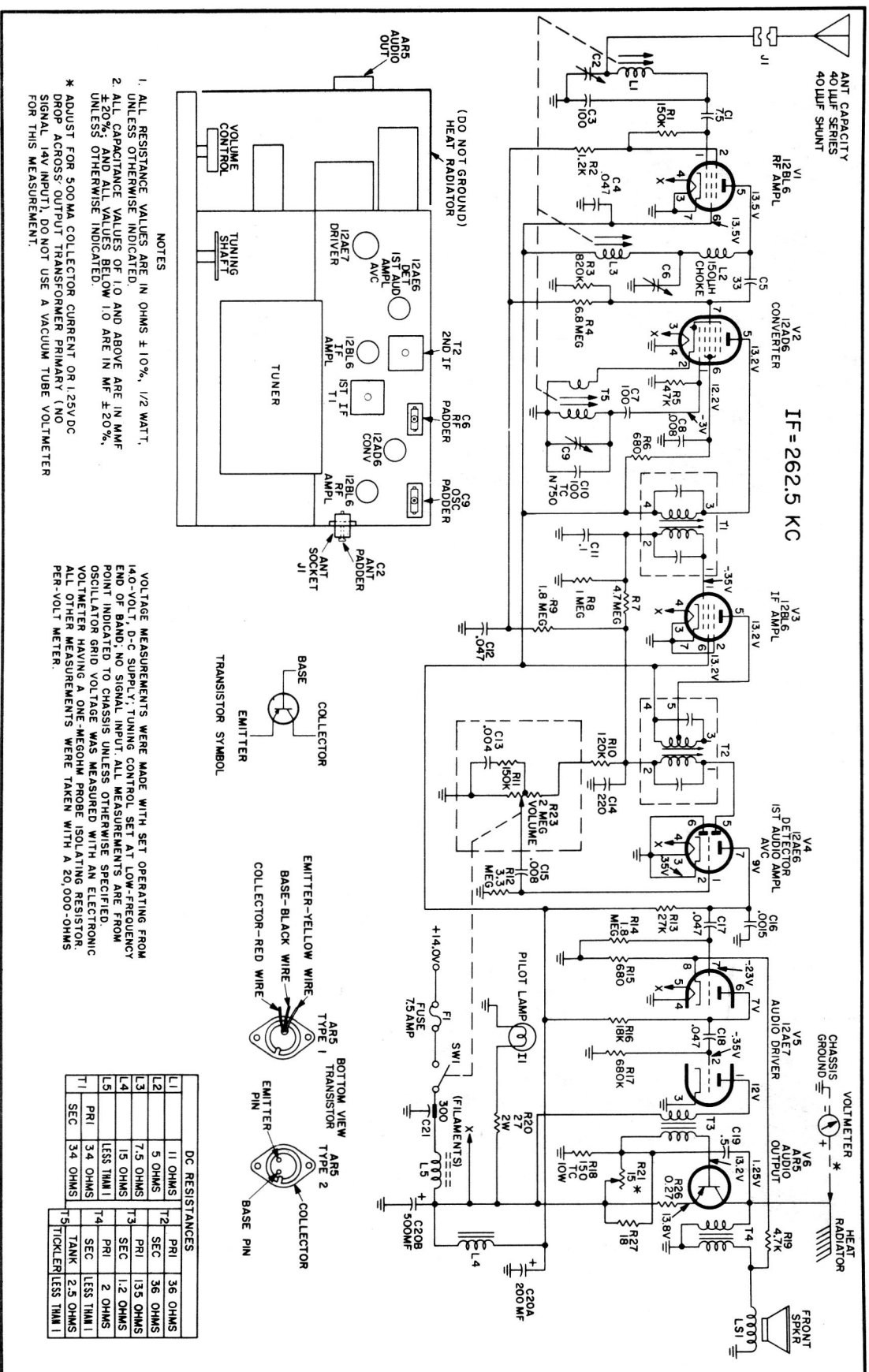


Figure 8. Schematic Diagram, Philco Model P5701 (Chryco-849)

Run 2—changes, to increase audio output
R13 changed to 470K.
R14 changed to 4.7 meg.



REPLACEMENT PARTS LIST—MODELS P5701 AND C5705

NOTE: All resistors are 1/2 watt unless otherwise specified.

Reference Symbol	Description	Service Part No.
C1	Condenser, antenna coupling, 7.5 uuf.	30-1263-10
C2	Condenser, variable, antenna padder.	31-6533-1
C3	Condenser, antenna tank, 100 uuf.	30-1251-22
C4	Condenser, r-f ampl. screen bypass, .047 uf.	30-4684-28
C5	Condenser, converter grid coupling, 33 uuf.	30-1263-8
C6	Condenser, variable, r-f padder.	31-6532-3
C7	Condenser, oscillator grid, 100 uuf.	30-1263-14
C8	Condenser, converter screen bypass, .008 uf.	30-1262-1
C9	Condenser, variable, oscillator padder.	31-6532-4
C10	Condenser, oscillator tank, 100 uuf., temp. comp. (N750)	30-1263-14
C11	Condenser, a-v-c filter, 1 uf.	30-4684-30
C12	Condenser, a-v-c filter, .047 uf.	30-4684-28
C13	Condenser, tone compensation, .004 uf.	30-1238-18
C14	Condenser, i-f filter, 220 uuf.	30-1262-23
C15	Condenser, 1st audio ampl. grid coupling, .008 uf.	30-1262-1
C16	Condenser, 1st audio ampl. plate bypass, .0015 uf.	30-1262-10
C17	Condenser, 1st audio driver grid coupling, .047 uf.	30-4684-28
C18	Condenser, 2nd audio driver grid coupling, .047 uf.	30-4684-28
C19	Condenser, audio feedback, .5 uf.	61-0183
C20	Condenser, electrolytic, 2 sections	61-0086-9
	C20A 200 uf., 18 v.	Part of C20
	C20B 500 uf., 18 v.	Part of C20
C21	Condenser, spark noise filter, 300 uuf.	30-1254-1
C22	Condenser, tone compensation, 39 uuf. (C5705)	30-1251-21
C23	Condenser, tone compensation, .001 uf. (C5705)	30-1238-3
F1	Fuse, 7.5 amp.	45-2656-53
I1	Pilot Lamp (Note 2)	34-2064
I2	Pilot Lamp, (C5705)	34-2064
J1	Socket, antenna	57-1243FA3
J2	Socket, rear seat speaker (C5705)	27-6273-17
L1	Coil, antenna tuning	Part of tuner assy.
L2	Choke, r-f ampl. plate, 150 uh.	32-4480-24
L3	Coil, r-f tuning	Part of tuner assy.
L4	Choke, line filter	32-8788
L5	Choke, spark noise filter	32-4720-3
LS1	Speaker	36-1670-2
LS2	Speaker, rear seat (C5705)	36-1670-2
R1	Resistor, r-f amplifier grid, 150K	
R2	Resistor, a-v-c isolation, 1.2K	
R3	Resistor, converter grid, 820K	
R4	Resistor, converter a-v-c divider, 6.8 meg.	
R5	Resistor, oscillator grid, 47K	
R6	Resistor, converter screen dropping, 680 ohms	
R7	Resistor, i-f ampl. a-v-c divider and filter, 4.7 meg.	
R8	Resistor, i-f ampl. grid, 1 meg.	
R9	Resistor, a-v-c filter, 1.8 meg.	
R10	Resistor, i-f filter, 120K	
R11	Resistor, tone compensation, 150K	
R12	Resistor, 1st audio ampl. grid, 3.3 meg.	
R13	Resistor, 1st audio ampl. plate load, 27K	
R14	Resistor, 1st audio driver grid, 1.8 meg.	
R15	Resistor, 1st audio driver cathode, 680 ohms	
R16	Resistor, 1st audio driver plate load, 18K	
R17	Resistor, 2nd audio driver grid, 680K	
R18	Resistor, transistor bias divider, 150 ohms, 10w., temp. comp.	33-1367-3
R19	Resistor, audio feedback, 4.7K	
R20	Resistor, pilot lamp voltage dropping, 27 ohms, 2w. (P5701)	
R21	Resistor, variable, transistor bias, 15 ohms	33-5591-2
R22	Symbol not used	
R23	Resistor, variable, volume control, 2 meg.	
	For P5701	33-5580-12*
	For C5705	33-5580-16**
R24	Resistor, variable, tone control, 2 meg, each side of open center	
	For C5705	33-5580-16**
R25	Resistor, variable, speaker fader, 25 ohms (C5705)	33-5576-4
R26	Resistor, emitter current stabilizing, .27 ohms	66-8273360
R27	Resistor, transistor protection, 18 ohms	66-0188340

*Part No. for assembly consisting of volume control (R23) and power off-on switch (SW1), used in P5701.

**Part No. for assembly consisting of volume control (R23), tone control (R24), and power off-on switch (SW1), used in C5705.

Note (2) First production 5701 use 12 volt

Pilot Lamp

Part—34-2031-10

SW1	Switch, power off-on	
	For P5701	33-5580-12*
	For C5705	33-5580-16**
T1	Transformer, 1st i-f	32-4676-4 OPT 32-4676-1
T2	Transformer, 2nd i-f	32-4677-2 OPT 32-4677-2
T3	Transformer, driver	32-8787
T4	Transformer, output	32-8786-1 OPT 32-8786
T5	Coil, oscillator	Part of tuner assy.
	Panel, printed wiring	54-6342
V6	Transistor AR5	34-6002-2

TUNER ASSEMBLY

NOTE: The complete tuner assembly used in Model P5701 may be either Philco Part No. 76-11434-1 or 11434-2. The complete tuner assembly used in Model C5705 may be either Philco Part No. 76-11437-1 or 76-11437-2. Most of the replacement parts for these tuners are not interchangeable.

Reference Symbol	Description	Service Part No.
L1	Coil assembly, antenna tuning (P5701)	
	For tuner assembly 76-11434-1	32-4730-7
	For tuner assembly 76-11434-2	32-4730-16
L1	Coil assembly, antenna tuning (C5705)	
	For tuner assembly 76-11437-1	32-4730-1
	For tuner assembly 76-11437-2	32-4730-10
L3	Coil assembly, r-f tuning (P5701)	
	For tuner assembly 76-11434-1	32-4730-8
	For tuner assembly 76-11434-2	32-4730-17
L3	Coil assembly, r-f tuning (C5705)	
	For tuner assembly 76-11437-1	32-4730-2
	For tuner assembly 76-11437-2	32-4730-11
T5	Coil assembly, oscillator tuning (P5701)	
	For tuner assembly 76-11434-1	32-4730-9
	For tuner assembly 76-11434-2	32-4730-18
T5	Coil assembly, oscillator tuning (C5705)	
	For tuner assembly 76-11437-1	32-4730-3
	For tuner assembly 76-11437-2	32-4730-12
	Clutch assembly (P5701)	
	For tuner assembly 76-11434-1	76-11514-3
	For tuner assembly 76-11434-2	76-11514-4
	Clutch assembly (C5705)	
	For tuner assembly 76-11437-1	76-11514-3
	For tuner assembly 76-11437-2	76-11514-4
	Clutch gate (P5701)	
	For tuner assembly 76-11434-1	28-11451-2
	For tuner assembly 76-11434-2	28-11451-3
	Clutch gate (C5705)	
	For tuner assembly 76-11437-1	28-11451-2
	For tuner assembly 76-11437-2	28-11451-3
	Manual drive shaft assembly (P5701)	
	For tuner assembly 76-11434-1	76-11435-1
	For tuner assembly 76-11434-2	76-11435-2
	Manual drive shaft assembly (C5705)	
	For tuner assembly 76-11437-1	76-11438-1
	For tuner assembly 76-11437-2	76-11438-2
	Pinion shaft and drive disc assembly (P5701)	
	For tuner assembly 76-11434-1	76-11436-1
	For tuner assembly 76-11434-2	76-11436-2
	Pinion shaft and drive disc assembly (C5705)	
	For tuner assembly 76-11437-1	76-11439-1
	For tuner assembly 76-11437-2	76-11439-2
	Pointer arm assembly (P5701)	
	For tuner assembly 76-11434-1	76-11513-5
	For tuner assembly 76-11434-2	76-11513-6
	Pointer arm assembly (C5705)	
	For tuner assembly 76-11437-1	76-11513-3
	For tuner assembly 76-11437-2	76-11513-4
	Push button, station selector (P5701)	54-6351-1
	Push button, station selector (C5705)	76-11387-1
	Spring torsion (P5701)	
	For tuner assembly 76-11434-1	28-10520
	For tuner assembly 76-11434-2	28-10592
	Spring torsion (C5705)	
	For tuner assembly 76-11437-1	28-10520
	For tuner assembly 76-11437-2	28-10592

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