

# PHILCO-TROPIC RADIO MODEL 48-861

## SPECIFICATIONS

CABINET .....	Wood, walnut finish
CIRCUIT .....	Eight-tube superheterodyne
FREQUENCY RANGES	
B'DC'ST (Broadcast) .....	.54—1.75 mc.
SW 1 (Short Wave) .....	2.3—7.3 mc.
SW 2 (Short Wave) .....	7.0—22 mc.
31 M (Band Spread) .....	9.4—9.9 mc.
25 M (Band Spread) .....	11.4—12.0 mc.
19 M (Band Spread) .....	14.8—15.6 mc.
16 M (Band Spread) .....	17.3—18.2 mc.
13 M (Band Spread) .....	20.9—21.9 mc.
OPERATING VOLTAGES .....	115 or 230 volts, a.c. or d.c.
POWER CONSUMPTION .....	60 watts
AERIAL .....	Philco Outdoor Aerial, Part No. 45-1494
INTERMEDIATE FREQUENCY .....	455 kc.
PHILCO TUBES (8) .....	7A7(2), 7J7, 7B6, 76, 25Z5, 25L6(2)

## ALIGNMENT PROCEDURE

**CAUTION:** Before connecting the radio to the power source, make certain that the plug-in ballast resistor is inserted in its socket correctly for the line voltage in use.

**DIAL POINTER**—Turn the tuning condensers to the full-mesh position. Adjust the pointer to the index mark, located below ".54".

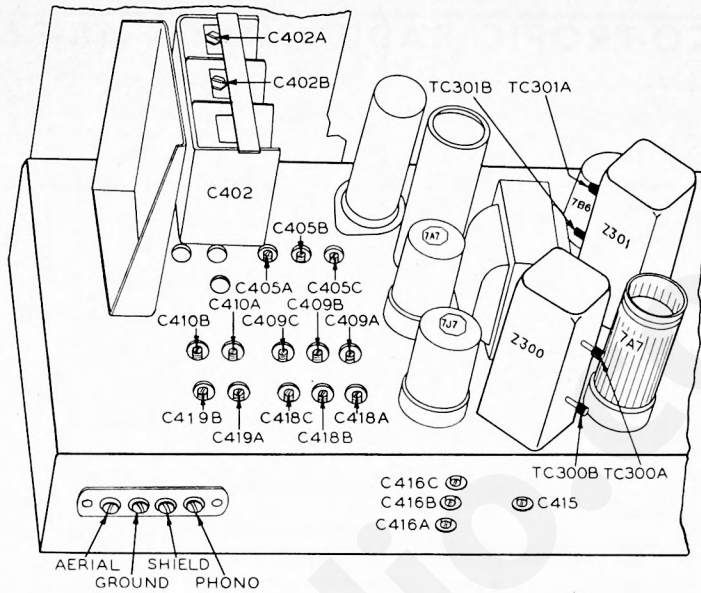
**OUTPUT METER**—Connect across the speaker voice-coil terminals.

**SIGNAL GENERATOR**—Connect the ground lead to the terminal marked GND, on the rear of the chassis (do not connect to chassis); connect the output lead as indicated in the chart. Use modulated output.

**CONTROLS**—Set the volume control to maximum. Set the band switch as indicated in the chart.

**OUTPUT LEVEL**—During alignment, adjust the signal-generator output to maintain the output-meter indication below 1.5 volts.

# MODEL 48-861



TP-4068

Figure 1. Top View, Showing Trimmer Locations

## ALIGNMENT CHART

STEP	SIGNAL GENERATOR		RADIO			ADJUST
	CONNECTIONS TO RADIO	DIAL SETTING	BAND-SWITCH SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Through .05-mf. condenser to stator of C402 (center section of tuning condenser).	455 kc.	B'DC'ST	C402 fully meshed.	Adjust trimmers, in order given, for maximum output; then repeat.	TC301B TC301A TC300B TC300A
2	Through 400-ohm resistor to aerial terminal.	21.0 mc.	SW 2	21.0 mc.	Adjust to first peak from loose (out) position. Image should be heard with radio tuned to 20.1 mc.	C416C
3	Same as step 2.	21.0 mc.	SW 2	21.0 mc.	Adjust for maximum output. Repeat adjustment of C416C, C402B, and C402A.	C402B* C402A*
4	Same as step 2.	5.8 mc.	SW 1	5.8 mc.	Adjust to first peak from loose (out) position.	C416B*
5					Set 1/2 turn from tight.	C416A
6	Through 200-mmf. condenser to aerial terminal.	1500 kc.	B'DC'ST	1500 kc.	Adjust for maximum output.	C415*
7	Same as step 6.	580 kc.	B'DC'ST	580 kc.	Adjust for maximum output. Repeat steps 6, 7, and 6.	C416A*
8	Through 400-ohm resistor to aerial terminal.	21.5 mc.	13 M	21.5 mc.	Adjust C419B to first peak from loose (out) position. Adjust C410B and C405C for maximum output. Repeat.	C419B C410B* C405C*
9	Same as step 8.	17.8 mc.	16 M	17.8 mc.	Adjust C419A to first peak from loose (out) position. Adjust C410A and C405B for maximum output. Repeat.	C419A C410A* C405B*
10	Same as step 8.	15.2 mc.	19 M	15.2 mc.	Adjust C418C to first peak from loose (out) position. Adjust C409C and C405A for maximum output. Repeat adjustment of C409C and C405A.	C418C C409C* C405A*
11	Same as step 8.	11.7 mc.	25 M	11.7 mc.	Adjust C418A to first peak from loose (out) position. Adjust C409B for maximum output.	C418B C409B*
12	Same as step 8.	9.7 mc.	31 M	9.7 mc.	Adjust C418A to first peak from loose (out) position. Adjust C409A for maximum output.	C418A C409A*

\* Adjust for maximum while rocking tuning control.

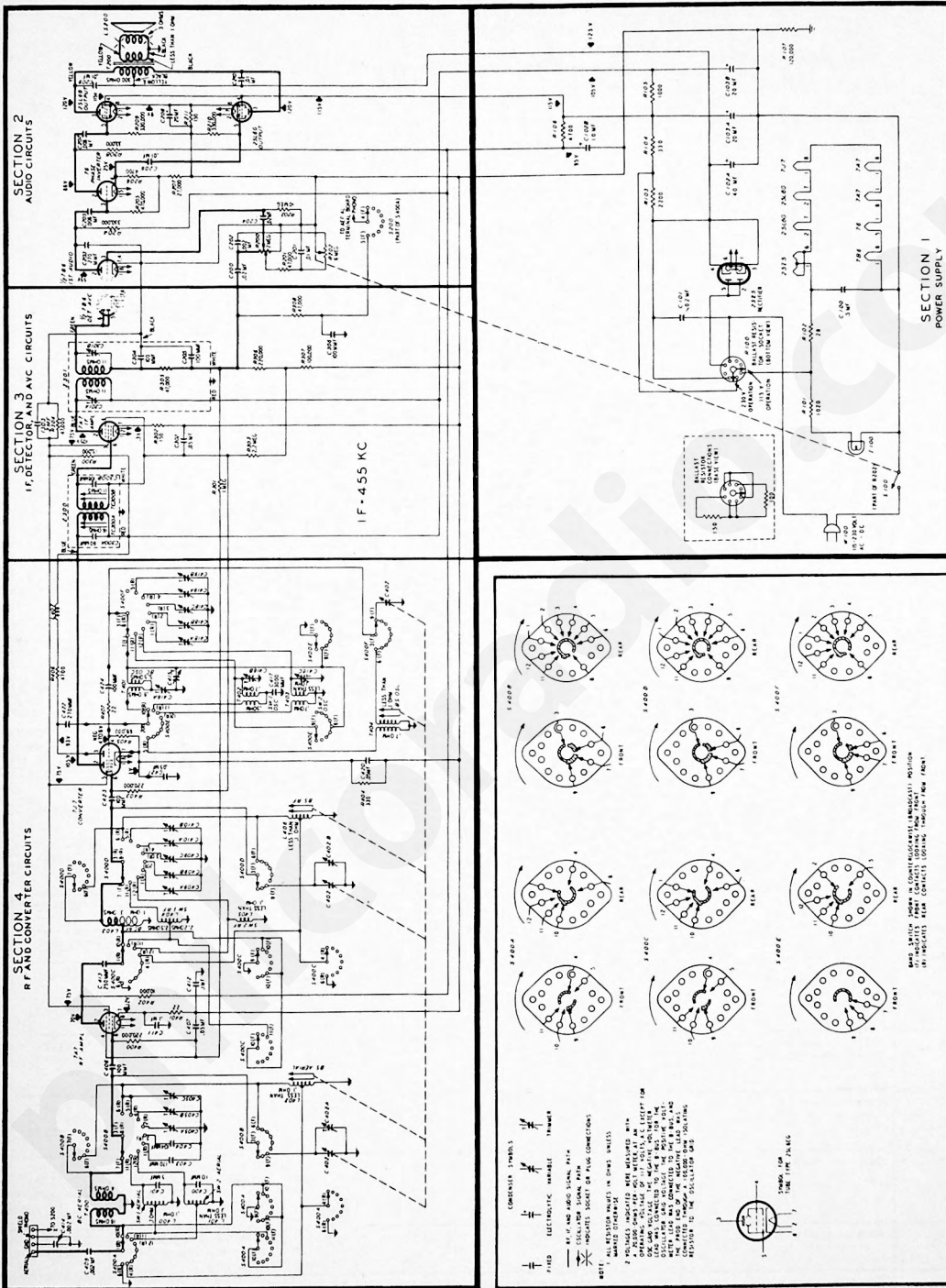


Figure 2. Philco-Tropic Radio, Model 48-861, Sectionalized Schematic Diagram

NOTE: Part numbers marked with 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."

SECTION 1—POWER SUPPLY

Reference Symbol	Description	Service Part No.
C100	Condenser, filament by-pass, .5 mf.	61-0133*
C101	Condenser, line filter, .02 mf.	61-0108*
C102	Condenser, electrolytic, 2-section	30-2504*
C102A	Condenser, power-supply filter, 40 mf.	Part of C102
C102B	Condenser, power-supply filter, 10 mf.	Part of C102
C103	Condenser, electrolytic, 3-section	30-2435*
C103A	Condenser, power-supply filter, 20 mf.	Part of C103
C103B	Condenser, power-supply filter, 20 mf.	Part of C103
C208	Condenser (see Section 2)	Part of C103
I100	Lamp, pilot	34-2397E
R100	Resistor, ballast	33-3391
R101	Resistor, pilot-lamp dropping, 1020 ohms	33-3411
R102	Resistor, heater dropping, 28 ohms	66-0274340*
R103	Resistor, B+ filter, 2200 ohms	66-224340
R104	Resistor, B+ filter, 330 ohms	66-1333340
R105	Resistor, B+ filter, 1000 ohms	66-2104340
R106	Resistor, B+ filter, 4700 ohms	66-2547340
R107	Resistor, leakage, 120,000 ohms	66-4123340*
S100	Switch, on/off	Part of R202
W100	Power cord and plug	L3246

SECTION 2—AUDIO CIRCUITS

C200	Condenser, d-c blocking, .02 mf.	61-0118*
C201	Condenser, tone compensation, .01 mf.	61-0124*
C202	Condenser, tone control, .002 mf.	61-0062*
C203	Condenser, r-f by-pass, 270 mfmf.	30-1224-14*
C204	Condenser, d-c blocking, .02 mf.	61-0118*
C205	Condenser, d-c blocking, .006 mf.	45-35007*
C206	Condenser, d-c blocking, .01 mf.	61-0120*
C207	Condenser, d-c blocking, .006 mf.	45-35007*
C208	Condenser, cathode by-pass, 20 mf.	Part of C103
C209	Condenser, tone compensation, .01 mf.	61-0120*
C210	Condenser, tone compensation, .01 mf.	36-1508
LS200	Speaker	36-1508
R200	Volume control, 2 megohms	45-5009*
R201	Resistor, tone compensation, 47,000 ohms	66-3473340*
R202	Tone control, 6 megohms	33-5393*
R203	Resistor, grid return, 10 megohms	66-6103340*
R204	Resistor, plate load, 330,000 ohms	66-4933340*
R205	Resistor, grid return, 470,000 ohms	66-4473340*
R206	Resistor, cathode bias, 4700 ohms	66-2473340*
R207	Resistor, cathode, 27,000 ohms	66-3273340*
R208	Resistor, plate load, 33,000 ohms	66-3333340
R209	Resistor, grid return, 330,000 ohms	66-4933340*
R210	Resistor, grid return, 330,000 ohms	66-4333340*
R211	Resistor, cathode bias, 150 ohms	66-1154340*
S200	Switch, radio-phonograph	Part of S400*
T200	Transformer, output	32-8170

SECTION 3—I-F, DETECTOR, AND A-V-C CIRCUITS

C300A	Condenser, fixed trimmer	Part of Z300
C300B	Condenser, fixed trimmer	Part of Z300
C301A	Condenser, variable trimmer	Part of Z301
C301B	Condenser, variable trimmer	Part of Z301
C302	Condenser, a-v-c by-pass, .05 mf.	61-0122*
C303	Condenser, screen by-pass, 2 mf.	45-35007*
C304	Condenser, filter (part of Z301), 100 mfmf.	60-10105407*
C305	Condenser, filter (part of Z301), 100 mfmf.	60-10105407*
C306	Condenser, r-f by-pass, 100 mfmf.	60-10105407*
R300	Resistor, screen dropping, 15,000 ohms	66-3153340
R301	Resistor, a-v-c filter, 1 megohm	66-5103340*
R302	Resistor, cathode bias, 150 ohms	66-1153340*
R303	Resistor, a-v-c filter, 2.2 megohms	66-5223340*
R304	Resistor, screen voltage divider, 47,000 ohms	66-3473340*
R305	Resistor, r-f filter, 47,000 ohms	66-3473340*
R306	Resistor, diode load, 220,000 ohms	66-4223340*
R307	Resistor, diode load, 100,000 ohms	66-4104340*
R308	Resistor, decoupling, 47,000 ohms	66-3473340*
TC300A	Core, tuning	Part of Z300
TC300B	Core, tuning	Part of Z300
Z300	Transformer, 1st i-f	32-3980
Z301	Transformer, 2nd i-f	32-3978

SECTION 4—R-F AND CONVERTER CIRCUITS

C400	Condenser, fixed trimmer, 10 mfmf.	60-00105407
C401	Condenser, fixed trimmer, 5 mfmf.	60-90505007
C402	Condenser, tuning gang	31-2535
C402A	Condenser, trimmer	Part of C402
C402B	Condenser, trimmer	Part of C402
C403	Condenser, fixed trimmer, 170 mfmf.	30-1220-2
C404	Condenser, fixed trimmer, 104 mfmf.	30-1220
C405	Condenser, trimmer, 3-section	31-6450
C405A	Condenser, trimmer	Part of C405
C405B	Condenser, trimmer	Part of C405
C405C	Condenser, trimmer	Part of C405
C406	Condenser, d-c blocking, 100 mfmf.	60-10105407*
C407	Condenser, by-pass, .05 mf.	61-0122*
C408	Condenser, blocking, .002 mf.	61-0062*
C409	Condenser, trimmer, 3-section	31-6412
C409A	Condenser, trimmer	Part of C409
C409B	Condenser, trimmer	Part of C409
C409C	Condenser, trimmer	Part of C409
C410	Condenser, trimmer, 2-section	31-6413
C410A	Condenser, trimmer	Part of C410
C410B	Condenser, trimmer	Part of C410

SECTION 4 (Continued)

Reference Symbol	Description	Service Part No.
C411	Condenser, cathode by-pass, .1 mf.	61-0113*
C412	Condenser, by-pass, .1 mf.	61-0113*
C413	Condenser, d-c blocking, 250 mfmf.	60-10245307*
C414	Condenser, isolating, .002 mf.	61-0062*
C415	Condenser, trimmer, 3-section	31-6308
C416	Condenser, trimmer, 3-section	31-6350
C416A	Condenser, trimmer	Part of C416
C416B	Condenser, trimmer	Part of C416
C416C	Condenser, trimmer	Part of C416
C417	Condenser, fixed trimmer, 3000 mfmf.	60-2005304*
C418	Condenser, trimmer, 3-section	31-6414
C418A	Condenser, trimmer	Part of C418
C418B	Condenser, trimmer	Part of C418
C418C	Condenser, trimmer	Part of C418
C419	Condenser, trimmer, 2-section	31-6415
C419A	Condenser, trimmer	Part of C419
C419B	Condenser, trimmer	Part of C419
C420	Condenser, cathode by-pass, .05 mf.	61-0122*
C421	Condenser, cathode by-pass, .05 mf.	61-0122*
C422	Condenser, d-c blocking, 270 mfmf.	30-1224-14*
C423	Condenser, d-c blocking, 100 mfmf.	60-10105407
C424	Condenser, d-c blocking, 100 mfmf.	60-10105407
L400	Coil, aerial, SW 1	32-3664
L401	Coil, aerial, SW 2	32-3667
L402	Coil, aerial, Band Spread	32-3670
L403	Coil, r-f, BDCST	32-3662
L404	Coil, r-f, SW 1	32-3665
L405	Coil, r-f, SW 2	32-3668
L406	Coil, r-f, Band Spread	32-3671
L407	Choke, r-f	32-3367
R400	Resistor, grid return, 220,000 ohms	66-4223340*
R401	Resistor, cathode bias, 22 ohms	66-0223340
R402	Resistor, plate load, 10,000 ohms	66-1303340
R403	Resistor, grid return, 220,000 ohms	66-4223340*
R404	Resistor, cathode bias, 330 ohms	66-1333340
R405	Resistor, grid bias, 68,000 ohms	66-3683340*
R406	Resistor, plate load, 4700 ohms	66-2473340*
R407	Resistor, parasitic suppressor, 22 ohms	66-0223340
S400	Band switch, 6-wafer	42-1741
S400A	Switch water	Part of S400
S400B	Switch water	Part of S400
S400C	Switch water	Part of S400
S400D	Switch water	Part of S400
S400E	Switch water	Part of S400
S400F	Switch water	Part of S400
T400	Transformer, aerial, BDCST	32-3661
T401	Transformer, oscillator, BDCST	32-3663
T402	Transformer, oscillator, SW 1	32-3666
T403	Transformer, oscillator, SW 2	32-3569
T404	Transformer, oscillator, Band Spread	32-3672

MISCELLANEOUS

Description	Service Part No.
Cabinet and Hardware	
Back	54-7078
Baffle	66-6600
Baffle-and-cloth assembly	40-6742
Cabinet, complete	10626
Foot, felt	W2190
Screw, baffle mounting	1W25200
Screw, cabinet back	W2076FA3
Chassis-Mounting Hardware	
Bolt-and-washer assembly	56-6190FA3
Bracket-and-lug assembly, tuning condenser	
Clip, coil mounting	28-5002FE7
Corner (rubber), chassis	27-4564
Dial-Scale Hardware	
Carriage-and-spring assembly, pilot lamp	76-1512
Clamp, dial	56-2137FA15
Dial-plate-rivet assembly	76-1511
Dial-scale assembly	76-1530
Drive cord (25-ft. spool),	45-1420
Drive shaft and bearing	76-1712
Drum assembly, tuning	76-1244FA33
Drum assembly, band indicator	76-1247FA33
Pointer	56-2540FCP
Pilot-lamp rod	56-2133
Screw, dial-assembly mounting	1W19672FA3
Screw and lock washer, dial clamp	1W19670FA3
Spring, indicator	56-2980
Spring, indicator	56-2981
Spring, indicator	28-8954
Spring, indicator	54-4242
Knob	76-1247
Lamp assembly, pilot	
Parts-Mounting Hardware	
Eyelet, brass, socket mounting	2W35702
Grommet, rubber, tuning gang mounting	27-4596
Panel, aerial	38-9744
Socket, 5-prong	27-6167
Socket, 6-prong	27-6168
Socket, 8-prong	27-6127
Socket, ballast mounting	27-6128
Socket, loktal (7A7, 7B6)	27-6158
Socket, loktal (717)	27-5129
Speaker Hardware	
Bolt, speaker mounting	W2123
Cable	91-3714
Nut, speaker mounting	1W19986FA3

## REVISIONS TO 48-861 SERVICE MANUAL

Description	Service Part No.
<b>Parts List Corrections</b>	
Bracket-and-lug assembly, tuning condenser .....	76-1518
Drive cord (25-ft. spool) .....	45-8760*
Socket, Loktal .....	27-6138

### PRODUCTION CHANGES

No production changes were made in this model.