

PHILCO



SERVICE

HOME RADIO

PHILCO TROPIC RADIO, MODEL 46-860

SPECIFICATIONS

CABINET	Model 46-860 (wood, walnut finish)
CIRCUIT	Eight-tube superheterodyne
FREQUENCY RANGES	
B'DC'ST (Broadcast)54 to 1.75 mc.
SW 1 (Short wave)	2.3 to 7.3 mc.
SW 2 (Short wave)	7.0 to 22 mc.
31 M (Band spread)	9.4 to 9.9 mc.
25 M (Band spread)	11.4 to 12.0 mc.
19 M (Band spread)	14.8 to 15.6 mc.
16 M (Band spread)	17.3 to 18.2 mc.
13 M (Band spread)	20.9 to 21.9 mc.
OPERATING VOLTAGES	115/230 volts, 50—60 cycles, A.C.
POWER CONSUMPTION	90 watts
AERIAL	Philco outdoor aerial, Part No. 45-1494
INTERMEDIATE FREQUENCY	455 kc.
PHILCO TUBES USED	7A7E(2), 7J7E, 7B6, 76, 80, 42E(2)
PILOT LAMPS	6—8 volts, bayonet base, Part No. 34-2064

ALIGNMENT PROCEDURE

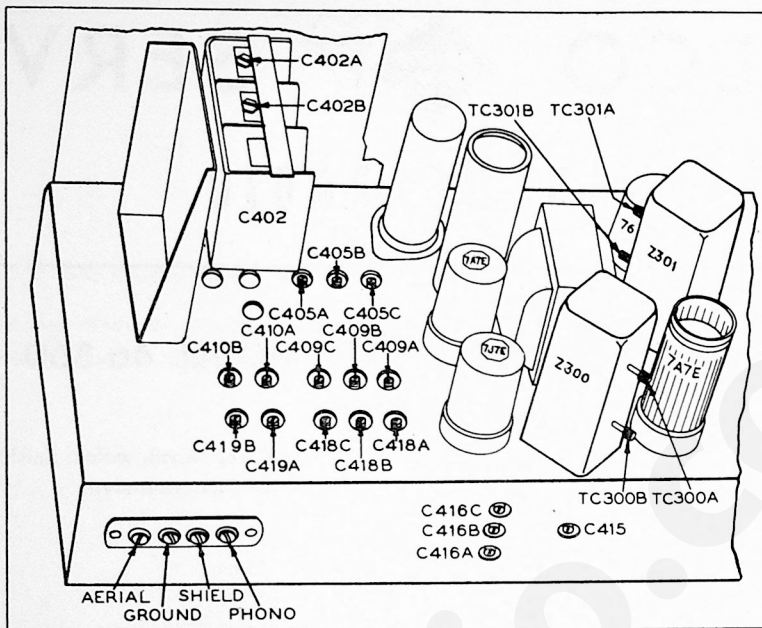
CAUTION: Before turning the radio on, make certain that the voltage-change switch on rear of chassis is correctly set for the line voltage in use. Do not turn radio on without speaker connected, or damage to radio will result.

OUTPUT METER

Connect across speaker voice-coil terminals.

SIGNAL GENERATOR

Connect the ground side of signal generator to the radio chassis, and the output side of the generator to the radio as shown in alignment chart. Set the receiver volume control at maximum. Adjust the signal-generator output as alignment progresses, to maintain the radio output below 1.5 volts on the output meter.



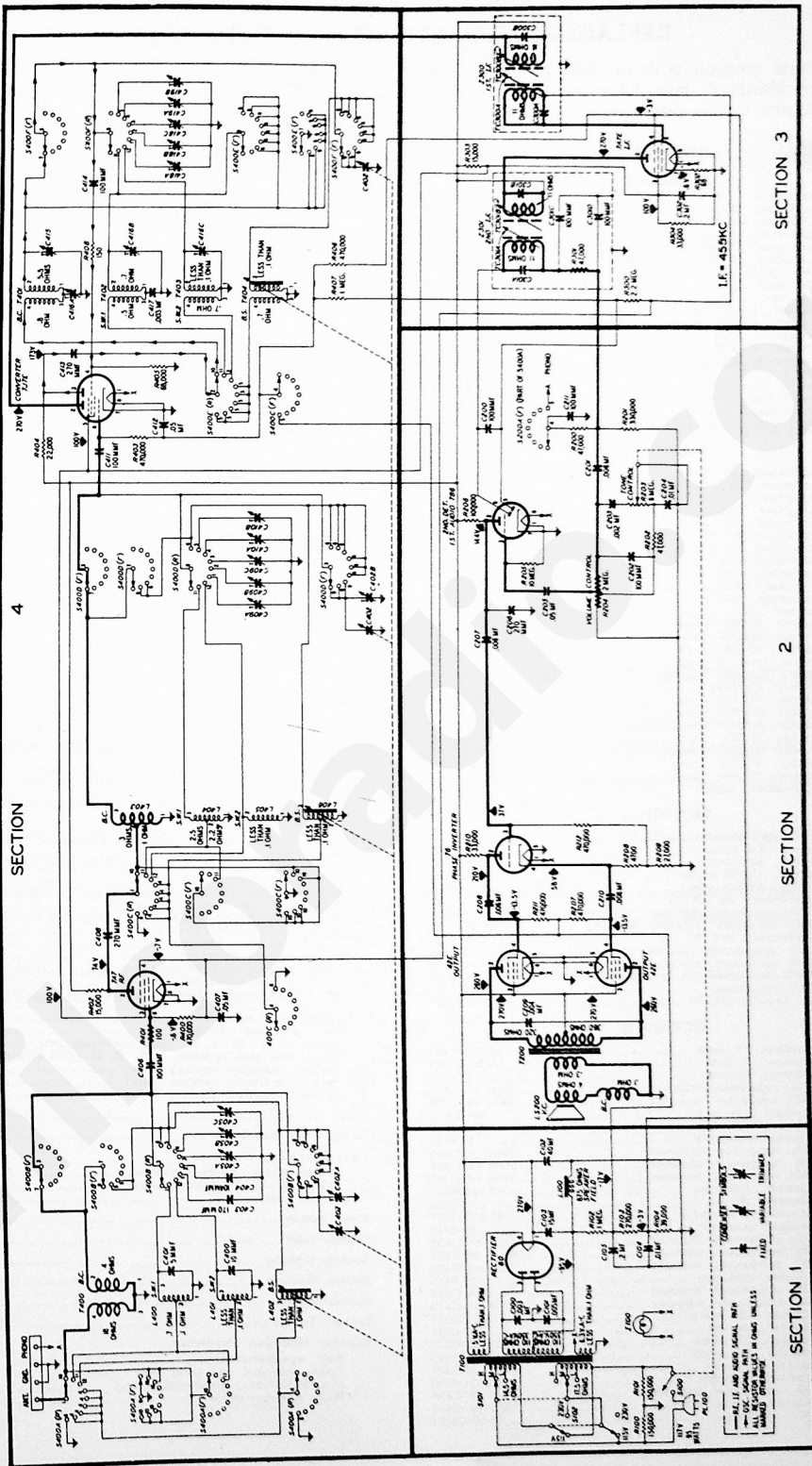
TP-1439A

TOP VIEW SHOWING ALIGNMENT POINTS

ALIGNMENT CHART

SIGNAL GENERATOR			RECEIVER			
Connections to Receiver	Dial Setting	Band-Switch Setting	Dial Setting	Special Instructions	Adjust Trimmers (In Order Listed)	
1	Through .05-mf. condenser to stator of C402 (center section of tuning condenser).	B'DC'ST	C402 fully meshed	Adjust for maximum output; then repeat.	TC301A TC301B TC300A TC300B	
2	Through 400-ohm resistor to aerial terminal.	SW2	21.0 mc.	Adjust to first peak from loose (out) position. Image should be heard with receiver tuned to 20.1 mc.	C416C	
3	Same as step 2.	SW2	21.0 mc.	Adjust for maximum output. Repeat C416C, C402B, and C402A.	C402B* C402A*	
4	Same as step 2.	SW1	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.	B'DC'ST	1500 kc.	Adjust for maximum output.	C415*	
7	Same as step 6.	B'DC'ST	580 kc.	Adjust for maximum output. Repeat C415, C416A, C415.	C416A*	
8	Through 40C h.v. resistor to aerial terminal.	13 M	21.5 mc.	Adjust C418B to first peak from loose (out) position. C410B and C405C for maximum output. Repeat.	C419B C410B* C405C*	
9	same as step 8.	16 M	17.8 mc.	Adjust C419A to first peak from loose (out) position. C410A and C405B for maximum output. Repeat.	C419A C410A* C405B*	
10	Same as step 8.	19 M	15.2 mc.	Adjust C418C to first peak from loose (out) position. C409C and C405A for maximum output. Repeat C409C and C405A.	C418C C409C* C405A*	
11	Same as step 8.	25 M	11.7 mc.	Adjust C418B to first peak from loose (out) position. C409B for maximum output.	C418B C409B*	
12	Same as step 8.	31 M	9.7 mc.	Adjust C418A to first peak from loose (out) position. C409A for maximum output.	C418A C409A*	

* Adjust for maximum while rocking tuning control.



SECTION 4

SECTION 2

SECTION 1

REPLACEMENT PARTS LIST — MODEL 46-860

NOTE: Parts marked with an asterisk (*) are general replacement items and the part numbers may not be identical with those used on factory assemblies. Use only the "SERVICE PART NUMBER" shown in this parts list when ordering replacements.

SECTION 1

Reference No.	Description	Service Part No.
C100	Condenser, .003 mf.	61-0115*
C101	Condenser, .005 mf.	61-0145*
C102	Condenser, 40 mf.	30-2511*
C103	Condenser, 15 mf.	30-2568-1*
C104	Condenser, .01 mf.	61-0120*
C105	Condenser, 2 mf.	45-3500-3*
I100	Light, pilot	34-2064E*
L100	Coil, field	Part of L5200
PL100	Plug, a-c	13278*
R100	Resistor, 150,000 ohms	66-4153340*
R101	Resistor, 150,000 ohms	66-4153340*
R102	Resistor, 1 meg.	66-5103340*
R103	Resistor, 270,000 ohms	66-4273340*
R104	Resistor, 38,000 ohms	66-3393340*
S100	Switch, a-c	Part of R1000
S101	Switch, line-adjust	42-1730*
S102	Switch, voltage-change, 115/230V	42-1569*
T100	Transformer, power	32-8270*
W100	Cord, a-c	L-3246

SECTION 2

C200	Condenser, 100 mmf.	60-10105407*
C201	Condenser, .006 mf.	45-3500-7*
C202	Condenser, 100 mmf.	60-10105407*
C203	Condenser, .002 mf.	61-0062*
C204	Condenser, .01 mf.	61-0124*
C205	Condenser, .05 mf.	61-0122*
C206	Condenser, 250 mmf.	60-10245307*
C207	Condenser, .006 mf.	45-3500-7*
C208	Condenser, .005 mf.	45-3500-7*
C209	Condenser, .004 mf.	61-0115*
C210	Condenser, .006 mf.	45-3500-7*
LS200	Speaker	36-1453*
R200	Resistor, 47,000 ohms	66-3473340*
R201	Resistor, 330,000 ohms	66-4333340*
R202	Resistor, 47,000 ohms	66-3473340*
R203	Control, tone, 6 meg.	33-5334*
R204	Control, volume, 2 meg.	45-5009*
R205	Resistor, 10 meg.	66-6103340*
R206	Resistor, 100,000 ohms	66-4103340*
R207	Resistor, 470,000 ohms	66-4473340*
R208	Resistor, 4,700 ohms	66-2473340*
R209	Resistor, 27,000 ohms	66-3273340*
R210	Resistor, 33,000 ohms	66-3333340*
R211	Resistor, 470,000 ohms	66-4473340*
R212	Resistor, 470,000 ohms	66-4473340*
T200	Transformer, output	32-7997*

SECTION 3

C302	Condenser, .2 mf.	45-3500-3*
R300	Resistor, 2.2 meg.	66-5223340*
R302	Resistor, 68 ohms	66-0683340*
R303	Resistor, 15,000 ohms	66-1533340*
R304	Resistor, 33,000 ohms	66-3333340*
Z300	Transformer, 1st i-f	32-3980*
Z301	C300A: condenser, trimmer, 108 mmf.	Part of Z300
Z301	C300B: condenser, trimmer, 60 mmf.	Part of Z300
Z301	Transformer, 2nd i-f	32-3981*
Z301	C301A: condenser, trimmer, 108 mmf.	Part of Z301
Z301	C301B: condenser, trimmer, 108 mmf.	Part of Z301
Z301	C301C: condenser, trimmer	Part of Z301
Z301	C301D: condenser	Part of Z301
Z301	R301: resistor, 47,000 ohms	Part of Z301

SECTION 4

C400	Condenser, 10 mmf.	60-00105407*
C401	Condenser, 5 mmf.	60-90505007*
C402	Condenser, tuning	31-2535
C402A:	condenser, trimmer	Part of C402
C402B:	condenser, trimmer	Part of C402
C403	Condenser, 170 mmf.	30-1220-2*
C404	Condenser, 104 mmf.	30-1220*
C405	Condenser assembly	31-6450
C405A:	condenser, trimmer	Part of C405
C405B:	condenser, trimmer	Part of C405
C405C:	condenser, trimmer	Part of C405
C406	Condenser, 100 mmf.	60-10105407*
C407	Condenser, .05 mf.	61-0122*
C408	Condenser, 270 mmf.	60-10245307*
C409	Condenser assembly	31-6412
C409A:	condenser, trimmer	Part of C409
C409B:	condenser, trimmer	Part of C409
C409C:	condenser, trimmer	Part of C409
C410	Condenser assembly	31-6413
C410A:	condenser, trimmer	Part of C410
C410B:	condenser, trimmer	Part of C410
C411	Condenser, 100 mmf.	60-10105407*
C412	Condenser, .05 mf.	61-0062*
C413	Condenser, 270 mmf.	60-10245307*
C414	Condenser, 100 mmf.	60-10105407*
C415	Condenser, trimmer	31-6308
C416	Condenser assembly	31-6350
C416A:	condenser, trimmer	Part of C416
C416B:	condenser, trimmer	Part of C416
C416C:	condenser	60-10105407*

SECTION 4 (Continued)

Reference No.	Description	Service Part No.
C417	Condenser, .003 mf.	60-0115*
C418	Condenser assembly	31-6414
C418A:	condenser, trimmer	Part of C418
C418B:	condenser, trimmer	Part of C418
C418C:	condenser, trimmer	Part of C418
C419	Condenser assembly	31-6415
C419A:	condenser, trimmer	Part of C419
C419B:	condenser, trimmer	Part of C419
L400	Coil, antenna, shortwave police	32-3664
L401	Coil, antenna, shortwave 1	32-3667
L402	Coil, antenna, band spread	32-3670
L403	Coil, r-f, broadcast	32-3662
L404	Coil, r-f, shortwave police	32-3665
L405	Coil, r-f, shortwave 1	32-3668
L406	Coil, r-f, band spread	32-3671
L406	Tuning-slug assembly, iron core (for band spread)	76-1281
R400	Resistor, 470,000 ohms	66-4473340*
R401	Resistor, 100 ohms	66-1103340*
R402	Resistor, 15,000 ohms	66-3153340*
R403	Resistor, 470,000 ohms	66-4473340*
R404	Resistor, 22,000 ohms	66-3223340*
R405	Resistor, 68,000 ohms	66-3683340*
R406	Resistor, 470,000 ohms	66-4473340*
R407	Resistor, 1 meg.	66-5103340*
R408	Resistor, 150 ohms	66-1153340*
S400	Switch, band	42-1741*
T400	Coil, antenna, broadcast	32-3661
T401	Coil, oscillator, broadcast	32-3663
T402	Coil, oscillator, shortwave police	32-3666
T403	Coil, oscillator, shortwave 1	32-3669
T404	Coil, oscillator, band spread	32-3672

MISCELLANEOUS

Cabinet Hardware		
Back		54-7078
Baffle, wood		16600
Cabinet, complete		10626
Feet, felt		W-2190
Cloth, assembly, grille		40-6742
Screw, baffle-mounting		1W25200
Screw, cabinet-back		W2076FA9
Chassis Mounting Hardware		
Bolt and washer assembly, mounting		56-6190FA3
Bracket and lug assembly, tuning condenser		76-1518
Clip, coil-mounting		28-5002FA1
Corner, rubber		27-4364
Grommet, rubber		27-4571
Dial-Scale Hardware		
Carriage and spring assembly, pilot light (band indicator)		76-1512
Clamp, dial		56-2137FA15
Dial-plate rivet assembly		76-1511
Disc, rubber, cueing assembly		27-4272
Drive cord, indicator, 25-ft. spool		45-8760*
Drive cord, tuning-condenser, 25-ft. spool		45-8760*
Drive cord, pointer, 25-ft. spool		45-8760*
Drive shaft and bearing		76-1712
Drum assembly, tuning		76-1244FA33
Drum assembly, band-indicator		76-1244FA33
Idler pulley, assembly		*76-1243
Idler pulley, assembly		76-2051
Pointer		56-2540A2
Pulley and bracket assembly		76-1515
Rod, pilot-light carrier		56-2133
Screw, P. K., H. R. 1/4" long (dial-assy mtg)		1W19672FA3
Screw and lock washer, 8/32" H. H. (dial clamp)		1W19670FA3
Spring, indicator (spring wire)		56-2980
Spring, indicator (spring wire)		56-2981
Spring, indicator (spring wire)		28-8954
Knob		54-4242
Lamp, pilot, assembly		76-1247
Parts Mounting Hardware		
Eyelet, brass, socket-mounting		2W35702
Grommet, rubber, tuning-condenser		27-4596
Panel, antenna		38-9744
Plug, button		W2254FA33
Shield, tube		56-1566FA5
Socket, 6-prong		27-6168
Socket, 5-prong		27-6167
Socket, 4-prong		27-6153
Socket, Loktal		27-6128
Speaker Mounting Hardware		
Bolt, speaker-mounting		W2122FA3
Cable, speaker and plug assy		44-3713
Nut, 8/32 hex., speaker-mounting		1W19989FA3
Plug, speaker-cable		27-4419-2

PRODUCTION CHANGES FOR MODEL 46-860

CODE 121

RUN 1

Electrolytic condenser C102 in this run is Part No. 30-2445 instead of Part No. 30-2511, as listed in the manual.

RUN 2

a. Electrolytic condenser C102 was changed from Part No. 30-2445 to Part No. 30-2511, as listed in the manual.

b. C400, 10mmf., Part No. 60-00105407*, was changed to 12 mmf., Part No. 60-00125407*.

CRITICAL LEAD DRESS AND PARTS PLACEMENT FOR MODEL 46-860

1. All wiring to the power transformer, T100, the a-c switch, S100, the line-adjust switch, S101, and the voltage-change switch, S102, should be dressed to the end of the chassis and away from the 7B6 socket.

2. The leads from the output transformer, T200, to the plates of the 42E tubes should be dressed down to the chassis between the 76 and 42E sockets, and away from the 7B6 socket.

3. The lead from the center section of the tuning-condenser gang should be dressed away from the oscillator section of the gang.

4. Antenna coils L401 and L402 (shortwave 1 and band spread) should be dressed away from each other and fanned out parallel as far as possible. Other components and wiring should be dressed away from these coils.

5. Oscillator transformers T402 and T403 (shortwave police and shortwave 1) should be dressed away from each other and from other components.