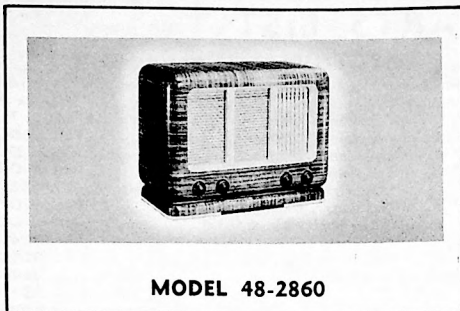


PHILCO-TROPIC RADIO MODEL 48-2860



MODEL 48-2860

SPECIFICATIONS

CABINET Wood, walnut finish
 CIRCUIT Eight-tube superheterodyne

FREQUENCY RANGES

Long Wave 130—400 kc.
 Broadcast 54—1.75 mc.
 Short Wave 5.7—18 mc.
 Band Spread (31M) 9.4—9.9 mc.
 Band Spread (25M) 11.4—12.0 mc.
 Band Spread (19M) 14.8—15.6 mc.
 Band Spread (16M) 17.3—18.2 mc.
 Band Spread (13M) 20.9—21.9 mc.

OPERATING VOLTAGES 115/230 volts,
 50—60 cycles, a.c.

POWER CONSUMPTION85 watts

AUDIO OUTPUT 8.6 watts

INTERMEDIATE FREQUENCY455 kc.

AERIAL ... Philco Outdoor Aerial, Part No. 45-1494

PHILCO TUBES (8) 7A7(2), 7J7, 7B6,
 76, 42 (2), 80

TP-1581

SYMBOLIZATION

The components in the radio circuit are symbolized according to the types of parts and the sections of the radio in which the parts are located. The prefix letter of the symbol designates the type of part, as follows:

C—condenser

I—pilot lamp

L—choke or coil

LS—loud-speaker

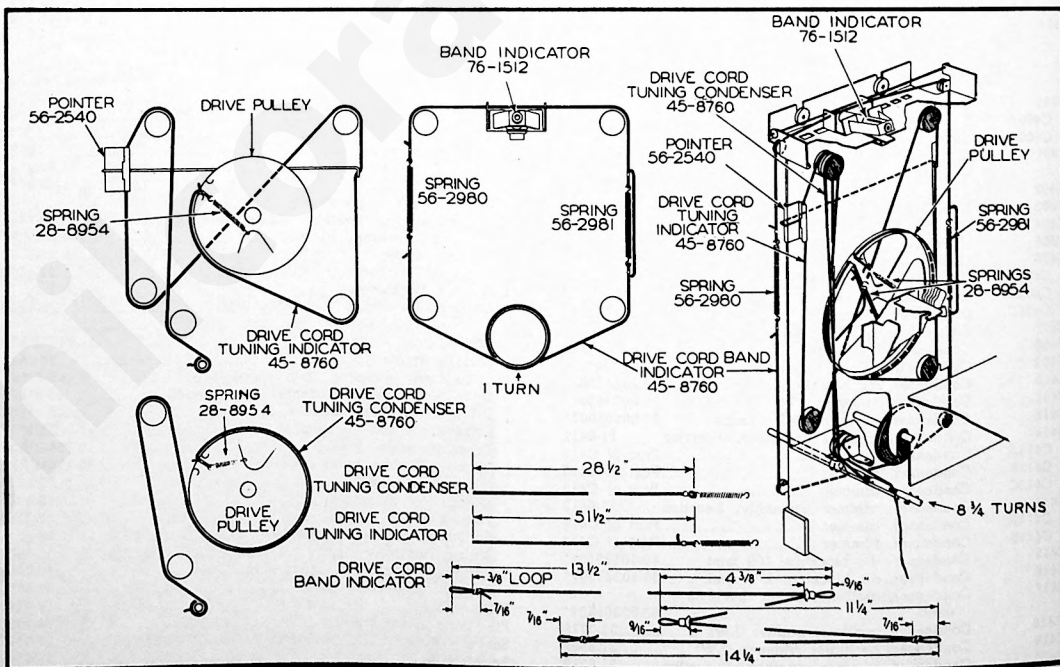
R—resistor

S—switch

T—transformer

WS—wafer switch

Z—electrical assembly



TP-4082

Figure 1. Drive-Cord Installation Details

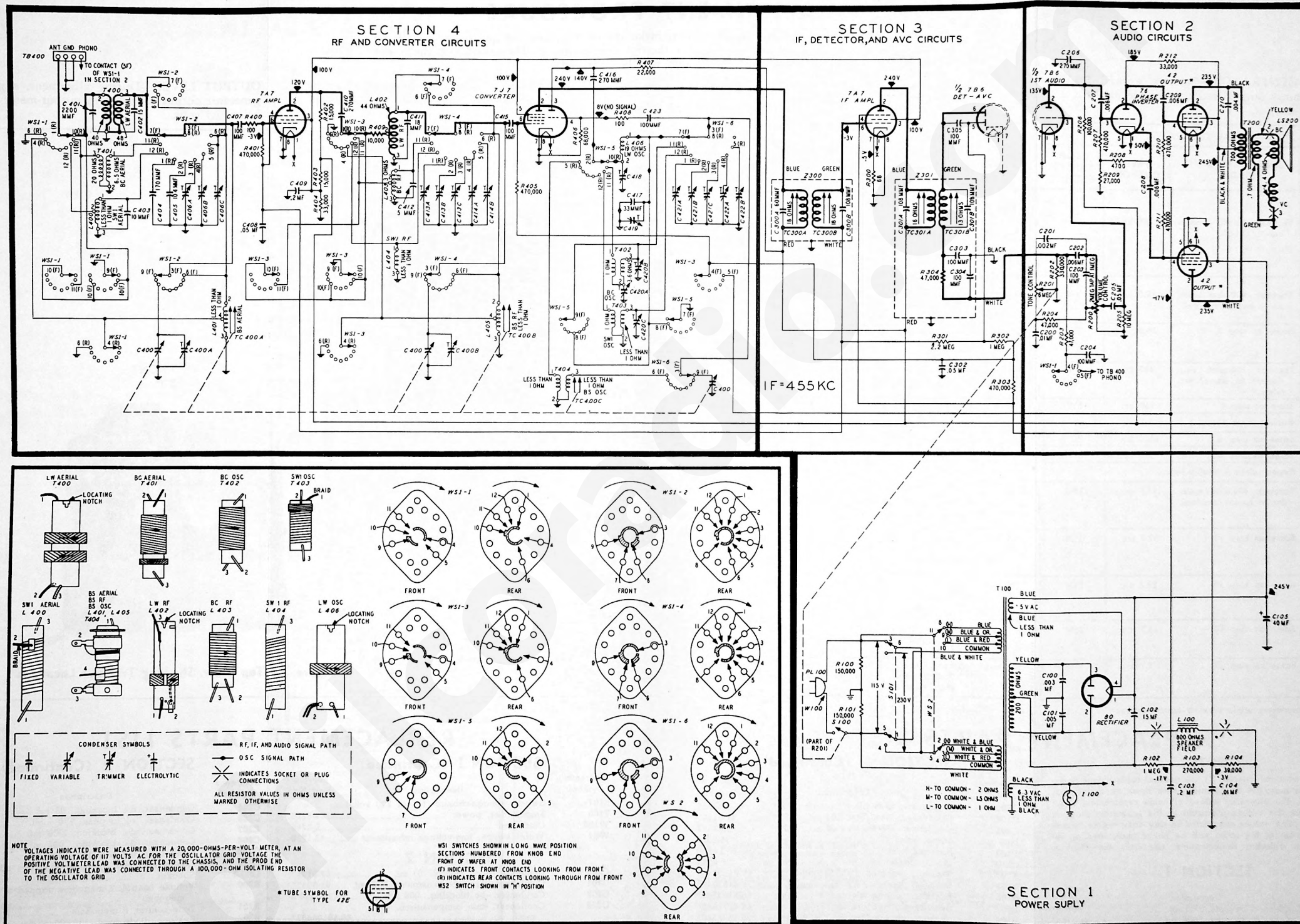


Figure 2. Philco-Tropic Radio Model 48-2860, Sectionalized Schematic Diagram,

ALIGNMENT PROCEDURE

CAUTION: Before turning on the power, make certain that the voltage-change switch on the rear of the chassis is correctly set for the line voltage in use. Do not turn on the power with the speaker disconnected, or the radio will be damaged.

SIGNAL GENERATOR—Connect ground lead to chassis; connect output lead as indicated in chart. Use modulated output.

OUTPUT METER—Connect across voice-coil terminals of speaker.

RADIO CONTROLS—Turn volume control to maximum; set band switch and tuning control as directed in chart.

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

STEP	SIGNAL GENERATOR		RADIO			ADJUST
	CONNECTIONS TO RADIO	FREQUENCY	BAND-SWITCH SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Through .05-mf. condenser to C400B.	455 kc.	BC	C400 fully meshed.	Adjust in order given, for maximum output; then repeat adjustments.	TC301B TC301A TC300B TC300A
2	Through 400-ohm resistor to aerial terminal.	18.0 mc.	SW	18.0 mc.	Adjust to first peak from loose (out) position. Image should appear when radio is tuned to 17.1 mc.	C420C
3	Same as step 2.	18.0 mc.	SW	18.0 mc.	Adjust for maximum output. Repeat adjustment of C420C, C400B, and C400A.	C400B* C400A*
4	Through 200-mmf. condenser to aerial terminal.	390 kc.	LW	390 kc.	Adjust for maximum output.	C419*
5	Same as step 4.	150 kc.	LW	150 kc.	Adjust for maximum output.	C418
6	Repeat steps 4 and 5 twice.					
7	Same as step 4.	1500 kc.	BC	1500 kc.	Adjust for maximum output.	C420B*
8	Same as step 4.	580 kc.	BC	580 kc.	Adjust for maximum output.	C420A*
9	Repeat steps 7 and 8 twice.					
10	Through 400-ohm resistor to aerial terminal.	21.5 mc.	13M	21.5 mc.	Adjust C422B to first peak from loose (out) position. Adjust C414B and C406C for maximum output. Repeat.	C422B C414B* C406C*
11	Same as step 10.	17.8 mc.	16M	17.8 mc.	Adjust C422A to first peak from loose (out) position. Adjust C414A and C406B for maximum output. Repeat.	C422A C414A* C406B*
12	Same as step 10.	15.2 mc.	19M	15.2 mc.	Adjust C421C to first peak from loose (out) position. Adjust C413C and C406A for maximum output. Repeat.	C421C C413C* C406A*
13	Same as step 10.	11.7 mc.	25M	11.7 mc.	Adjust C421B to first peak from loose (out) position. Adjust C413B for maximum output.	C421B C413B*
14	Same as step 10.	9.7 mc.	31M	9.7 mc.	Adjust C421A to first peak from loose (out) position. Adjust C413A for maximum output.	C421A C413A*

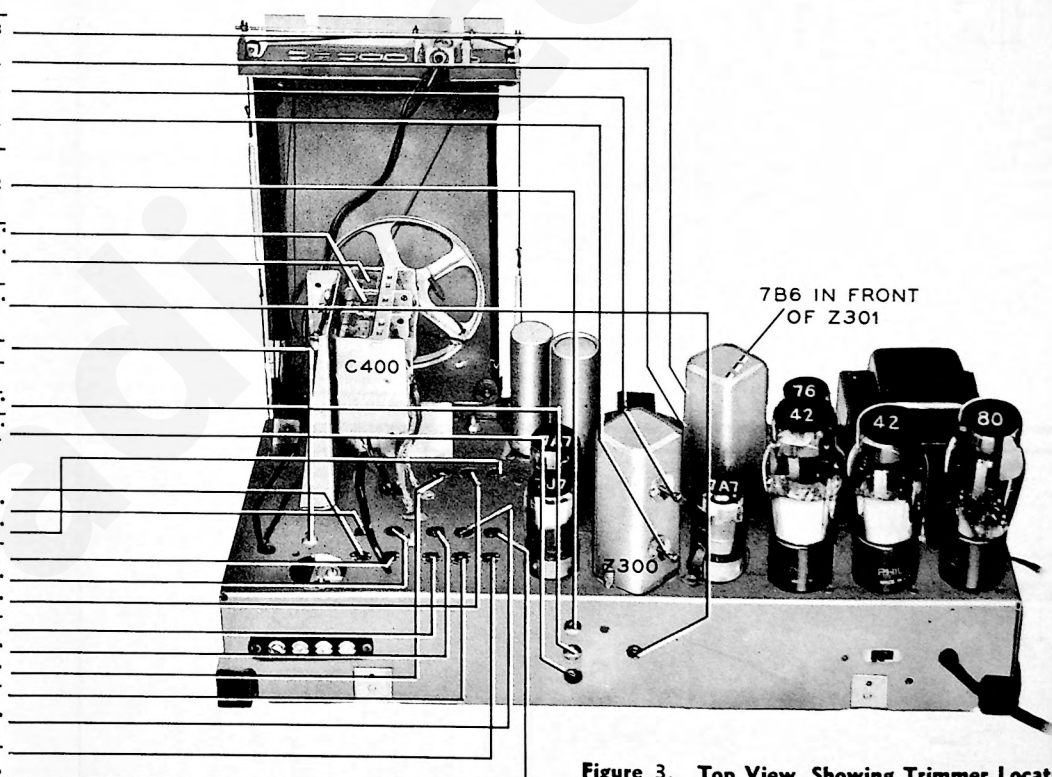


Figure 3. Top View, Showing Trimmer Locations

TP-4407

* Adjust for maximum while rocking tuning control.

REPLACEMENT PARTS LIST

NOTE

Parts marked with an asterisk (*) are general replacement items. These numbers may not be identical with those on factory assemblies; also, the electrical value 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

Reference Symbol	Description	Service Part No.
C100	Condenser, by-pass, .003 mf.	61-0115*
C101	Condenser, by-pass, .005 mf.	61-0153*
C102	Condenser, electrolytic, 15 mf., 450v	30-2568-1*

SECTION 1 (Continued)

Reference Symbol	Description	Service Part No.
C103	Condenser, bias filter (output), .2 mf.	45-3500-3*
C104	Condenser, bias filter, .01 mf.	61-0120*
C105	Condenser, electrolytic, 40 mf., 350v	30-2511
I100	Lamp, pilot	34-2064
L100	Speaker field	Part of LS200
PL100	Plug, adapter	L-3275
R100	Resistor, leakage, 150,000 ohms	66-4153340*
R101	Resistor, leakage, 150,000 ohms	66-4153340*
R102	Resistor, voltage divider, 1 megohm	66-5103340*
R103	Resistor, voltage divider, 270,000 ohms	66-4273340*
R104	Resistor, voltage divider, 39,000 ohms	66-3393340*
S100	Switch, on-off	Part of R201

REPLACEMENT PARTS LIST

SECTION 1 (Continued)

Reference Symbol	Description	Service Part No.
S101	Switch, voltage-change (115 or 230 volts)
T100	Transformer, power	32-8270
W100	Cord, line	L-3246
WS2	Wafer switch, line-voltage adjustment	42-1730

SECTION 2

Reference Symbol	Description	Service Part No.
C200	Condenser, tone control, .01 mf.	61-0124*
C201	Condenser, tone compensation, .002 mf.	61-0062*
C202	Condenser, d-c blocking, .006 mf.	30-1226-2
C203	Condenser, tone compensation, 100 mf.	60-10105407*
C204	Condenser, by-pass, 100 mf.	60-10105407*

SECTION 2 (Continued)

Reference Symbol	Description	Service Part No.
C205	Condenser, d-c blocking, .05 mf.	30-1226
C206	Condenser, r-f by-pass, 270 mmf.	60-10245307*
C207	Condenser, d-c blocking, .006 mf.	30-1226-2
C208	Condenser, d-c blocking, .006 mf.	30-1226-2
C209	Condenser, d-c blocking, .006 mf.	30-1226-2
C210	Condenser, tone compensation, .004 mf.
LS200	Speaker	36-1453
R200	Volume control, 2 megohms (tapped at 1 megohm)	45-5009*
R201	Tone control, 6 megohms	33-5393*
R202	Resistor, diode load, 330,000 ohms	66-4333340*
R203	Resistor, isolating, 47,000 ohms	66-3473340*

REPLACEMENT PARTS LIST

SECTION 2 (Continued)

Reference Symbol	Description	Service Part No.
R204	Resistor, tone compensation, 47,000 ohms	66-3473340*
R205	Resistor, grid return, 10 megohms	66-6103340*
R206	Resistor, plate load, 100,000 ohms	66-4103340*
R207	Resistor, grid return, 470,000 ohms	66-4473340*
R208	Resistor, cathode bias, 4700 ohms	66-2473340*
R209	Resistor, cathode load, 27,000 ohms	66-3273340*
R210	Resistor, grid return, 470,000 ohms	66-4473340*
R211	Resistor, grid return, 470,000 ohms	66-4473340*
R212	Resistor, plate load, 33,000 ohms	66-3333340*
T200	Transformer, output	32-7997
WS1-1	Water-switch section	Part of 42-1741

SECTION 3

C300A	Condenser, fixed trimmer, 60 mmf. (part of Z300)	60-00605237*
C300B	Condenser, fixed trimmer, 108 mmf. (part of Z300)	30-1220*
C301A	Condenser, fixed trimmer, 108 mmf. (part of Z301)	30-1220*
C301B	Condenser, fixed trimmer, 108 mmf. (part of Z301)	30-1220*
C302	Condenser, a-v-c filter, .05 mf.	30-1226
C303	Condenser, r-f filter, 100 mmf. (part of Z301)	60-10105407*
C304	Condenser, r-f filter, 100 mmf. (part of Z301)	60-10105407*
C305	Condenser, d-c blocking, 100 mmf.	60-10105407*
R300	Resistor, cathode bias, 68 ohms	66-0683340*
R301	Resistor, a-v-c filter, 2.2 megohms	66-5223340*
R302	Resistor, voltage divider, 1 megohm	66-5103340*
R303	Resistor, voltage divider, 470,000 ohms	66-4473340*
R304	Resistor, r-f filter, 47,000 ohms (part of Z301)	66-3473340*
Z300	Transformer, 1st i-f, including C300A and C300B	32-3980
Z301	Transformer, 2nd i-f, including C301A, C301B, C303, C304, and R304	32-3981

SECTION 4

C400	Condenser, tuning	31-2535
C400A	Condenser, trimmer	Part of C400
C400B	Condenser, trimmer	Part of C400
C401	Condenser, shunt (LW aerial), 2200 mmf.	
C402	Condenser, shunt (LW aerial), 15 mmf.	60-00155407*
C403	Condenser, shunt (SW), 10 mmf.	60-00105407*
C404	Condenser, shunt (BS), 170 mmf.	30-1220-2
C405	Condenser, shunt (BS), 104 mmf.	30-1220
C406	Condenser, trimmer assembly, 3-section	31-6450
C406A	Condenser, trimmer	Part of C406
C406B	Condenser, trimmer	Part of C406
C406C	Condenser, trimmer	Part of C406
C407	Condenser, d-c blocking, 100 mmf.	60-10105407*
C408	Condenser, a-v-c filter, .05 mf.	30-1226
C409	Condenser, screen by-pass, 2 mf.	45-3500-3*
C410	Condenser, d-c blocking, 270 mmf.	60-10245307*
C411	Condenser, r-f shunt (LW), 18 mmf.	60-00205307*
C412	Condenser, r-f shunt (BC), 5 mmf.	60-90505007*
C413	Condenser, trimmer assembly, 3-section	31-6412
C413A	Condenser, trimmer	Part of C413
C413B	Condenser, trimmer	Part of C413
C413C	Condenser, trimmer	Part of C413
C414	Condenser, trimmer assembly, 2-section	31-6413
C414A	Condenser, trimmer	Part of C414
C414B	Condenser, trimmer	Part of C414
C415	Condenser, d-c blocking, 100 mmf.	60-10105407*
C416	Condenser, d-c blocking, 270 mmf.	60-10245307*
C417	Condenser, oscillator shunt (LW), 33 mmf.	60-00305307*
C418	Condenser, oscillator padder (LW)	31-2718
C419	Condenser, oscillator trimmer (LW)	31-6308
C420	Condenser, trimmer assembly, 3-section	31-6350
C420A	Condenser, LF padder (BC)	Part of C420
C420B	Condenser, HF trimmer (BC)	Part of C420
C420C	Condenser, trimmer (SW)	Part of C420

SECTION 4 (Continued)

Reference Symbol	Description	Service Part No.
C421	Condenser, trimmer assembly, 3-section	31-6414
C421A	Condenser, trimmer	Part of C421
C421B	Condenser, trimmer	Part of C421
C421C	Condenser, trimmer	Part of C421
C422	Condenser, trimmer assembly, 2-section	31-6415
C422A	Condenser, trimmer	Part of C422
C422B	Condenser, trimmer	Part of C422
L400	Coil, aerial (SW)	32-4087
L401	Coil, aerial (BS)	32-3670
L402	Coil, r-f (LW)	32-4085
L403	Coil, r-f (BC)	32-4082
L404	Coil, r-f (SW)	32-4087-1
L405	Coil, r-f (BS)	32-3671
L406	Coil, oscillator (LW)	32-4086
R400	Resistor, parasitic suppressor, 100 ohms	66-1103340*
R401	Resistor, grid return, 470,000 ohms	66-4473340*
R402	Resistor, plate load, 15,000 ohms	66-3154340*
R403	Resistor, screen voltage divider, 15,000 ohms	66-3154340*
R404	Resistor, screen voltage divider, 33,000 ohms	66-3334340*
R405	Resistor, grid return, 470,000 ohms	66-4473340*
R406	Resistor, grid return, 68,000 ohms	66-3683340*
R407	Resistor, plate load, 22,000 ohms	66-3223340*
R408	Resistor, stabilizing, 100 ohms	66-1103340*
R409	Resistor, parasitic suppressor, 10,000 ohms	66-3103340*
T400	Transformer, aerial (LW)	32-4084
T401	Transformer, aerial (BC)	32-4081
T402	Transformer, oscillator (BC)	32-4083
T403	Transformer, oscillator (SW)	32-4088
T404	Transformer, oscillator (BS)	32-3672
WS1-2	Wafer-switch section	Part of 42-1741
WS1-3	Wafer-switch section	Part of 42-1741
WS1-4	Wafer-switch section	Part of 42-1741
WS1-5	Wafer-switch section	Part of 42-1741
WS1-6	Wafer-switch section	Part of 42-1741

MISCELLANEOUS

Description	Service Part No.
Cabinet Hardware	
Back	
Baffle, wood	16600
Cabinet, complete	10626
Feet, felt	W-2190
Cloth, grille	40-6742
Chassis Mounting Hardware	
Bracket-and-lug assembly (tuning condenser)	76-1518
Clip, coil mounting	28-5002FA1
Corner, rubber	27-4564
Grommet, rubber	27-4571
Dial-Scale Hardware	
Carriage-and-spring assembly	76-1512
dial scale	
Clamp, dial	56-2137FA15
Dial backplate	76-1511
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	76-1246FA33
Idler-pulley assembly	76-1243
Idler-pulley assembly	76-2051
Pointer	56-2540
Pulley-and-bracket assembly	76-1515
Spring, indicator	56-2980
Spring, indicator	56-2981
Spring, drive cord	28-8954
Knob	54-4242
Pilot-lamp assembly	76-1236
Socket (76)	27-6187
Socket (42)	27-6188
Socket (80)	27-6153*
Socket (717, 7A7)	27-6128*
Speaker-cable-and-plug assembly	41-3713

REVISIONS TO 48-2860 SERVICE MANUAL

Reference Symbol	Description	Service Part No.
Parts List Corrections		
S101	Switch, voltage-change (115 or 230 volts)	42-1569
C210	Condenser, tone compensation, .004 mf.	61-0179
C401	Condenser, shunt (LW aerial), 2200 mmf.	60-20205304
	Back	54-7078
	Dial-scale assembly	76-2437

PRODUCTION CHANGES

No production changes were made in this model.

SERVICE NOTE

To suppress parasitic oscillations in phonograph operation, connect a 5-mmf. ceramic condenser, Part No. 30-1224-5, across the secondary of the band-spread oscillator transformer, T404.