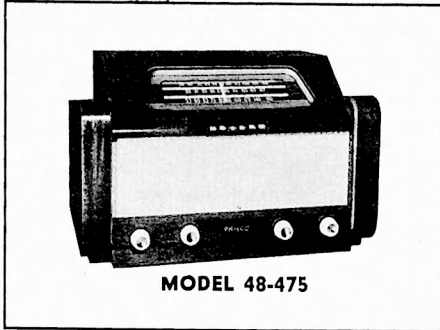


PHILCO RADIO MODEL 48-475

SPECIFICATIONS



CABINET Wood, mahogany
 CIRCUIT Eight-tube superheterodyne
 FREQUENCY Broadcast: 540 to 1600 kc.
 RANGES FM: 88 to 108 mc.
 AUDIO OUTPUT ... 2.3 watts
 PUSH BUTTONS ... Six: One for ON-OFF, five for station selection
 OPERATING
 VOLTAGE 105 to 120 volts, 60 cycles, a. c.
 POWER
 CONSUMPTION ... 70 watts
 AERIALS Built-in low-impedance loop for broadcast, and line-cord aerial for FM
 INTERMEDIATE AM: 455 kc.
 FREQUENCIES FM: 9.1 mc.
 PHILCO 6AG5, 7F8, 6BA6(2), 6H6GT, 7C6,
 TUBES (8) 7B5, 7Z4

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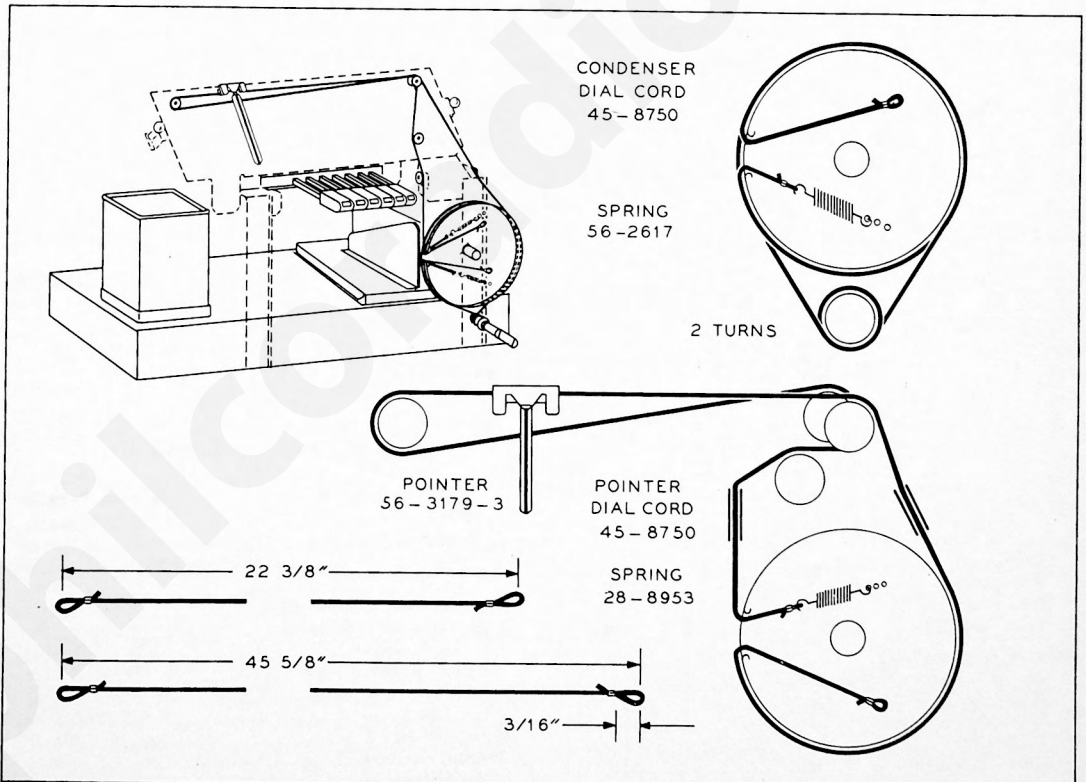


Figure 1. Drive-Cord Installation Details.

TP-4090G

SETTING PUSH BUTTONS

SET WAFER SWITCH TO PB

SIGNAL GENERATOR: Couple signal generator to radio by radiating loop. See Radiating-Loop Note. Use generator to identify desired station by setting generator frequency close to that of desired station. Heterodyne whistle serves as identification. Turn off generator to make final adjustment to oscillator-tuning cores and aerial trimmers.

The left-hand station button, looking from the front of the radio, should be set up for the station having the lowest frequency, and each succeeding button to the right should be set up for the next highest station.

PUSH BUTTON (left to right from front of radio)	FREQUENCY RANGE	OSC. TUNING CORE	AERIAL TRIMMER
PB-2	540 to 1000 kc.	L407	C414A
PB-3	600 to 1200 kc.	L408	C414B
PB-4	650 to 1300 kc.	L409	C414C
PB-5	850 to 1500 kc.	L410	C414D
PB-6	900 to 1600 kc.	L411	C414E

The chart above indicates the tuning range of each set of adjustments (core and trimmer).

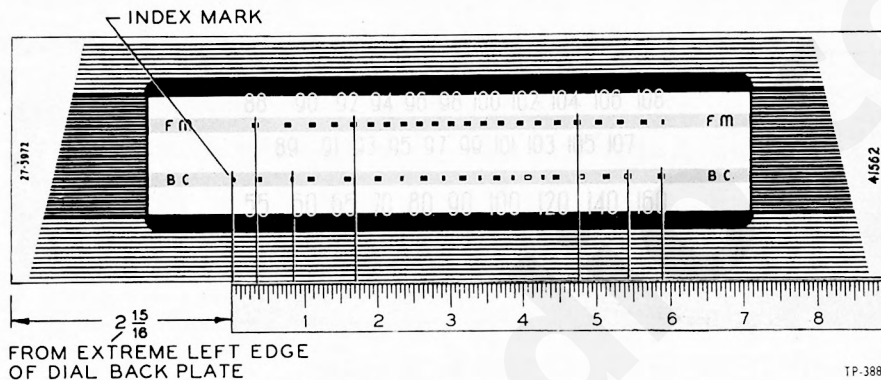


Figure 2. Dial-Calibration Measurements.

MODEL 48-475

REPLACEMENT PARTS LIST

MISCELLANEOUS

Description	Service Part No.
Cabinet and Cabinet Hardware	
Cabinet	10680
Baffle-and-cloth assembly	40-6926
Scale	27-5972
Scale strap	56-4860
Dial-scale Hardware	
Cord, pointer drive (25-foot spool)	45-8750*
Cord, gang drive (25-foot spool)	45-8750*
Dial-backplate assembly	76-3218
Pointer	56-3179-3
Spring, pointer drive	28-8953
Drive shaft, bushing-and-pulley assembly	76-3140

MISCELLANEOUS (Continued)

Description	Service Part No.
Knob, control	54-4375
Plug, FM aerial	27-4788
Push-button assembly hardware	
Coil core	56-6100
Coil-mounting terminal strip	56-2250
Iron-core-screw stabilizer	56-2249
Kit, tab assembly	40-6943
Knob, push-button	54-4217
Tab, cover	27-5737
Tab, ON-OFF	54-4317-6
Socket, locktal	27-6138*
Socket, miniature	27-6226
Socket, miniature	27-6203-1
Socket, octal	27-6174

REPLACEMENT PARTS LIST

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

Reference Symbol	Description	Service Part No.
C100	Condenser, line filter, .01 mf.	61-0120*
C101	Condenser, line filter, .01 mf.	61-0120*
C102	Condenser, electrolytic, three sections	30-2570-15
C102A	Condenser, filter, 10 mf.	Part of C102
C102B	Condenser, filter, 10 mf.	Part of C102
C102C	Condenser, filter, 10 mf.	Part of C102
C103	Condenser, electrolytic, two sections	30-2570-18
C103A	Condenser, filter, 30 mf.	Part of C103
C103B	Condenser, filter, 20 mf.	Part of C103
I100	Pilot light	34-2040
I101	Pilot light	34-2040
PB-1	Push button, power switch	Part of PB (see section 4)
R100	Resistor, dropping, 10,000 ohms	66-3105340
R101	Resistor, dropping, 1500 ohms	66-2155340
R102	Resistor, filter, 1000 ohms	66-2105340
R103	Resistor, dropping, 220 ohms	66-1225340
T100	Power transformer	32-8234
W100	Line cord and plug	L-3199*

SECTION 2

C200	Condenser, by-pass, 100 mmf.	60-10105407*
C201	Condenser, tone compensation, .006 mf.	45-3500-7*
C202	Condenser, r-f by-pass, 100 mmf.	60-10105407*
C203	Condenser, d-c blocking, .006 mf.	45-3500-7*
C204	Condenser, by-pass, .2 mf.	45-3500-3*
C205	Condenser, by-pass, .003 mf.	61-0109*
C206	Condenser, by-pass, 100 mmf.	60-10105407*
C207	Condenser, d-c blocking, .006 mf.	45-3500-7*
C208	Condenser, r-f by-pass, 100 mmf.	60-10105407*
C209	Condenser, by-pass, 47 mmf.	60-00515307*
C210	Condenser, d-c blocking, .006 mf.	45-3500-7*
C211	Condenser, bass compensation, .006 mf.	45-3500-7*
J200	FM test jack	27-6180
LS200	Loud-speaker	36-1507-3
R200	Volume control, 2 megohms, tapped at 1 megohm	33-5535-11
R201	Resistor, grid load, 10 megohms	66-6103340*
R202	Resistor, plate load, 220,000 ohms	66-4223340*
R203	Resistor, grid load, 470,000 ohms	66-4473340*
R204	Resistor, filter, 150,000 ohms	66-4153340*
R205	Resistor, decoupling, 100,000 ohms	66-4103340*
R206	Resistor, bass compensation, 33,000 ohms	66-3333340*
R207	Tone control, 4 megohms	33-5539-23
T200	Output transformer	

SECTION 2 (Continued)

Reference Symbol	Description	Service Part No.
WS	Wafer-switch, four wafers, includes WS-1, WS-2, WS-3, and WS-4	42-1819
WS-2	Wafer-switch section	Part of WS

SECTION 3

C300A	Condenser, FM trimmer	Part of Z300
C300B	Condenser, AM primary loading, 3000 mmf.	60-20305304* (Part of Z300)
C300C	Condenser, d-c blocking, 6 mmf.	30-1224-9* (Part of Z300)
C300D	Condenser, FM trimmer	Part of Z300
C300E	Condenser, FM trimmer	Part of Z300
C301A	Condenser, FM trimmer	Part of Z301
C301B	Condenser, AM primary loading, 300 mmf.	60-10305307* (Part of Z301)
C301C	Condenser, FM trimmer	Part of Z301
C301D	Condenser, AM trimmer	Part of Z301
C302A	Condenser, AM primary loading, 470 mmf.	62-147001001* (Part of Z302)
C302B	Condenser, AM trimmer	60-00305307* (Part of Z302)
C302C	Condenser, d-c blocking, 27 mmf.	60-00305307* (Part of Z302)
C302D	Condenser, FM trimmer	Part of Z302
C302E	Condenser, FM secondary loading, 24 mmf.	30-1224-4* (Part of Z302)
C302F	Condenser, FM i-f trap tuning, 15 mmf	30-1223-3* (Part of Z302)
C303	Condenser, r-f plate by-pass, .01 mf.	61-0120*
C304	Condenser, a-v-c by-pass, 100 mmf.	60-10105407*
C305	Condenser, a-v-c filter, .01 mf.	61-0120*
C306	Condenser, a-v-c by-pass, .01 mf.	61-0120*
C307	Condenser, filament by-pass, 100 mmf.	60-10105407*
C308	Condenser, screen by-pass, .01 mf.	61-0120*
C309	Condenser, r-f by-pass, 1500 mmf.	62-215001011*
C310	Condenser, r-f by-pass, .01 mf.	30-4641
C311	Condenser, r-f by-pass, 100 mmf.	60-10105407*
C312	Condenser, r-f by-pass, .01 mf.	61-0120*
C313	Condenser, cathode by-pass, .05 mf.	61-0122*
C314	Condenser, filament by-pass, 100 mmf.	60-10105407*
C315	Condenser, screen by-pass, .01 mf.	61-0120*

REPLACEMENT PARTS LIST

SECTION 3 (Continued)

Reference Symbol	Description	Service Part No.
C316	Condenser, d-c blocking, 100 mmf.	60-10105407*
C317	Condenser-and-choke assembly, i-f by-pass, .05 mf.	38-9851-4
C318	Condenser, r-f by-pass, 220 mmf.	62-122001001*
C319	Condenser, r-f coupling, 7.5 mmf.	
C320	Condenser, filament by-pass, 100 mmf.	60-10105407*
C321	Condenser, r-f by-pass, .008 mf.	61-01174*
C322	Condenser, electrolytic, filter, 2 mf.	30-2417-7
C323	Condenser, by-pass, .01 mf.	61-0120*
R300	Resistor, plate dropping, 47,000 ohms	66-3473340*
R301	Resistor, plate load, 27,000 ohms	66-3273340*
R302	Resistor, a-v-c filter, 2.2 megohms	66-5223340*
R303	Resistor, cathode bias, 68 ohms	66-0683340*
R304	Resistor, screen dropping, 22,000 ohms	66-3223340*
R305	Resistor, plate dropping, 1000 ohms	66-2103340*
R306	Resistor, cathode bias, 68 ohms	66-0683340*
R307	Resistor, screen dropping, 22,000 ohms	66-3223340*
R308	Resistor, plate dropping, 1000 ohms	66-2103340*
R309	Resistor, diode load, 330,000 ohms	66-4333340*
R310	Resistor, diode decoupling, 100,000 ohms	66-4103340*
R311	Resistor, FM decoupling, 100,000 ohms	66-4103340*
R312	Resistor, FM detector load, 6.8 megohms	66-5683340*
R313	Resistor, a-v-c filter, 3.3 megohms	66-5333340*
R314	Resistor, diode return, 47,000 ohms	66-3473340*
R315	Resistor, a-v-c load, 1 megohm	66-5103340*
TC300A	Tuning core, AM	Part of Z300
TC302A	Tuning core, FM	Part of Z302
WS-2	Switch wafers	Part of WS (See Section 2)
WS-4	Switch wafers	Part of WS (See Section 2)
Z300	Transformer, 1st i. f., 455 kc. and 9.1 mc., includes C300A, C300B, C300C, C300D, C300E, and TC300A	32-4146-2
Z301	Transformer, 2nd i. f., 455 kc. and 9.1 mc., includes C301A, C301B, C301C, and C301D	32-4156-2
Z302	Transformer, 3rd i. f., 455 kc. and 9.1 mc., includes C302A, C302B, C302C, C302D, C302E, C302F, and TC302A	32-4147-1

SECTION 4

C400	Condenser, tuning gang	31-2724
C400A	Condenser, trimmer	Part of C400
C400B	Condenser, trimmer	Part of C400
C400C	Condenser, trimmer	Part of C400
C401	Condenser, trimmer, two sections	31-6476-8
C401A	Condenser, trimmer	Part of C401
C401B	Condenser, trimmer	Part of C401
C402	Condenser, filament by-pass, 100 mmf.	60-10105407*
C403	Condenser, cathode by-pass, 100 mmf.	60-10105407*
C404	Condenser, screen by-pass, 1500 mmf.	62-215001011*
C405	Condenser, by-pass, 1500 mmf.	62-215001011*
C406	Condenser, FM d-c blocking, 33 mmf.	30-1224*

SECTION 4 (Continued)

Reference Symbol	Description	Service Part No.
C407	Condenser, d-c blocking, 220 mmf.	62-122001001*
C408	Condenser, osc. d-c blocking, 220 mmf.	62-122001001*
C409	Condenser, grid by-pass, 100 mmf.	60-10105407*
C410	Condenser, filament by-pass, 100 mmf.	60-10105407*
C411	Condenser, d-c blocking 750 mmf.	60-10755301*
C412	Condenser, voltage divider, 220 mmf.	62-122001001*
C413	Condenser, voltage divider, 1030 mmf.	30-1225
C414	Condenser, trimmer, five sections	31-6479-1
C414A	Condenser, trimmer	Part of C414
C414B	Condenser, trimmer	Part of C414
C414C	Condenser, trimmer	Part of C414
C414D	Condenser, trimmer	Part of C414
C414E	Condenser, trimmer	Part of C414
C415	Condenser, r-f grid return, FM, 100 mmf.	60-10105407*
C416	FM power-line aerial clip	Part of W100
J400	Socket, FM aerial connector	27-6214-1
L400	Coil, BC aerial	32-4033-4
L401	Coil, FM aerial	32-4158-1
L402	Coil, r-f choke	32-4157-2
L403	Coil, FM r-f	32-4159-1
L404	Coil, BC oscillator	32-4019-7
L405	Coil, FM oscillator	32-4018-4
L406	Coil, r-f choke	32-4061-2
L407	Coil, r-f choke	32-4061-2
L408	Coil, choke, FM isolation	32-4061-2
L409	Coil, BC oscillator, push button	32-4059-2
L410	Coil, BC oscillator, push button	32-4059-2
L411	Coil, BC oscillator, push button	32-4059-2
L412	Coil, BC oscillator, push button	32-4059-2
L413	Coil, BC oscillator, push button	32-4059-2
LA400	Loop aerial, broadcast	76-3142
PB	Push-button switch, six-section, includes PB-1, PB-2, PB-3, PB-4, PB-5, and PB-6	42-1758-1
PB-2	Push-button station selector, BC	Part of PB
PB-3	Push-button station selector, BC	Part of PB
PB-4	Push-button station selector, BC	Part of PB
PB-5	Push-button station selector, BC	Part of PB
PB-6	Push-button station selector, BC	Part of PB
R400	Resistor, parasitic suppressor, 10 ohms	66-0103340*
R401	Resistor, cathode bias, 150 ohms	66-1153340*
R402	Resistor, screen dropping, 82,000 ohms	66-3823340*
R403	Resistor, plate dropping, 1000 ohms	66-2103340*
R404	Resistor, grid leak, 15,000 ohms	66-3153340*
R405	Resistor, parasitic suppressor, 1500 ohms	66-2153340*
R406	Resistor, cathode bias, 1500 ohms	66-2153340*
R407	Resistor, grid return, 2.2 megohms	66-5223340*
R408	Resistor, a-v-c decoupling, 470,000 ohms	66-4473340*
R409	Resistor, cathode return, 6800 ohms	66-2683340*
TB400	Terminal board, aerial and output	27-6213*
WS-1	Switch wafers	Part of WS (See Section 2)
WS-2	Switch wafers	Part of WS (See Section 2)
WS-3	Switch wafers	Part of WS (See Section 2)

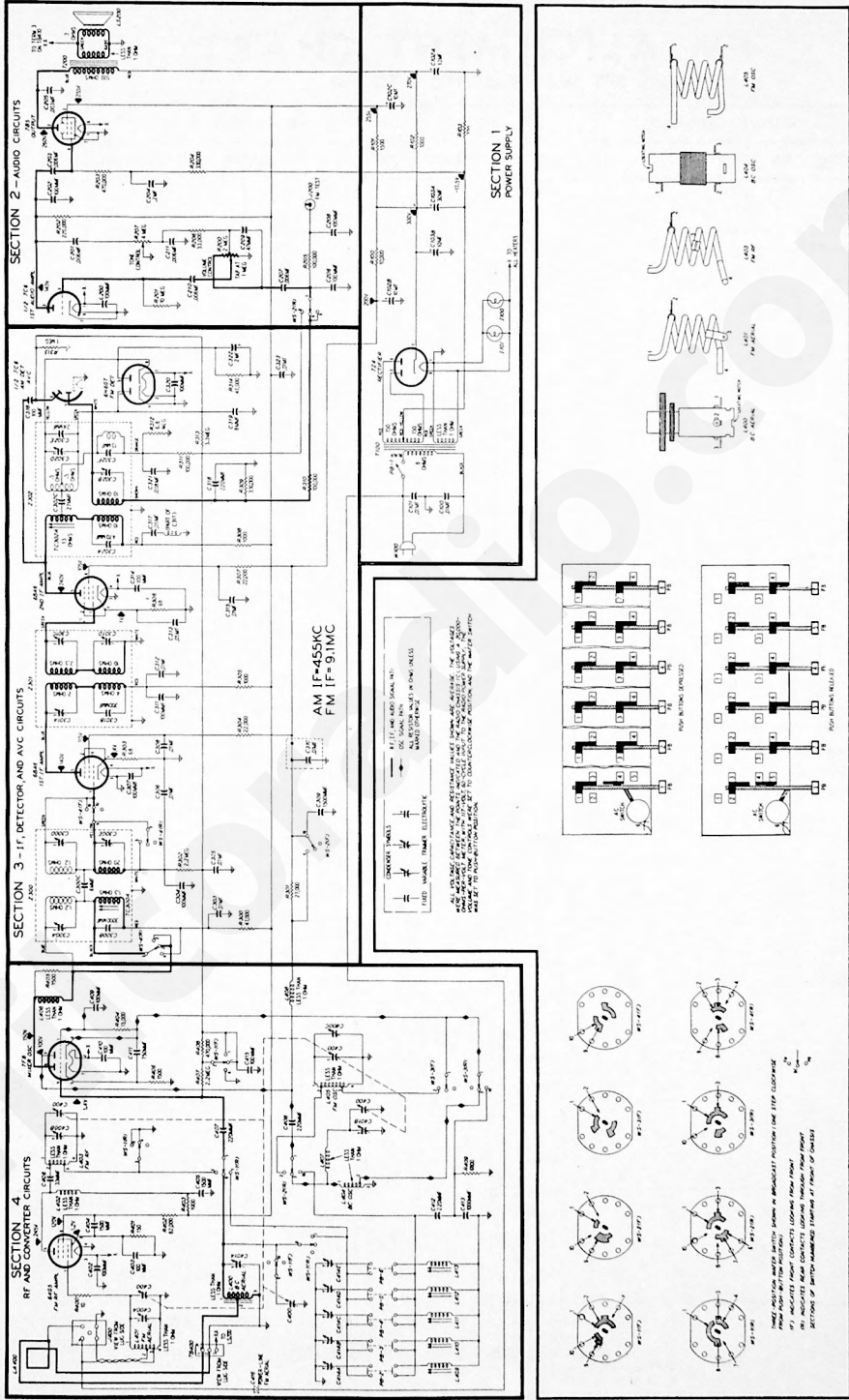


Figure 5. Philco Radio Model 48-475, Sectionalized Schematic Diagram

FM ALIGNMENT CHART

SET WAFER SWITCH TO FM

STEP	SIGNAL GENERATOR		RADIO		ADJUST
	CONNECTIONS TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Through .1-mf. condenser to pin 1 of 6BA6 1st i.f.	9.1 mc.	88 mc.	Adjust trimmers for maximum reading on d-c meter. Repeat until no improvement results. Except for C302D in step 3, do not disturb these trimmers after this step.	C302D TC302A C301C C301A
2	Through .1-mf. condenser to pin 8 of 7F8.	9.1 mc.	88 mc.	Adjust trimmers for maximum reading on d-c meter. Repeat until no improvement results. Do not disturb these trimmers after this step.	C300D C300A
3	Same as step 2.	9.1 mc.	88 mc.	Adjust for MINIMUM reading on OUTPUT meter. Adjustment is critical; double check.	C302D
4	Terminal 4 of J400.	105 mc.	105 mc.	Adjust for maximum reading on d-c meter.	C400C
5	Same as step 4.	105 mc.	105 mc.	Same as step 4. Rock tuning control.	C400B
6	Same as step 4.	105 mc.	105 mc.	Same as step 4.	C400A
7	Same as step 4.	92 mc.	92 mc.	Same as step 4. See Note, page 10.	L405
8	Same as step 4.	92 mc.	92 mc.	Same as step 4. See Note, page 10.	L403
9	Same as step 4.	92 mc.	92 mc.	Same as step 4. See Note, page 10.	L401
10	Repeat steps 4 through 9 until no further increase is obtained.				

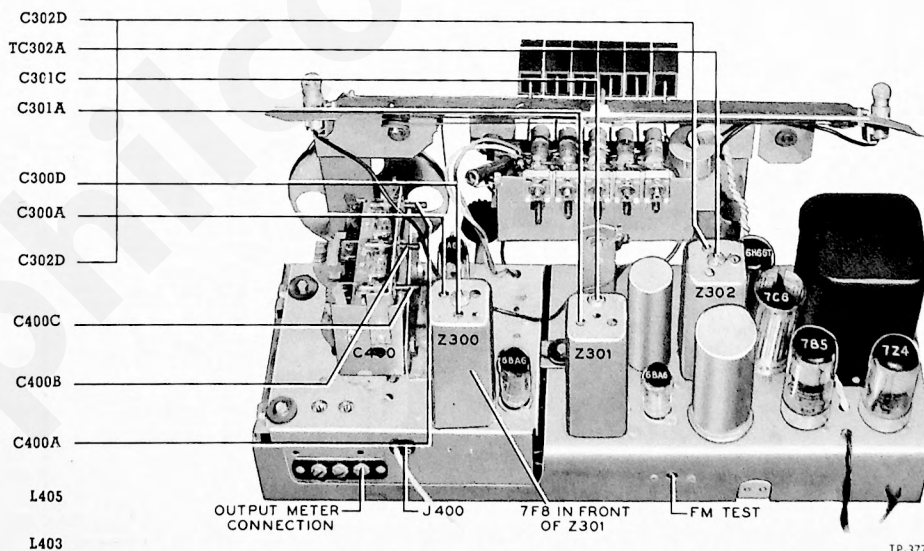


Figure 4. Top View, Showing FM Trimmer Locations.

TP-3779

AM ALIGNMENT CHART

SET WAFER SWITCH TO BC

STEP	SIGNAL GENERATOR		RADIO		ADJUST
	CONNECTIONS TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Ground lead to radio chassis. Output lead through .1-mf. condenser to terminal 1 of TB400.	455 kc.	540 kc.	Adjust trimmers for maximum. ONCE ONLY, in order.	C302B C301D C300E TC300A
2	Radiating loop (see Note below).	1600 kc.	1600 kc.	Adjust for maximum.	C401B
3	Same as step 2.	1500 kc.	1500 kc.	Adjust for maximum.	C401A
4	Repeat steps 2 and 3, in order, until no improvement results.				

RADIATING-LOOP NOTE: Make up a 6-to-8 turn, 6-inch-diameter loop, using insulated wire; connect to signal-generator leads and place near radio loop aerial.

AM ALIGNMENT PROCEDURE

Make alignment with loop aerial connected to radio. AM alignment should be completed before FM alignment is made.

DIAL: Calibration and pointer-index measurements are shown in figure 2. With tuning gang fully meshed, set pointer to index mark.

OUTPUT METER: Connect meter between terminal 3 of terminal board TB400 and radio chassis. See figure 3.

AM SIGNAL GENERATOR (modulated output): Connect as indicated in chart.

OUTPUT LEVEL: During alignment, adjust signal-generator output to maintain output-meter indication below 1.5 volts. Set volume control to maximum and tone control fully counterclockwise.

FM ALIGNMENT PROCEDURE

MAKE AM ALIGNMENT FIRST

ALIGNMENT INDICATORS: Connect negative lead of 20,000-ohms-per-volt, d-c meter to pin 5 of 6H6GT; connect positive meter lead to radio chassis. Use 0-to-10-volt meter range. Leave output meter connected as for AM alignment.

SIGNAL GENERATOR: Use AM signal generator with modulated output for entire alignment. Generator must have sufficient output to produce reading of approximately 9 volts on d-c meter. During alignment, attenuate generator output to maintain meter reading at this value. Connect generator ground lead to radio chassis; connect generator output lead as indicated in chart.

Set volume control to maximum and tone control fully counterclockwise. Set signal-generator dial and radio dial as indicated in chart.

NOTE: Resonance of circuits using coils L401, L403, and L405 may be checked with powdered-iron tuning core, such as Philco Part No. 56-6100. If reading of d-c meter increases when iron end of core is inserted in coil, compress turns slightly; if meter reading increases when threaded brass end is inserted, spread turns slightly. Do not compress or spread turns excessively; only a small change is necessary at these frequencies.

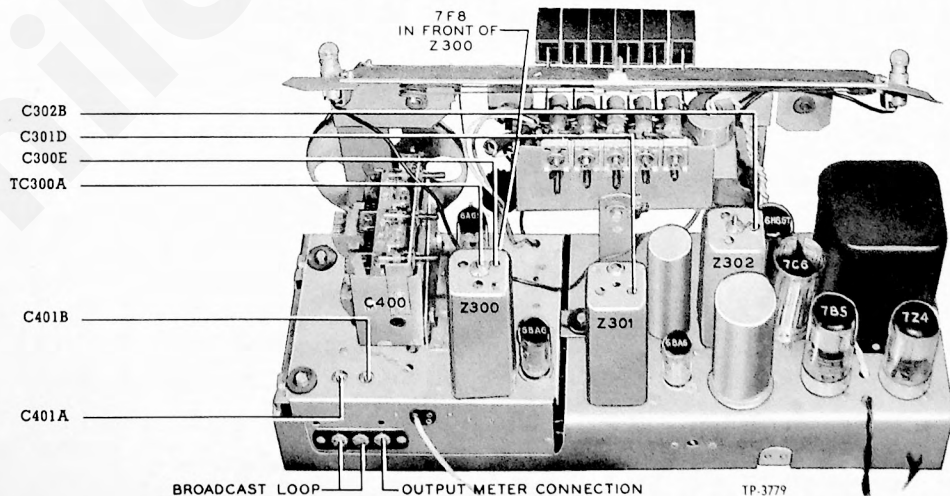


Figure 3. Top View, Showing AM Trimmer Locations.

**REVISIONS AND ADDITIONS TO 48-475
SERVICE MANUAL**

Reference Symbol	Description	Service Part No.
Parts List Additions		
	Spring, gang drive	56-2617
Parts List Corrections		
T200	Output transformer	32-8278-1
C319	Condenser, r-f coupling, 8 mmf.	30-1224-13

PRODUCTION CHANGES

Main Chassis, Run 2

C322	Condenser, electrolytic, filter, 2 mf., was changed to 5 mf., 50v	30-2417
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NOTE: No production changes were made in the r-f chassis. They are all Run 1.