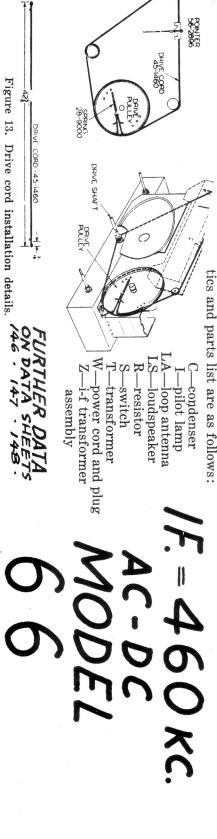


20,000-ohms-per-volt meter between the indicated test points and B- (negative return of power supply). NOTE: All voltage, capacity, and resistance values shown are average. The voltages shown were measured with a Symbol designations used in the schema-



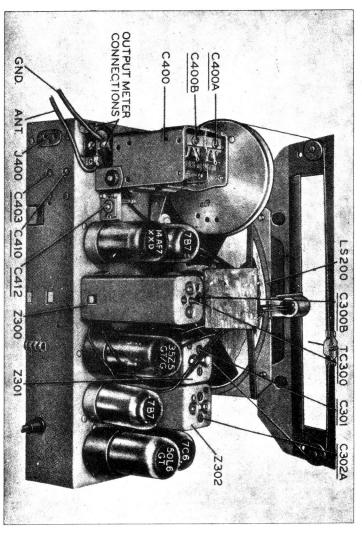
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ALIGNMENT CHART

1	-	-	-	-					
TOL	7	6	ਹਾ	4	ဆ	29	н		
E: Make up a six to	Same as 2	Same as 2	Same as 2	Same as 2	Same as 2	Antenna connection of TS-400 Strip See note below.	Stator terminal of antenna section of tuning condenser.	Connections to Receiver	SIGNAL GENERATOR
eight tur	9.5 mc.	15.0 mc.	1500	1700	1500	1700	460	Dial Setting Kc.	FOR
rn, 6 inch dia	mc. Short Wave 9.5 mc.	15.0 mc. Short Wave 15.0 mc.	Broadcast		Broadcast	Broadcast	Broadcast	Band Switch Position	
meter lo	9.5 mc.	15.0 mc.		1700		1700	Plates meshed fully	Dial Setting Kc.	
NOTE: Make up, a six to eight turn, 6 inch diameter loop using insulated wire; connect to signal generator leads and			Repeat adjustment in step 3.		Tune receiver to signal generator.	Preset C-403 by turning down tight, then backing off $1/3$ turn.	Set pointer to index mark on back plate. Preset C-300-B by turning down tight; then adjust all 4 i-f trimmers for maximum, in the order listed.	Special Instructions	RECEIVER
l generator leads and	C-403	C-410 C-412	C-400A		C-400A	C-400B	C-302 C-301 TC-300 C-300B	Adjust Trimmers in Order Given	

place near radio loop.



TESTS TO ISOLATE TROUBLE TO ONE SECTION Figure 11. Top view, showing trimmer condenser locations.

The state of the s		
SECTION	TEST	NORMAL RESULTS
1	Measure voltage between point 6 (+) and B	*85 volts
2	Apply an audio signal through a condenser (.01 to .25 mf.) between point 2 and B. Loud, clear signal	Loud, clear signal
ಬ	Apply a weak modulated r-f signal (460 kc.) through a condenser (.01 to .25 mf.) between point 3 and B	Loud, clear signal
4	Apply a weak modulated r-f signal (1,000 kc.) through a condenser (.01 to .25 mf.) between point 4 and B (Band switch in "Broadcast" position.)	Loud, clear signal

^{*}For 117-volt a-c input. When operating on d-c line and no voltage can be measured, reverse power plug

CONNECTING ALIGNING EQUIPMENT

Output Meter: Connect between output (right hand) and ground (center) lugs of terminal strip TS-400 on rear of chassis, shown in figure 11.

Signal Generator Connect output lead through a .05 mfd. condenser to indicated test point and ground lead to: B.-Adjust generator output to give a readable deflection on the output meter, using meter range that best indicates small changes in output. Reduce generator output as alignment progresses to prevent meter needle from going off

all trimmers in the order listed, for maximum output. Turn receiver volume control to maximum and adjust

NOTE: Make alignment with loop connected to radio.

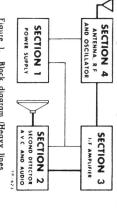


Figure 1 Block diagram (Heavy lines indicate signal path).

Figure 1. Block diagram (Heavy lines indicate signal path).

In this manual, the receiver circuit is divided into four sections, as shown in figure 1. One test point is designated for each section, as shown in figure 2. Abnormal indications, secured when checking at these test points, localize trouble to the section under test. After localization, isolation of the faulty part is accomplished by testing in the order shown in the sectional test charts. A high-quality signal generator and a volt-ohmmeter are required. Voltage

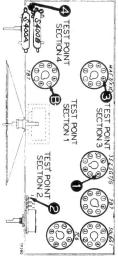


Figure 2. Bottom view, showing test points.

given in the following chart. When applying a signal, connect the signal-generator output lead through a condenser (.01 to .25 mf.). Remedy any defect encountered before readings shown were taken with a 20,000 ohms-per-volt meter. To localize trouble, connect the receiver to the power line; turn receiver volume control full on; see that all tube filaments are lighted; then proceed in the order proceeding to the next check. CIRCUIT ON DATA SHEET 145

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ROUBLE SHOOTING PROCEDURE

TESTS TO ISOLATE TROUBLE WITHIN SECTION 1

TEST POINTS NORMAL READING No voltage indicates defective 3525, or shorted C-101. A to B- 120v. No voltage indicates defective 3525, or shorted C-101, or shorted C-200. (Refer to Section 2 for location.) No voltage indicates open filter resistor R100. No voltage indicates open R100.
NORMAL READING POSSIBLE CAUSE OF ABNORMAL READING No voltage indicates defective 35Z5, or shorted C-101, Low voltage indicates defective 35Z5, leaky or open C-101, or shorted C-200. (Refer to Section 2 for location.) No voltage indicates open filter resistor R100. Low voltage indicates deky C-101 or C-200. (Refer to Section 2 for location.) No voltage indicates open R100. No voltage indicates leaky C-101 or C-200. (Refer to Section 2 for location.)
POSSIBLE CAUSE OF ABNORMAL READING No voltage indicates defective 3525, or shorted C-101. Low voltage indicates defective 3525, leaky or open C-101, or shorted C-200. (Refer to Section 2 for location.) No voltage indicates open filter resistor R100. Low voltage indicates leaky C-101 or C-200. (Refer to Section 2 for location.) No voltage indicates open R100. Low voltage indicates leaky C-101 or C-200. (Refer to Section 2 for location.)

		(ON FO ASSY.)		W100	(m)	
SECTION 1	AL RESTOR WINES IN OWNS DIFFESS FIELD THE GOMERICE BY AND VIDO SCHOOL BATH AND ONE SOUNT BATH THE WASTER WINES IN OWNS DIFFESS FIELD THE BANKER BY AND VIDO SCHOOL BATH THE CONCEDUCES AND VIDO S	1837)	1-025 ME	301,667 706 787 787 14-557/1/20		220 A100 105 1200 1 85V
						In

Figure 3. Section 1 schematic

C101-A-B-C

35Z5GT/

TESTS TO ISOLATE TROUBLE WITHIN SECTION 2

Make all tests for this section with a volt-ohnmeter, using the 0.250v,d-crange. See figures 3 and 4 for location of test points.

For all tests in this section, use the audio range of the signal generator. Connect the output lead through a condenser (.01 to .25 mf.) to the point indicated, and the ground lead to B. Adjust signal generator output for a clear, audible signal

D to B. Speaker. C-202, or speaker LS-200, shorted condenser C-201, leaky condenser E to B. Clear, audible signal, same No signal indicates open condenser C-202.	
Clear, audible signal, same No signal indicates open cond as preceding test.	receding test. r, audible signal, same receding test. r, audible signal, nobly louder than prelig test.
as preceding test.	No signal, or weak signal, indicates defective 7C6, or open resistor R202.
	F to B. Clear, audible signal, no- ticeably louder than pre- ceding test. No signal, or weak signal, indicates defective 7C6, or open resistor R202.

ntrol.

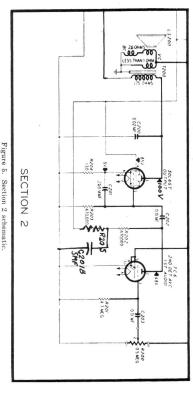
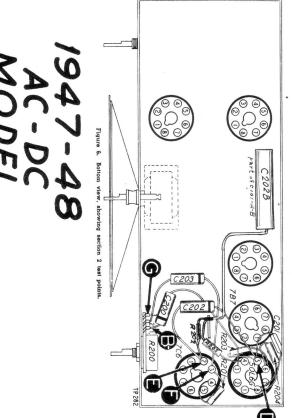


Figure 5. Section 2 schematic



(II)

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Figure 4. Bottom view, showing section I test points.

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FURTHER DATA ON

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DATA SHEET

TROUBLE SHOOTING PROCEDURE

TESTS TO ISOLATE TROUBLE WITHIN SECTION 3

For all tests in this section, set signal generator at 460 kc., modulation ON. Connect output through a condenser (.01 to .25 mfd.) to point indicated, and ground lead to point B. Adjust signal generator output for clear, audible signal.

TEST POINTS	TEST POINTS NORMAL INDICATOR	POSSIBLE CAUSE OF ABNORMAL INDICATION
H to B-	Audible signal from speaker.	Audible signal from speaker. C-303, open resistor R301, or defective diode section of 7C6 (Section 2).
J- to B-	Audible signal from speaker, louder than preceding test.	Audible signal from speaker, louder than preceding test. No signal indicates defective TB7, or i-f transformer Z301.
K to B-	Audible signal from speaker, same as preceding test.	Audible signal from speaker, No signal indicates defective i-f transformer Z300, or open resistor R-300.

- 025 M. = 0508NF	#C363 #C363	1,000 A300	100000 100000 100000 100000 100000 100000 100000 100000 1000000	151 1-5 157 157 157 157 157 157 157 157 157 15
I-F=46 0 KC	# \$504 ajoj	1240 -05	00000000000000000000000000000000000000	210 200 2

Figure 7. Section 3 schematic

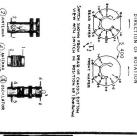
NOTE: As a preliminary test, the tuning control should be rotated throughout its range. Any scraping noise heard in the speaker indicates bent plates, drity wiper contacts, or dirt between the plates.

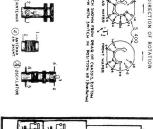
To fully check this section, all tests should first be made with the receiver and signal generator set at 540 kc., and then repeated at 1700 kc.

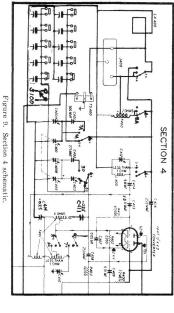
TESTS TO ISOLATE TROUBLE WITHIN SECTION 4 This procedure should also be followed in testing the short-wave band, with the receiver and signal generator set at 9.5 mc; and then at 15 mc.
Connect the signal-generator output through a condenser (.01 to 25 md.) to the point indicated, and the ground aclast a orbit of the signal-generator output control for a class a orbit of signal-generator output control for a class a orbit of signal-generator output control for

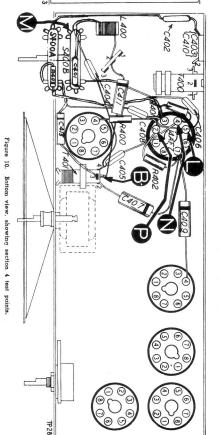
men repeated at 1700 Kc.	1700 KC.	a clear, audible signar.
TEST POINTS	TEST POINTS NORMAL INDICATION	POSSIBLE CAUSE OF ABNORMAL INDICATION
L to B-	Clear, audible signal from I speaker.	Clear, audible signal from R.402, or signal indicates defective 14AF7 or transformer T.401, open resiseaker. R.402, or shorted condenser C.409, †(For supplementary oscillator test footnote below.)
M +o B	Clear, audible signal from	Clear, audible signal from No signal indicates defective coil I 400 (Recodence) ov T 400 (Short we

OSCILLATOR GRID BIAS VOLTAGE—† Attach the positive lead of a 20,000-ohms-per-volt meter to point P, and the proof end of the negative lead, through a 50,000-ohm resistor to point N. Set the meter on 10-volt or similar range and totate the tuning condenser through its entire range on each position of the band switch. Absence of voltage at any point indicates that the oscillator is not functioning. If so, check the components listed in the first test in the chart above.









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FURTHER DATA ON SHEETS 146 -147

data sheet 145 CIRCUIT ON

Figure 8. Bottom view, showing section 3 test points

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SHEET DATA