

CHEVROLET RADIO

SERVICE and SHOP MANUAL



1961 RADIOS

988414—PUSH BUTTON RADIO

988413—MANUAL RADIO

988468—CORVAIR PUSH BUTTON RADIO

988460—CORVAIR MANUAL RADIO

985003—CORVETTE RADIO

985036—MANUAL TRUCK RADIO

988336—SERIES 95 MANUAL TRUCK RADIO

988389—GUIDE-MATIC HEADLAMP CONTROL

Price \$1.00

RS 42

CHEVROLET CUSTOM
CORVAIR RADIO
988336

This radio is a 4 tube with transistor super-heterodyne automobile receiver designed expressly for the Series 95 truck installation. The radio consists of a radio receiver unit with



Figure 86

an external speaker. This type of design is advantageous for both installation and service as all component parts of the receiver are readily accessible for quick efficient replacement

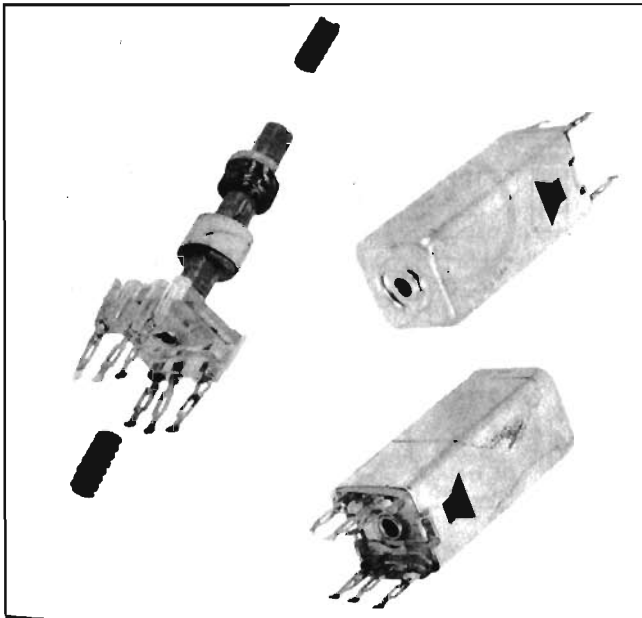


Figure 87

when service is required. Using an external type speaker affords the advantage of having a larger type speaker in a limited space area. The speaker is coupled to the instrument panel by a special type gasket, thereby using the entire instrument panel for unusually good tone reproduction.

ELECTRICAL DESCRIPTION

The circuit used in this receiver is the super-heterodyne type that uses no regeneration. The tuning circuits are of the permeability type and are tuned by varying the iron cores in and out of the antenna, radio frequency and oscillator coils like pistons. The intermediate frequency stages are tuned by means of two iron cores in each transformer and are adjusted with an insulated screw driver from the bottom and top of each transformer; both the first (input) and second (output) intermediate frequency transformers are tuned by this method. See Figure 87.

The antenna circuit is capacity coupled to the antenna by means of an adjustable antenna trimmer condenser to take care of normal variations in antenna and antenna coil capacity. The antenna condenser is adjustable by means of a small screw driver and is located at the lower front on the right side of the radio case.

The automatic volume control is of the delayed signal type and is very capable of maintaining a constant level of volume at all times. Very high frequency filter chokes are used in the radio frequency grid circuit to discriminate against ignition interference in the receiver, thus eliminating the use of spark plug and distributor suppressors.

TUBE AND TRANSISTOR COMPLEMENT AND FUNCTION

12DZ6	Radio frequency amplifier
12AD6	Oscillator - modulator
12EK6	Intermediate frequency amplifier
12DS7	Detector - Automatic volume control and first audio
DS503	Audio output "HI-POWER" transistor

GENERAL INFORMATION

Tuning range 540 - 1615 kilocycles
Intermediate frequency - 262 kilocycles
Maximum power output 4.2 watts
Undistorted power output 2.6 watts
Current drain 1.6 amperes at 12 volts
Speaker-Alnico V permanent magnet type 6 x 9
inch
Voice coil impedance 4 ohms at 400 cycles
All circuits use a printed circuit board

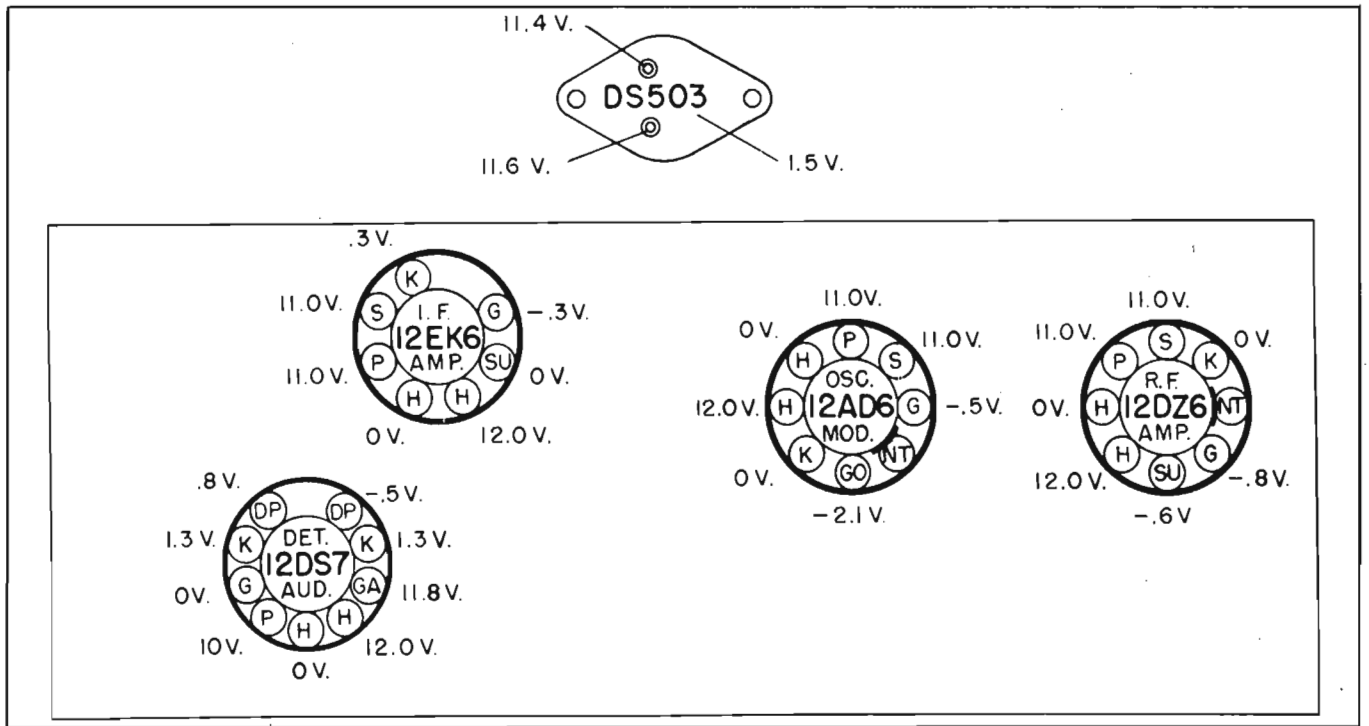


Figure 88 VOLTAGE CHART - 988336 - RADIO

PROCEDURE FOR CHECKING THE VOLTAGES OF 988336 RADIO

Hook up radio on the service bench to a "12" volt power supply unit. It is important that you have 12 volts at the spark plate of the radio, or the voltage readings will be correspondingly lower. All voltage readings have been taken with V.T.V.M. Set the volt-ohm meter in the "30"

volt position to read "D.C." voltage. Ground one lead of volt meter to radio chassis and with other lead check all tube pins marked "H" with a voltage reading of 12 volts as shown in Figure 88. If incorrect or no voltage, check or replace the following:

1. Check or replace "On and Off" switch, Item 57C on circuit diagram and 57 on parts layout.

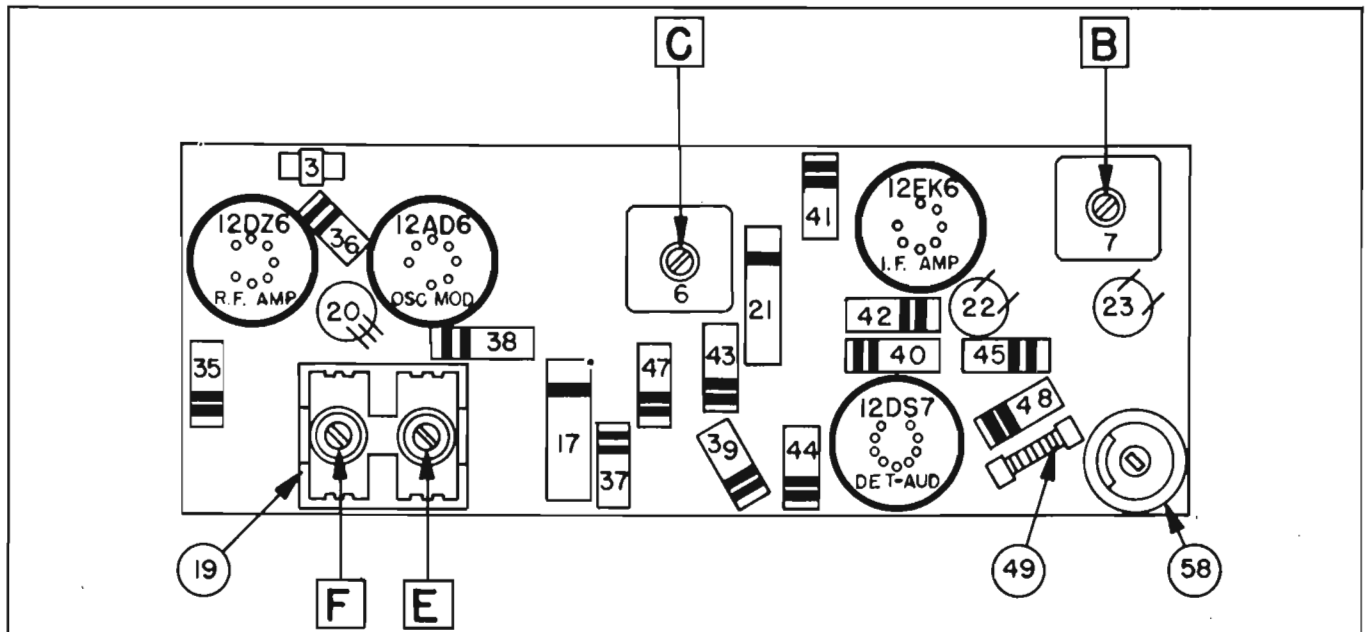


Figure 89 PARTS LAYOUT ON CIRCUIT BOARD - 988336 - RADIO

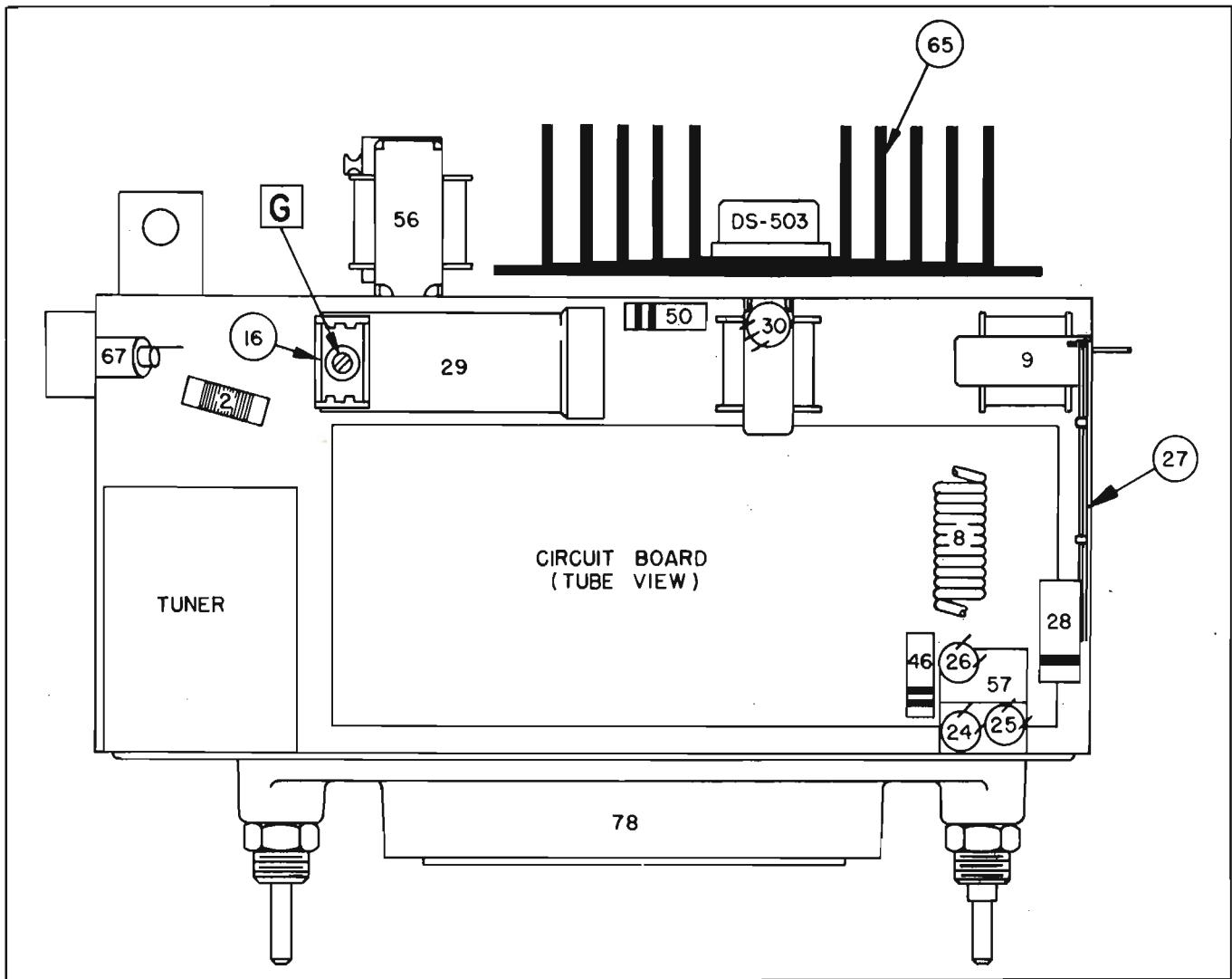


Figure 90 PARTS LAYOUT - BOTTOM VIEW - 988336 - RADIO

2. Check or replace condensers, Items 27 and 28 on circuit diagram and parts layout.
3. Check or replace choke, Item 9 on circuit diagram and parts layout.

Next check the transistor collector element marked "C" of the DS503 output transistor which should read 1.3 to 1.7 volts D.C. If high or no voltage, check or replace:

1. Check or replace emitter fuse resistor, Item 49 on the circuit diagram and parts layout.
2. Check or replace speaker, Item 60 on the circuit diagram and parts layout.
3. Check or replace output transformer, Item 56 on the circuit diagram and parts layout.
4. Check connector, Item 61 for ground to chassis. This is a shorting type interlock

switch and must be opened by speaker plug when testing radio.

5. Check or replace pontentiometer, Item 58 on the circuit diagram and parts layout.

Next check the resistance of the base element of the transistor marked "B" of the DS503 to ground with the radio turned off. Make this check with meter on the R x 1 ohm scale. The resistance should be between 2 and 15 ohms. If incorrect or zero, check or replace:

1. Check or replace the input transformer, Item 55 on the circuit diagram and parts layout.
2. Check or replace condenser, Item 30 on the circuit diagram and parts layout.
3. Check or replace resistor, Item 48 on the circuit diagram and parts layout.

Next check the resistance to ground of the transistor emitter element marked "E" with the radio turned off. Set the ohmmeter on the RX1 scale. The resistance should be between 1 and 4 ohms. If incorrect or zero, check or replace:

1. Check or replace fuse resistor, Item 49 on the circuit diagram and parts layout.
2. Check or replace condenser, Item 30 on the circuit diagram and parts layout.

Next, with the radio turned off, check the resistance between the collector element marked "C" and the emitter element marked "E" of the DS503. If less than 1 ohm, the transistor may be shorted. Disconnect the leads and check the resistance again. If still less than 1 ohm, replace the transistor.

Next check tube pin No. 6 marked "P" on the 12DS7 which should read 8.7 volts D.C. If incorrect or no voltage, check or replace:

1. Check or replace transformer, Item 55 on the circuit diagram and parts layout.
2. Check or replace resistor, Item 47 on the circuit diagram and parts layout.

Next check tube pin No. 3 marked "GA" on the 12DS7 which should read 11.3 volts D.C. If incorrect or no voltage, check or replace:

1. Check or replace choke, Item 9 on circuit diagram and parts layout.

Next check tube pin No. 8 marked "K" on the 12DS7 which should read 1.3 volts D.C. If incorrect or no voltage, check or replace:

1. Check or replace resistor, Item 44 on the circuit diagram and parts layout.

Next check tube pin No. 5 marked "P" on the 12EK6 I.F. amplifier which should read 10.8 volts D.C. If incorrect or no voltage, check or replace:

1. Check or replace I.F. transformer, Item 7 on the circuit diagram and parts layout.

Next check tube pin No. 6 marked "S" on the 12EK6 which should read 10.8 volts D.C. If incorrect or no voltage, check or replace:

1. Check or replace electrolytic condenser, Item 29 on the circuit diagram and parts layout.

2. Check or replace resistor, Item 47 on circuit diagram and parts layout.

Next check tube pin No. 5 marked "P" on the 12AD6 which should read 10.8 volts D.C. If incorrect or no voltage, check or replace:

1. Check or replace I.F. transformer, Item 6 on the circuit diagram and parts layout.

Next check tube pin No. 6 marked "S" on the 12AD6 which should read 10.8 volts D.C. If incorrect or no voltage, check or replace:

1. Check or replace oscillator coil, Item 5 on the circuit diagram and parts layout.

Next check tube pin No. 5 marked "P" on the 12DZ6 R.F. amplifier which should read 10.8 volts D.C. If incorrect or no voltage, check or replace:

1. Check or replace choke, Item 3 on the circuit diagram and parts layout.
2. Check or replace condenser, Item 20A on the circuit diagram and parts layout.

Next check tube pin No. 6 marked "S" on the 12DZ6 which should read 10.8 volts D.C. If incorrect or no voltage, check or replace:

1. Check or replace resistor, Item 47 on the circuit diagram and parts layout.

PROCEDURE FOR SIGNAL TRACING RADIO 988336

Turn on signal generator and set in audio position to obtain a 400 cycle audio signal. Ground one lead of signal generator to radio chassis.

NOTE: To protect the signal generator from "D.C." voltage, place a 0.1 mfd. condenser in signal generator lead between the signal generator and the end of the test lead. Adjust signal generator volume about 3/4 open to obtain a strong signal.

With signal generator lead, touch tube pin No. 6 marked "P" on the 12DS7 socket. If no signal, check or replace:

1. Check or replace fuse resistor, Item 49 on the circuit diagram and parts layout.
2. Check speaker interlock socket, Item 61.

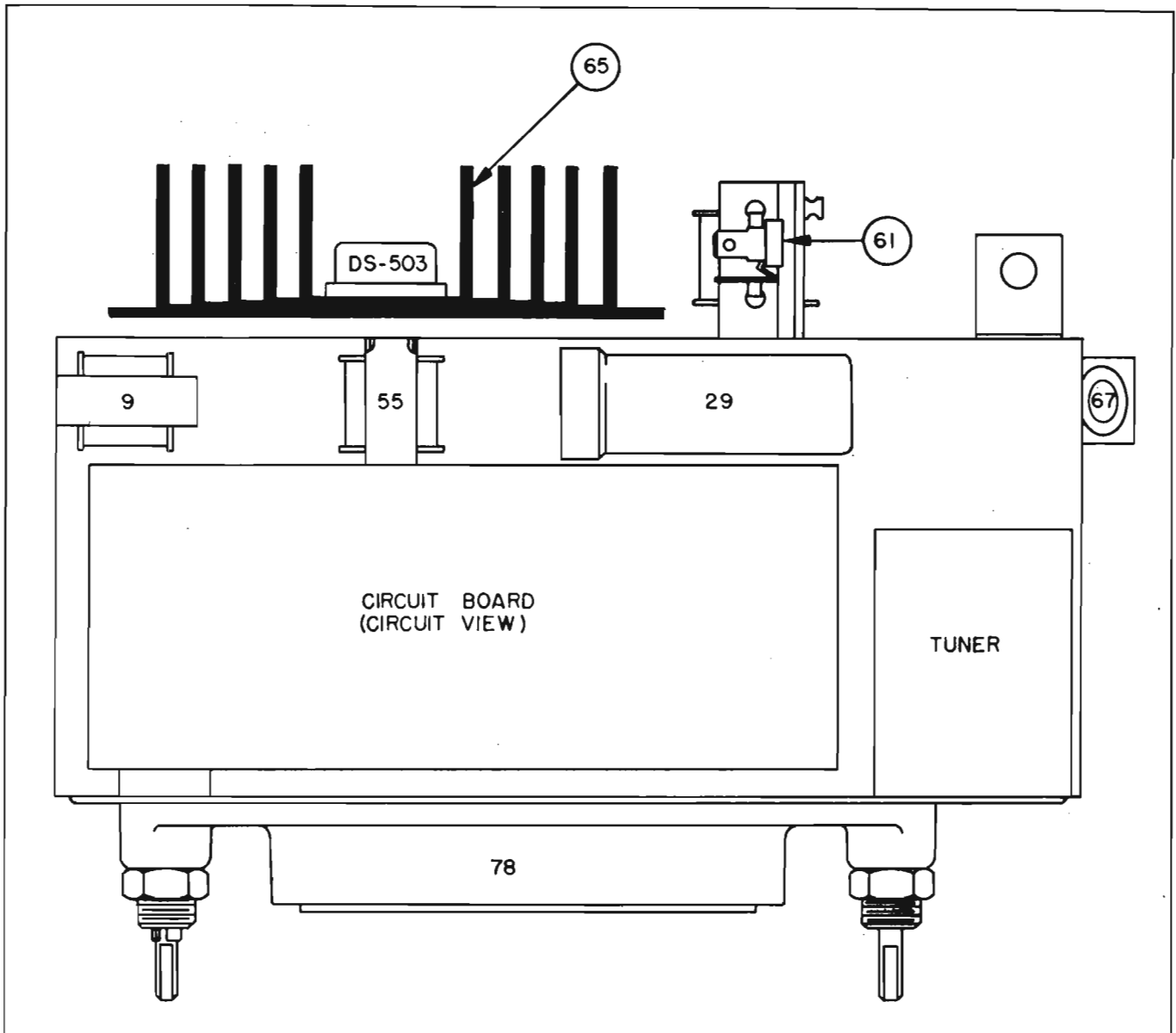


Figure 91 PARTS LAYOUT - TOP VIEW - 988336 - RADIO

3. Check or replace speaker, Item 60 on circuit diagram and parts layout.
4. Check or replace the output transformer, Item 56 on the circuit diagram and parts layout.
5. Check or replace input transformer, Item 55 on the circuit diagram and parts layout.
6. Check or replace DS503 transistor output stage.

1. Check or replace 12DS7 tube or tube socket on circuit diagram and parts layout.
2. Check or replace resistor, Item 45 on circuit diagram and parts layout.
3. Check or replace choke, Item 8 on the circuit diagram and parts layout.
4. Check or replace condenser, Item 26 on the circuit diagram and parts layout.

With signal generator lead touch tube pin No. 7 marked "G" on the 12DS7 tube. If no signal, check or replace the following:

Next turn volume control all the way open and touch tube pins No's. 1 and 9 marked "DP" on

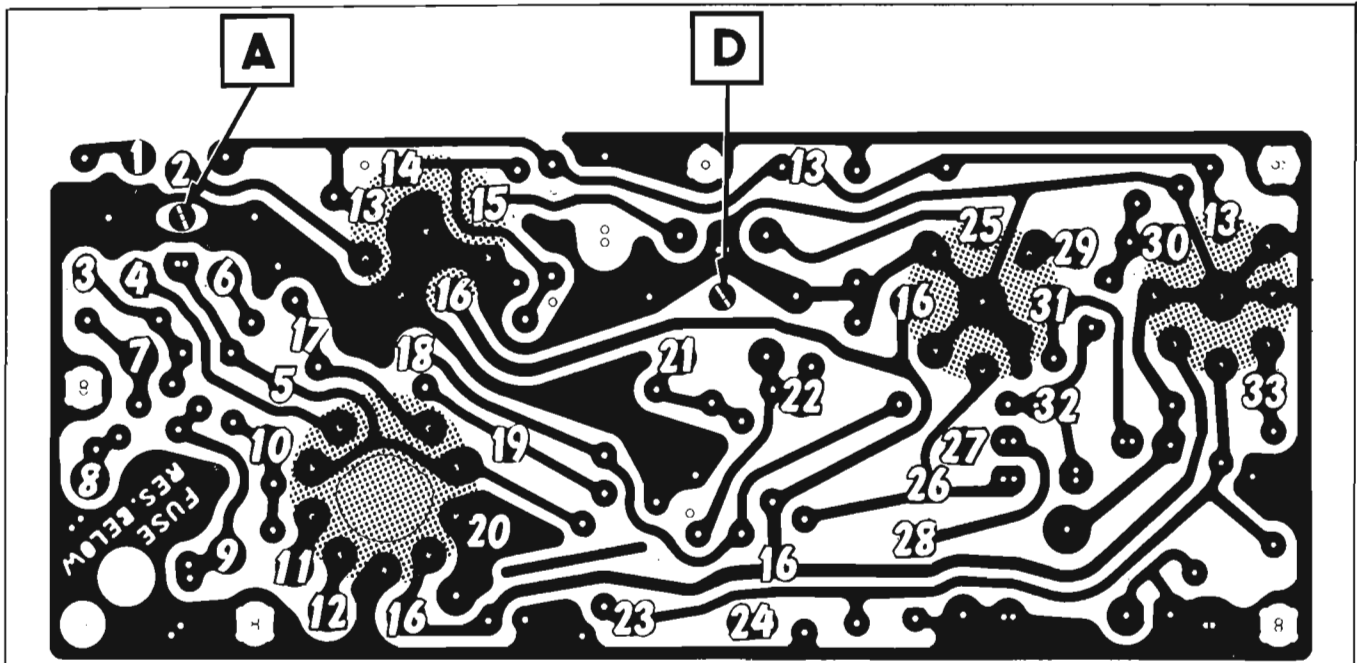


Figure 92 CIRCUIT BOARD PATTERN - 988336 - RADIO

the 12DS7 tube. If no signal, check or replace the following:

1. Check or replace 12DS7 tube.
2. Check or replace volume control, Item 57A on diagram and 57 on parts layout.

Now change signal generator from audio position to generate an intermediate frequency signal. Set signal generator to 262 kilocycles, leaving 0.1 mfd. condenser in signal generator lead to protect the signal generator from "D.C." voltage. Keep signal generator grounded to radio chassis.

Next touch tube pin No. 1 marked "G" on 12EK6 intermediate frequency amplifier tube. If no signal, check or replace the following:

1. Check or replace 12EK6 tube.
2. Check or replace intermediate frequency transformer, Item 6 on circuit diagram and parts layout.
3. Check or replace 12EK6 tube socket.

Next touch tube pin No. 5 marked "P" on 12AD6 tube. If no signal, check or replace the following:

1. Check or replace intermediate frequency transformer, Item 6 on circuit diagram and parts layout.

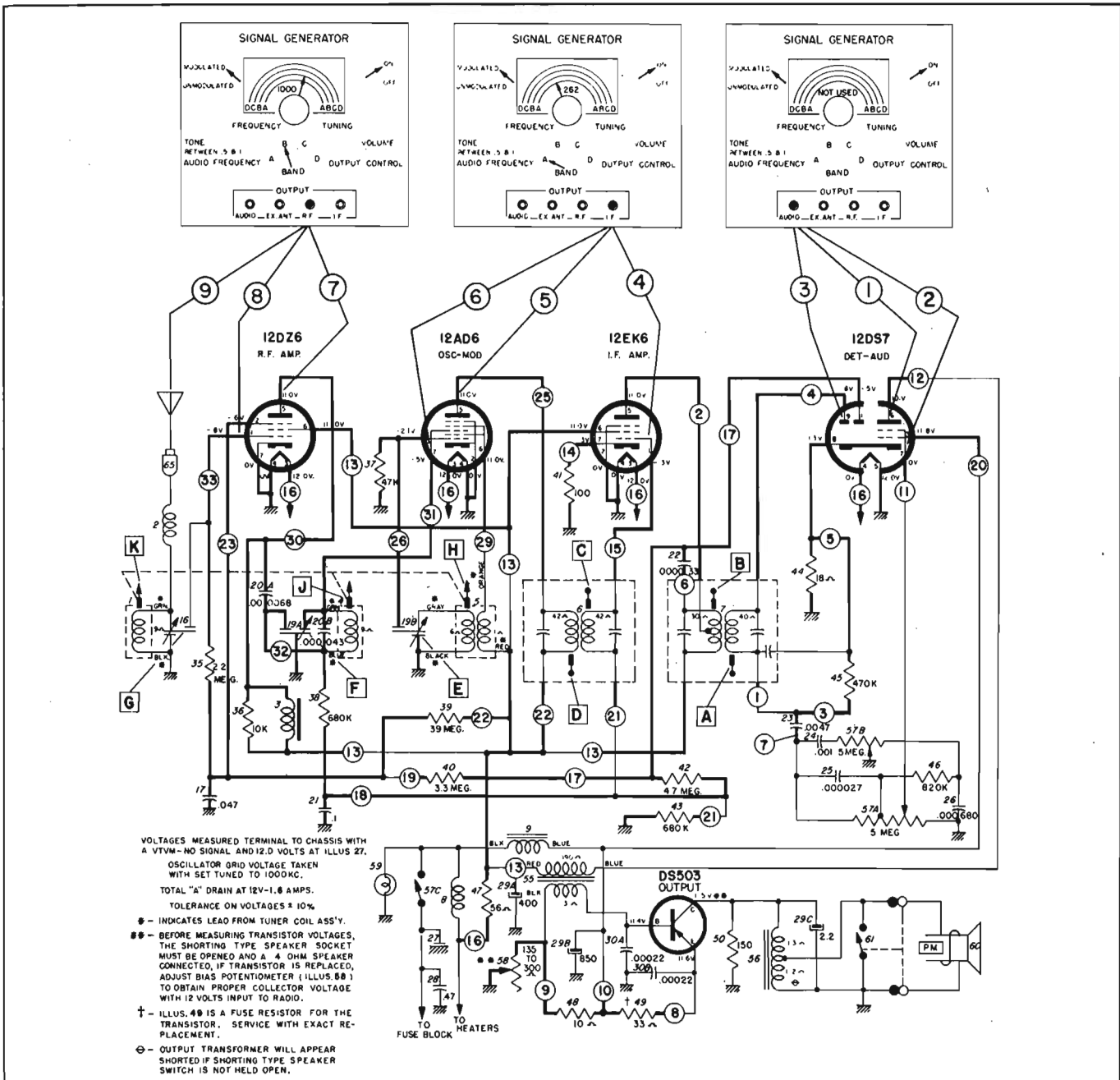
Next touch tube pin No. 7 marked "G" on 12AD6 tube. If no signal, check or replace the following:

1. Check or replace 12AD6 tube.
2. Check or replace oscillator coil, Item 5 on circuit diagram and parts layout.

Next change signal generator from intermediate frequency setting to radio frequency signal. Replace the 0.1 mfd. condenser in the signal generator lead with a .000082 mfd. condenser to protect signal generator from "D.C." voltage. Set signal generator to 1100 kilocycles and tune radio receiver to 1100 kilocycles (11 on dial scale).

Next touch tube pin No. 5 marked "P" on 12DZ6 radio frequency amplifier tube. If no signal, check or replace the following:

1. Check or replace radio frequency coil, Item 4 on circuit diagram and parts layout.
2. Check or replace oscillator coil, Item 5 on circuit diagram and parts layout.
3. Check or replace condensers, Items 20A, 19A, 19B and 20B on circuit diagram and parts layout.
4. Check or replace resistor, Item 37 on circuit diagram and parts layout.



POINT SIGNAL STOPS - CHECK OR REPLACE ITEMS LISTED

No signal at Point 1 - Check or replace items 29C - 48 - 49 - 50 - 55 - 56 - 60 - 61 - DS503.

No signal at Point 2 - Check or replace items 9 - 29B - 44 - 12DS7 tube.

No signal at Point 3 Check or replace items 23 - 24 - 25 - 26 - 44 - 45 - 46 - 57A - 57B - 12DS7 tube or socket.

No signal at Point 4 - Check or replace item 7 or 12EK6 tube or socket.

No signal at Point 5 - Check or replace item 6.

No signal at Point 6 - Check or replace item 5 - 12AD6 tube or socket.

No signal at Point 7 - Check or replace items 4 - 5 - 19A - 19B - 20A - 20B.

No signal at Point 8 - Check or replace item 3 - 12DZ6 tube or socket.

No signal at Point 9 - Check or replace items 1 - 2 - 16.

Figure 93 SIGNAL TRACING PROCEDURE - 988336 - RADIO

Next touch tube pin No. 1 marked "G" on 12DZ6 radio frequency tube. If no signal, check or replace the following:

1. Check or replace 12DZ6 tube.
2. Check or replace 12DZ6 tube socket.
3. Check or replace choke, Item 3 on circuit diagram and parts layout.

Next touch antenna terminal at antenna socket. If no signal, check or replace the following:

1. Check or replace antenna coil, Item 1 on circuit diagram and parts layout.
2. Check or replace condenser, Item 16 on circuit diagram and parts layout.
3. Check or replace choke, Item 2 on circuit diagram and parts layout.

This completes the entire checking procedure of the receiver, and if the procedure has been followed as outlined, the failure will have been located. After repairing failure, receiver will operate and should now be aligned for proper performance as follows and which is part of the service operation when repairing radios.

PROCEDURE FOR ALIGNMENT OF 988336 RADIO

All receivers are properly aligned at the factory and should require no further adjustments, except adjusting the receiver to the antenna when

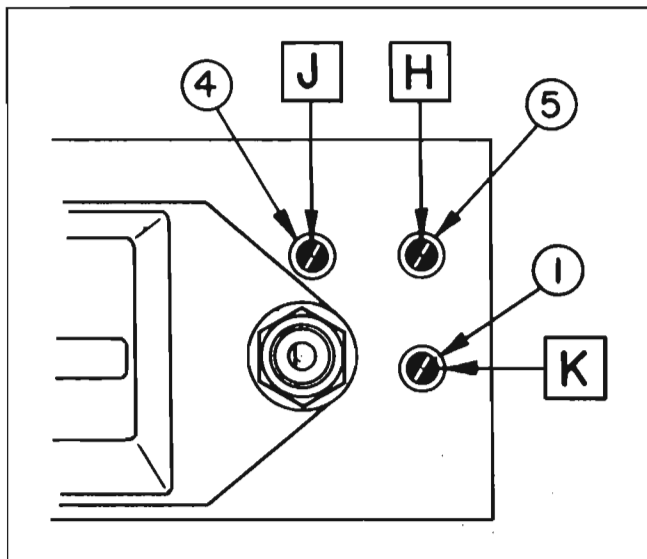


Figure 94 IRON CORE ALIGNMENT - 988336 - RADIO

installation is made, unless the adjustments have been tampered with, or new coils, intermediate frequency transformers, or tuning cores have been installed.

To properly align the receiver, it will be necessary to have an output meter and signal generator.

NOTE: If any one of the tuning coils or cores have been replaced, see "Capacity and Inductance Alignment Procedure" before proceeding with alignment of the receiver. If only the adjustments have been tampered with or an intermediate frequency transformer has been replaced, proceed with the alignment as follows:

1. First hook up an output meter to the radio receiver. Any volt meter which will read "A.C." can be used. Set the voltmeter in the "3" volt "A.C." range position and place voltmeter leads across speaker voice coil terminals. Speaker is Item 60 on circuit diagram and parts layout.
2. Turn on signal generator and set adjustments to obtain a 262 kilocycle signal. Connect one lead of signal generator to radio chassis for ground. Attach the other lead from the signal generator to the tube pin No. 7 marked "G" on 12AD6 tube.
3. Adjust signal generator volume control so that the volt meter will read at about half scale.

NOTE: Radio receiver volume control must be turned to the maximum position so that the automatic volume control circuit of the radio will not affect the alignment of the receiver.

4. Adjust in sequence cores "A, B, C and D", as shown on circuit diagram and parts layout, for maximum meter reading. Repeat adjustments to get maximum meter reading. Keep the signal generator volume turned down so that during adjustments the meter does not read more than half scale. This will result in a better alignment of the receiver.
5. Next change signal generator setting to obtain a radio frequency signal and tune signal generator to exactly 1615 kilocycles. Connect a .000082 mfd. condenser to antenna connector and attach signal generator lead. Tune radio receiver to the "stop" on the 1600 kilocycle end of the dial. Keep the signal generator volume control adjusted so that output meter reads at about half scale.

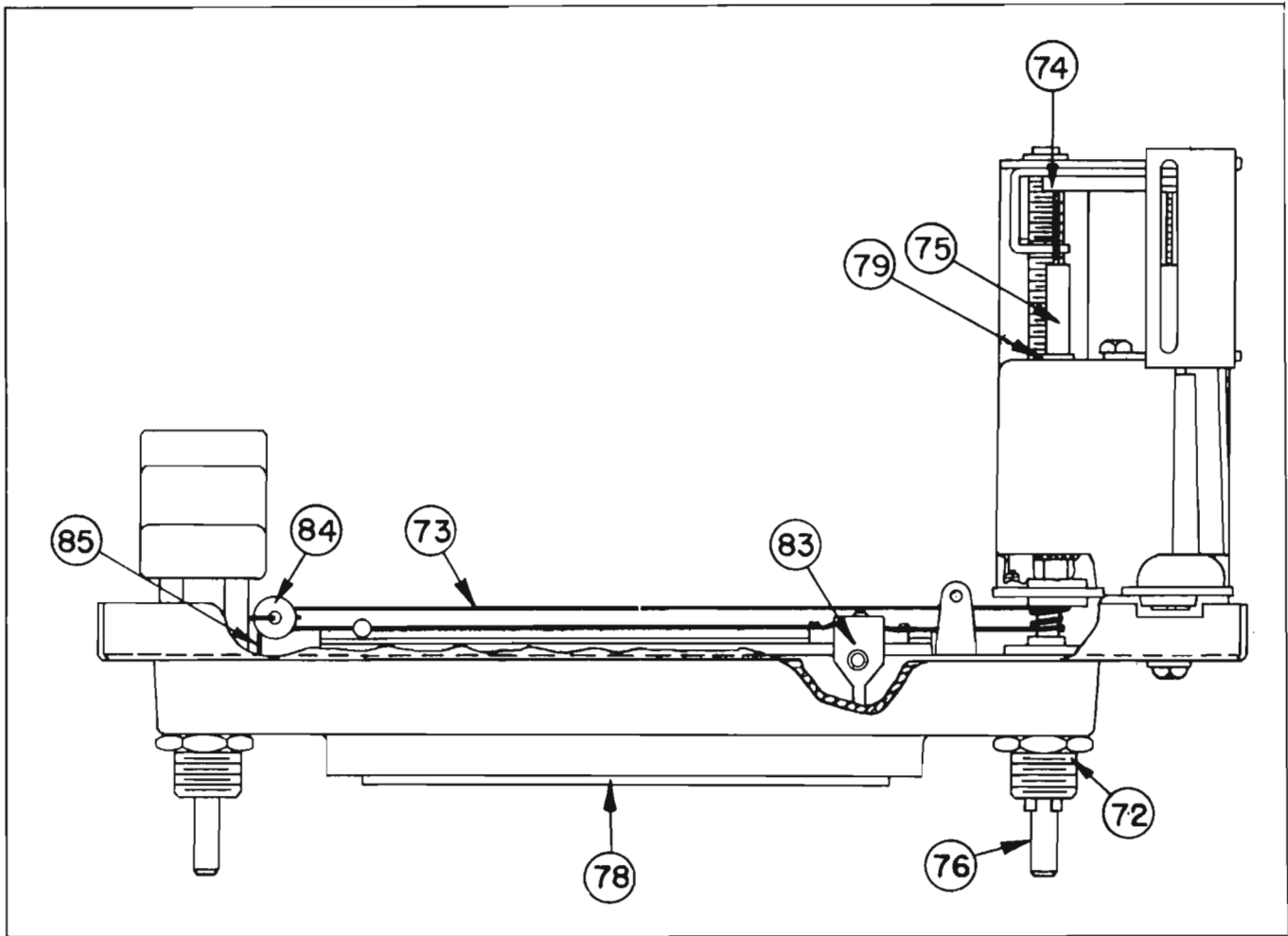


Figure 96 TUNER AND DIAL CORD VIEW - 988336 - RADIO

6. Adjust trimmers "E, F and G" on circuit diagram and parts layout in sequence for maximum readings on output meter. Repeat for maximum meter readings.
7. After the receiver has been installed in the car, turn on receiver and tune in a weak station near 1000 kilocycles, with radio volume control turned to maximum position and the antenna extended to full height. Re-adjust trimmer "G" ONLY for maximum volume.

CAPACITY AND INDUCTANCE ALIGNMENT PROCEDURE FOR 988336 RADIO

This alignment procedure is to be used only when any of the following parts have been replaced in the radio; antenna coil, radio frequency coil, oscillator coil or any of the tuning cores.

The intermediate frequency alignment at 262 kilocycles is the same as outlined in "Alignment

Procedure" operations 1 through 4. After completing the intermediate frequency alignment, proceed as follows:

1. Connect signal generator lead to a .000082 mfd. condenser and connect to antenna terminal of antenna socket. Tune signal generator to exactly 1615 kilocycles, and tune radio receiver to "stop" on the 1600 kilocycle end of the dial.
2. Adjust output meter to about half scale, and then adjust trimmers "E, F and G" on circuit diagram and parts layout in sequence for maximum meter readings.
3. Next tune signal generator and radio receiver to exactly 600 kilocycles, 6 on radio dial, and adjust iron cores "H, J and K" for maximum readings on output meter.

NOTE: The iron cores are slotted so that adjustments can be made with a small insulated screw driver that fits loosely in the coil forms.

4. Repeat alignment procedure at 1615 and 600 kilocycles until the maximum readings have been attained.
5. After the receiver has been installed in the car, turn on the receiver and tune in a weak station near 1000 kilocycles, with radio volume turned to maximum position and antenna extended to full height. Readjust trimmer "G" only for maximum volume.

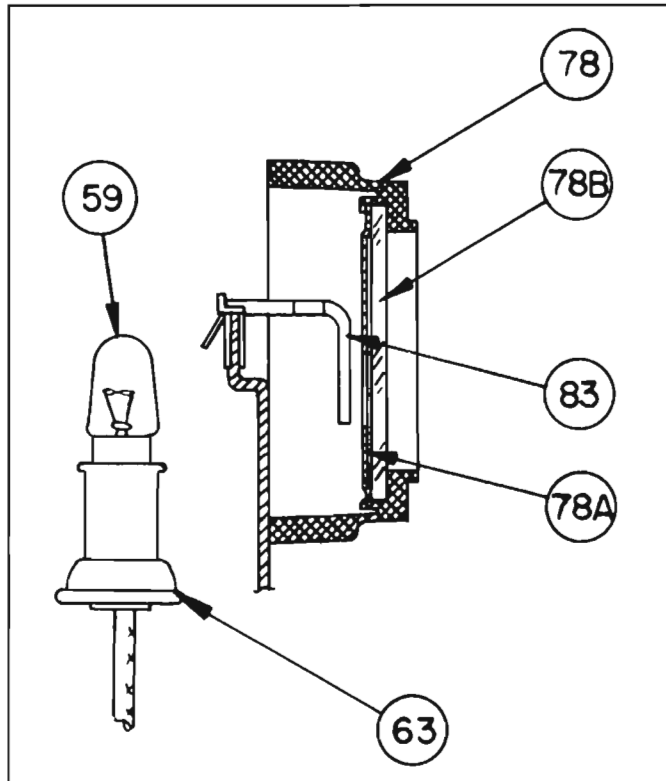


Figure 97 CROSS SECTION OF ESCUTCHEON -
988336 - RADIO

SERVICE PARTS LIST 988336 RADIO

NOTE: All Chevrolet radio service parts are available to dealers through General Motors Parts Division Warehouses. Orders for radio parts requirements to be placed with warehouse in the usual manner.

Illus. No.	Service Part No.	Description
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ELECTRICAL PARTS

COILS

1	1221138	Antenna tuning
2	7255738	Choke, antenna series
3	7269684	Choke, R.F. plate

Illus. No.	Service Part No.	Description
4	1221138	R.F. tuning
5	1221263	Oscillator tuning
6	1221257	1st I.F.
7	1221255	2nd I.F.
8	1217846	Choke, hash
9	7274342	Choke, "A" supply, input

CONDENSERS

16	7275120	Antenna Trimmer
17	7272915	.047 mfd., 75 volt, tubular
19	7273697	Dual Trimmer
19A		R.F. Section
19B		Osc. Section
20	7277489	Capacitor, dual ceramic
20A		.000068 mfd., 500 volt
20B		.000043 mfd., 500 volt
21	7271042	.1 mfd., 75 volt, tubular
22	7274858	.000033 mfd., 500 volt, ceramic
23	7271556	.0047 mfd., 500 volt, ceramic
24	7271421	.001 mfd., 500 volt, ceramic
25	7271876	.000027 mfd., 500 volt, ceramic
26	7274491	.000680 mfd.
27	1221509	Spark Plate
28	7257906	.47 mfd., 100 volt, tubular
29	7273730	Electrolytic, 3 section
29A		400 mfd., 16 volt
29B		850 mfd., 16 volt
29C		2.2 mfd., 32 volt
30		Dual Ceramic
30A	7270375	.000220 mfd., 500 volt, ceramic
30B	7270375	.000220 mfd., 500 volt, ceramic

RESISTORS

35	1214563	2.2 megohm, 1/2 watt
36	*1213252	10,000 ohm, 1/2 watt
37	1214553	47,000 ohm, 1/2 watt
38	*1213488	680,000 ohm, 1/2 watt
39	*7273602	39 megohm, 1/2 watt
40	1214564	3.3 megohm, 1/2 watt
41	*1213217	100 ohm, 1/2 watt
42	*1214566	4.7 megohm, 1/2 watt
43	*1213488	680,000 ohm, 1/2 watt
44	*1215944	18 ohm, 1/2 watt
45	1214559	470,000 ohm, 1/2 watt
46	*1214561	820,000 ohm, 1/2 watt
47	*1214540	56 ohm, 1/2 watt
48	*1215107	10 ohm, 1/2 watt
49	7274329	.33 ohm, fuse resistor
50	*1211005	150 ohm, 1 watt

<u>Illus. No.</u>	<u>Service Part No.</u>	<u>Description</u>	<u>Illus. No.</u>	<u>Service Part No.</u>	<u>Description</u>
TUBES AND TRANSISTORS			73	1219143	Cord, dial pointer drive
	7274653	DS-503 Transistor, output	74	7274289	Core Bar
	1221126	12DZ6 Tube, R.F. Amp.	75	7273859	Core, tuning
	1220987	12AD6 Tube, osc.-mod.	76	1221510	Drive Shaft, manual
	1221272	12EK6 Tube, I.F. Amp.	77	7274917	Spring, shaft retainer
	1221259	12DS7 Tube, det.-audio	78	7274983	Escutcheon Assembly
			78A		Backplate, dial
			78B		Dial, calibrated
MISCELLANEOUS ELECTRICAL			79	7258565	Grommet, ant. R.F. coil mtg.
55 *	1221590	Transformer, input	80	7258564	Grommet, osc. coil mtg.
56	1221535	Transformer, output	81	7271590	Housing, tuning coils
57	7277288	Control, volume, tone & switch	82	7271505	Sleeve, ant. & R.F. coils
57A		Volume	83	*7270446	Pointer Assembly
57B		Tone	84	7263593	Pulley, dial cord
57C		Switch	85	7269225	Spring, dial cord tension
58	7275474	Rheostat, 300 ohms, T.C.	86	7262922	Spring, manual drive
59	456985	Lamp, dial light, #1891			
60	7277515	Speaker, 6" x 9", P.M., special gasket			
61	7274985	Switch, speaker inter-lock			
MECHANICAL PARTS					
CHASSIS					
63	7275571	Dial Light Assembly			
	7271916	Felt Pad, 12DS7 tube			
64	7275105	Lead & Plug Assembly, speaker			
65	1221365	Radiator, transistor heat			
	7269634	Insulator, heat radiator			
66	7275178	Shield, tube, 12AD6			
67	7270995	Socket, antenna connector			
68	7268815	Socket, tube, 7-pin miniature			
69	1221435	Socket, tube, 9-pin miniature			
TUNER					
71	7275106	Backplate, pointer			
72	7274916	Bushing, manual drive			
					INSTALLATION PARTS
				3788238	Bracket, radio cover
				3783236	Bracket, radio mtg.
				1911095	Capacitor, generator
				1947452	Capacitor, ignition coil
				7259643	Capacitor, voltage regulator
				3783239	Cover Assembly, radio
				3783307	Cushion, speaker mtg. bracket
				148511	Fuse, 4 amp, type AGC
				7277055	Knob, control (2)
				7274782	Knob, dummy
				7272970	Knob, tone
				445347	Nut, "J"
				7235969	Nut, radio bushing (2)
				3784324	Plate, speaker mtg.
				7276494	Static Collector, front wheels (2)
				7271671	Strap, radio ground (3)
				6257809	Trimplate
				7257400	Washer, wave, knob anti-rattle (2)

* Not serviced.