

SERVICE MANUAL

Motorola

AUTOMOBILE RECEIVER

Model 9-44

GALVIN MANUFACTURING CORPORATION • CHICAGO

ALIGNMENT PROCEDURE MODEL-9-44

Place the radio on the service bench with the front cover removed, but with the speaker and battery connected to it.

Turn the volume control to maximum position and leave it there throughout the alignment, reducing the signal generator output, if necessary.

NOTE: Do not adjust trimmer in the oscillator coil can that is covered with Scotch Tape. The original adjustment made in the factory should not be tampered with.

Fig. 1 below shows all trimmer locations.

I.F. ALIGNMENT

1. Connect the signal generator to the control grid of the Osc.-Mod. tube (6A7). Turn the condenser gang completely out of mesh. Connect an output meter across the speaker voice coil.

2. Set the signal generator at 262 K.C. and carefully adjust the two trimmers in the Diode coil can to the point showing the highest reading on the output meter.

3. Adjust the two trimmers in the I.F. coil can to the point showing the highest output reading.

4. Repeat the I.F. and Diode adjustments several times for maximum accuracy.

SETTING THE RANGE

1. Connect the signal generator to the con-

trol grid of the R.F. tube (78), using the same .1 MF condenser.

2. Set the signal generator at 1550 K.C. and with the condenser gang completely out of mesh adjust the oscillator trimmer on the middle section of the condenser gang to the point showing the highest output reading.

3. Set the signal generator at 535 K.C. Turn the condenser gang completely in mesh and adjust the 600 K.C. padder in the oscillator coil can for the highest output reading.

NOTE: Adjustments above set the range so the receiver will track with the calibrations in the control head.

RF AND ANTENNA ALIGNMENT

1. Connect the signal generator to the antenna lead through a 40 MMF condenser and to chassis ground. Set the signal generator at 600 K.C. and turn the condenser gang until the signal is heard. Adjust the 600 K.C. padder in the antenna coil can for maximum output reading, while slightly rocking the condenser gang.

2. Set the signal generator at 1400 K.C. Turn the condenser gang until the signal is heard. Adjust the 1400 K.C. trimmer in the antenna coil can for maximum output reading.

3. Adjust the 1400 K.C. R.F. trimmer on the inside section of the condenser gang for maximum output reading.

4. Recheck steps 1, 2, and 3, for accuracy.

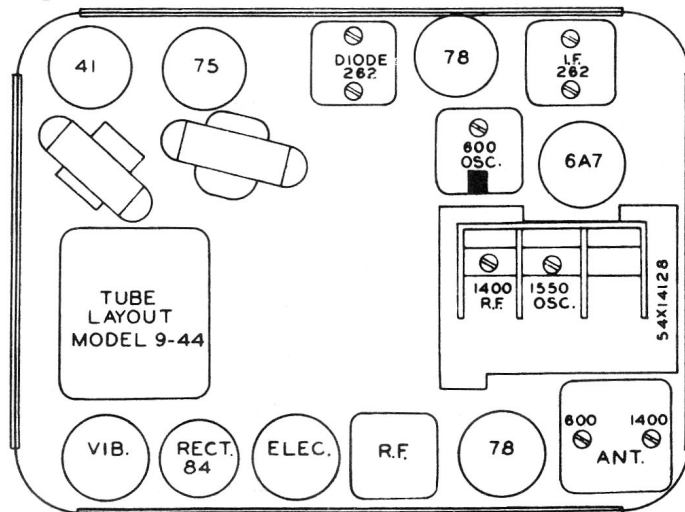


Figure 1 — Trimmers

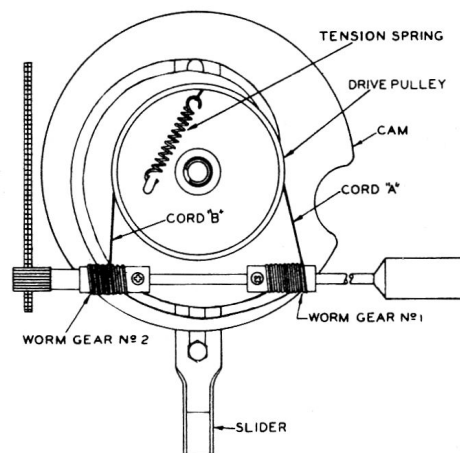


Figure 2

TO RESTRING BOOST-O-MATIC DRIVE

1. Turn the condenser gang to the fully open position.
2. Turn the booster pulley and cam assembly until the forked slider has been drawn all the way in and the hole in the rim of the drive pulley is at the top, lining up with the pulley stud and the slider, as indicated in Fig. 2.
3. If the old string is broken, cut a new piece of 30 pound test silk fish cord, 31" long, and tie knots or eyelets in both ends so the length between the knots is exactly 29½".
4. Double the cord at its exact center and push the loop through the hole in the rim of the drive pulley.
5. Tie the tension spring in the loop thus formed, but do not hook it under the ear stamped out of the pulley. You will now have two equal lengths of string extending from the hole in the pulley which we shall call Cord "A" and Cord "B", as indicated in Fig. 2.
6. Take Cord "A" and wind it clockwise one complete revolution around the drive pulley, continuing downward to worm gear #1.
7. Loosen the set screws in worm gear #1 and hook the knot in Cord "A" in the slot in the end of the worm drive.
8. Turn the worm drive towards you just enough to take up the slack in Cord "A" and tighten the set screws.
9. Hold Cord "B" in your left hand and turn the tuning shaft manually until the condenser gang is closed. This will wind Cord "A" on worm drive #1.
10. Loosen the set screws in worm drive #2 and hook the knot in Cord "B" in the slot in the end of worm drive #2.
11. Turn worm drive #2 away from you just enough to take up the slack in Cord "B" and tighten the set screws.
12. Hook the end of the cord tension spring under the ear stamped out of the pulley.

NOTE: You can see by studying Fig. 2 how Cord "A" passes over worm drive #1, whereas, Cord "B" passes under worm drive #2.

SENSITIVITY AND STAGE GAIN MEASUREMENTS

Average Microvolt Input *	Generator Set at	Generator Feeder Connected to	Dummy Antenna Capacity	Leak Resistance	Output Meter Reading **
9000	262 K.C.	78 Grid (I.F.)	.1 MF	.5 Meg	1.74 Volts
900	262 K.C.	6A7 Grid	.1 MF	.5 Meg	1.74 Volts
1000	600 K.C.	6A7 Grid	.1 MF	.5 Meg	1.74 Volts
50	600 K.C.	78 Grid (R.F.)	.1 MF	.5 Meg	1.74 Volts
5 (NOTE)	600 K.C.	Ant. Lead	.40 MMF	None	1.74 Volts

* For 1 Watt output.

** Output meter connected across voice coil.

1.74 Volts equals 1 Watt output.

V.C. resistance - 3 ohms.

(NOTE:) Without Booster

VOLTAGE CHART

TUBE	POSITION	PLATE	SCREEN	CATHODE	OSC. PLATE
78 *	RF	195	80	0	-
6A7 *	Osc. - Mod.	195	80	0	95
78	IF	195	80	0	-
75	Det. - Avc	75	-	-2	-
41 **	Output	200	200	0	-
84	Rect.	AC	-	210	-

* Bias -3. V from "B" stick.

** Bias -17.V from "B" stick.

MODEL 944 PARTS PRICE LIST

(Note: Numbers in first column refer to squared numbers on circuit diagram)

Diag. No. Part No. Description List

MAJOR PARTS

33	49A3333	Vibrator	4A1957	"C" Washer	MISCELLANEOUS	DOZ.	\$.15
34	1X4080	"A" Choke Assembly	42A3094	Tube Shield Ground Spring		DOZ.	.05
7	18A4364	Volume Control & Switch (.5 Meg.)	42K3219	Snap "v" Cond. Holder (9/16)		DOZ.	.40
10	25B4416	Power Transformer	26A4068	Electr. "v"tic Condenser Shield		DOZ.	.10
35	24A4528	Hash Choke	1X4118	Antenna Receptacle Assembly		DOZ.	.75
9	40K13711	Tone Control	42A4215	Vibrator Grounding Clip		DOZ.	.05
	50B13805	Speaker (6" Dynamic)	7A4341	Drive Shaft & Choke Support Bracket		DOZ.	.15
	15G14194	Speaker Exchange	7B4366	Condenser Mounting Bracket		DOZ.	.20
6	13L1498	Front Housing	1X4430	Pinion Brkt. & Bushing Assembly		DOZ.	.35
8	14A14202	Spark Plate Assembly	41A4547	Split Gear Coil Spring		DOZ.	.25
5	25K14203	Output Transformer	1X4593	Gang Drive Split Gear Assembly		DOZ.	.05
4	1X14206	Filter Choke	43A4780	Spacer Bushing		DOZ.	.15
3	1X14207	Diode Coil & Shield Assembly	26X4816	Tube Shield (Half)		DOZ.	.15
2	1X14208	I.F. Coil & Shield Assembly	9B6658	Tube Socket Type 75 Spec		DOZ.	.15
1	1X14209	Osc. Coil & Shield Assembly	9B6735	Tube Socket (Saddle 5 Prong)		DOZ.	.15
12	1X14210	R.F. Coil & Shield Assembly	9B6736	Tube Socket (Saddle 6 Prong)		DOZ.	.15
32	23A14219	Ant. Coil & Shield Assembly	9B6737	Tube Socket (Saddle 7 Prong)		DOZ.	.15
11	1X14220	Electrolytic Condenser	3S7100	Set Screw (8-32 x 3/16 Slab Hd.)		DOZ.	.25
	1X14225	Dial Light Filter Choke	3S7117	Set Screw (6-32 x 3/16 Hdls) CP		DOZ.	.15
	19B14238	Rear Housing	4S7618	Washer (9/16-.265-.0625) CP		PERC.	1.25
		Variable Condenser (3 Gang)	4S7620	Washer (9/16-.255-.028) Brass		PERC.	.05

ACCESSORIES

3A3134	"J" Bolt	DOZ.	38X10544	Terminal Strip (4 Ins. No. 2 Gnd.)	DOZ.	.35
6X4141	Distributor Suppressor	.75	31A1114	"C" Washer	DOZ.	.35
1X4171	Flexible Shaft & Housing Assembly	.30	4K11722	Spring Washer (3/8-.265-.007) Brz.	DOZ.	.15
8A4181	Dial Light Assembly	1.00	4A12031	Terminal Strip (Spkr. & Tone)	DOZ.	.60
8A4491	Generator Condenser	.35	64B14186	Speaker Screen & Flocking	DOZ.	.45
2A4561	Knurled Nut	.40	13K14195	Medallion	DOZ.	.35
8K4661	Ammeter Condenser	.15	43A14196	Booster Drive Raceway	DOZ.	.15
65X12894	Fuse (14 Amp.) SFE	.05	1X14205	Power Trans. Shield Assembly	DOZ.	.70
1X13717	Fuse Lead Assembly	.25	1X14240	Drive Shaft & Raceway Assembly	DOZ.	1.00
30X13729	"A" Lead (15"-No. 14 RC Black)	.30	1X14241	Slider Arm Assembly	DOZ.	.50
1X13799	Mtg. & Filter Parts Assembly	1.25	1X14243	Cam & Pulley Assembly	DOZ.	.40
56X14176	Accessories Carton	.05	41A14244	Tension Coil Spring	DOZ.	.30
1X14221	Receiver Accessories Assembly	3.50	1X14747	Dial Drive Cord Assembly	DOZ.	.10
1X14228	Flex. Shaft & Housing Assembly	1.00	41A14806	Hair Pin Spring	DOZ.	.20
1X14229	Boost-O-Matic Coupling & Ferrule Assem	.50				
54X14265	Instruction Booklet	.10				

CONDENSERS

18	8A1400	Tubular Condenser (.01-.100V.)	2S7015	Nut (12-24 x 7/16 Hex.) Brass	DOZ.	.20
22	8A2289	Tubular Condenser (.007-.600V.)	2S7018	Nut (3/8-32 x 1/2 Hex.) CP	DOZ.	.15
16	8A3310	Tubular Condenser (.1-200V.)	3S7159	Screw (4-36 x 3/16 Hrms.) CO	PERC.	.35
17	8A3329	Tubular Condenser (.01-.0005-400V.)	4S7571	Washer (11/16-.270-.051) Brass	DOZ.	.20
13	8A4260	Tub. Cond. & Strap (.05-.100V.)	4S7670	Lockwasher (1/4" Int.) Blk. Oxd.	PERC.	.50
21	8A4283	Tubular Condenser (.25-.100V.)	7A10112	Junction Box Mtg. Bracket	DOZ.	.45
	8A4529	Tubular Condenser (.006-.100V.)	1X10610	Rubber Washer	DOZ.	.15
19	8A4568	Tubular Condenser (.5-100V.)	1X10612	Ins. Strap & Bolt	DOZ.	.35
23	21A4807	Molded Mica Cond. (50 MTF)	14A11121	Extruded Washer (Bakelite)	DOZ.	.30
	21B6500	Molded Mica Cond. (500 MTF-20%)	37A12769	Rubber Washer	DOZ.	.20
20	12B6501	Molded Mica Cond. (200 MTF-20%)	14A12774	Outer Form Tube	DOZ.	.30
15	8A10432	Tubular Condenser (.01-.1600V.)	43A12776	Booster Coil End Cover	DOZ.	.30
14	8A11968	Special Condenser (.03-400V.)	49A12781	Wire Guide Spool	DOZ.	.20
	8K14199	Tub. Cond. & Strap (.1-1400V.)	14A12791	Collector Wire Insulator	DOZ.	.40
			1X13202	Ant. Lead & Booster Assembly Complete	DOZ.	4.00
			1X13203	Ant. Lead-In & Control Cable Assembly	DOZ.	1.30
			1X13209	Booster Core & Wire Assembly	DOZ.	.30
			1X13211	Booster Coil Shield Assembly	DOZ.	.30
			67A13212	Ball End	DOZ.	.10
			67K13214	Ant. Support Ins. (Full Hole)	DOZ.	.15
			67K13215	Ant. Support Ins. (Butt Hole)	DOZ.	.15
			1X13220	Mounting Parts Assembly	DOZ.	1.00
			1X13224	Ant. Sleeve Insulator Assembly	DOZ.	.10
			1X13516	Antenna Tubing Assembly (60 In.)	DOZ.	1.80
			24X14076-A	Antenna Booster Coil & Form Assembly (Red)	DOZ.	1.50
			9K14130	Ant. Junction Cup & Clips	DOZ.	.20

RESISTORS

26	6B6001	Carbon Res. (68 000-1/2-20)	24A12768	Antenna Booster Coil & Form Assem. (Brown)	DOZ.	1.50
31	6B6002	Carbon Res. (47 000-1/2-20)	1X13221	Antenna Tubing Assembly (90")	DOZ.	2.30
28	6B6005	Carbon Res. (220 000-1/3-20)				
25	6B6009	Carbon Res. (50-1/2-20)				
38	6B6011	Carbon Res. (330-1/2-20)				
27	6B6013	Carbon Res. (47 000-1/3-20)				
	6B6061	Carbon Res. (15 000-1-20)				
	6B6070	Carbon Res. (33 000-1/3-20) N.I.				
	6B6071	Carbon Res. (150 000-1/3-20)				
	6B6107	Carbon Res. (1 Meg.-1/3-20)				
	6B6157	Carbon Res. (68-1/3-10) N.I.				
		Carbon Res. (300-1/3-10) N.I.				

PRICES SUBJECT TO CHANGE WITHOUT NOTICE