

## Firestone Tire & Rubber Co.

**Model:** R1661

**Chassis:**

**Year:** Pre October 1936

**Power:**

**Circuit:**

**IF:**

**Tubes:**

**Bands:**

### Resources

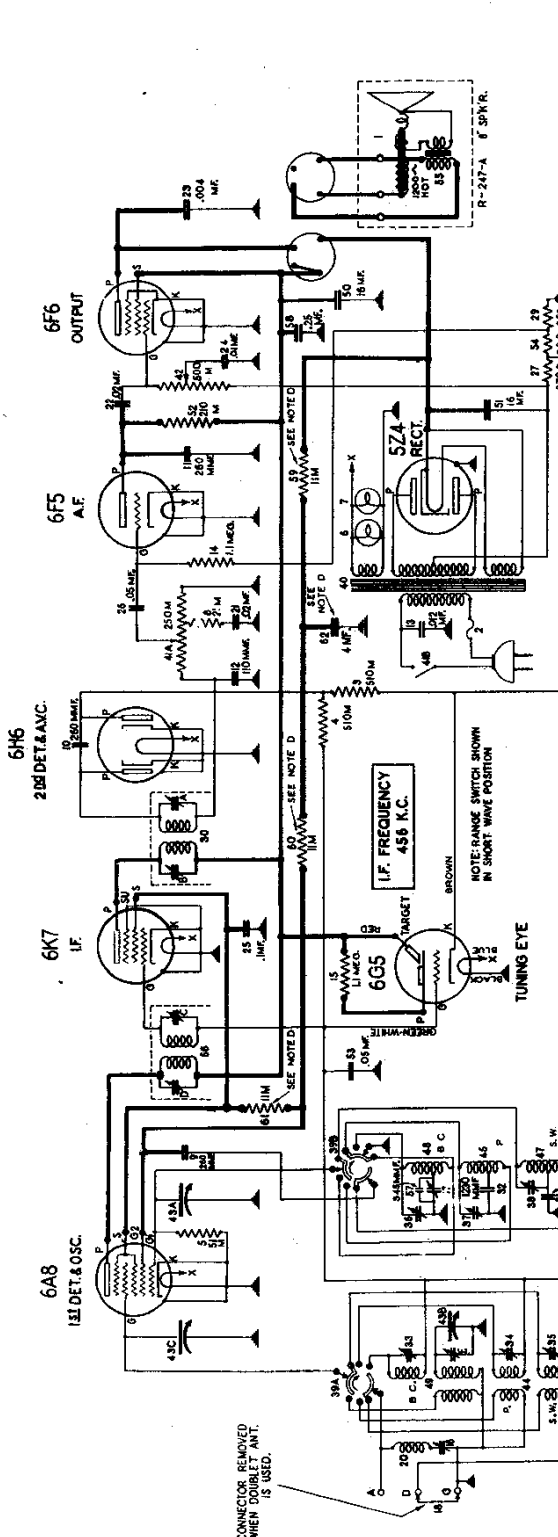
[Riders Volume 7 - FIRESTONE 7-3](#)

[Riders Volume 7 - FIRESTONE 7-4](#)

Schematic, Voltage  
Parts List

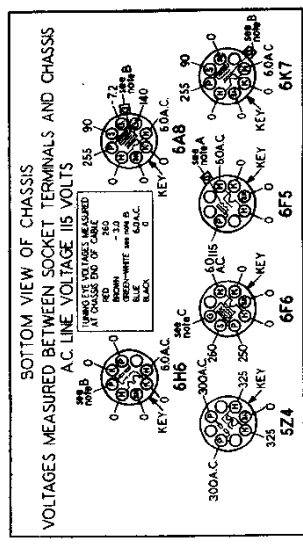
FIRESTONE

MODEL R-1661  
Air Chief  
Chassis R-166



SOCKET VOLTAGES

VOLUME CONTROL ON FULL RANGE SWITCH SET ON BROADCAST POSITION  
ANTENNA GROUNDED  
DIAL TUNED TO 630 KC.



NOTE D: In receivers having serial numbers below 453,000 resistor 59, 60, and 61 are omitted and the screen grids of the 6K7 and 6A8 receive their current through a 26,000 ohm 1/2 watt resistor which is connected to the screen grid of the 6F6. The anode grid of the 6A8 is connected in series with a 21,000 ohm 1/2 watt resistor to the screen grid of the 6F6. Condenser 62 (4 mfd. 250 V.) is also omitted.

MODEL R-166 PARTS LIST

Diagram Number	Part Number	DESCRIPTION	List Price
1	R-247-A	8" Dynamic Speaker.	
2	IMP-1	1 ampere (USE THIS SIZE ONLY)	\$9.00
3-4	R3072	510,000 ohm 1/2 watt carbon resistor.	.15
5	R3073	270,000 ohm 1/2 watt carbon resistor.	.15
6-7	R3278	500,000 ohm 1/2 watt carbon resistor.	.20
8	R3286	21,000 ohm 1/2 watt carbon resistor.	.15
9-10-11	R3359	260 mfd. mica condenser.	.16
12	R3783	110 mfd. 1000 v. shielded condenser.	.25
13	R3976	.012 mfd. 1000 v. shielded condenser.	.25
14-15	R5282	1/2 watt carbon resistor.	.40
16	R5283	1/2 watt carbon resistor.	.40
17	R5285	Folding trimmer.	.40
18	R5321	Ground connector.	.01
20	R6011	Wave trap coil.	.50
21-22	R9826	.004 mfd. 750 v. paper condenser.	.30
23	R9827	.004 mfd. 750 v. paper condenser.	.30
24	R9846	1 mfd. 150 v. paper condenser.	.30
25	R9846	1 mfd. 150 v. paper condenser.	.30
26	R8189	.05 mfd. 200 v. paper condenser.	.35
27	R8163	270 ohm 1/2 watt carbon resistor.	.15
29	R8165	25 ohm 1/2 watt wire wound resistor.	.15
30	R8168	2nd I.F. transformer.	2.40
31	R8172	500 mfd. mica condenser.	.50
32	R8173	1250 mfd. mica condenser.	.25
33-34-35	R8177	Trimmer condenser.	.12
36-37-38	R8177	Trimmer condenser.	.15
39A & B	R8180	Range switch	1.90
40	R9216	Power transformer, 100 to 240 V.—	11.50
41	R8481	Power transformer, 115 v. 60 cycle.	.85.00
41-A	R8487	Volume control (350,000 ohm)	1.25
41-B	R8488	Tone control (500,000 ohm)	.80
42	R8493	Three gang condenser.	5.40
43	R8499	Antenna coil (Pellier).	.45
44	R8500	Antenna coil (Pellier).	.45
45	R8502	Antenna coil (S.W.C.).	.80
46	R8504	Oscillator coil (S.W.C.).	.80
47	R8506	Oscillator coil (B.C.).	1.60
48	R8507	Antenna coil (B.C.).	1.10
49	R8511	16 mfd. 300 v. electrolytic condenser.	1.12
50	R8512	16 mfd. 300 v. electrolytic condenser.	1.12
51	R8513	16 mfd. 300 v. electrolytic condenser.	1.12
52	R8514	16 mfd. 300 v. electrolytic condenser.	1.12
53	R8524	.05 mfd. 150 v. condenser (low loss).	.25
54	R8613	.30 ohm 1/2 watt wire wound resistor.	.15
55	R8529	Output transformer (on R-247-A speaker).	2.00
56	R8466	1st I.F. transformer.	2.40
40	R9216	Power transformer, 100 to 240 V.—	11.50
57	R9564	345 mfd. electrolytic condenser.	.25
58	R9643	25 mfd. 300 volt paper condenser.	.50
59-60	R9751	11,000 ohm 1 watt carbon resistor.	.12
61	R9753	11,000 ohm 1/2 watt carbon resistor.	.15
62	R9753	4 mfd. 250 volt electrolytic condenser.	1.00

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

MODEL R-1661

Air Chief

Chassis R-166

Alignment, Socket

Trimmers, Parts

FIRESTONE

CALIBRATION AND ALIGNMENT

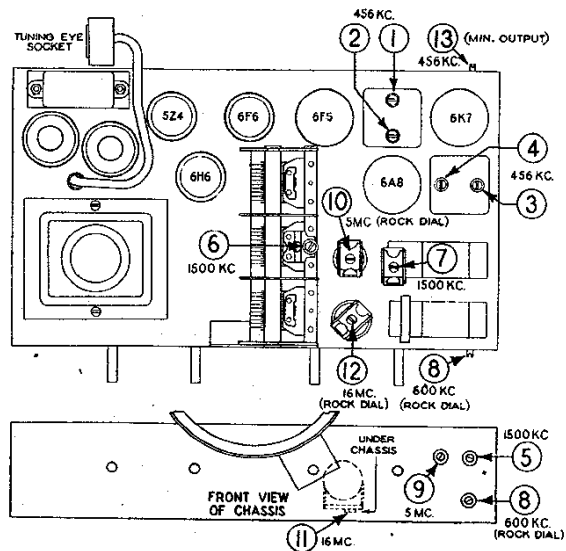
**ALIGNING EQUIPMENT:** For proper alignment, an output meter and an accurately calibrated oscillator with a tuning range from 456 KC. to 16 MC. are required.

Connect the output meter from the plate of the output tube to chassis. A convenient point to make the plate connection is to the yellow wire on the speaker socket.

**ALIGNING THE I. F. AMPLIFIER:** Turn the volume control to maximum volume position and keep it in this position throughout the entire alignment procedure. Turn the range switch to the broadcast position (fully clockwise).

Connect the test oscillator output leads to the 6A8 control grid and chassis with a .1 mfd. condenser in series with the oscillator output. Set the oscillator to exactly 456 KC. Set the receiver dial at any point where it has no tuning effect on the oscillator signal.

Adjust the four I.F. trimmers, Nos. 1, 2, 3 and 4, for maximum output meter deflection, then repeat the trimmer adjustment.



TRIMMER LOCATIONS

Trimmer Number	Alignment Frequency
1. 2nd I.F. transformer trimmer.....	456 KC.
2. 2nd I.F. transformer trimmer.....	456 KC.
3. 1st I.F. transformer trimmer.....	456 KC.
4. 1st I.F. transformer trimmer.....	456 KC.
5. Broadcast oscillator shunt trimmer.....	1500 KC.
6. Broadcast antenna shunt trimmer.....	1500 KC.
7. Broadcast detector shunt trimmer.....	1500 KC.
8. Broadcast oscillator series padder.....	600 KC.
9. Police oscillator shunt trimmer.....	5 MC.
10. Police antenna shunt trimmer.....	5 MC.
11. Short wave oscillator shunt trimmer.....	16 MC.
12. Short wave antenna shunt trimmer.....	16 MC.
13. Wave-trap trimmer.....	456 KC.

**BROADCAST BAND CALIBRATION AND ALIGNMENT:**

With the gang condenser in full mesh, the dial pointer should be on the white horizontal line below 530 KC. on the dial scale.

Turn the range switch to the extreme clockwise position and connect the test oscillator output to the A and G terminals of the receiver with a 400 ohm carbon resistor in series with the A terminal and the oscillator output.

Adjust the test oscillator to exactly 1500 KC. and turn the receiver dial pointer to 1500 KC. on the tuning dial. To calibrate the dial, adjust trimmer No. 5 for maximum output.

Carefully tune the receiver to the signal and adjust trimmers Nos. 6 and 7 for maximum output.

Adjust the test oscillator to 600 KC. and tune the receiver to the signal. Adjust trimmer No. 8 for maximum output. Then try to increase the output meter reading by detuning No. 8 slightly and retuning the receiver dial. If the output goes down, detune the trimmer in the opposite direction. Continue detuning the trimmer and retuning the receiver dial until maximum output meter deflection is secured. This operation is commonly known as "rocking" and when performed as described will give maximum selectivity and sensitivity even though the dial may be slightly off calibration at 600 KC.

**WAVE-TRAP ADJUSTMENT:** The wave-trap adjusting trimmer, No. 13, is located on the back of the chassis. Leave the test oscillator connected to the A and G terminals through a 400 ohm resistor and set the oscillator at 456 KC. Then adjust the wave-trap trimmer No. 13 for minimum output. If some particular station with a frequency near 456 KC. causes code interference, it may be desirable to adjust the wave-trap on the actual frequency of the interfering station.

Check the adjustment of trimmers 5, 6, and 7 at 1500 KC.

**BAND NO. 2 CALIBRATION AND ALIGNMENT:** Turn the range switch to the center position.

Adjust the test oscillator to exactly 5.0 MC. and turn the receiver dial pointer to exactly 5.0 MC. on the tuning dial.

To calibrate the dial, adjust trimmer No. 9 for maximum output. If two peaks are found, the proper one is that with the trimmer screw farthest out.

Carefully tune the receiver to the signal and adjust trimmer No. 10 for maximum output. Then try to increase the output by detuning No. 10 slightly and retuning the receiver dial. Continue detuning No. 10 and retuning the dial until the output meter deflection is a maximum.

**BAND NO. 3 CALIBRATION AND ALIGNMENT:** Turn the range switch to the extreme counter-clockwise position. Be sure the D and G terminals on the antenna terminal strip are connected together.

Set the test oscillator to 16 MC. and turn the receiver dial pointer to exactly 16 MC. on the tuning dial.

To calibrate the dial, adjust trimmer No. 11 for maximum output. Check to see that it has been adjusted to the proper peak by tuning the receiver to approximately 15.1 MC. A repeat signal should be heard at this point. If none is present, even with greatly increased oscillator output, retune the receiver to 16 MC. and adjust trimmer No. 11 to the proper peak with the trimmer screw farther out.

Carefully tune the receiver to the signal and adjust trimmer No. 12 to a peak. Then try to increase the output by detuning the trimmer slightly and retuning the dial until a maximum output meter deflection is secured. Check the adjustment by tuning the receiver to the image at about 15.1 MC. The image should be much weaker than the 16 MC. signal. If the signal at 15.1 MC. dial setting is equal to or stronger than the 16 MC. signal, trimmer No. 12 is not set to the proper peak. Turn the trimmer in a turn or so, then readjust as above.

MISCELLANEOUS PARTS NOT SHOWN ON CIRCUIT DIAGRAM

Part Number	DESCRIPTION	List Price
67590.....	Flat steel mtg. washer.....	\$0.01
84428.....	Rubber chassis mtg. bushing.....	.03
84493.....	No. 10 x 1 1/4 chassis mtg. screw.....	.03
84805.....	Felt washer (for knobs).....	.01
85966.....	G.D.A. terminal strip.....	.20
85321.....	Ground connector for G.D.A. strip.....	.01
88056.....	Fuse mounting.....	.16
88057.....	Fuse cover.....	.06
88675.....	Speaker socket.....	.12
89119.....	Tuning eye cable & plug.....	1.50
89424.....	Knob; tuning and tone control.....	.20
89425.....	Knob; range switch.....	.22
89426.....	Knob; volume control.....	.20

TUNING DRIVE AND DIAL PARTS

Part Number	DESCRIPTION	List Price
93279.....	Dial lamp.....	\$0.15
88564.....	Pointer and stud assembly.....	.12
88743.....	Dial drive shaft.....	.15
88744.....	Dial drive shaft retainer spring.....	.05
88745.....	Dial ring and bracket assembly (for edge lighting).....	.90
88748.....	Dial disc and bushing assembly.....	.30
88956.....	Escutcheon with glass.....	1.65
88958.....	No. 2 x 3/8 R.H. wood screw for escutcheon (each).....	.01
89283.....	Pilot lamp socket.....	.10
89284.....	Pilot lamp shield.....	.02
89285.....	Dial background.....	.12
89423.....	Dial scale.....	1.80
89432.....	Escutcheon for tuning eye.....	.60

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