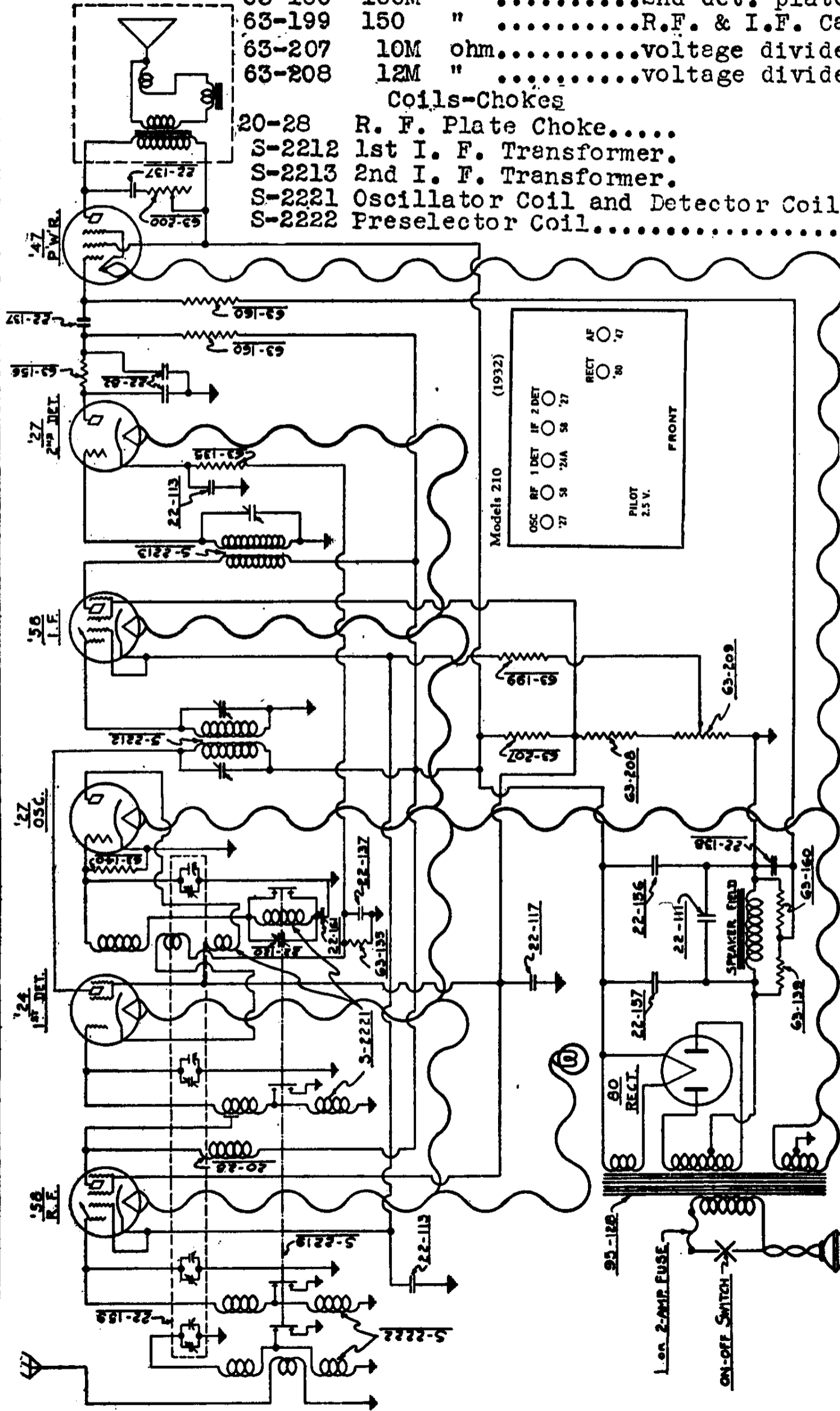


ZENITH RADIO CORP.

MODELS 210-5, 211-5, 270-5  
Schematic

- Resistors**
- 63-135 25M ohm.....1st & 2nd Det. Cathode...
  - 63-139 500M " .....power grid.....
  - 63-140 1 meg .....Oscillator grid.....
  - 63-156 10M ohm.....2nd det. plate.....
  - 63-160 100M " .....2nd det. plate power grid
  - 63-199 150 " .....R.F. & I.F. Cathode.....
  - 63-207 10M ohm.....voltage divider,
  - 63-208 12M " .....voltage divider

- Coils-Chokes**
- 20-28 R. F. Plate Choke.....
  - S-2212 1st I. F. Transformer.
  - S-2213 2nd I. F. Transformer.
  - S-2221 Oscillator Coil and Detector Coil (below chassis)
  - S-2222 Preselector Coil.....(above chassis)



- Condensers**
- |        |           |                                       |                                 |
|--------|-----------|---------------------------------------|---------------------------------|
| 22-82  | .001 mfd. | 500 volt.....two used, 2nd det. plate | <b>PEAK FREQUENCY</b>           |
| 22-111 | .03 "     | " .....speaker field.                 |                                 |
| 22-113 | .5 "      | " .....two used.                      | <b>125 K.C.</b>                 |
| 22-117 | .5 "      | " .....1st Det. Screen & R.F..        |                                 |
| 22-137 | .5 mfd.   | 400 volt.....three used.              | <b>200 - 2100 METERS</b>        |
| 22-138 | .2 "      | " .....power grid.                    | <b>STANDARD AND</b>             |
| 22-156 | 6. "      | " .....filter.....                    | <b>LONG WAVE</b>                |
| 22-157 | 8. "      | " .....filter.....                    | <b>MODELS 210-5 211-5 270-5</b> |
| 22-159 | Four Gang | Variable.....                         |                                 |

**Crosley 758**

The alignment instructions for this receiver were released too late for publication in *Rider's Volume X* in which the schematic and chassis layouts will be found on page 10-23. It should be noted that two sets of i-f transformers are used; one set is tuned to 455 kc and the i-f peak of the other set is 3000 kc, the latter being designated as "H.F." in the layout.

The output meter is connected to the two plates of the 6N6 output tube with a 0.1-mf or larger (non-electrolytic) condenser in series with one of the leads.

**I-F Alignment at 455 kc:**

Connect the signal generator through a 0.02-mf condenser to the grid cap of the 6K8, leaving the grid clip in place and the ground lead to the black lead of the receiver. Keep the generator leads as far away as possible from the grid leads of the other screen grid tubes. Tuning condenser plates out of mesh. Volume control to right, "on." Band switch to broadcast. Signal generator set at 455 kc.

Adjust the two rear trimmers on top of the third i-f diode transformer for maximum output. Adjust both trimmers on top of the first B.C. i-f transformer for maximum output.

**I-F Alignment at 3000 kc:**

Connect signal generator set at 3000 kc to the grid of the 6SK7 tube through a 0.02-mf condenser. Clip on the green lead with spade lug soldered to the band switch. Condenser gang all the way open; band switch to H.F.

Open the front trimmer on the 2nd H.F. i-f transformer. Adjust the front trimmer on the 3rd i-f diode transformer and then the rear trimmer on the 2nd H.F. i-f transformer for maximum output. Align front trimmer on the 2nd H.F. i-f transformer for minimum output. Touch up the front trimmer only on the 3rd i-f (diode).

Transfer the signal generator to the top cap of the 6K8 tube, leaving grid cap in place. Align both trimmers on top of H.F. 1st i-f transformer for maximum output.

**B.C. R-F Alignment:**

Connect output lead of signal generator set to 1570 kc to blue lead of receiver through a 0.0002-mf condenser; ground lead of generator to black lead. Band switch to B.C. and gang condenser open full.

Adjust B.C. oscillator trimmer (second from end on rear chassis flange) for maximum output. Set generator to 1400 kc and adjust B.C. antenna trimmer (first from end on rear chassis flange) for maximum output.

**H.F. R-F Alignment:**

Connect signal generator set to 24 megacycles through a 250-ohm resistor to the blue antenna lead. Close gang condenser and open H.F. oscillator shunt trimmer (right trimmer on top of gang)  $\frac{3}{4}$  turn.

Peak 24-mc signal by adjusting the position of the insulated lead, fastened from oscillator trimmer to gang, with relation to the end of the coil.

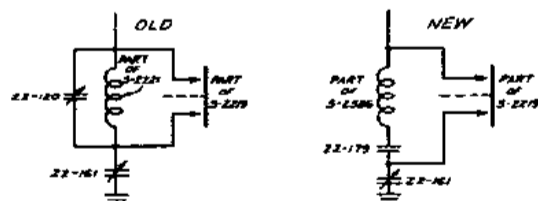
Set generator to 47 mc and open gang condenser. Adjust H.F. oscillator shunt trimmer for maximum output.

Set generator to 45 mc and tune in this signal with gang condenser and then adjust antenna shunt trimmer (left on top of gang) for maximum output.

Set generator to 25 mc and tune in with gang. Repeak antenna circuit by adjusting position of wire from antenna trimmer to gang with relation to the end of the antenna coil. If this wire requires much moving, the antenna alignment at 45 mc should be checked.

**Zenith 210-5, 211-5, 270-5, 510-5**

Chassis 2046, used in Zenith Models 210-5, 211-5, 270-5 and 510-5, contains a few changes as compared with the schematic shown on page 3-1 of *Rider's Volume III* and on page 2729 of the *Rider-Combination Manual*. The only changes in the schematic are found in the oscillator circuit; the accompanying illustration shows these



Old and new oscillator circuits in the Zenith chassis 2046.

changes, including both the early and more recent designs. Note that a new part has been added, Part No. 22-179, a series padder; Part No. 22-120 has been removed. In the more recent design, the oscillator coil has been changed from Part No. S-2221 to Part No. S-2586, and the preselector coil

has been changed from Part No. S-2222 to Part No. S-2587. Condenser Part No. 22-137, listed on pages 3-1 and 2729 as having a value of 0.5 mf, should be listed as 0.05 mf; please make this change in your Manual. Also note the additional model, Model 510-5, using Chassis 2046.

The following table of d-c voltages applies to Chassis 2046. All readings are taken from socket connections to ground, using a 1000 ohms-per-volt meter; the volume control is turned to the maximum position and the line voltage corresponding to these readings is 117 volts.

Tube Type	Position	Plate Volt.	Cath. Volt.	Screen Volt.	Supp. Volt.	Plate Current
58	RF	260	3.5	120	3.5	9.0
24A	1st Det.	260	5.5	120	..	0.2
27	Osc.	120	0	..	..	4.2
58	IF	260	3.5	120	3.5	8.4
27	2nd Det.	180	10.	..	..	0.3
47	Power	240	..	260	..	30.
80	Rect.	120	..	..	..	30.
		120	..	..	..	30.

The trimmers on the condenser gang should be adjusted at 1500 kc, the series oscillator padder at 600 kc.

**Montgomery-Ward 62-403**

If distortion occurs of a type which seems as if the receiver were being overloaded and which can not be accounted for in any other way, check the capacity of the 5-mmf coupling condenser, C-33, in the i-f circuit. If this can not be done, substitute another of the same capacity. This condenser has a tolerance of 5% and some cases have been encountered in which the capacity has been raised from 12 to 20 mmf due to an internal short circuit. The schematic diagram of this receiver will be found on page 9-59, 9-60 in *Rider's Volume IX*.

**Wells-Gardner A-12**

If mushy reproduction is encountered on a medium or strong signal after the receiver has been operating about ten minutes, it probably is due to grid current in the 6U7G r-f and i-f tubes. Change the 4-megohm resistor, R-14, to a 2-megohm resistor. If this does not clear up the signals, replace either the 6U7G r-f or i-f tubes or perhaps both of them. The schematic of this receiver will be found on page 9-35 of *Rider's Volume IX*.