

# Engineering Data

## Stromberg-Carlson No. 225 AC-DC Radio Receiver

STROMBERG-CARLSON TELEPHONE MANUFACTURING COMPANY  
Rochester, New York

### ELECTRICAL SPECIFICATIONS

Type of Circuit.....	Superheterodyne
Tuning Ranges.....	A—540 to 1500 Kc.; B—1450 to 3500 Kc.; C—5600 to 18,000 Kc.
Number and Types of Tubes.....	1 No. 6A8, 1 No. 6K7, 1 No. 6Q7, 1 No. 25A6-G, 1 No. 25Z6-G
Voltage Rating.....	105 to 125 Volts
Power Frequency (For AC Operation).....	50-60 Cycles
Input Power Rating.....	50 Watts
Intermediate Frequency.....	465 Kilocycles

### APPARATUS SPECIFICATIONS

No. 225 Receiver.....	50 to 60 Cycles (For AC Operation)	P-27285 Chassis Assembly
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### CIRCUIT DESCRIPTION

This triple range, superheterodyne receiver has five tubes and may be operated on a power supply circuit of either alternating or direct current at the voltages and frequency (for A. C. operation) specified above.

The various tubes are used in this receiver as follows: One No. 6A8 tube functions as both Oscillator and Modulator; one No. 6K7 tube is used in the I. F. Amplifier; the No. 6Q7 tube is used as the Demodulator, A. V. C., and Audio Amplifier tube. The No. 25A6-G tube is used in the Audio Power Output stage, and the No. 25Z6-G tube is used as the Rectifier tube for the receiver "B" voltage supply. In addition to these tubes a voltage divider resistance tube of the plug-in type is used.

### NORMAL VOLTAGE READINGS

These voltage readings are obtained by measuring between the various tube socket contacts and the heavy bus wire with the tubes in their respective sockets. The receiver is, therefore, in operation when the measurements are made. The heavy bus wire, which is the negative side of the grid and plate voltages, is plainly marked on the schematic and wiring diagram shown on pages three and five. Figure 1 shows the terminal layout of the sockets with the proper terminal numbers.

Voltages are given for a line voltage of 120 volts, A. C. Allowance should be made for the difference when the line voltage is higher or lower.

**IMPORTANT**—If the receiver is operated from a direct current power supply circuit, the various voltages measured will be slightly lower than those listed in the table for A. C. operation. A meter having a resistance of 1000 ohms per volt should be used for measuring the D. C. voltages. Voltage values shown are those obtained on the lowest possible scale of a meter having the following ranges: 0-2.5, 0-10, 0-100, 0-250, 0-500, 0-1000 volts except when an asterisk appears after any given voltage value in which case the 1000 volt scale was used.

When the receiver is being operated from an alternating current power supply circuit, it will be necessary to have a high resistance A. C. voltmeter for checking the A. C. voltages.

Tube	Circuit	Cap	Terminals of Sockets								Heater Voltages Between Heater Terminals	
			1	2	3	4	5	6	7	8	Socket Terminal Numbers	Volts
6A8	Mod.—Osc.	0	0	<i>13</i>	<i>+97</i>	<i>+65</i>	<i>—7</i>	<i>+59</i>	<i>6</i>	<i>+1.5</i>	2-7	<i>6.4</i>
6K7	I. F. Amp.	0	0	<i>12.8</i>	<i>+94</i>	<i>+85</i>	<i>+2.5</i>	<i>—</i>	<i>19</i>	<i>+2.5</i>	2-7	<i>6.4</i>
6Q7	Dem.—A.V.C.— Audio	0	0	0	<i>+40</i>	0	0	<i>—</i>	<i>6</i>	<i>+1</i>	2-7	<i>6</i>
25A6-G	Audio Output	<i>—</i>	0	<i>45</i>	<i>+93</i>	<i>+99</i>	0	<i>—</i>	<i>19</i>	<i>+14</i>	2-7	<i>26</i>
25Z6-G	Rectifier	<i>—</i>	0	<i>73</i>	<i>115</i>	<i>+105</i>	<i>115</i>	<i>—</i>	<i>47</i>	<i>+105</i>	2-7	<i>26</i>
Resistor	Voltage Divider	<i>—</i>	<i>—</i>	<i>—</i>	<i>73</i>	<i>120</i>	<i>—</i>	<i>—</i>	<i>120</i>	<i>107</i>		
Voltage across pilot lamps—13 volts												

A. C. voltages are indicated by italics; when the receiver is operated from a D. C. power supply, D. C. voltages will be obtained in place of the A. C. voltages.  
Receiver tuned to 1000 kc., no signal.

## ALIGNMENT DATA

All alignment adjustments are accurately made at the factory on these receivers and ordinarily no re-adjustments are necessary. However, should it become necessary to make any readjustments, this alignment procedure should be carefully followed.

In making any alignment adjustments always adjust the signal generator's output to the minimum value where a good alignment may still be obtained. Never attempt to make any alignment adjustments using a strong signal.

Figure 1 shows the location of all the aligning capacitors used in this receiver. In making any alignment adjustments on this receiver it will not be necessary to remove the chassis from the cabinet. The aligning capacitors for the intermediate circuits of the receiver are easily accessible from the rear of the receiver, and the aligning capacitors for the radio frequency circuits are easily accessible through the apertures located in the bottom of the cabinet (see Figure 2). To reach these aligning capacitors for the radio frequency circuits, simply turn the receiver cabinet upside-down. When making any alignment adjustments on this receiver, it is recommended that the Stromberg-Carlson, P-24608 Insulated Screwdriver be used in order to obtain accurate adjustments.

### Intermediate Frequency Adjustments

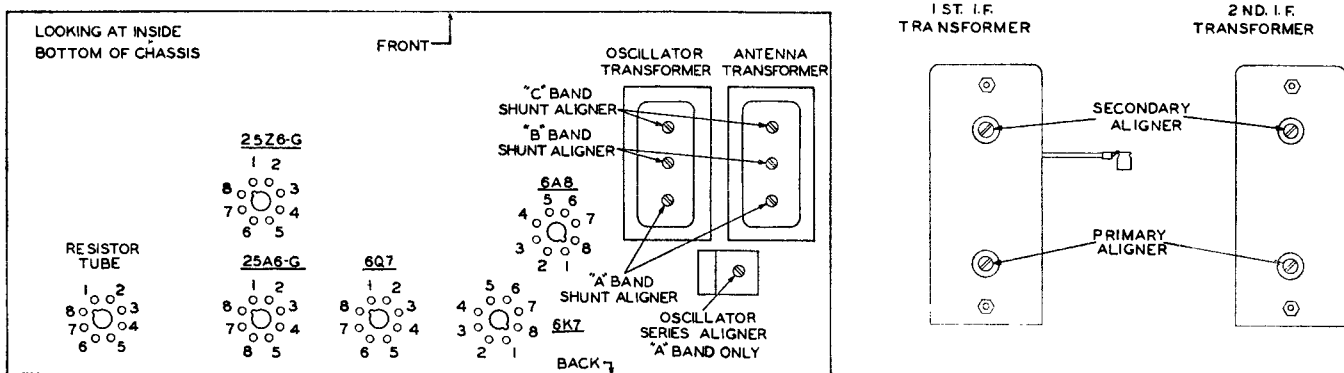
The intermediate frequency used in these receivers is 465 kilocycles. In making these I. F. circuit adjustments always align in the following order:

1. Secondary of 2nd I. F. Transformer (Capacitor C-10).
2. Primary of 2nd I. F. Transformer (Capacitor C-9).
3. Secondary of 1st I. F. Transformer (Capacitor C-8).
4. Primary of 1st I. F. Transformer (Capacitor C-7).

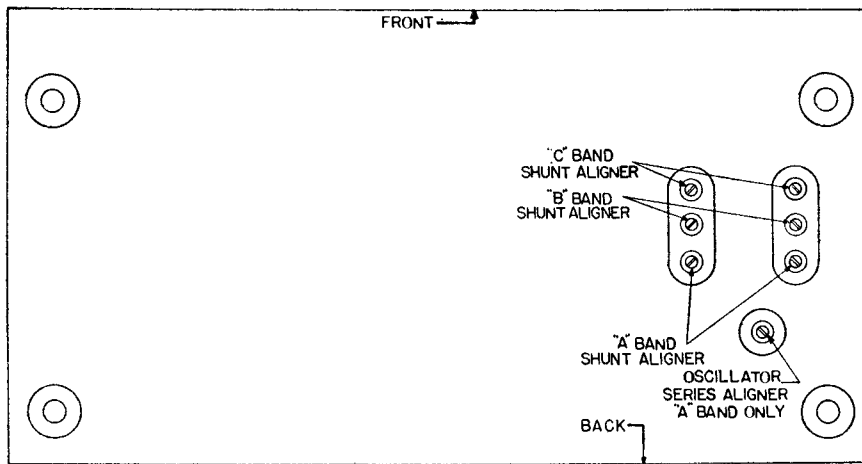
### Radio Frequency Adjustments

The adjustments of the aligning capacitors used in the radio frequency circuits in this receiver should be very carefully made in the following order and at the frequencies specified below:

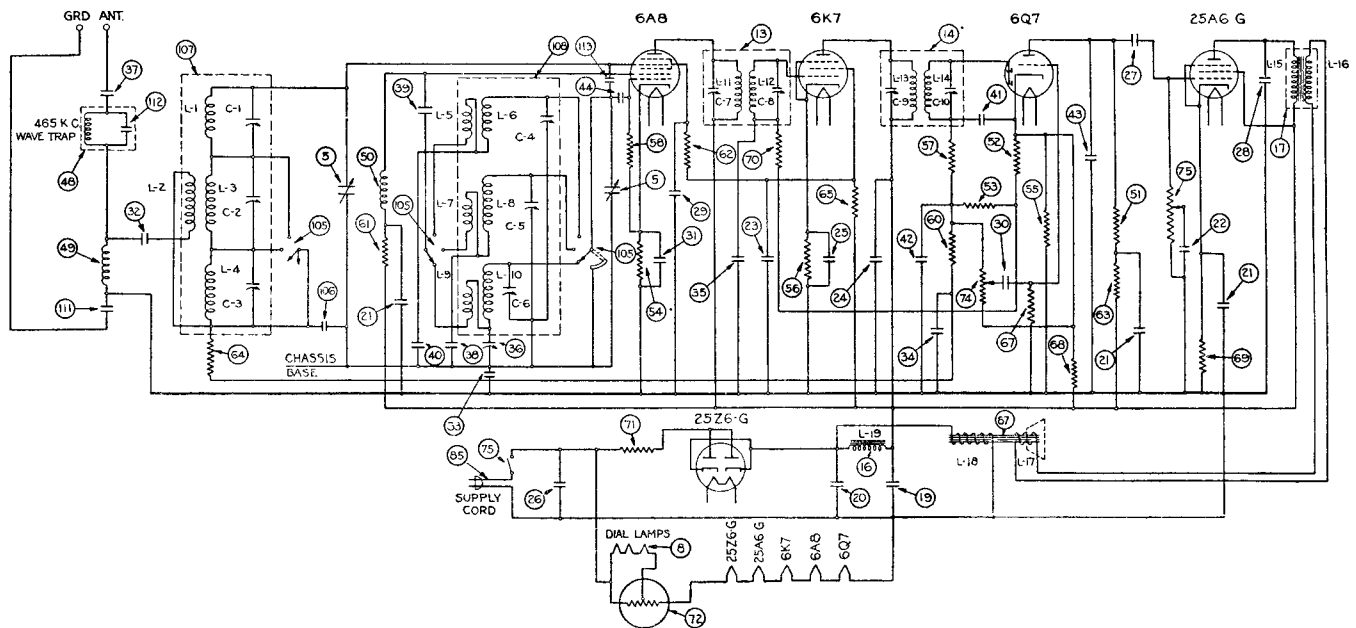
1. Oscillator's "C" Band Shunt Aligner at 17 Megacycles (Capacitor C-4).
2. Antenna "C" Band Shunt Aligner at 17 Megacycles (Capacitor C-1).
3. Oscillator's "B" Band Shunt Aligner at 3.4 Megacycles (Capacitor C-5).
4. Antenna "B" Band Shunt Aligner at 3.4 Megacycles (Capacitor C-2).
5. Oscillator's "A" Band Shunt Aligner at 1400 Kilocycles (Capacitor C-6).
6. Antenna "A" Band Shunt Aligner at 1400 Kilocycles (Capacitor C-3).
7. Oscillator's "A" Band Series Aligner at 600 Kilocycles (Capacitor (36) ).
8. Oscillator's "A" Band Shunt Aligner at 1400 Kilocycles (Capacitor C-6).
9. Antenna "A" Band Shunt Aligner at 1400 Kilocycles (Capacitor C-3).



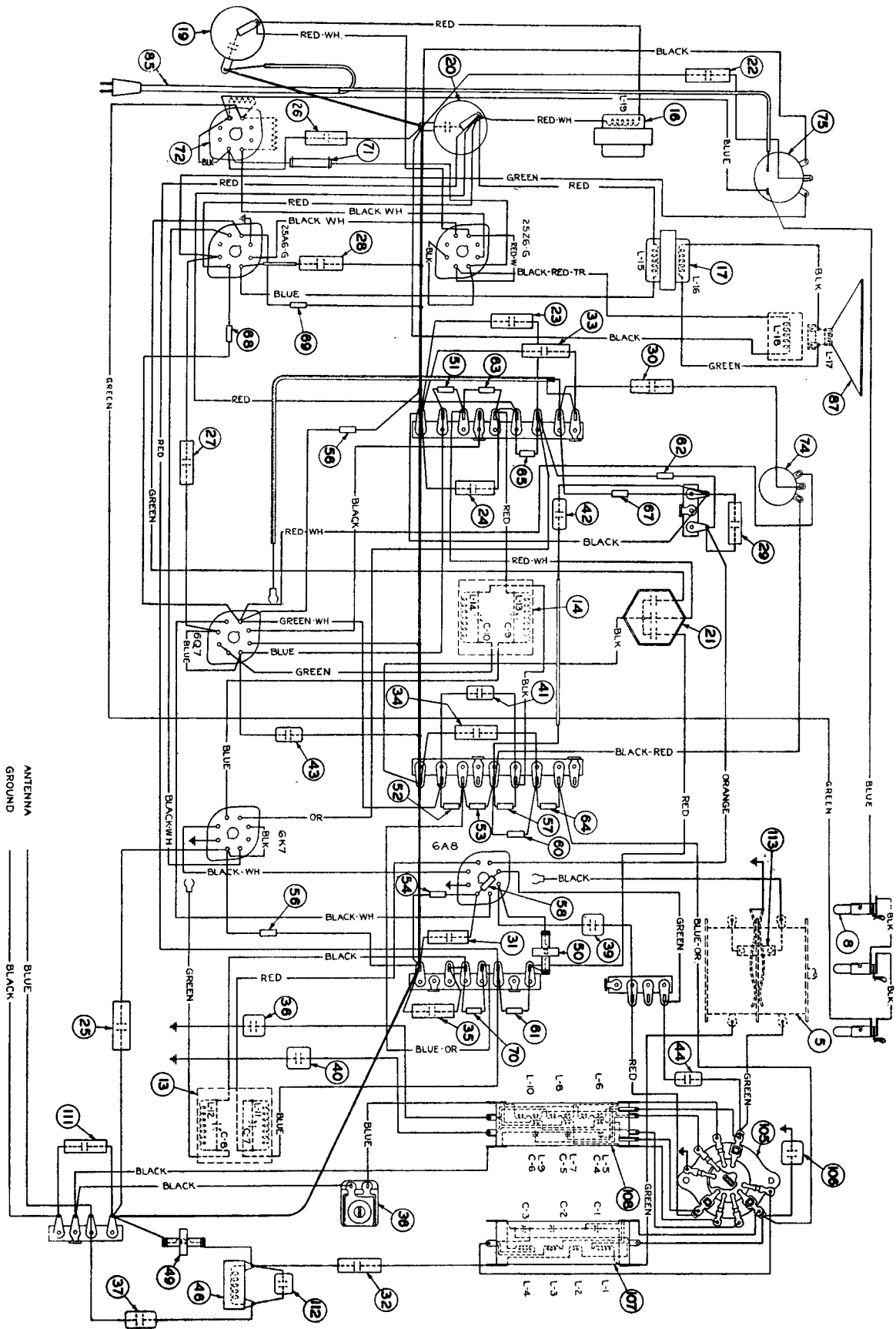
**Fig. 1. Terminal Layout for Voltage Measurement Chart and Location of the Various Aligning Capacitors.**



**Fig. 2. Bottom View of Cabinet Showing Adjusting Screws for R. F. Aligning Capacitors.**



**Fig. 3. Schematic Circuit of Receiver.**



## REPLACEMENT PARTS

Item Number	Piece Number	Part	Item Number	Piece Number	Part
2	25998	Bracket Assembly	54	26326	Resistor, Type "E", 270 Ohms
5	26057	Gang Tuning Capacitor Assembly	55	26327	Resistor, Type "E", 330 Ohms
6	27289	Dial Assembly	56	26327	Resistor, Type "E", 330 Ohms
8	26287	Dial Lamp	57	26353	Resistor, Type "E", 47,000 Ohms
13	26121	1st I. F. Transformer	58	26353	Resistor, Type "E", 47,000 Ohms
14	25506	2nd I. F. Transformer	60	26369	Resistor, Type "E", 1 Megohm
16	26133	Choke Assembly (Filter of Rectifier)	61	26345	Resistor, Type "E", 10,000 Ohms
17	26135	Transformer, Audio Output	62	26345	Resistor, Type "E", 10,000 Ohms
19	26162	Electrolytic Capacitor, 25 Mf.	63	26345	Resistor, Type "E", 10,000 Ohms
20	27014	Electrolytic Capacitor, 40 Mf.	64	26357	Resistor, Type "E", .1 Megohm
21	26164	Electrolytic Capacitor Assembly, 4 Mf., 150 Volts; 4 Mf., 150 Volts; 12 Mf., 25 Volts	65	26333	Resistor, Type "E", 1,000 Ohms
			67	26373	Resistor, Type "E", 2.2 Megohms
22	26151	Capacitor Assembly, .005 Mf.	68	26408	Resistor, Type "C", 27,000 Ohms
23	25483	Capacitor Assembly, .1 Mf.	69	26330	Resistor, Type "E", 560 Ohms
24	25483	Capacitor Assembly, .1 Mf.	70	26365	Resistor, Type "E", 47 Megohm
25	25483	Capacitor Assembly, .1 Mf.	71	25911	Resistor, Type "B", 50 Ohms
26	25150	Capacitor Assembly, .02 Mf.	72	27287	Resistor (Tube Type), 120 Plus 108 Ohms, Voltage Divider
27	25150	Capacitor Assembly, .02 Mf.	74	26114	Potentiometer (Volume Control)
28	25150	Capacitor Assembly, .02 Mf.	75	27311	Potentiometer (Off-On-Switch and Tone Control)
29	25150	Capacitor Assembly, .02 Mf.			
30	25150	Capacitor Assembly, .02 Mf.	77	25539	Tube Socket, 8 Prong
31	25150	Capacitor Assembly, .02 Mf.	85	24268	Cord, Power Supply
32	25150	Capacitor Assembly, .02 Mf.	87	26053	Speaker Assembly
33	25389	Capacitor Assembly, .2 Mf.	105	26172	Range Switch
34	24405	Capacitor Assembly, .04 Mf.	106	25488	Capacitor, .002 Mf.
35	24405	Capacitor Assembly, .04 Mf.	107	26113	Coil Assembly, Antenna
36	26747	Capacitor, Oscillator Series Aligner	108	26157	Coil Assembly, Oscillator
37	26778	Capacitor, Type "W", .005 Mf.	109	27310	Dial Lamp Socket Assembly
38	26727	Capacitor, Type "W", .001 Mf.	111	25149	Capacitor Assembly, .01 Mf.
39	25487	Capacitor, Type "W", .001 Mf.	112	25488	Capacitor, .602 Mf.
40	25489	Capacitor, Type "W", .00125 Mf.	113	26417	Capacitor (Gimmick)
41	25504	Capacitor, Type "2", 100 Mmf.			
42	25504	Capacitor, Type "2", 100 Mmf.			
43	25504	Capacitor, Type "2", 100 Mmf.			
44	24559	Capacitor, Type "O", 160 Mmf.			
43	25513	Coil Assembly, Wave Trap			
49	25814	Coil Assembly, R. F. Choke, 5 Milli-henrys			
50	25814	Coil Assembly, R. F. Choke, 5 Milli-henrys			
51	26362	Resistor, Type "E", .27 Megohm			
52	26362	Resistor, Type "E", .27 Megohm			
53	26362	Resistor, Type "E", .27 Megohm			

### MISCELLANEOUS PARTS

Piece Number	Part
26096	Cone Assembly (For P-26053 Speaker)
26296	Knob (Used on Volume, "Off-on-Tone" and Station Selector Controls) 3 Required for Each Receiver
27351	Knob (For Range Switch) 1 Required

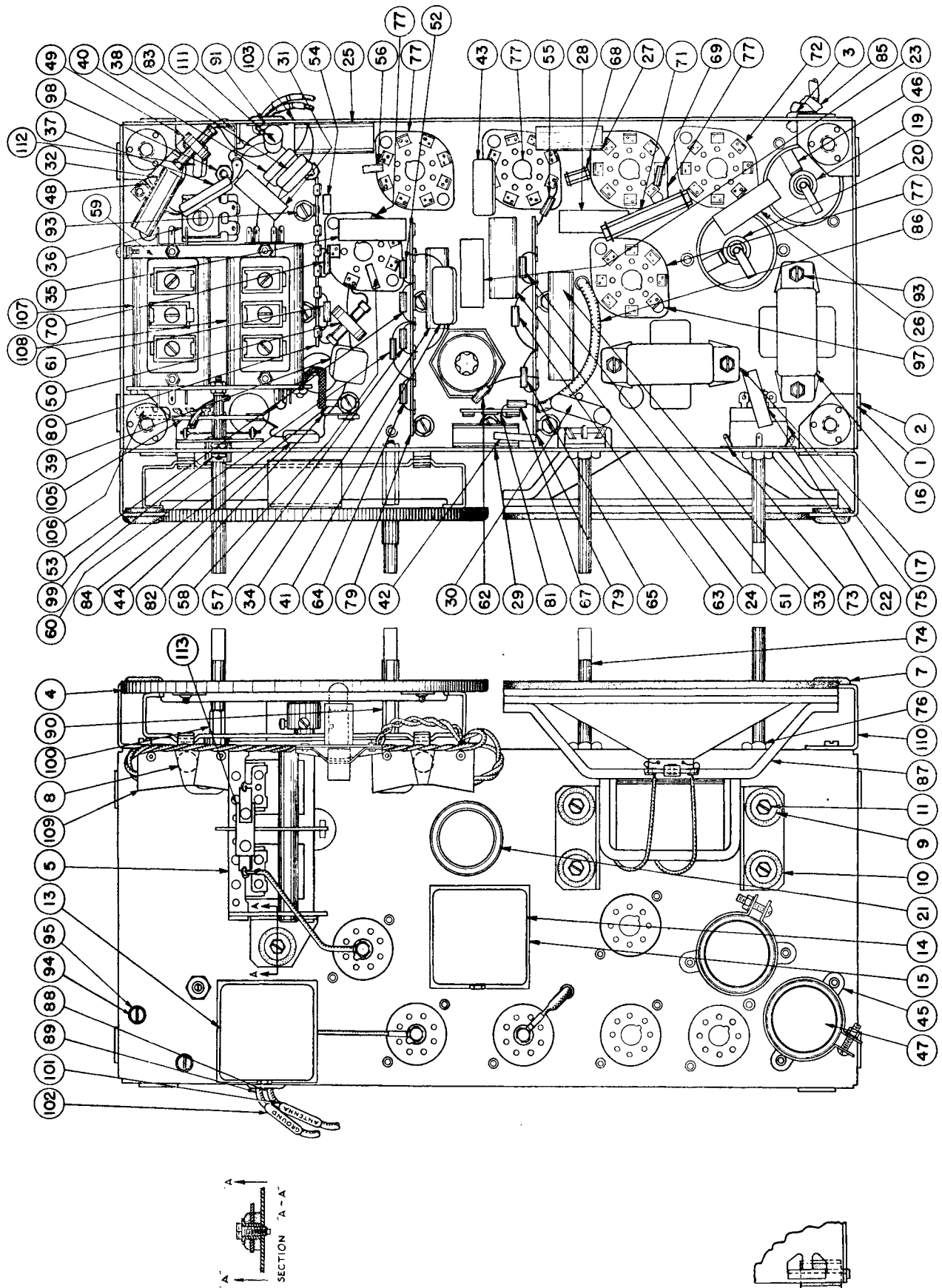


Fig. 5. Wiring Diagram of Chassis.