

## Stromberg Carlson Co.

Model: 350P

Chassis:

Year: Pre August 1939

Power:

Circuit:

IF:

Tubes:

Bands:

### Resources

[Riders Volume 10 - STROMBERG 10-22](#)

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MODELS 337H, 337HB  
337L, 337LB  
MODELS 350M, 350MB  
350R, 350RB, 350P  
350PB, 350V, 350VB

STROMBERG-CARLSON TEL. MFG. CO.

Voltage, Socket  
Trimmers

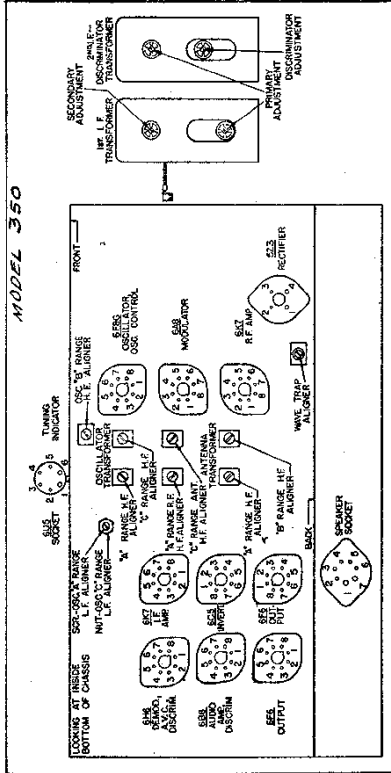


Fig. 1. Terminal Layout for Voltage Measurement Chart and Location of the Aligning Adjustments for the R. F., I. F. and Discriminator Circuits.

NORMAL VOLTAGE READINGS

The various values of voltages listed in the following table are obtained by measuring between the various terminals of the chassis with the tubes in their respective sockets. The receiver is, therefore, in operation when the measurements are made. Figure 1, shows the terminal layout of the sockets with the proper terminal numbers.

Voltages are given for a line voltage of 120 volts, and allowance should be made for differences when the line voltage is higher or lower. 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: 0-25, 0-50, 0-100, 0-200, 0-300, 0-400, 0-500 volts except when an asterisk appears after any given voltage value, in which case the 500 volt scale was used.

Tube	Circuit	Terminals of Sockets								Heater Voltages Between Heater Terminals		
		Cap	1	2	3	4	5	6	7	8	Sockets Terminal Numbers	Volts
6K7	R. F. Amp.	0	0	0	-205	+99	0	0	6.2	0	2-7	6.2
6A8	Modulator	0	0	0	+227	+99	-5.9	+99	6.2	0	2-7	6.2
6F8-G	Oscillator and Modulator	0	0	0	+153	+7.8	-5.9	+152	6.2	0	2-7	6.2
6K7	I. F. Amp.	0	0	0	+210	+57	0	+57	6.2	0	2-7	6.2
6H6	Discriminator, Demodulator, A. V. C.	—	0	0	0	0	0	0	6.2	0	2-7	6.2
6B8	Discriminator, Audio Amp.	0	0	0	+20*	0	0	+38*	6.2	0	2-7	6.2
6C5	Audio Inv.	—	0	0	+120	+215	0	0	6.2	+5.9	2-7	6.2
6F6	Audio Output	—	0	0	+300	+308	0	0	6.2	+10	2-7	6.2
6F6	Audio Output	—	0	0	+300	+308	0	0	6.2	+19	2-7	6.2
6U5†	Tuning Ind.	—	6.2	+19	0	+217	-3	0	—	—	1-6	6.2
5Z3	Rectifier	—	+410	397	—	+410	—	—	—	—	1-4	4.8
Speaker Socket		—	+390	0	0	+410	+410	0	+308	—	—	—

Receiver tuned manually to 1000 Kc., no signal. A. C. voltages are indicated by italics.

APPARATUS SPECIFICATIONS

- No. 337-H ..... 50 to 60 Cycles; P-26588 Chassis Assembly; P-27557 Speaker
- No. 337-LB ..... 50 to 60 Cycles; P-26588 Chassis Assembly; P-27004 Speaker
- No. 337-L ..... 50 to 60 Cycles; P-26588 Chassis Assembly; P-27004 Speaker
- No. 337-LB ..... 25 to 60 Cycles; P-26589 Chassis Assembly; P-27005 Speaker

A special temperature controlled compensating capacitor is used in the oscillator circuit of these receivers and is provided with a low level bias frequency compensating circuit in conjunction with the volume control circuit so that balanced reproduction is obtained for any setting of the volume control.

NORMAL VOLTAGE READINGS

The values of voltages listed in the following table are obtained by measuring between the various tube socket terminals of the chassis base, with the tubes in their respective sockets. The receiver is, therefore, in full operation when the measurements are made. Figure 1, shows the terminal layout of the sockets with the proper terminal numbers.

Voltages are given for a line voltage of 120 volts, and allowance should be made for differences when the line voltage is higher or lower. 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: 0-25, 0-50, 0-100, 0-200, 0-300, 0-400, 0-500 volts except when an asterisk appears after any given voltage value in which case the 250 volt scale was used.

Tube	Circuit	Terminals of Sockets								Heater Voltages Between Heater Terminals		
		Cap	1	2	3	4	5	6	7	8	Sockets Terminal Numbers	Volts
6K8	Mod. Osc.	0	0	0	+230	+92	-6.5	+73	6.3	0	2-7	6.3
6K7	I. F. Amp.	0	0	0	+230	+70	—	+220	6.3	0	2-7	6.3
6H6	Dem. A. V. C.	—	0	0	0	0	0	6.3	0	2-7	6.3	
6F5	Audio Amp.	0	0	0	+230	+56	0	0	6.3	0	2-7	6.3
6F6G	Audio Output	0	0	0	+212	+227	0	—	6.3	0	2-7	6.3
6U5	Tuning Ind.	—	0	0	+220	0	+45*	6.3	—	—	1-6	6.3
80	Rectifier	—	+350	345	—	—	—	—	—	—	1-4	4.8
Speaker Socket		—	+350	0	0	+350	+350	0	+230	—	—	—

Receiver tuned manually to 1000 Kc., no signal. A. C. voltages are indicated by italics.

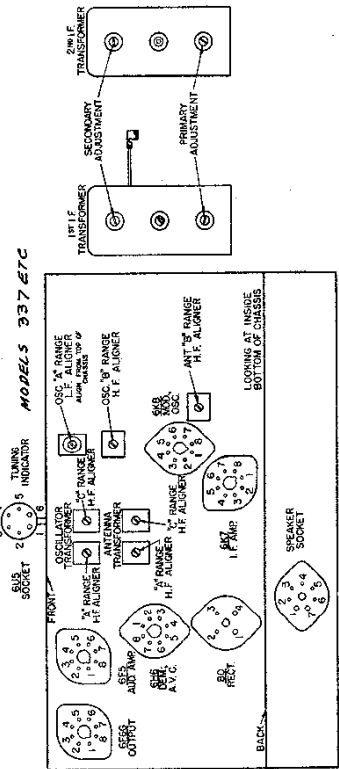
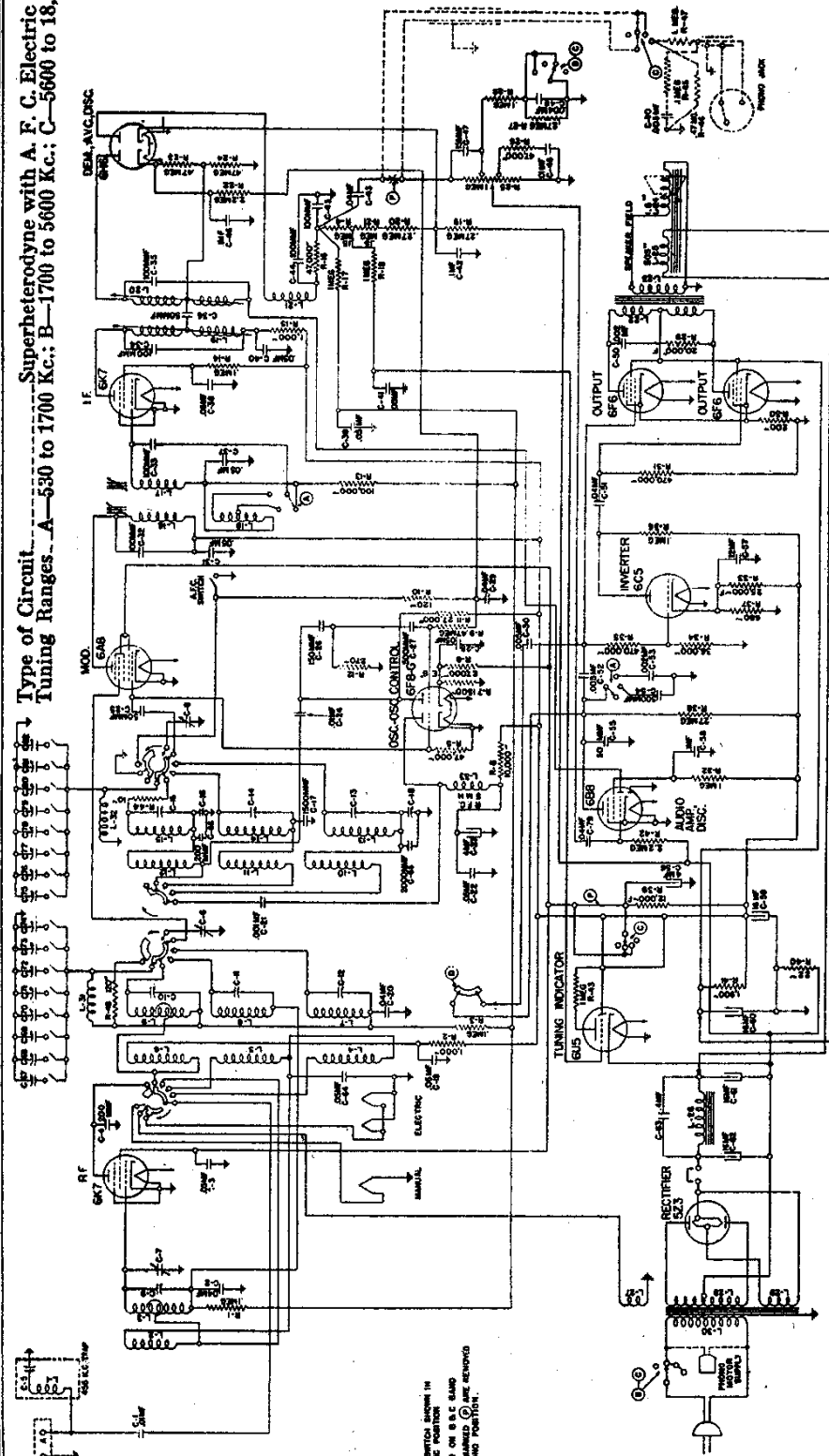


Fig. 1. Terminal Layout for Voltage Measurement Chart and Location of the Aligning Capacitors.

STROMBERG-CARLSON TEL. MFG. CO.

MODELS 350M, 350MB  
350R, 350RB, 350P  
350PB, 350V, 350VB  
Schematic

Type of Circuit.....Superheterodyne with A. F. C. Electric Tuning  
Tuning Ranges.....A—530 to 1700 Kc.; B—1700 to 5600 Kc.; C—5600 to 18,000 Kc.



Voltage Rating .....105 to 125 Volts, A. C.  
Power Frequency Rating ..... See "Apparatus Specifications"  
Input Power Rating:  
Radio Models Only ..... 120 Watts  
Radio-Phono. Models ..... 140 Watts  
Frequency of Intermediate Amplifier ..... 455 Kilocycles

APPARATUS SPECIFICATIONS

- No. 350-M Receiver.....50 to 60 Cycles; P-29043 Chassis; P-27504 Speaker
- No. 350-MB Receiver.....25 to 60 Cycles; P-29044 Chassis; P-27504 Speaker
- No. 350-R Receiver.....50 to 60 Cycles; P-29043 Chassis; P-27504 Speaker
- No. 350-RB Receiver.....25 to 60 Cycles; P-29044 Chassis; P-27504 Speaker
- No. 350-P Receiver.....60 Cycles Only; P-29066 Chassis; P-29443 Phono. Motor Unit
- No. 350-PB Receiver.....25 Cycles Only; P-27504 Chassis; P-29444 Phono. Motor Unit
- No. 350-V Receiver.....50 to 60 Cycles; P-29043 Chassis; P-27504 Speaker
- No. 350-VB Receiver.....25 to 60 Cycles; P-29044 Chassis; P-27504 Speaker

FOR TUNER  
SEE INDEX



## STROMBERG-CARLSON TEL. MFG. CO.

MODELS 350M, 350MB

350R, 350RB, 350P

350PB, 350V, 350VB

## Alignment

output control so that a signal of 50,000 to 100,000 microvolts is fed into the No. 6A8 modulator tube. Now, observe the reading of the milliammeter which is connected in series with the cathode of the No. 6B2-G oscillator control tube, and rotate the Range Switch control knob to the "Electric" position, observing whether there is any difference in the reading of the milliammeter. When this circuit is connected in series with the antenna binding post, the manual tuning Standard Broadcast to the "Electric" position. If there is any difference in the milliammeter reading while rotating this control knob from the manual tuning Standard Broadcast to the "Electric" position and vice versa, adjust the "Discriminator" circuit Range Switch control knob until the meter reading has the same value regardless of whether the Range Switch control knob is adjusted to "Standard Broadcast" or "Electric" position. When this condition is obtained, the Discriminator circuit is properly adjusted.

## Radio Frequency Adjustments

The alignment of the radio frequency circuits in these receivers should be very carefully made and in the order specified.

When making any aligning adjustments of these circuits, the Fidelity Control knob should be set for "Normal" operation, and the "Off-On-Bass" control knob should also be set for "Normal" operation.

## Alignment of Short Wave Range (Also Referred to as "C" Range)

In aligning the radio frequency circuits for this range, replace the 0.1-microfarad capacitor which was placed in series with the test oscillator's output lead for the I. F. alignments, with a 400-ohm carbon type resistor. This lead should then be connected to the antenna binding post located on the rear of the receiver chassis. The antenna terminal (or low side) of the test oscillator should be connected to the ground binding post on the receiver.

1. Operate the Range Switch on the receiver chassis to the short wave ("C") range position, and set the test oscillator's frequency and the receiver's tuning dial to 16 megacycles.
2. Adjust the receiver's oscillator "C" range high frequency aligner for maximum output.
3. Adjust the antenna "C" range high frequency aligner for maximum output, at the same time rotate the gang tuning capacitor back and forth through resonance until maximum output is obtained.
4. Set the test oscillator's frequency and the receiver's tuning dial to 8 megacycles.
5. Adjust the receiver's oscillator "C" range low frequency aligner (series aligner), and at the same time rotate the gang tuning capacitor back and forth through resonance until maximum output is obtained.
6. Reset both the test oscillator's frequency and the receiver's tuning dial to 16 megacycles and repeat operation Nos. 2 and 3.

## Alignment of Medium Wave Range (Also Referred to "B" Range)

In aligning the radio frequency circuits for this range, use the same artificial antenna (400-ohm carbon type resistor) in series with the output terminal of the test oscillator as was used for aligning the short-wave range.

1. Operate the Range Switch on the receiver chassis to the Medium Wave ("B") range position, and set the test oscillator's frequency and the receiver's tuning dial to 5 megacycles.
2. Adjust the receiver's oscillator "B" range high frequency aligner for maximum output.
3. Adjust the antenna "B" range high frequency aligner for maximum output, and at the same time rotate the gang tuning capacitor back and forth through resonance until maximum output is obtained.

## Alignment of Standard Broadcast Range (Also Referred to as "A" Range)

In aligning the radio frequency circuits for this range, replace the 400-ohm carbon type resistor in series with the test oscillator's output lead with a 200-micro-microfarad capacitor and align these circuits as follows:

1. Operate the Range Switch to the manual tuning Standard Broadcast "A" range position and set the test oscillator's frequency and the receiver's tuning dial to 1.5 megacycles.
2. Adjust the receiver's oscillator "A" range high frequency aligner for maximum output.
3. Adjust the R. F. interstage "A" range high frequency aligner for maximum output.
4. Adjust the antenna "A" range high frequency aligner for maximum output.
5. Set the test oscillator's frequency and the receiver's tuning dial to 0.8 megacycles.
6. Adjust the receiver's oscillator "A" range low frequency aligner (series aligner) for maximum output, and at the same time rotate the gang tuning capacitor slightly back and forth through resonance until maximum output is obtained.
7. Reset both the test oscillator's frequency and receiver's tuning dial to 1.5 megacycles and repeat operation Nos. 2, 3 and 4.

## Wave Trap Adjustment

In adjusting the wave trap circuit, set the Electric Tuning and Range Switch control knob to the manual tuning Standard Broadcast position (arrow on knob pointing in direction of gold dot). Set the tuning dial to 1000 kilocycles. Connect a 200-micro-microfarad capacitor in series with the output terminal of the modulated test oscillator and the antenna binding post on the receiver, and the ground terminal of the test oscillator to the ground binding post on the receiver. Then, with the modulated test oscillator set at the frequency of the intermediate amplifier, 455 kilocycles, supply a fairly strong signal to the receiver and adjust the wave trap aligner until a minimum indication is obtained on the output meter.

## ALIGNMENT DATA

All alignment adjustments are accurately made at the factory on these receivers, and ordinarily no readjustments are necessary. However, should it become necessary to make any readjustments, the procedure given in these instructions should be carefully followed. The preferred method of aligning these receivers is by the use of available cathode ray oscilloscope and frequency modulator unit in conjunction with the standard signal generator.

To accurately align circuits in these receivers, it is necessary to use a high grade signal generator capable of being modulated 30% and having an output of 50,000 to 100,000 microvolts. It is necessary to have this output voltage controlled so that only a few microvolts may be fed into the receiver. It is necessary to use with the signal generator, a sensitive output meter which may be used for determining the maximum signal voltage developed across the voice coil of the loud speaker. In addition to this equipment, a range of 0 to 10 milliamperes connected in series with the cathode of the No. 6B2-G tube in the manual tuning Standard Broadcast circuit by means of an adapter plug inserted between the tube and its socket. The leads to the meter should not be longer than 16", and should be shunted at the socket connections by a capacitor of not less than 0.25 Mfd. In order to make the aligning adjustments in an easy and satisfactory manner, it is recommended that the Stromberg-Carlson P-24608 aligning tool be used.

Before proceeding with the alignment of any circuits in these receivers, except what specifically directed, be sure that the Fidelity Control knob is set for the "Normal" position. The "Off-On-Bass" control knob should also be set for the "Normal" position. In making any alignment adjustments always adjust the test oscillator's output voltage to the minimum value where a good alignment may still be obtained, except when specifically directed in these instructions. Figure 1 shows the location of all the aligning capacitors or adjustments for this receiver.

## Dial Adjustment

Before aligning the circuits of these receivers, the tuning dial must be properly aligned to "track" with the generator to which it is connected. To do this, the dial is set correctly with respect to the gang tuning capacitor, rotate the "Band Station" selector knob to the "Standard Broadcast" position, and the capacitor is set to its maximum capacity position. Then, with the receiver turned "on", the illuminated dial indicator is set to its exact center over the dial alignment lines (black lines) which are located at the extreme low frequency end of each scale on the dial. If these lines do not center over the illuminated dial indicator line, loosen the two screws which adjust the dial. Then rotate the dial so that these alignment lines are centered over the illuminated dial indicator line. The two set screws of the dial hub should then be securely tightened.

## Intermediate Frequency Adjustments

The intermediate frequency used in these receivers is 455 kilocycles. Because of the necessity of obtaining the correct frequency curve of these stages in a high fidelity receiver, it is recommended that unless it is absolutely essential, these adjustments should not be made. However, should it become necessary to make these adjustments, the procedure given in these instructions should be followed. It is best to have these adjustments made at the factory. However, in the case where this cannot be done, the following procedure should be followed:

1. Operate the Range Switch of the receiver to the manual tuning, Standard Broadcast range position, and set the tuning dial to its extreme low frequency position. Set the Fidelity control knob to its "Normal" position, and the "Off-On-Bass" control knob to its normal position.

**CAUTION:** Never attempt to align the R. F. or I. F. circuits of this receiver with the Fidelity control knob set at any position other than the "Normal" position and the Range Switch control knob set at the manual tuning Standard Broadcast position. The test oscillator should be connected to the antenna binding post as directed in the following paragraphs. Also, do not make any alignment adjustments with the test oscillator's output terminal connected to the antenna binding post (which is located on rear of the chassis base) set at the "back-up" position.

2. Apply between the chassis base (or ground binding post) of the receiver and the grid of the No. 6A8 modulator tube, a modulated signal of 455 kilocycles from the test oscillator. The test oscillator should be connected to the antenna binding post of the No. 6A8 tube. Do not remove the chassis grid lead connecting to this tube. The ground (or low side) terminal of the signal generator should be connected to either the chassis base or the ground binding post.

3. Now, noting from Fig. 1, the alignment adjustments for the First and Second I. F. transformers, align the I. F. circuits in the following order:
  - Adjust the Second I. F. transformer primary circuit for maximum output.
  - Adjust the First I. F. transformer primary circuit for maximum output.

Adjust the First I. F. transformer secondary circuit for maximum output.

Adjust the Second I. F. transformer secondary circuit for maximum output.

Adjust the First I. F. transformer secondary circuit for maximum output.

Adjust the Second I. F. transformer secondary circuit for maximum output.

Carefully make all of the above adjustments, watching carefully the output meter so that the peak reading is obtained for each adjustment. As each adjustment is made reduce the output of the test oscillator as required.

4. To adjust the Discriminator circuit proceed as follows:

Check the position of the Range Switch control knob which should be set to the manual tuning Standard Broadcast position.

**CAUTION:** Before adjusting this circuit be sure that the I. F. amplifier is tuned exactly to 455 kilocycles. With the signal generator still set at a frequency of 455 kilocycles, adjust the signal generator's