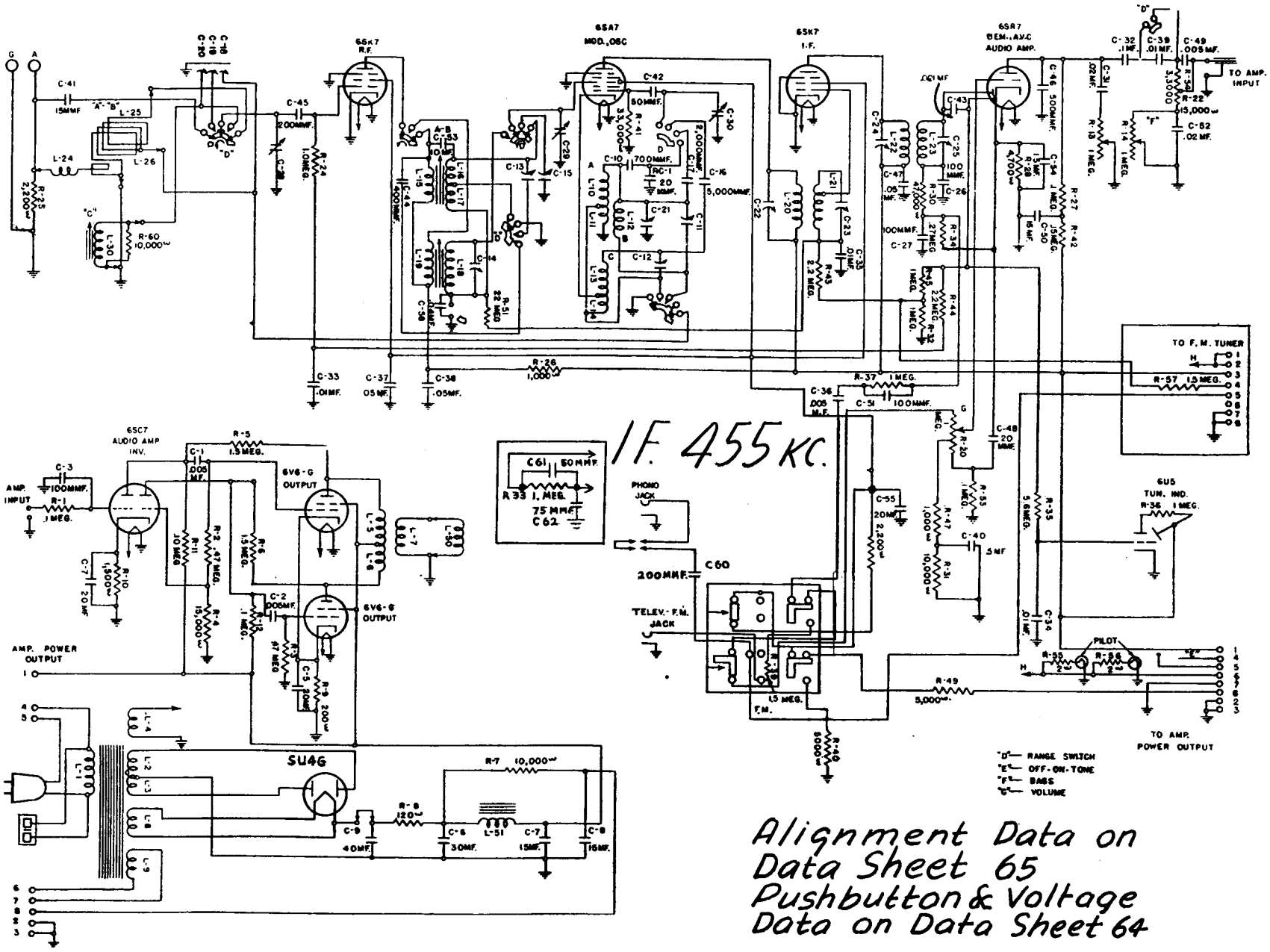
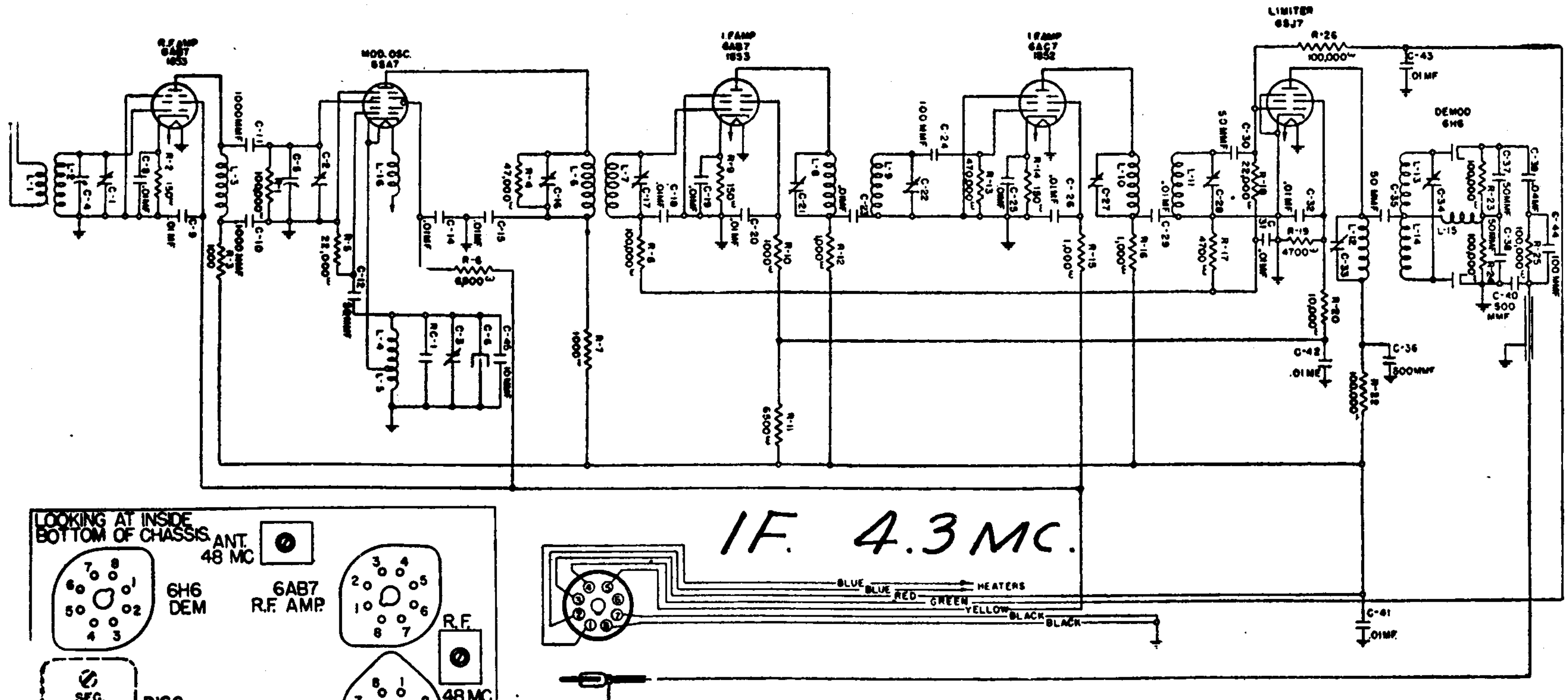


Schematic Circuit Chassis and Power Ampl.

1940-41 MODEL 154

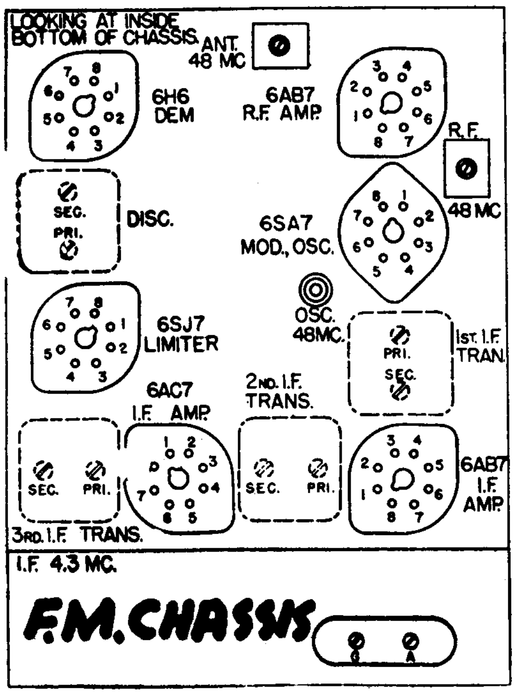
STROMBERG-CARLSON DATA SHEET 62

STROMBERG-CARLSON DATA SHEET 63



POWER SUPPLY CORD & PLUG

TERM. NO 1&2 6.3 VOLTS AT 2.4 AMP
TERM. NO. 3 250 VOLTS AT 53 MA.
TERM. NO. 5 150 VOLTS AT 14 MA.
TERM. NO. 4 TUNING INDICATOR
TERM. NO 7&8 GROUND



Alignment Data on Data Sheet 65

1940-41

FREQUENCY MODULATION CHASSIS,

MODEL 154

* Read on 1000 volt scale of voltmeter.

Between terminals 2 and 8 of rectifier socket—5 volts A. C.

6AB7	R. F. Amplifier	0	0	0	0	+1.8	+150	6.3	+265
6SA7	Modulator and Oscillator	0	0	+265	+100	—2*	0	6.3	0
6AB7	I. F. Amplifier	0	0	0	0	+2.2	+150	6.3	+265
6AC7	I. F. Amplifier	0	0	0	0	+2.2	+150	6.3	+265
6SJ7	Limiter	0	0	0	0	0	+42	6.3	+10
6H6	Demodulator	0	0	0	0	0	—	6.3	0

MODEL 51 VOLTAGES & LAYOUT

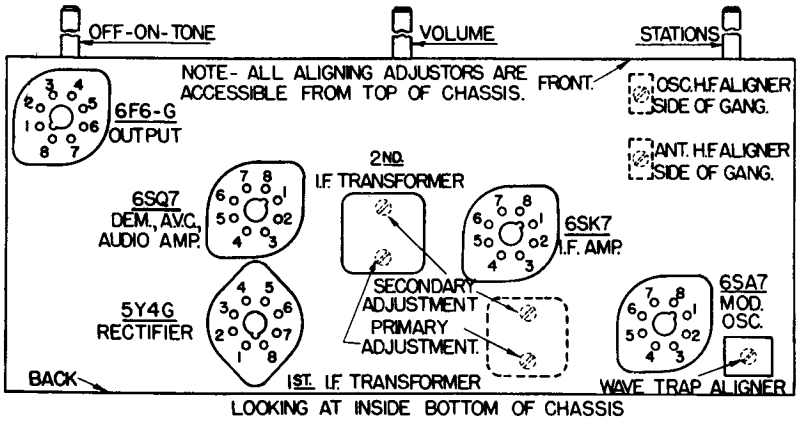
NORMAL VOLTAGE READINGS

Use a good high resistance voltmeter having a resistance of at least 1000 ohms per volt.
Take all D. C. voltage readings on the 500 volt scale except where an asterisk appears.
Take all readings with chassis operating and tuned to 1000 Kc.—no signal.
Use a line voltage of 120 volts or make allowance for the variation.
Read from indicated socket terminals to chassis base.
See Location Chart for position of terminals.
A. C. Voltages are indicated by italics.

Tube	Circuit	Terminals of Sockets 1	2	3	4	5	6	7	8	Heater Voltages Between Heater Terminals: Socket Terminal Numbers	Volts A. C.
6SA7	Mod.—Osc.	0	0	+205	+70	—1.25	—	*6.3*	—	2-7	*6.3*
6SK7	I. F. Amp.	0	0	—	—	+1.1*	+55	*6.3*	+205	2-7	*6.3*
6SQ7	Dem.—A. V. C. —Audio	0	0	0	0	0	+100	*6.3*	0	7-8	*6.3*
6F6G	Output	0	0	+200	+205	0	—	*6.3*	+11*	2-7	*6.3*
5Y4G	Rectifier	0	0	*265*	—	*265*	—	+265	+265	7-8	*5*

*Read on lowest possible scale of voltmeter.

Total Rectified D. C. current is 51 milliamperes.
Drop across Field Coil is 65 volts.



1940-41

MODEL 154

Voltages, Layouts & Pushbutton Adj.

Alignment on Sheet 65
F. M. on Sheet 63

NORMAL VOLTAGE READINGS

Take all readings with chassis operating and tuned manually to 1000 kc. or 47 megacycles—no signal.

Use a line voltage of 120 volts or make allowance for the variation.

Use a good high resistance voltmeter having a resistance of at least 1000 ohms per volt.

Take all D. C. readings on the 500 volt scale, except when an asterisk appears.

Read from indicated terminals to chassis base.

See location chart for position of terminals.

A. C. voltages are indicated by italics.

AMPLITUDE MODULATION AND POWER AMPLIFIER CHASSIS, 154 RECEIVER

Tube	Circuit	Terminals of Sockets 1	2	3	4	5	6	7	8
6SK7	R. F. Amplifier	0	0	0	0	0	+100	*6.3*	0
6SA7	Modulator and Oscillator	0	0	+260	+100	—20*	0	*6.3*	0
6SK7	I. F. Amplifier	0	0	0	0	0	+100	*6.3*	0
6SR7	Demod., A. V. C., Audio Amp.	0	0	+3	0	0	+54	*6.3*	0
6AC7	Audio Inverter	0	+165	0	0	+165	+2	0	*6.3*
6V6G	Output	0	0	+260	+263	0	—	*6.3*	+14
6V6G	Output	0	0	+260	+263	0	—	*6.3*	+14
5U4G	Rectifier	—,	+370	—	*355*	—	*355*	—	+370
—	Speaker Socket	+360	0	0	+370	+370	—	+265	—
—	Power Socket	+263	0	0	*50*	*50*	*6.3*	0	+200

INSTRUCTIONS FOR SETTING UP PUSH BUTTONS

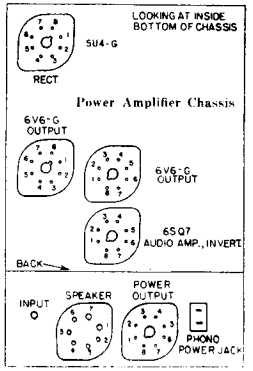
IMPORTANT: The stations selected should be the local or favorite stations which give good reception at all times. If a Frequency Modulation station is available, it may be set up on one of the push buttons on the No. 154 Receivers.

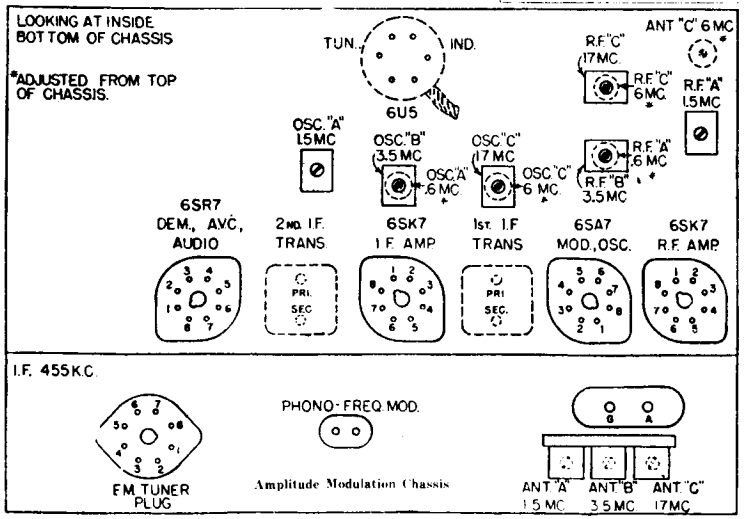
Set up stations in the daytime to avoid unnecessary interference. Allow the set to run for about twenty minutes before setting up stations.

Always use the tuning indicator unit when setting up stations, in order to determine when the station is exactly in tune.

1. Turn the receiver "On".
2. On the No. 154 Receivers, be sure the "Phono" and "F. M" buttons are in the proper position to receive the desired stations.
3. Set the range switch to the "BC" position.
4. Turn volume control about three-quarters of the way on (in a clockwise direction).
5. Pull the six station push buttons off their levers.
6. Remove the call letters of the six selected stations from the call letter sheets, which are in an envelope stapled to the cabinet. Insert the station call letters part way in the slots at the sides of the buttons. Next, insert a transparent tab in each slot in front of the station letters. Then push both the transparent tabs and the call letters all the way into the slot. (A pencil eraser may be helpful.)
7. Loosen the set screw of the lever to be set up.
8. Push in the lever and manually tune in the desired station, observing the tuning indicator in order to obtain exact resonance.

   IMPORTANT: For accurate set-up, be sure that the lever is pushed in, in the same manner and with the same amount of pressure as will be used when operating the push buttons.
9. Tighten the set screw. Be sure not to disturb the adjustment in any way while tightening the screw.
10. Place the proper button on the lever.
11. Check the accuracy of the adjustment by detuning the station and retuning with the button several times, pushing the button with an even pressure. Readjust if necessary.
12. Set up the other five stations in the same manner.





STROMBERG-CARLSON DATA SHEET 64

ALIGNMENT DATA
MODEL 154

Circuit on Data Sheet 62
F.M. Circuit on Sheet 63

1940-41

NEVER REALIGN UNLESS ABSOLUTELY NECESSARY.

GENERAL. All aligning adjustments are carefully made at the factory with special equipment which is designed for aligning Frequency Modulation receivers. The limitations of commercial oscillographs and other ordinary test equipment are such that alignment should not be attempted in the field unless absolutely necessary.

If alignment is attempted, it will not be successful unless the instructions which follow are adhered to exactly.

The following equipment will be required:

1. Standard signal generator with sweep circuit.
2. Wide band sweep signal generator.
3. Oscillograph.
4. Microammeter—0 to 200 microamps.
5. Center "0" microammeter with 100 divisions either side of "0".

See location chart for location of all aligners.

ALIGNING PROCEDURE (AMP. MOD.)

I. Dial Pointer Adjustment. (A. M.)

With the plates of the gang tuning capacitor fully engaged, check to be sure that the dial pointer is in a vertical position directly on the calibration marks located at the low frequency end of the dial scale. Adjust if necessary.

II. Intermediate Frequency Adjustments. (A. M.)

1. Set the range switch to standard broadcast position.
2. Tune set to extreme low frequency end of dial.
3. Connect the ground terminal of the signal generator to the ground terminal of the chassis.
4. Introduce a modulated signal of 455 kilocycles to the grid of the 6SA7 Modulator and Oscillator tube (terminal No. 8), using a 0.1 mmf. capacitor in series with the output lead of the signal generator.
5. Adjust the I. F. aligners for maximum output in the following order:
   a. Secondary of second I. F. transformer.
   b. Primary of second I. F. transformer.
   c. Secondary of first I. F. transformer.
   d. Primary of first I. F. transformer.

III. Radio Frequency Adjustments. (A. M.)

Standard Broadcast Range (A Band)

1. Replace the 0.1 mf. capacitor in series with the output lead of the signal generator with a 200 mmf. capacitor and connect it to the antenna terminal of the chassis.
2. Set the signal generator frequency and the receiver tuning dial to 600 kc.
3. Set the range switch to the Standard Broadcast range (A Band).
4. Adjust the 600 kc. oscillator and R. F. aligners (iron cores) for maximum signal.
5. Set the signal generator frequency and the receiver tuning dial to 1500 kc.
6. Adjust the 1500 kc. oscillator, R. F. and antenna aligning capacitors for maximum signal.
7. Repeat operations three and four.
8. Repeat operations five and six.
9. Connect the center "0" microammeter and the .5 megohm resistor in series with it across the whole discriminator load. (From ground to the junction of R-23 .1 megohm resistor and C-29 .04 mf. capacitor.)
10. Adjust the secondary of the discriminator transformer for center "0" reading of the microammeter.
11. Vary the frequency of the standard signal generator, making sure that the voltage peaks, which should be of the same magnitude, are the same number of kilocycles off on either side of resonance. Any departure from these conditions may be corrected by a slight re-adjustment of the primary.

    Note: Connect the wide band sweep signal generator to the grid of the 6SA7 Modulator and Oscillator tube socket and make slight readjustments of the I. F. transformers for proper curve, since there is some interaction between these stages and the discriminator.

IV. Radio Frequency Adjustments. (F. M.)

1. Set the signal generator frequency and the receiver tuning dial to 48.5 megacycles.
2. Replace the 0.1 microfarad capacitor in series with the output lead from the signal generator with a 100 ohm resistor and connect it to one of the F. M. terminals on the back of the chassis.
3. Connect the ground lead of the signal generator to the other F. M. terminal.
4. Adjust the oscillator aligner (air trimmer) for maximum signal.
5. Adjust the R. F. and antenna aligners for maximum signal on the 0 to 200 microammeter, maintaining the center "0" microammeter at "0" at all times by rotating the receiver dial slightly back and forth.

Medium Wave Range (B Band)

1. Replace the 0.1 mf. capacitor in series with the output lead from the signal generator with a 400 ohm carbon type resistor and connect it to the antenna terminal of the chassis.
2. Set the range switch to the Medium Wave range (B Band).
3. Set the signal generator frequency and the receiver tuning dial to 3.5 megacycles.
4. Adjust the oscillator R. F. and antenna aligning capacitors for maximum signal.

Short Wave Range (C Band)

1. Leave the signal generator connected in the same manner as when adjusting the Medium Wave Range (B Band).
2. Set the range switch to the Short Wave Range (C Band).
3. Set the signal generator frequency and the receiver tuning dial to 6 megacycles.
4. Adjust the 6 megacycle oscillator, R. F. and antenna aligners (iron cores) for maximum signal.
5. Set the signal generator frequency and the receiver tuning dial to 17 megacycles.
6. Adjust the 17 megacycle oscillator, R. F. and antenna aligning capacitors for maximum signal.
7. Repeat operations three and four.
8. Repeat operations five and six.

Note: After the receiver has been placed in the cabinet, plug the loop into the socket and readjust the Standard Broadcast, Medium Wave and Short Wave antenna high frequency shunt aligners for maximum signal.

ALIGNING PROCEDURE (FREQ. MOD.)

I. Dial Pointer Adjustment.

Before alignment is attempted, be sure that the variable capacitor plates of the F. M. tuner are fully meshed with the variable capacitor plates of the A. M. tuner when turned all the way in.

II. Intermediate Frequency Adjustments (F. M.)

Note: All I. F. adjustments are made using a wide band sweep signal generator with a sweep circuit of plus or minus 300 kilocycles.

1. Push in the F. M. button.
2. Tune the set to the extreme high frequency end of the dial (50 megacycles).
3. Connect the 0-200 microammeter across the R-17 4700-ohm resistor. (This resistor is mounted on the terminal strip located on the side of the base.)
4. Connect the oscillograph between ground and the junction of C-43 .01-mf. capacitor and R-26 100,000-ohm resistor located on the same terminal strip with the R-17 resistor.
5. Connect the ground terminal of the wide band sweep signal generator to the ground terminal of the 6AC7 second I. F. tube socket.
6. Introduce a signal of 4.3 megacycles to the grid of the 6AC7 second I. F. tube socket (terminal No. 4), using a 0.1 capacitor in series with the output lead of the signal generator. Keep the 0 to 200 microammeter at approximately 100 microamps.
7. Adjust the secondary and primary of the third I. F. transformer for maximum reading on the 0 to 200 microammeter.
8. Connect the output lead of the wide band sweep signal generator and the 0.1 microfarad capacitor in series with it to the grid of the 6AB7 first I. F. tube socket (terminal No. 4).
9. Connect the ground lead of the signal generator to the ground terminal of the 6AB7 first I. F. tube socket.
10. Adjust the second I. F. transformer in the same manner.
11. Connect the output lead of the wide band sweep signal generator with the 0.1 microfarad capacitor in series with it to the grid of the 6SA7 Modulator and Oscillator tube (terminal No. 8).
12. Connect the ground terminal of the signal generator to the ground terminal of the 6SA7 tube socket.
13. Adjust the first I. F. transformer in the same manner.

III. Discriminator Adjustment (F. M.)

1. Connect the ground terminal of the standard unmodulated signal generator to the ground terminal of the 6AB7 first I. F. tube socket.
2. Connect the output lead of the unmodulated standard signal generator to the grid of the 6AB7 first I. F. tube (terminal No. 4), using a 0.1 microfarad capacitor in series with the output lead of the standard signal generator, leaving the wide band sweep signal generator connected to the grid of the 6SA7 Modulator and Oscillator tube socket.
3. Adjust the attenuator of the wide band sweep signal generator for a curve on the oscillograph.
4. Set the frequency of the unmodulated standard signal generator to approximately 4.3 megacycles and adjust the attenuator for interference patterns on the oscillograph. Adjust the unmodulated standard signal generator frequency until interference patterns on each trace come together. (This is done in order to assure that the frequency of the standard signal generator which is used to align the discriminator coincides with the mean frequency of the wide band sweep signal generator).
5. Remove the wide band sweep signal generator.
6. Connect the center "0" microammeter with a .5 megohm resistor in series across one-half of the discriminator load. (From ground to the junction of the two .1 megohm resistors R-23 and R-24.)
7. Set the attenuator of the standard signal generator for maximum output.
8. Adjust the primary of the discriminator transformer for maximum reading on the center "0" microammeter.

STROMBERG-CARLSON DATA SHEET 65