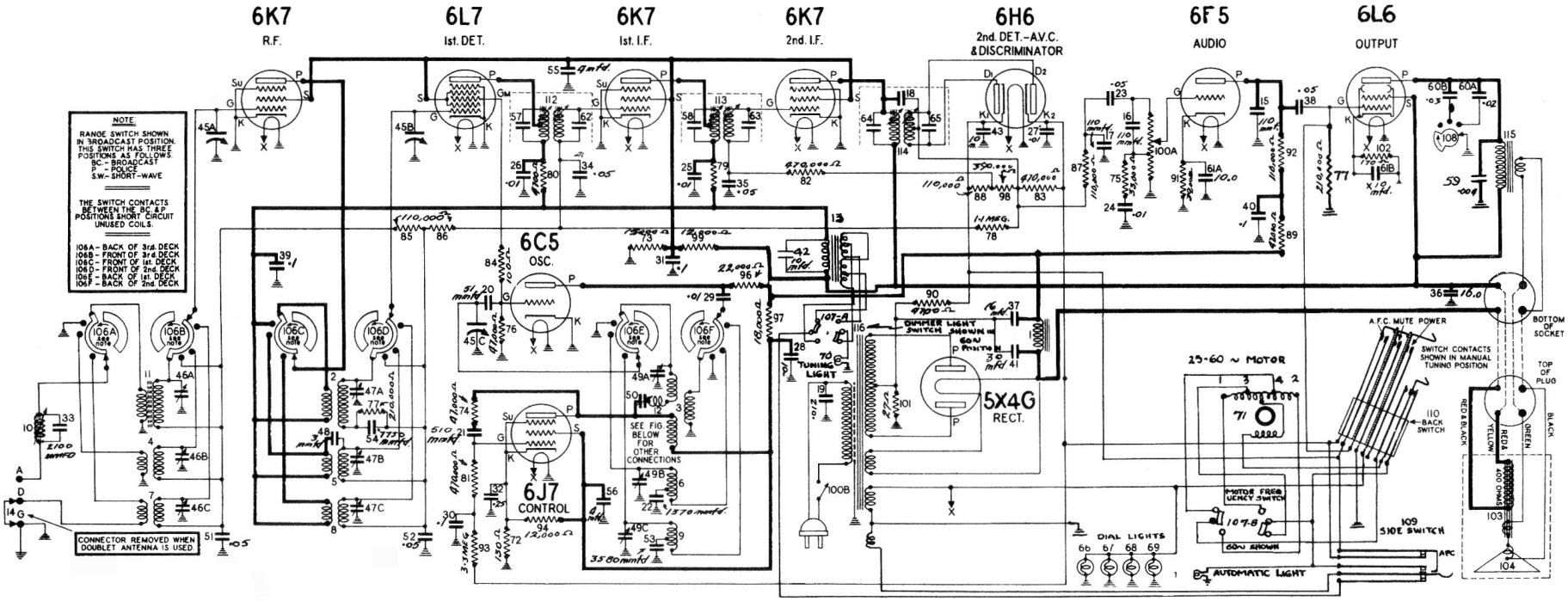


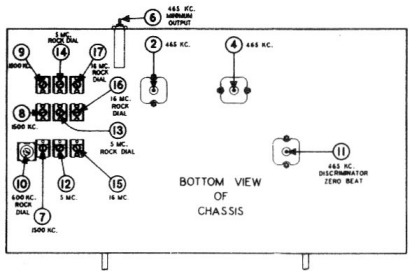
Alignment Data on Data Sheet-53

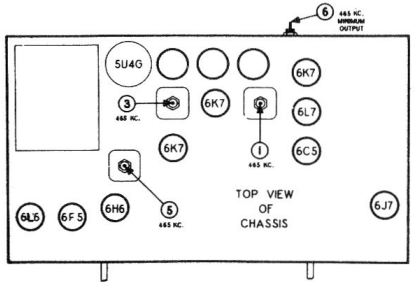
Model R-409

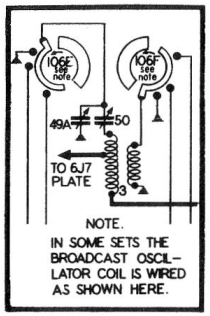
Receiver Models 4091 to 4095

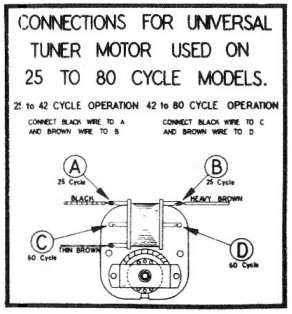
I.F. = 465 Kc.

1937-38



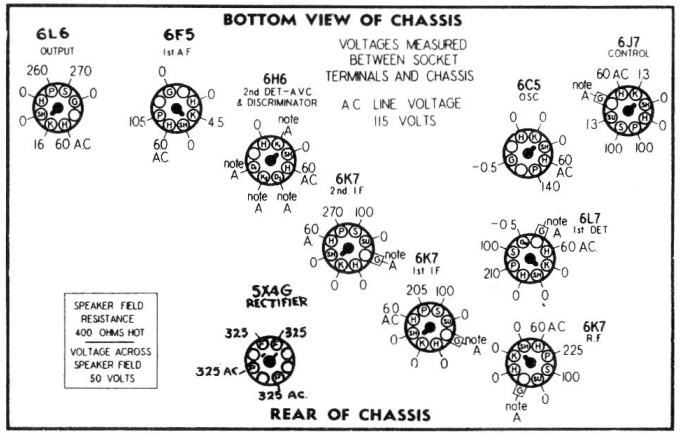






SOCKET VOLTAGES

ANTENNA GROUNDED — DIAL TUNED TO 525 K.C.



IMPORTANT: Use a high resistance voltmeter of 1000 ohms per volt.

NOTE A: The bias for the control grids of the 6L7 1st Det., 6K7 R.F., 6K7 1st I.F. and 6K7 2nd I.F. tubes, also the voltage on the 6H6 diodes and cathodes and the control grid of the 6J7, is -3.6 volts measured across resistor number 101.

STEWART-WARNER R-51

DATA SHEET

ALIGNMENT DATA - MODEL R409.

Circuit on Sheet 51.

1. Before attempting to align receiver check to see that dial pointer is opposite last scale division on low frequen- end of dial when gang condenser is in full mesh. Also when the gang condenser is in full mesh the stop pin on the left side of the tuner should be resting against the back stop. If the gang is in full mesh and stop pin is against the back stop, but the pointer is set to the wrong position, it will only be necessary to loosen the set screw on dial drive gear at left side of mechanism; then grasp the large drum on the same side of tuner and turn it until pointer is set correctly. Re- tighten set screw on gear being careful to see that gear is meshing properly.

On the other hand if the stop pin does not rest against back stop with gang condenser in full mesh, loosen set screw on gang condenser side of flexible coupler. Then turn tuning knob until stop pin rests against the back stop on tuner. Now retighten the set screw in flexible coupler and proceed to set the pointer to correct position by the method described above.

2. Connect the output meter across the two plates of the two 6V6 power output tubes or across voice coil of speaker, depending on type of meter. The more sensitive type should be connected across the voice coil.

3. Connect ground lead of signal generator to chassis.

4. Turn volume control to the maximum volume position.

5. Keep Ground and Doublet connections on antenna terminal strip connected together during the entire alignment procedure.

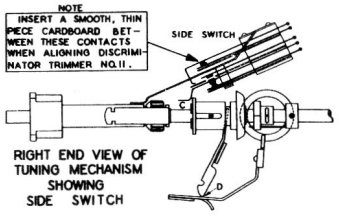
Continued on Data Sheet 53.

ALIGNMENT DATA - MODEL R409

Continued From Data Sheet 52.

TYPE OF DUMMY ANT. IN SERIES WITH SIG. GEN.	POINT TO CONNECT OUTPUT OF SIGNAL GENERATOR	SIGNAL GENERATOR FREQUENCY	RANGE SWITCH POSITION	RECEIVER DIAL SETTING	TRIMMER NUMBER	TRIMMER DESCRIPTION	TYPE OF ADJUSTMENT
.1 Mfd. Condenser	Control Grid of 6L7 Tube	465 Kc.	BROADCAST (Counter-clockwise)	ANY POINT WHERE IT DOES NOT AFFECT THE SIGNAL	1 - 2 3 - 4 5	1st I.F. 2nd I.F. 3rd I.F.	Adjust for maximum output. Then repeat adjustment.
400 ohm Carbon Resistor	Antenna Terminal	485 Kc.	BROADCAST (Counter-clockwise)	ANY POINT WHERE IT DOES NOT AFFECT THE SIGNAL	6	Wave Trap	Adjust for minimum output using a strong generator signal.
400 ohm Carbon Resistor	Antenna Terminal	1500 Kc.	BROADCAST (Counter-clockwise)	1500 Kc.	7	BROADCAST OSCILLATOR (Shunt)	Adjust trimmer to bring in signal.
400 ohm Carbon Resistor	Antenna Terminal	1500 Kc.	BROADCAST (Counter-clockwise)	TUNE TO 1500 Kc. GENERATOR SIGNAL	8 9	BROADCAST DETECTOR BROADCAST ANTENNA	Adjust for maximum output.
400 ohm Carbon Resistor	Antenna Terminal	600 Kc.	BROADCAST (Counter-clockwise)	TUNE TO 800 Kc. GENERATOR SIGNAL	10	BROADCAST OSCILLATOR (Series Pad)	Adjust for maximum output. Try to increase output by detuning trimmer and retuning receiver dial until maximum output is obtained.
400 ohm Carbon Resistor	Antenna Terminal	5 Mc.	POLICE (Center)	5 Mc.	12	POLICE OSCILLATOR (Shunt)	Adjust to bring in signal. Check to see if proper peak was obtained by tuning in image at approx. 4.1 Mc. If image does not appear realign at 5 Mc. with trimmer screw farther out. Recheck image.
400 ohm Carbon Resistor	Antenna Terminal	5 Mc.	POLICE (Center)	TUNE TO 5 Mc. GENERATOR SIGNAL	13 14	POLICE DETECTOR POLICE ANTENNA	Adjust for maximum output. Try to increase output by detuning trimmer and retuning receiver dial until maximum output is obtained.
400 ohm Carbon Resistor	Antenna Terminal	16 Mc.	SHORT WAVE (Clockwise)	16 Mc.	15	SHORT WAVE OSCILLATOR (Shunt)	Adjust to bring in signal. Check to see if proper peak was obtained by tuning in image at approx. 15.1 Kc. If image does not appear realign at 16 Kc. with trimmer screw farther out. Recheck image.
400 ohm Carbon Resistor	Antenna Terminal	16 Mc.	SHORT WAVE (Clockwise)	16 Mc.	16 17	SHORT WAVE DETECTOR SHORT WAVE ANTENNA	Adjust for maximum output. Try to increase output by detuning trimmer and retuning receiver dial until maximum output is obtained.

A.F.C. ALIGNMENT. The following adjustment must be made after every re-adjustment of I.F. and broadcast band trimmers. A.F.C. Discriminator should be adjusted as follows: (1) Be sure no buttons are depressed. Loosely couple output of signal generator to 6L7 control grid by clipping the generator output lead to the insulation on control grid wire, or connect to grid clip through a 50 mmfd. mica condenser. Be sure range switch is in broadcast (counter-clockwise) position. (2) Adjust signal generator to resonance with I.F. system by tuning generator dial for maximum output meter deflection. Be sure receiver dial is at some point where it has no tuning effect on generator signal. Switch off modulation. (3) With signal generator connected and operating as in #2, connect antenna and manually tune in powerful local station in region of 1000 Kc. or lower. (Avoid stations around 930 Kc. which might beat with second harmonic of test oscillator). (4) Adjust receiver dial to obtain zero beat between test oscillator and incoming signal. (5) It is now necessary to open the A.F.C. contacts and allow it to function. Do this by placing a piece of smooth cardboard between the contacts as shown in figure at right. (6) Now, adjust secondary of discriminator (trimmer #11) to restore zero beat. NOTE: This trimmer should be adjusted to the point where frequency of beat note increases rapidly if trimmer is turned in either direction. Other zero beat points may be found with trimmer all the way in or all the way out, but these settings are incorrect. If this operation has been performed correctly, opening or closing A.F.C. contacts on side switch by inserting or removing cardboard, should not change the beat note by more than a slight rumble.



RIGHT END VIEW OF TUNING MECHANISM SHOWING SIDE SWITCH

DATA SHEET STEWART-WARNER-53