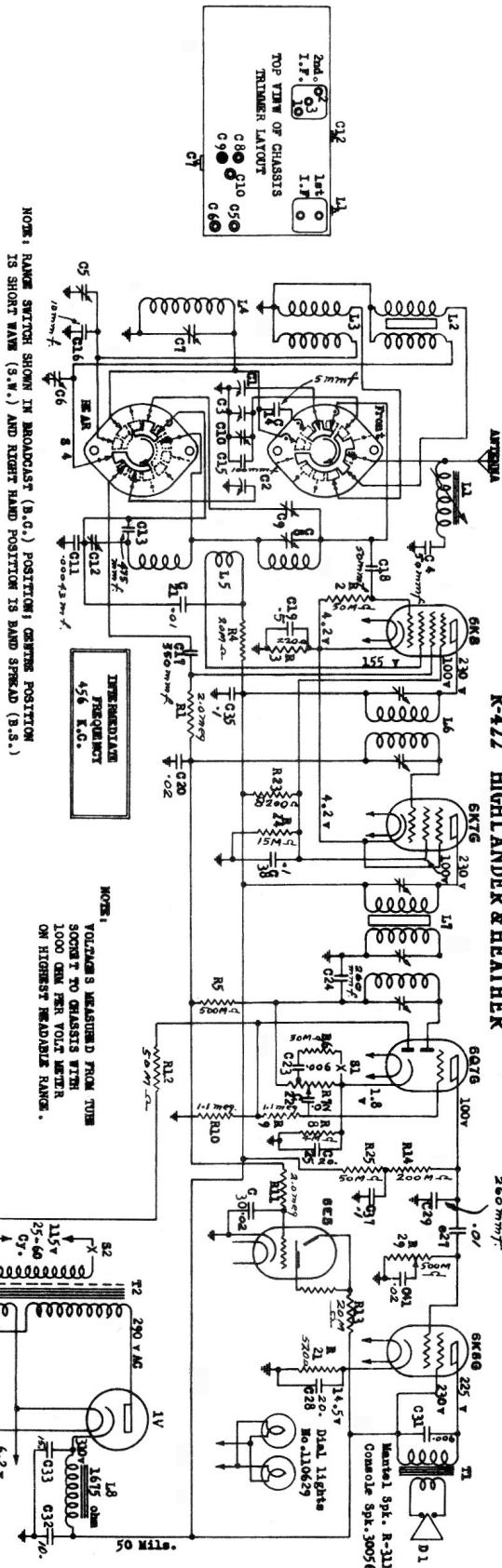


R-422 HIGHLANDER & HEATHER



ALIGNMENT PROCEDURE

Note: The bottom cover must be on the chassis but not necessarily fastened with the screws.

1. I.F. ALIGNMENT: Turn the range switch to the left hand (B.C.) position and the tuning condenser all out at the 1800 KC end. The volume and tone controls must be both turned on to the right and left in this position throughout the whole alignment procedure. Use as weak a signal as possible for alignment that will give a readable output. The output meter can either be connected across the speaker voice coil or across the primary of the output transformer through a blocking condenser of say .1 mfd or greater.

Apply a 456 KC signal from the test oscillator to the grid of the 6X8 tube through a .05 mfd condenser. Grounding the low lead of the oscillator to the chassis. Turn trimmer screw No. 1 of the 2nd I.F. Transformer either all in or all out so that it is away out of adjustment and then peak screws No. 2 and No. 3 for maximum output. Next peak both trimmers on the 1st I.F. for maximum output returning them to numbers 2 and 3 of the second stage and readjust them if necessary. Then adjust the No. 1 screw on the second stage for maximum output and return to the 1st stage and finally peak both screws on this transformer. NEVER READJUST NO. 2 OR 3 ON 2ND STAGE AFTER NO. 1 HAS BEEN PEAKED. This 2nd stage transformer has a special broad resonance curve and can only be adjusted in the above manner.

2. WAVE TRAP ADJUSTMENT: Remove the test oscillator lead from the 6X8 grid and connect it to the blue antenna lead from the chassis through a standard broadcast dummy antenna or a 200 mfd condenser. Increase the oscillator input until a signal is heard and then adjust the trap L1 for minimum output. A very strong signal is necessary for the final adjustment.

3. BROADCAST ALIGNMENT: With a 1400 KC signal from the test oscillator applied to the set as in 2 set the dial pointer to 1400 KC on the lower scale and adjust trimmer C9 for maximum output. Then rocking the gang condenser slightly adjust trimmer C6 for maximum output.

Then with a 600 KC signal adjust pad C12 for maximum output at 600 KC rocking the gang condenser meanwhile. If an appreciable change in C12 was required go back to 1400 KC and readjust C6 as before. If the dial pointer does not calibrate properly over the scale check to see that the pointer lines up with the last mark at the 1800 KC end of the dial when the gang is all out. It can be shifted by loosening the set screw on the dial drum and moving the drum around. Do not reset the drum more than 1/16" from the front edge of the chassis else a shadow will be thrown on the dial and also the cable drive will bind at the 1800 KC end.

240mmf

4. SHORT WAVE ALIGNMENT: Next change the dummy antenna to a 400 ohm carbon resistor and turn the range switch to the center, short wave, position. Apply a 16000 KC signal and with the dial pointer set at 16000 KC on the middle scale adjust trimmer C8 for maximum output. Then, rocking the gang condenser slightly, adjust trimmer C5 for maximum output. This is the only alignment necessary on this band.

5. BAND SPREAD ALIGNMENT: It is important to perform the alignment in the order given in order that any adjustments made will not affect any circuits except the one being adjusted; viz. Broadcast then Shortwave and finally the Band Spread.

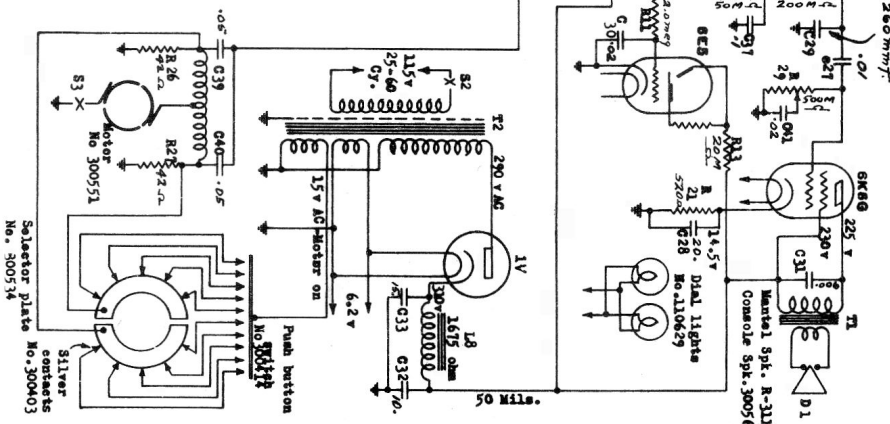
Turn the range switch to the Band Spread, right hand, position and apply a 9500 KC (exact) signal through the 400 ohm dummy to the antenna wire is in 4. With the dial pointer at 9500 on the upper scale, adjust trimmer C10 for maximum output and then adjust trimmer C7 likewise, rocking the gang condenser slightly meanwhile. In order to check your 9500 KC frequency either beat your oscillator with a 950 KC broadcast station signal and use the tenth harmonic or check on the air against a short wave station and set the dial pointer by adjusting C10 until the station loss on the upper dial scale at the proper frequency. Then turn the pointer back to 9500 and adjust the test oscillator to this frequency and peak the signal with C7 while rocking the gang.

AUTOMATIC TUNING MECHANISM

This is a simple straight-forward unit which requires no special knowledge to handle but a few suggestions might prove helpful in a case where some trouble exists, and adjustments are considered necessary.

If a motor has to be replaced disconnect the wires from its terminals after removing the motor from the bracket. Replace these wires on the same terminals or else the motor will not run in both directions. If the 6X8 and 6KT6 tubes are removed and the two screws holding the motor can easily be removed and the motor detached. When replacing the motor be sure to get the proper mesh between the pinion and the large bakelite gear. Replace the holding screw nearest the gear fairly snugly and then swing the motor around, mesh the gears and replace the other screw. Then tighten both screws. If the mesh is too tight resulting in a stiff drive or too loose which might cause a stripped bakelite gear later on, it can be adjusted by turning the eccentric hexagonal brass bushing through which the tuning shaft passes in the motor mounting bracket. Then retighten the nut on the back of the bracket.

The pointer slide should be free and lubricated with vaseline.



MODEL R-422

Alignment Same for Models

R-423 on Data Sheet-64

R-424 on Data Sheet-64

1938-39

The drive cable should be just tight enough to prevent slipping; if too tight it will slow the motor down and possibly cause it to skip. Of course, here must be no oil or grease on the drive cable or it will slip.

The selector commutator plate at the rear of the gang should be adjusted so that the silver contacts extend about 1/4" out of their holders, measured under the contact head. No lubrication is necessary either on the commutator or in the contact holders. The gap in the commutator should be .085" wide. If it is made too narrow the motor will not stop without oscillating back and forth several times. If it is too wide the motor will not stop the gang commutator accurately on stations. If the two flexible wires connecting the commutator plate to the junction block in the chassis and thence to the motor are removed, be sure to replace them in the same manner, because if they are reversed the motor will only run in one direction.