

MODEL R-125 CHASSIS (Receiver Models 1251 to 1259)

ALIGNING EQUIPMENT

Experience has definitely shown that a selective radio chassis such as the Stewart-Warner Model R125 cannot be properly aligned by ear or "on the air". An output meter and a high grade modulated service oscillator are absolutely essential.

The oscillator should be capable of generating the frequencies of 456 K.C., 600 K.C., 1400 K.C., and a short wave range extending to 4000 K.C. or more.

When using your oscillator do not rely on calibration curves for frequency determination but check the frequencies by comparison with broadcast station signals.

PRELIMINARY STEPS

To align the R125 chassis proceed as follows

1. Remove the chassis from the cabinet.
2. Connect the output meter across the primary of the output transformer on the dynamic speaker (center and blue wires on terminal strip.)
3. Turn the volume control to maximum volume position.

ALIGNMENT OF THE I. F. AMPLIFIER

1. (a) Set the oscillator to exactly----- 456 K.C.
- (b) Connect the output leads of the oscillator to the 6A7 control grid and ground.
- (c) Set the range switch (right hand knob) to the broadcast position (fully clockwise). Make certain that no station is tuned in.
- (d) Carefully adjust the I.F. Transformer trimmers Nos. 1, 2, 3, and 4 for maximum output meter deflection.
- (e) Repeat the four trimmer adjustments since the adjustment of each trimmer has some effect on the others.

BROADCAST RANGE CALIBRATION

1. Check the position of the dial on the condenser shaft by pushing the rotor plates of the gang condenser to full mesh. The dial should then read 530 K.C. Please note that the plates should be pushed with the fingers and not turned by means of the dial for this check.

2. Turn the range switch (right hand knob) to the maximum clockwise position, which is the broadcast setting.

3. Calibrate the set at the high frequency end. Use a broadcast station signal between 1300 and 1420 K.C. to calibrate the receiver dial. If no such station can be heard, you can use a 1400 K.C. signal from your oscillator provided its calibration is accurately known.

(a) Turn the set dial to the exact frequency setting of the signal (either a station or the oscillator).

(b) Carefully adjust trimmer No. 5 (broadcast oscillator calibration trimmer) until the signal may be tuned in with maximum volume at its correct frequency setting.

BROADCAST RANGE ALIGNMENT

4. CONNECT A 400 OR 500 OHM, 1 WATT CARBON RESISTOR IN SERIES WITH THE TEST OSCILLATOR OUTPUT AND THE RECEIVER ANTENNA LEAD. THIS RESISTOR MUST REMAIN CONNECTED FOR ALL BROADCAST AND SHORT WAVE ADJUSTMENTS IN ORDER TO SECURE PROPER ALIGNMENT OF THE ANTENNA STAGE. GROUND THE RECEIVER CHASSIS AND CONNECT THE OSCILLATOR GROUND LEAD TO THE CHASSIS.

5. (a) Set the test oscillator to approximately 1400 K.C. and carefully tune the receiver to the signal.

(b) Adjust trimmers No. 6 and No. 7 (broadcast detector shunt trimmer and broadcast pre-selector shunt trimmer respectively) for maximum output meter reading.

(c) Retune the receiver and check the adjustments of trimmers No. 6 and No. 7. Do not touch trimmer No. 5 since this will change the calibration.

6. (a) Set the test oscillator to approximately 600 K.C. and tune the receiver to the signal.

(b) Adjust Trimmer No. 8 (broadcast oscillator padding trimmer) to get maximum output meter deflection.

(c) Retune the receiver dial to a peak and readjust the trimmer.

(d) Continue this procedure of adjusting the trimmer and retuning the set until the output meter reading cannot be increased. This procedure must be followed or the receiver will not be properly aligned.

7. Repeat 5 a, 5 b, and 5 c.

SHORT WAVE RANGE CALIBRATION

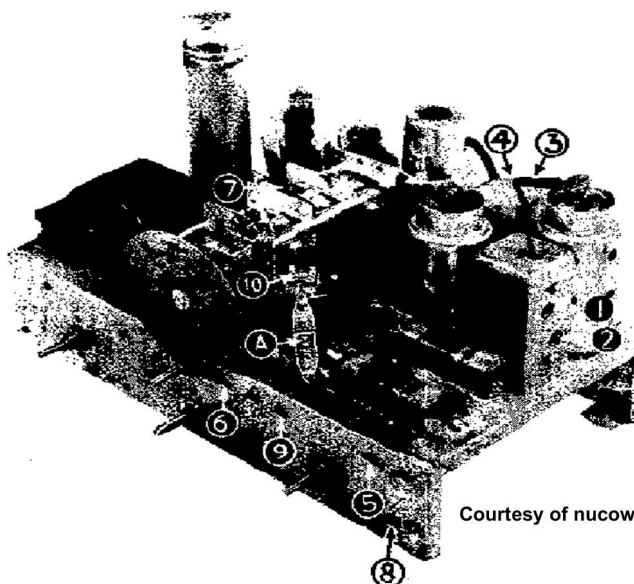
1. Turn the receiver range switch to the short wave band position (counter-clockwise).

2. Adjust the test oscillator to exactly 16,000 K.C. If you cannot obtain this frequency on your oscillator, you may use

the second harmonic of 8000 K.C., the third harmonic of 5333 K.C., or the fourth harmonic of 4000 K.C., all of which will give a 16,000 K.C. signal.

3. (a) Set the receiver dial at 16.0 M.C. on the dial scale and adjust trimmer No. 9 (shortwave range oscillator calibration trimmer) until the signal may be tuned in at the correct dial setting with maximum volume. Usually there will be two peaks. The proper one is that with the trimmer screw farthest out.

(b) To be sure you have not adjusted trimmer No. 9 to the image frequency, check this point by setting the receiver dial to the image frequency, approximately 15.1 M.C., and see if the image signal can be heard. (The image frequency is always the signal frequency minus twice the I.F. frequency or in this case 16,000 — 912 = 15,088 K.C. or approximately 15.1 M.C.) If no signal can be heard at 15.1 M.C. dial setting even with greatly increased test oscillator output, but can be heard at 16.9 M.C. dial setting, Trimmer No. 9 is evidently improperly adjusted to the image frequency and so must be reset to the proper peak with the screw farther out. After readjusting trimmer No. 9, again check to see that the image comes in at 15.1 M.C. dial setting and not at 16.9 M.C. dial setting.



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SHORT WAVE RANGE ALIGNMENT

4. (a) Tune the set very carefully to the oscillator frequency, 16.0 M.C. for maximum output meter reading.

(b) Adjust trimmer No. 10 (second shortwave range detector shunt trimmer) to a peak. After this is done try to increase the output meter reading by detuning trimmer No. 10 slightly and retuning the receiver dial. Continue detuning trimmer No. 10 and retuning the set until maximum output meter deflection is secured.

IMPORTANT: The antenna coupling condenser marked "A" in the diagram is adjusted to a definite capacity at the factory and should not require any further adjustment. Therefore do not adjust trimmer "A" unless it is found that trimmer No. 10 will not peak or if maximum output is obtained with No. 10 either all the way out or all the way in. If it is necessary to adjust trimmer "A", turn its adjusting screw all the way in and then turn it out just far enough to give a satisfactory peak on No. 10 when trimmer No. 10's adjusting screw is almost all the way out.

Always readjust No. 10 after adjusting trimmer "A".

(c) Check the adjustment of trimmer No. 10 by tuning the receiver to 15.1 M.C. and noting if the image signal is much weaker than the 16.0 M.C. signal. If the signal at 15.1 M.C. dial setting is equal to or stronger than the 16.0 M.C. signal, trimmer No. 10 is not set to the proper peak and must be reset as in 4 (b) until a re-check shows that the signal at the 16.0 M.C. dial setting is much stronger than that at the 15.1 M.C. image dial setting.

NOTE: To prevent the trimmers from being jarred out of adjustment use Duco Household Cement or some similar product to fasten the trimmer screws in position after completing the alignment. Be careful that you do not apply too much cement because it must not be allowed to run between the trimmer plates.

RADIO SERVICE NOTES - MODEL R-125 CHASSIS (RECEIVER MODELS 1251 TO 1259)PART 1 ALIGNMENT OF MODEL R-125 CHASSIS

Experience has definitely shown that a selective radio chassis such as the Stewart-Warner Model R-125 cannot be properly aligned by ear or "on the air." An output meter and a high grade modulated service oscillator are absolutely essential. The oscillator should be capable of generating the frequencies of 456 K.C., 600 K.C., 1400 K.C. and a short wave range extending to 4000 K.C. or more. This oscillator must provide a wide range of signal output -- very weak for proper alignment of the various bands so that the A.V.C. circuit will not be actuated and very strong for use when the receiver is badly out of adjustment or for shortwave alignment where harmonics are used.

When using your oscillator do not rely on calibration curves for frequency determination but check the frequencies by comparison with broadcast station signals.

PRELIMINARY STEPS.

To align the R-125 chassis, proceed as follows:

1. Remove the chassis from the cabinet.
2. Connect the output metal across the primary of the output transformer on the dynamic speaker. (Center and blue terminals)
3. Turn the volume control to maximum volume position.
4. For all adjustments use an all-bakelite aligning tool which has only a small meter screwdriver tip.
 Courtesy of nucow.com
5. At all times during alignment use the lowest output meter scale which will provide a steady reading and adjust the oscillator output so that the output meter reads near the center of the scale.
6. Refer to the diagram for the location of trimmer condensers.

VERY IMPORTANT: In aligning all but the I.F. stages it is absolutely necessary to have a 400 to 500 ohm resistor in series with the antenna lead to the oscillator. Do not omit this resistor or the alignment will be incorrect!

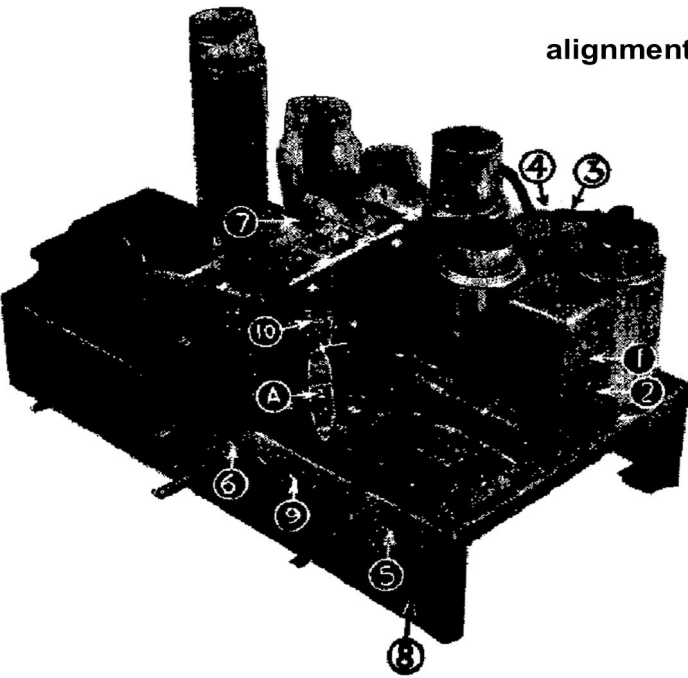
I.F. ALIGNMENT

1. Set the test oscillator to exactly 456 K.C. Connect the output leads of oscillator from the 6A7 control grid to ground and set the range switch (right hand knob) to the broadcast position (clockwise). Carefully adjust the I.F. transformer trimmers No. 1, 2, 3, and 4 for maximum output meter deflection. Repeat the four adjustments since the adjustment of each trimmer has some effect on the others.

alignment data part 2

LOCATION OF MODEL R-125

ALIGNING TRIMMERS



- 1) 1st I.F. transformer trimmers
- 2)
- 3) 2nd I.F. transformer trimmers
- 4)
- 5 Broadcast oscillator shunt trimmer
- 6 Broadcast detector shunt trimmer
- 7 Broadcast Pre-selector shunt trimmer
- 8 Broadcast oscillator padding trimmer
- 9 Short Wave oscillator shunt trimmer
- 10 Short Wave detector shunt trimmer

BROADCAST BAND ALIGNMENT

1. Check the position of the dial on the condenser shaft by pushing the rotor plates of the gang condenser to full mesh. The dial should then read 530 K.C. Please note that the plates should be pushed with the fingers and not turned by means of the dial for this check.
2. Turn the range switch (right hand knob) to the **maximum** clockwise position, which is the broadcast setting. Courtesy of nucow.com
3. Whenever possible, use a broadcast station signal between 1300 and 1420 K.C. to calibrate the receiver dial. If no such station can be heard, you can use a 1400 K.C. signal from your oscillator provided that it is properly calibrated. To calibrate the set turn its dial to the exact frequency setting of the signal (either a station or the oscillator) then carefully adjust trimmer No. 5 (broadcast oscillator shunt trimmer) until the signal is tuned in with maximum volume at its correct frequency setting.
4. Connect a 400 or 500 ohm, 1 watt carbon resistor in series with the test oscillator output and the receiver antenna lead. This resistor must remain connected for all broadcast and short wave adjustments in order to secure proper alignment of the antenna stage. Ground the receiver chassis and connect the oscillator ground lead to the chassis.
5. Set the test oscillator to approximately 1400 K.C. and carefully tune the receiver to the signal. Adjust trimmer No. 6 (broadcast detector shunt trimmer) and trimmer No. 7 (broadcast pre-selector shunt trimmer) for maximum output meter reading. Retune the receiver and check the adjustments. Do not touch trimmer No. 5 since this will change the calibration.
6. Set the test oscillator to approximately 600 K.C. and tune the receiver to the signal. Adjust trimmer No. 8 (broadcast oscillator padding

trimmer) to get maximum output meter deflection. Retune the receiver dial to a peak and readjust the trimmer. Continue this procedure of adjusting the trimmer and retuning the set until the output meter reading cannot be increased. This procedure must be followed or the receiver will not be properly aligned.

7. With a 1400 K.C. test oscillator signal, check alignment of trimmers No. 6 and 7.

SHORT WAVE BAND ALIGNMENT.

1. Turn the receiver range switch to the short wave band position (counter-clockwise).

2. Set the test oscillator to give a 16,000 K.C. signal. If your oscillator cannot reach this frequency, use the 2nd harmonic of 8,000 K.C., the third harmonic of 5333 K.C., or the fourth harmonic of 4000 K.C., all of which will give a 16,000 K.C. signal.

3. To calibrate this point turn the receiver dial to 16 M.C. on the inner dial scale and adjust Trimmer No. 9 (shortwave oscillator shunt trimmer) to give maximum output. Generally two peaks will be found. Align on the peak secured with the trimmer screw farthest out. Then adjust trimmer No. 10 (short-wave detector shunt trimmer) to a peak. After this is done, try detuning No. 10 in either direction and retune the receiver dial. If this gives a higher output, continue detuning No. 10 and retuning the dial until the maximum output meter reading is reached. If this procedure results in a lower output, detune the trimmer in the opposite direction and retune the dial, etc.

IMPORTANT: The antenna coupling condenser marked "A" in the diagram is adjusted to a definite capacity at the factory and should not require any further adjustment. Therefore do not adjust trimmer "A" unless it is found that trimmer No. 10 will not peak or if maximum output is obtained with No. 10 either all the way out or all the way in. If it is necessary to adjust trimmer "A" turn its adjusting screw all the way in and then turn it out just far enough to give a satisfactory peak on No. 10 when trimmer No. 10's adjusting screw is almost all the way out. Courtesy of nucow.com

Always readjust No. 10 after adjusting trimmer "A".

4. Tune the receiver to about 15.1 M.C. and check for the image signal which should be weaker than the 16.0 M.C. signal. If the image is as strong as the signal it shows that trimmer No. 10 is not properly adjusted. No signal at 15.1 M.C. but one at 16.9 M.C. shows that trimmer No. 9 is aligned on the image frequency and thus both No. 9 and 10 must be readjusted at the proper frequency.

Note: After completing the alignment, all of the trimmers except the padding and I.F. trimmers should be locked in place with Ambroid or some similar type cement in order that they will not be jarred out of adjustment.