





TOLERANCES	PART NO.	ITEM	DESCRIPTION	MAT.	FIN.
FRACTIONS 1/2	TITLE: CIRCUIT DIAGRAM HQ-110 RECEIVER				
DECIMALS 1/10	MATERIAL: _____				
ANGLES 1/2	DRAWN: _____				
UNLESS OTHERWISE SPECIFIED	FINISH: _____				
SCALE	HARRISLABORATORY NEW YORK				
	NO. 38998				
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# POSSIBLE RECEIVER TROUBLES & SUGGESTIONS.com

## SUMMARY OF FIELD COMPLAINT WITH SUGGESTED PROCEDURE FOR ELIMINATING THE TROUBLE

1. Most of the trouble that has developed in the field has been due entirely to one or more defective tubes. In the event your receiver has excessive hum or erratic "S" meter operation, the two tubes most likely to cause this condition is V-7 in the schematic diagram on Page 19 of our Instruction Manual. This is a 6BJ7. V6A or the 6AZ8 tube type has also developed internal shorts.
2. Failure of the "Q" multiplier to operate properly or another possible source of excessive hum may be due entirely to the 12AX7, V4A and V4B, since this is a combined "Q" multiplier tube and first audio amplifier. Please do not rely too much on testing the tubes in a tube tester for unless they are internally shorting, there is a possibility that a tube tester will not prove reliable. This is due to the fact that most tube testers do not provide a means of testing excessive heater to cathode leakage, which is the most common cause of hum complaints. It is, therefore, suggested that any suspicious tube be replaced with a new one, since this is by far the best method of definitely eliminating this possible cause of complaint.
3. Excessive oscillator drift which would be most noticeable on all of the high frequency bands plus a microphonic condition is usually the result of a poor type 6C4 high frequency oscillator or V-10 in the schematic diagram. This tube is also capable of producing a poor beat note that may have a ripple in it, especially noticeable on the high frequency bands.
4. Excessive drift can also be attributed to a poor 6BE6 employed in position V2. In addition, the 6BE6 employed in V2 can also cause hum modulation which will be most noticeable on the two high frequency bands. Sometimes merely interchanging the 2 6BE6 tubes employed in Positions V2 and V3 may produce a noticeable improvement. If this is not the case, we would suggest the purchase of another 6BE6.

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5. It is normal for less output to be obtained in the CW/SSB position than in the Receive or Calibrate position. To compensate for the slight loss in level, merely advance the audio control should this be required.

### CALIBRATION COMPLAINTS:

Please remember that the 100 kc calibrator was built into the HQ-110 receiver as a means of detecting dial error. The incorporation of the 100 kc crystal oscillator does not mean that you will find the 100 kc markers exactly at 100 kc intervals, insofar as dial reading are concerned. Obviously, if the 100 kc calibrator would line up at each of the 100 kc dial markers, there would be no point in incorporating the 100 kc crystal calibrator. Dial error in the order of 5 to 10 kc for the lower frequency bands, and 25 to 50 kc error on the 10 and 6 meter bands, is within our production tolerance. The procedure for correcting frequency deviations in excess of those previously specified will usually involve only a minor adjustment of the high frequency oscillator trimmer capacitor.

Please refer to Pages 10 and 11 of your instruction manual where the various alignment points are clearly indicated. All of the oscillator trimmer adjustments are clearly marked in figure 8, and obviously the proper trimmer for the particular band is the only ad-

justment to make. Please be sure, therefore, before attempting to make minor frequency corrections, that the proper trimmer is selected, then make the adjustments very slowly and carefully.

This procedure is only being incorporated in this resume for the experienced amateur operator, in an effort to avoid the return of the receiver with the resultant delay. If you are in the least bit hesitant about making these adjustments, please do not attempt it. We might also point out at this time that any minor adjustments of the oscillator will in no way effect the tracking of the oscillator with the R. F. and mixer circuits involving complete realignment of the front end of the receiver. Complete realignment of the front end should only be attempted when the necessary equipment and knowledge is available.

### NOISY SENSITIVITY CONTROL:

A few noisy sensitivity controls have developed after a short period of use in the field. Should your receiver be suffering from this defect, please write directly to us at Mars Hill, North Carolina, mentioning the serial number of your receiver and the date of purchase. If our ninety-day warranty is still applicable, a new sensitivity control will be sent to you free of charge, and under these circumstances, we request that the defective control be returned. If our warranty has expired, a new sensitivity control part number k-38940-1 is available from us at Mars Hill, North Carolina at \$1.25