

Ham 49 - Why not working

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When learning a new or different radio, the title is a common rhetorical question? In our failure analysis business, the second question is “What has changed?”

Modern radios have so many features and so much flexibility that operation disruptions are unfortunately not uncommon. Many radios have some version of dual receive, but that increases things that can get mis-set. The Icom 2730 is a popular dual-band, dual-receive mobile/base transceiver. Its two receivers are so independent that the radio has a complete duplicate set of controls. Other radios have different knobs, but the process is similar. Even the common, cheap Baofeng throw-away has two receiver displays.

We will go through a generic failure analysis.



1. **Did you check your equipment** before planned use? Experienced, knowledgeable operators run down a checklist to do systems check before a flight. [On, frequency, squelch, audio volume, power level, xmit test].
2. **What changed from last time?** Something did or it would be working. The only thing I did was ...?
3. **Is power on?** Plugged in, circuit proper, battery charged, voltage set proper, fuses, switch in correct position?
4. **Is mute on?** Pressing power button partially switches to mute. No sound gets through.
5. **Is proper A/B receiver set?** The unit can be set to transmit on one side and still receive on the other. Assure receive is on transmit channel. Press MAIN buttons (A/B) to switch receivers from MAIN to SUB. Main (^) is the transmitter.
6. **Is squelch set?** Reduce squelch (ccw) until you hear noise. The LEVEL bar will show busy. Set volume level. Increase squelch (cw) till noise quiets. Do both A/B receivers. Squelch changes as noise increases.
7. **Is the channel programmed properly?** Frequency, transmit tone, receive tone, +/- duplex, offset?
8. **Is proper channel set?** Press MR (memory recall, channel mode) on receiver. Channel number displays on right of screen. The channel number & frequency changes when the larger lower corner dial rotates (up/down arrows pushed).
9. **Is receiver on VFO** (variable frequency oscillator, frequency mode)? The frequency number changes when the larger lower corner dial rotates. VFO seldom matches a repeater set-up properly. Preferred for simplex.
10. **Is receiver set to a non-tone repeater?** Some repeaters have channels for tone and no tone. This allows use in emergency when radios may be relocated. Are you matching what other users are set? If they hear but you cannot, this is a probable cause.
11. **Is mike plugged-in?** all the way, mic key pressed? Press key while talking, release & do not touch key to receive.
12. **Is power level adequate?** Press LOW button until H(igh) displays on screen.
13. **Is SWR less than 3:1** across the band? Lower is better. Requires test meter. Connect antenna through coax into meter to evaluate connections, coax, and antenna.
14. **Is coax adequate?** coax kinked, too much loss? Limit RG-8X & RG58 to 25 feet because it has high loss of power.
15. **Is antenna adequate?** Height, blocked, distance? Try alternatives such as non-line-of-sight (NLOS) and directional (beam).
16. **Is noise a problem?** transmit or receive, nearby equipment, power supply, atmospheric, coax flexing? Need ferrite?
17. **Is signal adequate?** Transmit too weak gets covered by noise. Receive too weak gets covered by noise. The remaining fix is a better transmitter. In our terrain, reliable needs a minimum of 50 Watts. . . Mo' power!

Life is good. Enjoy!

