



Most Common Service Questions for the Icom IC-761

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Symptom: Garbled RX/TX, or no RX/TX on one or more bands. Problem may be temperature related.

Probable Causes: 1) Bad trimmer capacitors on PLL unit. 2) Noisy variable resistor on PLL unit.

Cure: Replace plastic trimmer capacitors C78, C88, C97, and C107 with ceramic equivalents. Remove excess wax from around replacement trimmers to prevent wax contamination. We suggest using a 12pf trimmer for C97 instead of a 7pf as listed in the service manual. This will allow you to properly adjust the HPL lock voltage for that band. Also, replace variable resistor R43 on the PLL unit with a fixed-value, 220 ohm, 1/2 watt version. (Use a 1.2k resistor if the value of R43 variable resistor is 2.2k.)

Remarks: While the PLL unit is lifted, we recommend resoldering the joints in the regulator section as this area runs hot. Also, inspect electrolytic capacitors C128, C129, C132, and C137 in the regulator circuit for discoloration caused by overheating. Replace all overheated capacitors.

Symptom: Frequency unstable in USB mode.

Probable Causes: Bad trimmer capacitor C202 in BFO section on the main unit.

Cure: Replace plastic trimmer capacitor with a 30pf ceramic trimmer and re-align.

Symptom: No or very low RX sensitivity.

Probable Cause: Bad components on the RF unit, probable result of RF overload. To verify this, check DC voltages at D47 on RF unit. Correct voltages are: Cathode side- RX: 8.5, TX:13.8. Anode side- RX: 9.0, TX: 9.5.

Cure: Replace all of these components on the RF unit: D42, D44, D45, D46, D47, Q15. Check C174 and C179 for leakiness. There may be other failures. Unit is not repaired until listed voltages at C47 are corrected.

Symptom: Distorted RX on strong signals. BC band RX sensitivity may low or marginal.

Probable Cause: Q15 on the RF unit has become leaky.

Cure: Replace faulty Q15 (2SC2878B). If Q15 is leaky, there may be other problems on the RF unit. See cure for RX problem listed above.

Symptom: Intermittent RX sensitivity. Problem seems mechanical. Banging on case or switching between RX & TX may temporarily restore sensitivity.

Probable Cause: Intermittent contacts in relay on tuner relay unit.

Cure: Replace RL13 (LY2-0-DC12V) on tuner relay unit.

Symptom: Noise in RX, birdies.

Probable Cause: Voltage regulators on PLL unit are oscillating.

Cure: Replace overheated C128, C129, C132 and C137 regulator filter capacitors on PLL unit.

Symptom: RX disappears when outer shield of antenna coax is connected. Inspection reveals 6 volts DC at the center conductor of the antenna jack.

Probable Causes: Shorted DC-blocking capacitor C40 on the ANT AW unit.

Cure: Replace the capacitor.

Remarks: There are probably other problems on the RF unit if this capacitor is bad. Check the voltages at D47 on the RF unit. Radio may have been stuck by lightning or sustained a large RF overload through the antenna jack.

Symptom: No TX output in all modes. Problem is traced to no output at J8 on the RF unit.

Probable Cause: Bad Q14 amplifier on RF unit.

Cure: Replace Q14 (2SC2053). There may be other problems on the RF unit. Check the DC voltages at D47.

Symptom: The power to the radio flutters on and off when the TX power output

is increased toward maximum. Inspection reveals that the internal power supply is unable to handle the current. Unit runs fine when the internal power supply is substituted with an external supply.

Probable Cause: Cracked solder in the current-sensing circuit of the power supply is shutting it down prematurely.

Cure: Resolder joints at the .0012 ohm resistor, R26 inside the power supply.

Remarks: This resistor appears as a metal bar soldered to the bottom PC board. Solder ONLY the edges of the bar before the holes at either end.

Symptom: Distorted/raspy-sounding TX in SSB modes. Average talk power is low, even at higher mic gain levels. CW, RTTY and FM seems normal.

Probable Cause: No base bias voltage at driver or PA transistors. Measure voltage at bases of driver and PA transistors in TX SSB mode. Should be around .67 volts. 0 volts indicates trouble.

Cure: Bad Q6 (2SD880Y) on PA unit. If problem is intermittent, check for bad solder at the legs of Q6, D2.

Symptom: Tuner won't tune on one or more bands.

Probable Cause: Presets are out of adjustment.

Cure: Adjust presets.

Symptom: Tuner does not tune on any band. Inspection reveals that only one motor is turning.

Probable Cause: Bad motor driven transistors.

Cure: Check motor driven transistors Q1 & Q2, or Q3 & Q4 (depending on the motor that is not turning). If the motor transistors overheated before they failed, also check related components for failure before replacing the bad motor driver transistor (or the new drivers will fail too).

Symptom: TX oscillation/spurious output, especially on lower bands at lower power levels.

Probable Causes: 1) Open parasitic-suppression resistor on PA unit. 2) Burned components on the ANT SW unit. 3) Bad drivers or finals.

Cure: Check the value of R22 (4.7 ohms) on PA unit. (This resistor may look OK but still be open.) Inspect the D4 area of the ANT SW unit and replace any burned components. If these solutions don't help, disconnect the cable at J10 on the RF unit and see if the problem goes away. If it does, there is a problem with the TX/RX switching on the RF unit. If disconnecting J10 does not alleviate the

problem, then most likely either the drivers or PA transistors are bad, especially if the ALC meter deflection is low.

Remarks: Spurious output may be caused by incorrect band switch voltage to the low-pass filter unit, or even faulty/burned components on the filter unit itself. The above causes should be ruled out first, however, since low-pass filter failures are uncommon in the IC-761.

Symptom: Radio seems to be stuck in "scan" mode.

Probable Cause: Bad IC2 on the logic unit.

Cure: Replace IC2 (RP5G01-007)

Symptom: Intermittent display. S-meter may peg and RX/TX may disappear when the unit is in the failure mode.

Probable Cause: Cracked solder beneath the DP-6 DC-DC converter IC (IC1) on the display unit.

Cure: Carefully remove the DP-6 converter IC from the display unit and resolder the pins of the IC to its circuit board. Then reinstall the DP-6 back on the display unit.

Symptom: VFO tuning is erratic, sometimes skips frequencies in a certain area if VFO knob travel. Least significant digit in frequency display sometimes "flutters" back and forth instead of changing incrementally when the VFO knob is turned slowly.

Probable Cause: Bad rotary encoder.

Cure: Substitute rotary encoder with a known good one. It is recommended that the rotary encoder be replaced as a complete assembly if it is bad.

Remarks: If the unit tunes in only one direction, i.e. either up or down, there may be a problem on the logic unit.

Symptom: Loud, high pitched squeal emanates from inside radio. May be intermittent.

Probable Cause: DC-DC converter transformer has a loose core.

Cure: Replace DP-6 on the display unit.

Symptom: A whine emanates from inside radio in TX only at certain power levels. Transmitter works ok.

Probable Cause: Loose core in DC-DC converter transformer inside power supply.

Cure: Replace T2 on reg. unit inside power supply.