



Most Common Service Questions for the Icom IC-740

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Symptom: Distorted RX/TX, or no RX/TX on one or more bands. Distorted SSB audio sounds raspy and rough. Problem may be temperature related.

Probable Cause: 1) Bad trimmer capacitors on PLL unit, HPL VCO section.

Cure: Replace plastic trimmer capacitors C4, C15, C24, and C33 with ceramic equivalents.

Symptom: Any of the following: 1) No RX/TX at all. Display normal. 2) No CW operation. 3) Some front panel controls do not operate reliably.

Probable Causes: Burned or open on R1 on reg. unit.

Cure: Replace R1 (4.7 ohm, 1/2 watt).

Symptom: Intermittent no/low TX output. Jiggling or pressing the compressor switch causes the power to return to normal.

Probable Cause: Bad compressor switch. (This is a common failure in the IC-740)

Cure: Replace (do not clean) the compressor switch.

Symptom: Low, erratic TX output in all modes. (Compressor switch has already been replaced.) ALC meter reading is unsteady and may drop out altogether. Removing the top cover may cause problem to disappear for a while. Pressing on the wiring harness near the IF unit may cause the power/ALC meter reading to fluctuate. Problem may be temperature related.

Probable Causes: 1) Poor solder joints on IF unit. 2) Dirty RF power/mic gain pot. 3) Poor connections at IF unit is causing low TX drive. This is sometimes caused by oxidation at the point where the wires are crimped to the connector pins. 4) Bad relay on FM unit (if installed).

Cure: Clean dirty RF power/mic gain pot. Resolder cracked and suspicious-looking joints on IF unit. If these do not help, remove and resolder the wire crimps in the RF connector pins in J2, J5, J12, J9, J19 and J20 on the IF unit. Be sure to not add too much solder to the connector pins or they will need to be replaced. Be sure all connectors are fully seated after repair. Replace RL1 on the FM unit.

Remarks: Although resoldering the connector pins is a delicate and time consuming procedure, it will save you a great deal of troubleshooting time and frustration.

Symptom: TX power output is marginal on some bands. (Compressor switch has already been replaced.) ALC meter reading is low and steady, not erratic. Adjusting ALC pot does not increase power. Troubleshooting reveals that no specific stage is malfunctioning.

Probable Cause: TX IF needs to be aligned.

Cure: Set unit to 14.100, TX in RTTY mode, and adjust L8, L10, and L11 on IF unit for peak ALC meter reading.

Remarks: If the above steps have no effect, troubleshoot for a defective TX stage, or follow steps for curing erratic TX.

Symptom: Power gradually drops off when warm. ALC meter indication remains at mid-scale. Adjusting ALC does not help.

Probable Cause: APC misalignment.

Cure: Realign ALC, Ic METER, and APC as per pages 9-1 and 9-1 in the service manual.

Symptom: VFO tuning is erratic, sometimes skips when changing frequencies or bands. Displayed frequency sometimes does not increment smoothly when VFO knob is turned slowly.

Probable Cause: Dirty rotary encoder.

Cure: Remove white plastic cover from back of rotary encoder and spray clean the carbon track with Blue Showers solvent. Spin VFO knob vigorously while spraying.

Remarks: When cleaning the rotary encoder, do not let solvent saturate the display unit or allow it to come into contact with the plastic display lens. Stuff a paper towel between the rotary encoder and display unit to catch spray run-off.

Symptom: Unit jumps frequency unexpectedly when turning VFO knob. Digital display does not track with this jump. The frequency jump is consistent and happens in the same place every time. Actual operating frequency and displayed frequency do not match in some parts of the bands.

Probable Cause: PLL is out of alignment.

Cure: Be sure you don't have a rotary encoder problem, first. Try realigning the LDO as per the second "9-1" page in the service manual. If this doesn't help, follow the complete alignment procedures for the PLL on both "9-1" pages in the service manual with the exception of the PLL Lock adjustment.

Remarks: We do not recommend adjusting the PLL Lock trimmers C4, C15, C24, and C33. They do not contribute to this particular problem and disturbing them may cause them to fail.

Symptom: Frequency instability.

Probable Cause: Dirty RIT/XIT pot and switches

Cure: Clean dirty RIT/XIT pots and switches with Blue Showers solvent.

Symptom: Drastic change in audio frequency response between USB and LSB., i.e. USB audio has too much bass while LSB audio has too much treble. TX frequency response is also poor.

Probable Cause: Misadjustment of the BFO, PBT oscillator.

Cure: Align the BFO and PBT oscillator as per page 9-4 of the service manual.

Symptom: Intermittent low FM TX output power.

Probable Cause: Poor contacts in relay RL1 on FM unit.

Cure: Replace bad RL1 (221-D009-M).

Symptom: Distorted/raspy-sounding SSB TX. Complaints of RFI. Unit tests fine on dummy load. Unit is being used with an external Astron power supply.

Probable Causes: 1) Inadequate station ground. 2) External Astron power supply needs additional RF decoupling.

Cure: Recheck station ground. Improve if necessary. Install additional RF decoupling capacitors on Astron power supply.

Symptom: TX oscillations or low, spurious output, especially on lower bands at lower power levels. SWR reading may be high when transmitting into a dummy load.

Probable Causes: 1) Bad Q10 on RF unit. 2) Bad electrolytic capacitors on PA unit. 3) Band switch has been mis-aligned. 4) Burned components on the ANT SW unit. 5) Bad drivers or PA transistors.

Cure: Disconnect J9 on the RF unit and see if the problem goes away. If it does, then Q10 is most likely bad (replace it with a 2SC2878B). If disconnecting J9 has no effect, examine the PA unit. Replace C18 and/or C24 on PA unit if they appear swollen or overheated. Check the ANT SW unit for burned components and replace as needed. Check alignment of the bandswitch wafers and correct if necessary. If none of the above are causing the problem, then most likely the drivers or PA transistors are bad.

Symptom: Erratic display i.e., frequency listed will be out of the normal

operating range of the radio. Rotating the VFO knob may cause strange characters to appear in the display. Radio does not work properly. Cycling the power switch a few times may restore operation temporarily, or radio may be stuck in the failure mode.

Probable Causes: 1) CPU is glitched and must be reset. 2) Loose connector on logic or matrix unit. 3) Bad diode on matrix unit.

Cure: Turn-off memory back-up switch on rear panel of radio and leave radio unplugged for a few minutes or so to reset CPU. (It is recommended that the switch be left to the OFF position to prevent future failure.) Re-seat all connectors on logic and matrix unit. If none of these solve the problem, there may be a bad diode on the matrix unit.

Symptom: Either of the following: 1) Preamp does not work. Sensitivity of radio drops when preamp is engaged. 2) RX noisy and intermittent. Preamp intermittent.

Probable Causes: 1) Bad preamp relay on RF unit. 2) Burned components in preamp section on RF unit. 3) Cracked solder on RF unit in preamp section.

Cure: Replace bad RL1 (FBR221DO12). Replace bad/burned preamp components on RF unit, usually RL1, Q11, Q12, R58, C86, etc... Also check Q10 for failure. If bad, replace it with a 2SC2878B. Carefully examine the preamp section of the RF unit for bad joints and resolder as needed.

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