



## Most Common Service Questions for the Icom R-71A Receiver

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<b>Symptom:</b>	Radio is dead; no display, no lights. Problem may intermittent.
<b>Probable Causes:</b>	1) Cracked solder on regulator unit. 2) Loose board mounting screw on the regulator unit. (that provides ground to the board) 3) Cracked joint(s) where power transformer mounts to regulator unit.
<b>Cure:</b>	Remove the regulator unit from the radio and resolder all suspicious joints on the regulator unit. Pay particular attention to the joints at heat sink-mounted transistor Q1 on the regulator unit. Modification: After tightening the regulator unit to the chassis, at the chrome screw with the spacer, apply a solder bridge across the spacer to form a solid electrical connection between the board and the chassis. This will prevent future failures due to bad connections at this joint.
<b>Remarks:</b>	The power supply on the R-71A receiver runs very hot, and problems with the regulator unit are common. We recommend inspecting and servicing (if needed) the regulator unit in all R-71A receivers that come in for repair.

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<b>Symptom:</b>	AC hum in audio; radio may seem to vibrate during operation; pilot lamp may be dim. Inspection reveals excessive AC ripple on 13.8 line in radio.
<b>Probable Causes:</b>	Bad bridge rectifier bridge D1 on regulator unit.
<b>Cure:</b>	Replace bad D1 (KBPC102). Service regulator as per previous cure.

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<b>Symptom:</b>	AC hum in audio after CR-64 is installed.
<b>Probable Causes:</b>	The oven in the CR-64 is drawing more current than the reg. unit can handle.
<b>Cure:</b>	Service the power supply as listed above. On older production units, check resistor R2 on the reg. unit. If it is 100 ohms, replace it with a 56 ohm, 5 watt. Adjust the reg. unit output voltage to 13.6 volts.

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<b>Symptom:</b>	No audio. S-meter fully deflected.
<b>Probable Causes:</b>	-10 volt DC-DC converter failure.
<b>Cure:</b>	Replace faulty DP-2 module (IC-6) on the matrix unit.

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<b>Symptom:</b>	Frequency display blanks out periodically with only decimal points remaining.
<b>Probable Cause:</b>	Display DC-DC converter has noisy output.
<b>Cure:</b>	Replace all of the following dried-out electrolytic capacitors on the display unit: C15, C16, C17, C18, C19, C20, C21 and C22. (These capacitors are bright yellow when new. If they have turned brown, they are old and dried out.)
<b>Remarks:</b>	While servicing the DC-DC converter section examine the board closely for cracked solder joints as this section of the radio runs hot. Also, we recommend reprogramming the RAM card after servicing the DC-DC section.

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<b>Symptom:</b>	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. Cycling the power switch a few times may restore operations temporarily.
<b>Probable Causes:</b>	1) Cracked solder on RAM unit is causing logic errors. 2) Program in RAM unit is corrupt.
<b>Cure:</b>	Resolder cracked joints at J1 and J2 connectors on RAM unit, then reprogram. If this does not help, substitute RAM unit with a known good one. If the substitute RAM unit works properly, then the RAM unit must be replaced. If the substitute RAM unit does not cure the problem, there may be noise from the DC-DC converter causing the logic unit to glitch. Follow instructions for the previous problem.

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<b>Symptom:</b>	Noisy RX on most bands. Noise seems to be internally generated and is present whether or not an antenna is connected.
<b>Probable Causes:</b>	Dried out capacitors C128, C129, C130 and C137 on PLL unit are causing the 5 and 8 volt regulators to oscillate.
<b>Cure:</b>	Replace capacitors. (Most of these capacitors are light blue when new. If they have turned brown or gray, they are old and dried out.)

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<b>Symptom:</b>	Garbled SSB audio on one or more bands. Audio may cut out altogether. Some bands may sound OK. Problem may be temperature related.
<b>Probable Cause:</b>	Bad trimmer capacitors on PLL unit, HPL VCO section.
<b>Cure:</b>	Replace plastic trimmer capacitors C78, C88, C97, and C107 with ceramic versions. Remove excessive wax from around replacement trimmers to prevent wax contamination. We suggest using a 12pf trimmer for C97 instead of a 6pf as listed in the service manual. This will allow you to properly adjust the HPL lock voltage for that band.
<b>Remarks:</b>	While you have the PLL unit lifted, rework cracked solder around the regulator section and at the two ground springs.

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<b>Symptom:</b>	Very low sensitivity on all bands.
<b>Probable Causes:</b>	1) Open RF fuse F1 located at antenna jack. 2) Bad FETs on RF unit, probably caused by an RF overload through the antenna jack.
<b>Cure:</b>	Check for open fuse. Replace Q3 & Q4 mixer FETs on RF unit.
<b>Remarks:</b>	If there is 6 volts present at the center conductor of the antenna jack, unit has taken an RF overload. See next problem.

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<b>Symptom:</b>	Marginal sensitivity, or sensitivity is reduced when coax shield is connected at antenna jack. Inspection reveals 6 (or 9) volts DC at center if the antenna jack.
<b>Probable Cause:</b>	RF overload through the antenna jack has shorted capacitors on RF unit.
<b>Cure:</b>	Replace shorted C1 (.047uF, 16v) on RF unit. Also check C7 and C11 for shorts.
<b>Remarks:</b>	For future reliability, you may wish to replace a leaky C1 with a 50-volt version.

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<b>Symptom:</b>	Buzz in audio. Buzz can be heard in speaker or headphones even with volume control set to minimum.
<b>Probable Cause:</b>	Audio cables are too close to the AC wires.
<b>Cure:</b>	Reroute AC wires and audio cables away from each other behind front panel in power switch area.

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<b>Symptom:</b>	CPU noise in audio. Noise may be louder on some bands than others.
<b>Probable Causes:</b>	1) Poor ground on display unit. 2) Inadequate shielding for RF unit.
<b>Cure:</b>	Make sure that audio cables and RF unit control lines are not routed next to CPU-control and display-data lines. Try tightening the two screws beneath the display unit PCB. If neither of these help, install a plastic-coated metal shield over the display unit. (This type of shield is available through our parts department.)

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<b>Symptom:</b>	Loud, high pitched squeal emanates from inside radio.
<b>Probable Cause:</b>	DC-DC converter transformer has a loose core.
<b>Cure:</b>	T1 (TO-9) on the display unit.

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<b>Symptom:</b>	VFO tuning is erratic, sometimes skips when changing bands. Sometimes least-significant digit in display doesn't increment smoothly when VFO knob is turned slowly.
<b>Probable Cause:</b>	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:** 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 and display unit to catch spray run-off.

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**Symptom:** No RX through ANT 1 (LBA) jack.

**Probable Cause:** Open fuse DS2 on RF unit.

**Cure:** Replace open fuse.

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