

ALCOR EGT SYSTEM TROUBLESHOOTING GUIDE

Please Note: This troubleshooting guide does not include symptoms or solutions relating to malfunctioning engines, cylinders, or other mechanical components.

SYMPTOM	POSSIBLE CAUSE	SOLUTION	SEE NOTE
No Indication	Open Thermocouple	Check Probe: Heat Resistance	1
	Shorted or open circuit	Check Continuity	2
	C/A Probe on C/C System	Check Color Codes	3
	Faulty Potentiometer	Call ALCOR Repair or Replace	4
	Friction in Movement	Call ALCOR Repair or Replace	4
Low Indication at Peak	Out of Calibration	Re-cal In-flight	5
	C/A Probe on C/C System	Check Color Codes	3
	Probe - High Resistance	Check Probe Heat or Resistance	1
High Indication	Out of Calibration	Re-cal in-flight	5
	C/C Probe on C/A System	Check Color Codes	3
	Induced EMF through Lead	Check Harness Route	6
Erratic Reading	Faulty Potentiometer or Friction in Movement	Call ALCOR Repair or Replace	4
	T/C Wire Insulation Worn at Radiator	Check T/C Resistance While wiggling wire	1
Erratic Reading at Altitude	Lead Chafed-Grounding	Check Continuity to Ground while in fit	2
Indicator Change when tapped	Friction in movement	Call ALCOR Repair or Replace	4
No Indicator at run-up	Indicator begins at 1200 F not all engines reach 1200 F at run-up	System Normal	
Indicator works on bench, not in flight	(Bench power supply has more current) Friction in movement	Call ALCOR Repair or Replace	4

NOTES

1. The best way to troubleshoot ALCOR EGT probes is to check the loop resistance through the probe at room temperature. Use a good quality multi-meter fitted with alligator clips on the test leads. **CAUTION: Voltage from a multi-meter can damage an EGT indicator.** Care should be taken to be sure the probe has been disconnected from the system before checking for loop resistance. A grounded red/yellow or red/brown probe will normally show from 0.6 to 1.0 ohms resistance. To check millivolt output, remove probe from aircraft. Carefully heat the tip of the probe element with a propane torch until it just begins to glow dark cherry red. At this point, the probe should put out from 33 to 36 millivolts (1500°F to 1650°F) for red/yellow, or 61 to 67 millivolts (1500° to 1650°F) for red/brown. **CAUTION: Always wear gloves and have a fire extinguisher handy when using an open flame.**
2. To check continuity of an EGT extension lead, first inspect entire length of wire for chafing or broken insulation. Inspect terminals for loose crimps or connections. With indicator and probe disconnected, check to be sure that there is no continuity from red to yellow or from red or yellow to thermocouple housing. Next, clip red to yellow at either end and check for continuity at opposite end through the entire lead.
3. Modern EGT systems use a type K or chromel/alumel thermocouple. Older EGT systems used chromel/constantan or type E thermocouple. Type K has a red/yellow color code. Type E has a red/brown color code. **CAUTION: EGT systems with mixed color codes will not function properly. Call ALCOR, Inc. for details.**
4. Calibration on ALCOR, Inc. EGT or CHT indicators manufactured after 1980 are from the front. These indicators can usually be overhauled by ALCOR at a reasonable cost. NOTE: ALCOR does not authorize outside repair or overhaul of our indicators. Older indicators manufactured before 1980 have the calibration adjustment from the rear. They are not repairable due to unavailability of parts. **Please call ALCOR for replacement information.**
5. To recalibrate ALCOR EGT indicators in flight, climb to 3,000 feet or higher and set up 65% power according to your aircraft flight manual. Lean the mixture carefully until a slight RPM drop or engine roughness is observed, then re-enrichen slightly. Adjust the calibration potentiometer so that the indicator points to the asterisk or a point 100 degrees below the top of the scale. **CAUTION: TIT indicators or EGT indicators with a true temperature read-out dial instead of plain hash marks cannot be calibrated in flight.** Use an ALCOR ALCAL system tester or send indicator to ALCOR for calibration at no charge.
6. To prevent indicator error due to induced EMF, the EGT or CHT extension lead wires must not be bundled up or routed with any high current bearing wires such as alternator, avionics, lighting or heaters.

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