

## Insight G-Series GEM OAT Function Technical Note

This tech note describes a simple test procedure to verify normal operation of the OAT function on a G-Series Graphic Engine Monitor (GEM). The test can be performed on a bench, or in an aircraft if the connectors at the back of the GEM are accessible.

### Equipment Required:

1. A Model G2, G3, or G4 GEM with P1 wiring harness.
2. A 33K Ohm (33,000 Ohm) leaded resistor (1/4 Watt).
3. A DMM capable of measuring resistance and voltage.
4. A Printed copy of the G-Series Installation Manual.
5. A flashlight and magnifying glass.

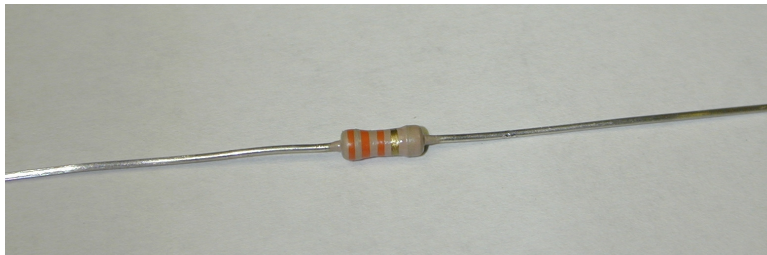


Figure 1 - 33K Ohm Resistor

### Procedure for GEM Model G2 or G3 or G4-single:

1. Review the Installation Manual wiring diagrams for the P1 harness power connections, and the P2 harness for OAT connections.
2. Confirm the correct marking of the resistor, the first three colour bands must be Orange, Orange, Orange. Measure the resistance of the resistor, some tolerance is allowable but the actual resistance should be between 30,000 and 36,000 Ohms.
3. The GEM's P1 connector must have a wiring harness attached capable of supplying 10 to 30 VDC at 0.5 Amps to the GEM. The GEM's P2 connector (25 D-sub) must be accessible (P2 harness disconnected from the P2 D-sub connector).
4. Turn off electrical power to the P1 harness.
5. Locate the #16 and #17 pin sockets on the P2 connector (use a flashlight and magnifier to positively identify the correct pins). Inserting the resistor leads into the wrong pin sockets may result in permanent damage to the GEM. Bend the leads of the resistor and insert them into the # 16 and # 17 sockets as shown in Figure 2.
6. Double check that the resistor is inserted into the correct sockets, ensure that the leads of the resistor are not shorted to each other or anything else, and then apply electrical power to the P1 harness.
7. Observe the GEM's display, after the start-up screen the main GEM screen will appear. The OAT function should show a temperature of approximately 32 degrees F. The temperature may be somewhat higher or lower depending on the resistor used.

8. If the OAT function fails to indicate as described, carefully measure the following voltages. Take care not to short the resistor leads. Measure between P2 socket #17 and ground (P1-15). The #17 socket should output an excitation voltage of between 8 and 10 VDC. Also carefully measure the voltage between P2 socket #16 and ground (use the DMM's mV range). The #16 socket is the OAT signal input and should be approximately 27.3 millivolts for an OAT of 32 degrees F.

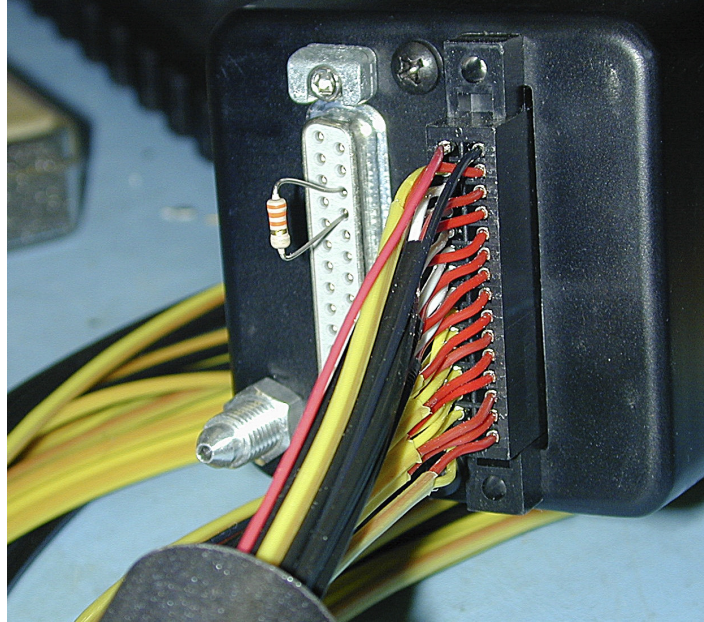


Figure 2 - Test Resistor inserted into P2 sockets #16 and #17.

9. For Model G4-twin GEM's, perform the procedure as described above except for the following:

The G4-twin utilizes a 37 D-sub connector for P2. Use P2 sockets #28 and #9. The #28 socket should output 8 to 10 Volts, and socket #9 is the OAT signal input.

10. Contact Insight Instrument Technical Support (G-Series GEM) if the GEM does not indicate or measure as described.

905 871 0733

[g3techsupport@insightavionics.com](mailto:g3techsupport@insightavionics.com)