

Addendum Sheet - Use of the Model 2000/4000 with the Rotax 912/914 Engine

This model of the EIS is designed to utilize the VDO oil pressure and oil temperature sensors that are included with the Rotax 912 engine. To be assured the EIS operates accurately, you should verify the sensors installed on your engine are the correct devices. (To verify your instrument is the correct model for the Rotax 912, you may verify there is a "V" in the software version (SW Ver) on the label on the rear cover of the instrument.)

To Verify the Oil Pressure Sender

1. Verify the sender is marked VDO. This is usually stamped on the case of the sensor near where the electrical connection is made.
2. Verify it is marked 0-10 bar. This is normally stamped on the hex nut at the end that installs into the engine.
3. If available, use an ohm meter to verify the resistance from the electrical connection of the sender to its case is between 5 and 20 ohms, with the engine off (oil pressure = 0 lbs).

To Verify the Oil Temperature Sender

1. Verify the sender is marked VDO. This is usually stamped on the hex nut portion of the device.
2. If an ohmmeter is available, verify the resistance of the sensor, from its electrical connection to its body, is between 1300 and 800 ohms at room temperature.
3. Also note that the case of the sensor may be marked with a part number of 801/10/1, or 150C or 300F.

Configuration of Sensors

This model of the EIS is designed to use the above oil pressure and temperature sensors for monitoring of these parameters. For monitoring of cylinder head temperatures, the 2 cylinder head temperature sensors that are installed in the engine, are replaced with 10 mm bolts. A 10mm CHT probe (GRT part number CHT-10) is installed under this bolt to monitor cylinder head temperatures as recommended by Rotax.

One of the two CHT sensors removed from the engine is then used to monitor coolant temperature. This sensor is normally installed in a coolant line such that coolant passes over the sensor's tip. **The body of the sensor must make an electrical connection to ground for it to function.** (The sensor should be verified to be identical to the oil temperature sensor, as outlined above.) This sensor is also available from Grand Rapids Technologies with 1/8-27 NPT pipe threads, which may be easier to install in the water line depending on your application.

CHT sensors are also available to measure the temperature of the barrel of the cylinders. These sensors are retained using a screw threaded in between the cooling fins. For more details regarding the mounting of this sensor, consult your engine's user manual.

Wiring Considerations

Since some signals are sensed with respect to a ground connection, it is important to make a good ground connection. A good ground connection in this case means that the voltage drop across the ground lead is less than 0.050V, and ideally less than 0.020V. This can be verified using a digital voltmeter, by placing the meter on its most sensitive scale, and connecting one probe to the case of the engine, and the other to the case of the EIS. When performing this measurement, turn on all electrical equipment in the aircraft, since other equipment that shares a portion of the path to ground with the EIS will add to the voltage drop that will be observed. If the observed voltage is greater than 0.050 (50 mV) it is probably because the ground wire between the instrument and the battery is too small, or is being shared with too many other devices.

Tachometer Wiring - 912

The best method of sensing engine RPM on the 912 engine is accomplished using the tachometer trigger coil included in this engine. This trigger coil has two wires coming from the engine, and they end in a 2 pin socket. One of these wires should be connected to ground (the - terminal of the battery) and the other lead to the tach input of the EIS. Since this signal provides 1 pulse per revolution of the engine, the TachP/R setting on the Configuration Set pages must be set to a value of 1. While the lighting coil wires may also be used as a tachometer source (as shown in the manual) this method is better, as the tachometer signal is independent of influences of the regulator/rectifier.

Tachometer Wiring - Rotax 914

The turbo control unit provides 2 outputs for the tachometer. As of this writing, terminal 13 is the tachometer output (which is connected to the EIS tach input), and terminal 26 is the tachometer ground (which should be connected to ground). You should refer to your user's manual for the engine to verify these are the correct terminals, as they could change with revisions to the engine. The TachP/R must be set to 1 for this engine.