



ThermoStasis Rotax 912 Installation FAQ

Why should I install a ThermoStasis Oil Temperature Control?

Installing an oil thermostat provides two important benefits: (1) warm-up times are reduced by as much as seven or eight minutes with resulting fuel cost savings, and (2) operating with hotter oil boils off oil contaminants (water and fuel) and reduces engine wear. Rotax Service Instruction SI-18-1997 states that *“to avoid formation of condensation water in the motor oil, the oil temperature must rise at least once every operational day to at least 100°C (212°F).”*

ThermoStasis Oil Temperature Controls are suitable for which Rotax 9-series engines?

We recommend that ThermoStasis oil temperature controls be installed on the Rotax 912UL and 912ULS.

Which Oil Temperature Controls are recommended for installation on Rotax 9-Series engines?

Part number P6-H-190, with a 190°F operating temperature and 3/8"-NPT ports, is the control most often installed. Part number P6-H-205, with a 205°F operating temperature and 3/8"-NPT ports, can also be used.

What fittings are recommended for use with ThermoStasis Oil Temperature Controls?

We recommend AN840 and AN844 fittings for use with oil temperature controls P6-H-190 and P6-H-205.

These are aircraft-quality fittings that are not restrictive to oil flow:

- AN840-8D straight aluminum fitting, 3/8"-NPT with 1/2" single hose barb
- AN844-8D 45 degree aluminum fitting, 3/8"-NPT with 1/2" single hose barb

Note: Rotax requires that oil circuit fittings have a minimum I.D. of 9mm (.354") – see Rotax SL-912-011 – and also that 90 degree fittings NOT be used UNLESS they are large radius fittings similar to Rotax P/N 956 580.

Is a thread sealant required with AN840 and AN844 fittings?

Yes. Pipe thread fittings always require a thread sealant. We recommend Permatex 56521, Loctite 565 and Loctite 567, which are all high quality sealants with excellent solvent resistance.

Is it necessary to install the Oil Temperature Control upright?

No. The oil temperature control can be installed in any position or orientation without affecting its operation.

How does a ThermoStasis Oil Temperature Control work?

The most important thing to understand is that it works as a **bypass** thermostat. This is very different to the coolant thermostat in your car, which works as an **isolation** thermostat, where the coolant radiator is out of circuit when the car's coolant is cold. The ThermoStasis oil temperature control works by allowing part of the oil flow to bypass the oil cooler when the oil is cold (e.g. below 190°F), but **the oil cooler is always in circuit**. The thermostat is at all times in one of two states: (1) oil flow to oil cooler open and thermostat bypass open (e.g. oil temp. below 190°F), or (2) oil flow to oil cooler open and thermostat bypass closed (e.g. oil temp. above 190°F).

Why was the ThermoStasis Oil Temperature Control designed as a bypass thermostat?

Although a bypass thermostat is less effective at maintaining constant oil temperature than an isolation

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thermostat, there are very good engineering reasons for using this design, including: (1) lower resistance to oil flow and higher oil pressure on start-up, (2) fail-safe design with oil flow unobstructed under any operating condition, and (3) ease of filling the oil circuit after oil temperature control installation.

If Rotax requires that the oil reach a temperature of 100°C (212°F), why do your Oil Temperature Controls for the Rotax 912 operate at 190°F or 205°F?

Our oil temperature controls are installed to control the temperature of the oil as it leaves the oil cooler and enters the oil pump. The oil circuit for Rotax 9-series engines is vented at the oil tank, so oil contaminants (water and fuel) can only be boiled off at the oil tank. Oil temperature at the oil tank will always be higher than oil temperature at the oil pump, so controlling the oil temperature at the oil pump to 190°F or 205°F ensures that oil temperature at the oil tank will reach 212°F.

Why is the oil temperature higher at the oil tank for Rotax 9-series engines?

After exiting the oil pump, the oil travels through the engine lubrication galleries, returns to the sump and is then forced back into the oil tank by crankcase pressure. The oil is heated by its passage through the engine, so the oil temperature at the oil tank is higher than the oil temperature at the oil pump. The oil temperature sender in Rotax 9-series engines is located at the oil pump, so the indicated oil temperature shows the **lowest** oil temperature in the oil circuit with a higher than indicated oil temperature at the oil tank.

What can I expect from my ThermoStasis Oil Temperature Control?

Your oil temperature control will reduce your warm-up time and will hold your oil temperature at the operating temperature (e.g. 190°F) in most operating conditions. However, if the outside air temperature is low or you are operating your Rotax 9-series engine at a low power setting (e.g. in idle power descents) you will see the oil temperature drop below the oil temperature control's operating temperature. Also, if the engine is generating more heat than the oil cooler can immediately dissipate (e.g. in sustained high power climbs or when the air temperature is high), you will see the oil temperature rise above the oil temperature control's operating temperature.

My oil temperature is lower at a high power setting than at a cruise power setting. What's up?

In some high-efficiency airframes (e.g. Van's RV-12), high power settings in level flight result in high airspeeds and significantly increased airflow through the oil cooler. Because the oil cooler is always in circuit, the oil flowing through the oil cooler experiences a higher temperature drop at high airspeeds leading to a lower oil temperature in high power cruise than in low power cruise.

What should I do before starting my 912 after installing my Oil Temperature Control?

It is very important to purge the lubrication system of air after the 912 oil circuit is opened for any reason. Please read and follow the procedure described in Rotax Service Instruction SI-912-018 – Purging Of Lubrication System For Rotax Engine Type 912 And 914 (Series) before starting your engine after installing your oil temperature control.

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