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Q: Why did my engine rust, even though I fly often and at the correct oil temperature?



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Shell Aviation Guru

While your gauges may have shown your oil temperature was in the proper range, that might not actually be the case.

As pilots, we are always taught to “trust our gauges,” which is a critical lesson, especially when flying IFR. Most of us apply this lesson to our engines as well. However, another part of this lesson should be to periodically check the calibration of all instruments, including oil temperature, oil pressure and tachometer gauges. This is especially important in general aviation aircraft, as many of us fly planes that are twenty years old or older. So it’s not surprising to hear numerous reports of tachometers being off by several hundred RPM and temperature gauges being off by 10, 20 or even 30 degrees. It’s important to have your gauges checked and calibrated periodically by a qualified technician.

Oil temperature is one of the most critical engine operating parameters to be measured and controlled. Typically, many naturally aspirated engines are running at oil temperatures that are too low. This can cause excess moisture in the crankcase, which can lead to rust or corrosion on critical engine parts. Conversely, many turbocharged engines run too hot, and care must be taken to keep the cylinder and oil temperatures down. In most cases, a cruising oil temperature of 180-200°F is preferred. Oil temperatures below 170°F usually do not allow for the proper boiling off of water, which leads to rust. At the other extreme, cruise oil temperatures significantly above 220°F can be an indication of inadequate cooling.

Once your gauges are calibrated correctly, and you know your engine is running at the correct oil temperature, you can reduce the likelihood of being surprised by rust and corrosion in your engine. If you have product or technical questions, please contact the Shell Technical Information Center at 1-800-231-6950 or visit www.aeroshell.com.

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