Turbocharger Care And Feeding

Modern turbocharger installations and instrumentation have eliminated a lot of the uncertainty previously associated with owning and operating an airplane so-equipped. But that doesn't mean pilots can forget what's under the cowling. If you fly a turbo, consider these tips to help ensure its longevity.

EASY DOES IT

Abrupt throttle movement can have a detrimental effect. When adding power, the turbo and its wastegate controller need time to react as rpm and/or exhaust flow increase. If you're flying a turbo with a fixed wastegate (see the article's main text) ham-fisted throttle movement is sure to have you seeing your mechanic more often than you'd like. Regardless, quick throttle movement is an easy way to overboosting the engine, especially if the engine oil—which is used to actuate the wastegate—is cold.

KEEP THINGS COOL

A turbocharger heats the induction air as it's compressed. An intercooler can help lower its temperature, but turbo'd aircraft engines generally run hotter, anyway, simply because they're doing more work and there are more heat-producing components under the cowling.

USE AN ENGINE MONITOR

With a turbo under the cowling, you need to know what's going on in greater detail than ever before. If you don't have an all-cylinder engine monitor, including turbine inlet temperature, you need one. As the item above notes, turbo'd engines run hotter than their normally aspirated cousins.

INCREASE THE FUEL FLOW

In keeping with the need for the engine to run as cool as possible, consider adjusting the engine's fuel flow as high as allowed.