

## WING TIPS:

# Passing it on

By Dennis Wolter, Cincinnati, Ohio

*The basis for this article, according to its author, started 50 years ago when he was 15 and had ridden his moped to the local airport. It was there, he writes, that he met “the first of a still expanding list of great mentors and folks who were willing to show a kid the ropes, sharing their knowledge and support.” It is in the spirit of those early days of his introduction to the art and science of flying that Dennis shares the following experience, with plans for more to come. —Editor*

I vividly recall the day when I was working for a small scheduled airline called Midwest Airlines. We had a fleet of Lockheed 10s (of Amelia Earhart fame). The lead mechanic was a patient and benevolent guy named Jim Severs. Also working in our group was a young guy just out of school who thought he knew everything, and he had an FAA-issued A&P license to prove it. Jim would usually let this guy struggle, while seeming to pay extra attention to my needs as a developing aircraft technician.

One day I asked Jim why he took so much time to show me things. His answer has stuck to the core of my being since the moment he said, “Well, Dennis, I’m one of the old guys now and it’s our job to share what we know with young guys. You have the spirit to do this right, and our junior licensed A&P over there only wants to get it done and go home.”

So it is in the spirit and purpose of Jim’s message that I want to share my gift with you. (I’m admitting I’m an old guy now.) There are many Beech owners who have the spark and passion to keep these beautiful airplanes in the air. I think of us as caretakers who will one day pass these wonderful machines on to the next generation of aviators.

Forty years of experience gained by stripping out old interiors and instrument panels has been an eye-opener because we get to see things that no one ever

looks at. The scope of our work has taken us into every nook and cranny of these airplanes and exposed us to the many disciplines involved in safely modifying and maintaining them.

So, with this background to help me, I will attempt to identify frequently seen problems that are often easily managed under the guidelines of preventive owner-performed maintenance. These will be things you can do yourself, thanks to Federal Aviation Regulation (FAR) part 43, section 43.3, paragraph G. With the help of photographs, we’ll walk through fixes and identify parts and sources for materials.

Many of the discussions will involve recognizing issues that must be corrected by a professional. Some will involve topics of a serious safety-of-flight nature. Others will make you shake your head and ponder: “What were they thinking?” And some subjects will be as low-tech as ways to properly clean and protect an aging airplane. Great Saturday afternoon airport projects!

Now here’s my first Wing Tips article. I’ll be interested to hear your response.

## To tell the truth

The OAT gauge is one of the most important and least respected instruments we have on board. Unless flying in moisture in the northern latitudes or at high altitude anywhere else, about the only thing most pilots use the OAT for is to calculate takeoff distance and true airspeed where five degrees of error isn’t a show-stopper.

Flying in clouds or precipitation at near-freezing temperatures, however, will cause you to look closely and often at your OAT. And for those who have electronic OATs, there is something potentially serious involving system installation that needs to be checked out, specifically the location of the temperature probe, that little silver one-inch long, quarter-inch diameter ditty that senses outside air temperature.

I’ve seen these probes mounted in almost every location imaginable on the airframe, all too often in a very bad place. For these systems to be accurate, the probe must be mounted away from any heat source. That means not on the boot cowl between the aft edge of the cowling and the door post. Warm air leaking out of the seam where the

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Probe for an electronic OAT, mounted on boot cowl area between cowling and cabin door.

cowl meets the side skin of the forward fuselage can cause false high temperature readings, sometimes high enough to delude a pilot into thinking that the moisture he is flying in will not stick to the airplane.

Several times, I've seen these OAT probes mounted on the belly right behind the very place where the hot engine-cooling air leaves the cowling. Not good.

As many of you know, we produce the Precise-Flow replacement wingroot air vents for Cessnas that are sold by Sporty's. To obtain the STC for these vents, we had to test for an optimum location for the OAT. During our process of flight-testing an airplane with four OATs installed, some enlightening results were discovered.

I flew a 172 with an OAT in the original juice-can vent, one mounted in a now better sealing Precise Flow air vent, one mounted through the right upper side of the windshield just below and aft of the right wing, and an electronic STC'd OAT with probes mounted through the boot cowl about 10 inches aft of the cowling seam.

In various flying conditions, there was as much as a 10-degree disparity among the four OATs, with the highest reading being the electronic one with the probe mounted in the boot cowl area. Intuition told me to move the electronic OAT probe from the boot cowl to an inspection panel on the bottom side of the right wing. Voila! With the two wing-root air vents open, all readings were within two degrees of one other.

On Bonanzas, a convenient and appropriate location for the OAT probe is either in an inspection panel under the wing behind the landing gear well or on the wing skin

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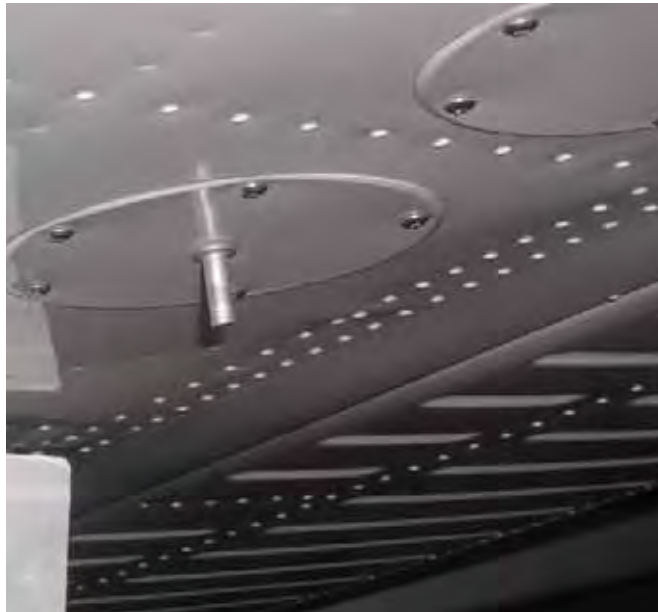
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adjacent to an inspection panel. There are several pass-throughs and runs to get the wire to the probe in this area. For Beech twins, look further out on the wing, away from engine heat for a suitable inspection-panel area.

The event that motivated me to write about OAT probe placement happened this past winter. A customer had a serious accident in which he and two others were injured. Based on his comments to me afterwards, it is possible that his boot-cowl-mounted OAT was giving him an erroneous reading by as much as +10 degrees. I was immediately jolted into thinking I should have shared much sooner with my fellow pilots the many observations and experiences I've had over the past four decades.

Get the message? If your OAT probe is located in a suspect place, ask your avionics technician to move it to the underside of a wing, the further out the better. And if you're having a new digital electronic OAT installed, ask the shop where they plan to install the probe. I would also leave in place the existing analog OAT, and fly with both. It would be reassuring to compare the two to see if both are 'telling the truth.'

Until next time!



OAT probe mounted in an inspection panel just outboard of the left landing gear on a V35B, shaded from sun and away from any heat source.

Dennis Wolter is an A&P, IA and a 3,000-hour instrument pilot who started Air Mod in 1973 to bring innovative design and high-quality renovations to the general aviation market. Dennis has a degree in industrial design from the University of Cincinnati.

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