

All slicked up

LoPresti Speed Merchants' quest to cheat the wind

BY THOMAS A. HORNE



Add up the numbers, and the calculator says that our Win A Twin sweepstakes Twin Comanche should turn in maximum cruise speeds some 14 knots faster than standard-issue versions. Where

a stock PA-30 (the type designator for early model Twin Comanches, built from 1963 to 1965) might top out at 160 to 165 knots true airspeed (KTAS) on the best of days, our bird should flirt with high-end Mooney-like speeds of 174 to 179 KTAS.

These speeds won't come via the traditional route, which is to boost horsepower via engine upgrades. No, our engines will be overhauled to like-new specifications with components supplied by Superior Air Parts—including its Millennium cylinders—but otherwise they'll be the original engines upped to better-than-new condition. No extra horsepower here.

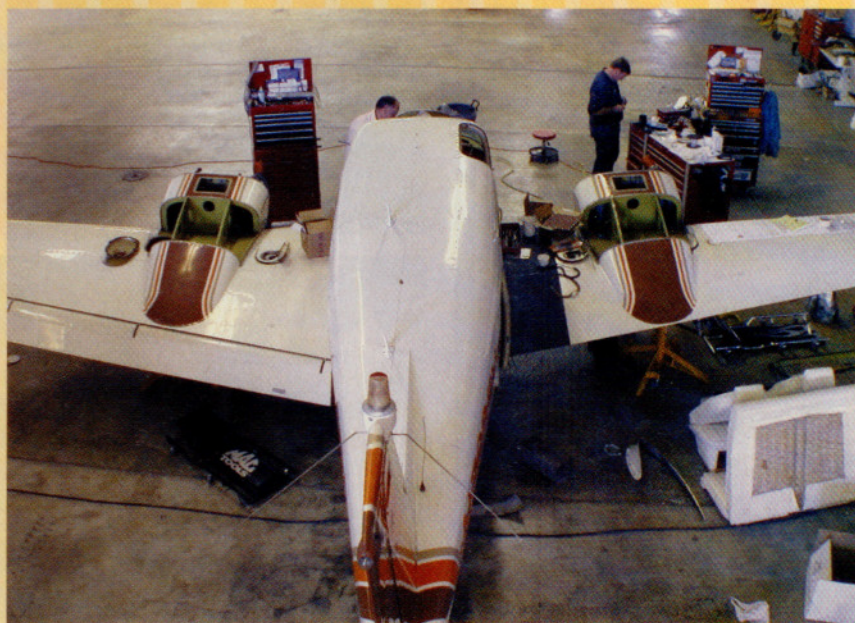
The sweepstakes Twinkie will get its extra knots from LoPresti Speed Merchants' (LSM) speed modifications. These include redesigned replacement cowlings—worth an extra 6 knots when paired with Hartzell's latest Twin Comanche propeller spinners, which LoPresti calls "Winner Spinners"; main wheel fairings (LoPresti calls them "Speed Spats") that add 4 knots; flap track fairings ("Speed Splitters"); and flap gap seals (worth an extra 0.86 knots). Those speeds are advertised claims. We shall see what we shall see when the reborn airplane makes its speed runs later this year.

LSM's cowlings are easily identified by their round air inlets and sleek looks. Aft of those inlets are long diffuser tubes that reduce the speed of the incoming air and create high-pressure areas above the en-

gine. The pressure differential between the air flowing above and below the engine makes for better cooling and, working with LSM's cowl flap exten-

The Speed Spats fill in these depressions and reduce drag.

Similarly, the Speed Splitters clean up the airflow past the flap tracks and



sions, shunts cooling airflow out of the cowling quicker, according to LSM's Curt LoPresti.

The Winner Spinners are stronger than the original Twin Comanche spinners, which were known for cracking and failing. The new spinners are reinforced by a two-piece design and have two-piece backing plates.

Stock Twin Comanche main gear hang down a bit from their wheel wells when retracted and leave a low-pressure area in the gap aft of the wheels.

It's in pieces now, but soon our sweepstakes Twin Comanche will have new engines and a spiffed-up airframe. Here, LoPresti's mechanics have at it.

serve a second function by keeping dirt out of the flap roller mechanisms. Flap gap seals enclose the gap between the flaps and the wings, and reduce drag by preventing the turbulence caused by high-pressure air beneath the wing leaking up through the gap to the low-pressure area above the wing.

These simple yet elegant aerodynamic cleanups do the work that would otherwise require an extra 10 or more horsepower. They're a one-

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time cost item, don't use gas, don't break down, don't require maintenance to speak of, and have the intangible benefit of looking great. Especially when teamed with the J.L. Osborne wingtip fuel tanks, which will also grace our Win A Twin Twinkie. We can't wait to get the airplane in the air for some real-world performance num-

airplanes were brand-new what excitement would there be other than a routine annual giveaway, covered once in print and then dismissed?

That's why we started, in this case, with a 1965 Twin Comanche that I rather bluntly called a "beater" in an earlier article. We looked at the logs and saw an old airplane with promise. Now we see, frankly, evidence of incomplete maintenance logs. And what we discovered most recently could never

tanks. At some point in the airplane's life someone coated the cells in an attempt to stanch the seeping—yet invisible from the exterior—leaks. But over the years the coating had eaten away at the rubber elastomers, and the cells had begun to shrivel and shrink.

Finally, both propellers turned out to have corroded internal components and worn feather springs, among other anomalies. One prop hub showed impact damage—no doubt from the gear-up



Ailerons, flaps, and stabilator have been sent to Williams Airmotive for reskinning, and LoPresti mechanics prepare to install speed mods (above). Fuel lines for the J.L. Osborne tip tanks are routed to the fuel selectors (left), while four new fuel cells from Eagle Fuel Cells (above right) await installation.

bers. For more information about these and other LoPresti modifications, visit the Web site (www.speedmods.com).

On aging airplanes

Our maintenance experience with the Twin Comanche continues to underscore the caveats of buying a 40-year-old airplane. The unique philosophy behind our sweepstakes projects—to fix up older airplanes and make the restoration experience a central part of the contest's story—dictates that we start with older airplanes in need of a spruce-up. If the

have been discovered during any but the most invasive, exorbitantly expensive prepurchase inspection.

First, we learned from Bill Middlebrook of Penn Yan Aero that one of the engines was fitted out with an improper crankshaft. Fortunately, he was able to locate a serviceable, correct crankshaft.

Then Kurt Hartwig of Eagle Fuel Cells pronounced all four bladder-style fuel cells unairworthy. The mains were the original 39-year-old cells, and they each had more than 25 pinhole leaks. More leaks, and cracks around cell edges, were found in the auxiliary fuel



landing that was discussed last month. (See "AOPA Sweepstakes: Win-A-Twin Comanche," February *Pilot*.) A pair of new Hartzell Q-Tip props will replace the old ones.

As for the engine and airframe logs, there was little in the way of explanation. Many entries were too terse to have any analytical value. All these wrongs are being righted, and the airplane will be much the better for it.

But the lessons are plain. Anyone hoping to buy a flawless 40-year-old airplane had better be prepared for bad news. All too often, owners buy older airplanes to save on the acquisition cost, then skimp and cut corners on maintenance

i Links to additional information about the Win A Twin Comanche may be found on AOPA Online (www.aopa.org/pilot/links.shtml). Keyword search: Win A Twin.

to keep costs down. Unfortunately, engines and propellers don't lend themselves to in-depth scrutiny—unless you take them apart. Many owners can't afford to do that until something goes wrong.

But hey, there's a bright side! Should you win this twin, you'll own what will most certainly be the all-time best Twin Comanche of its type.

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