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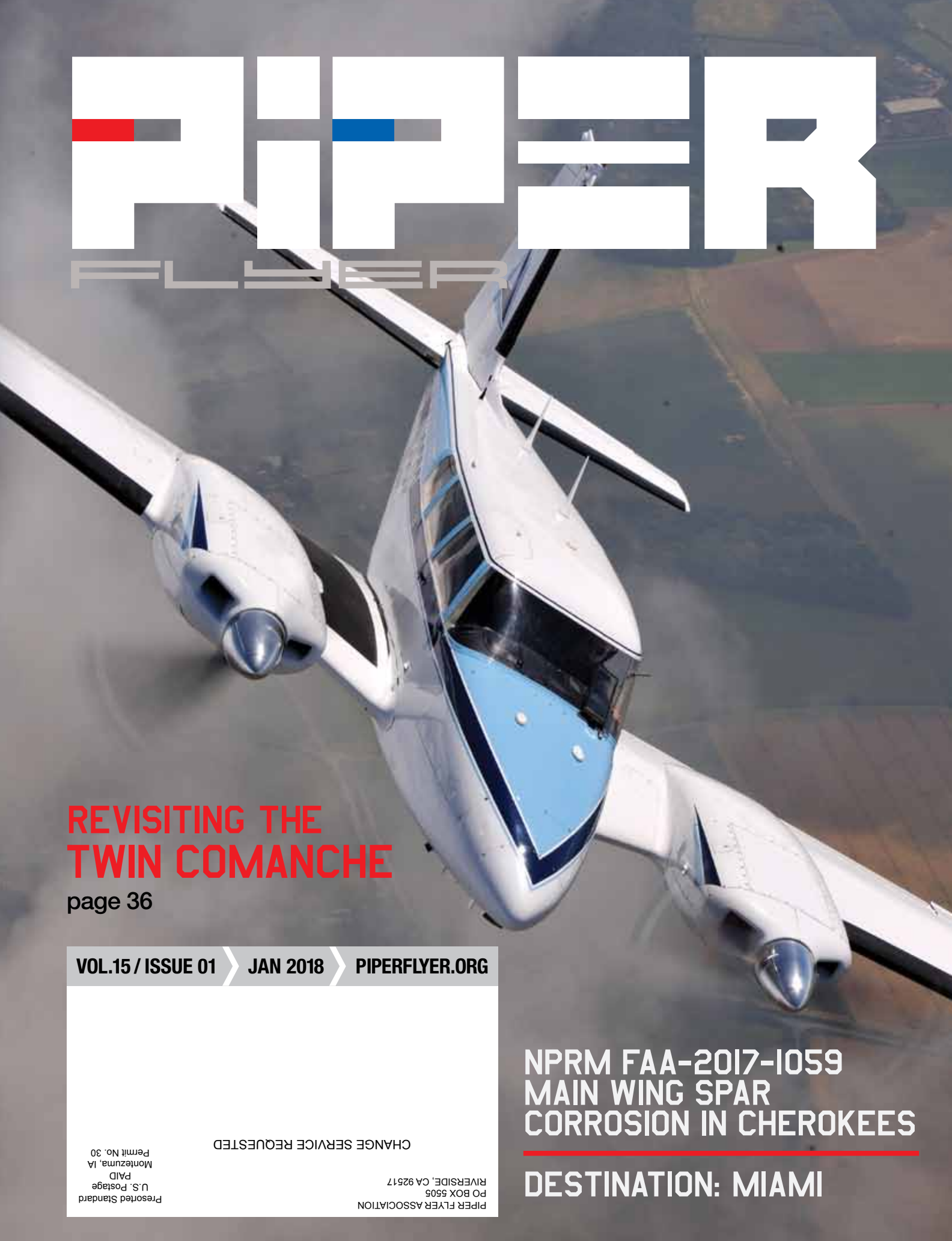

REVISITING THE TWIN COMANCHE

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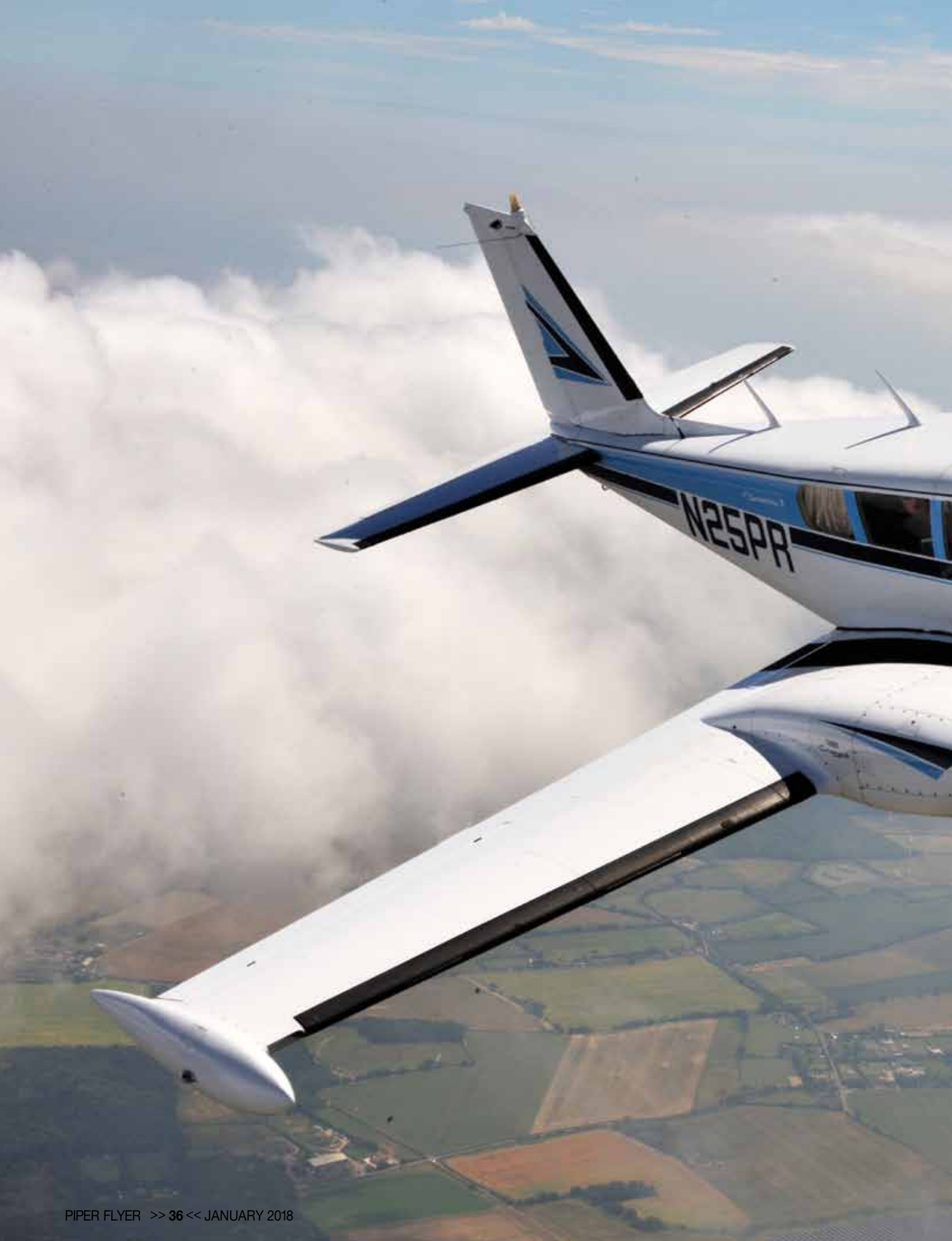
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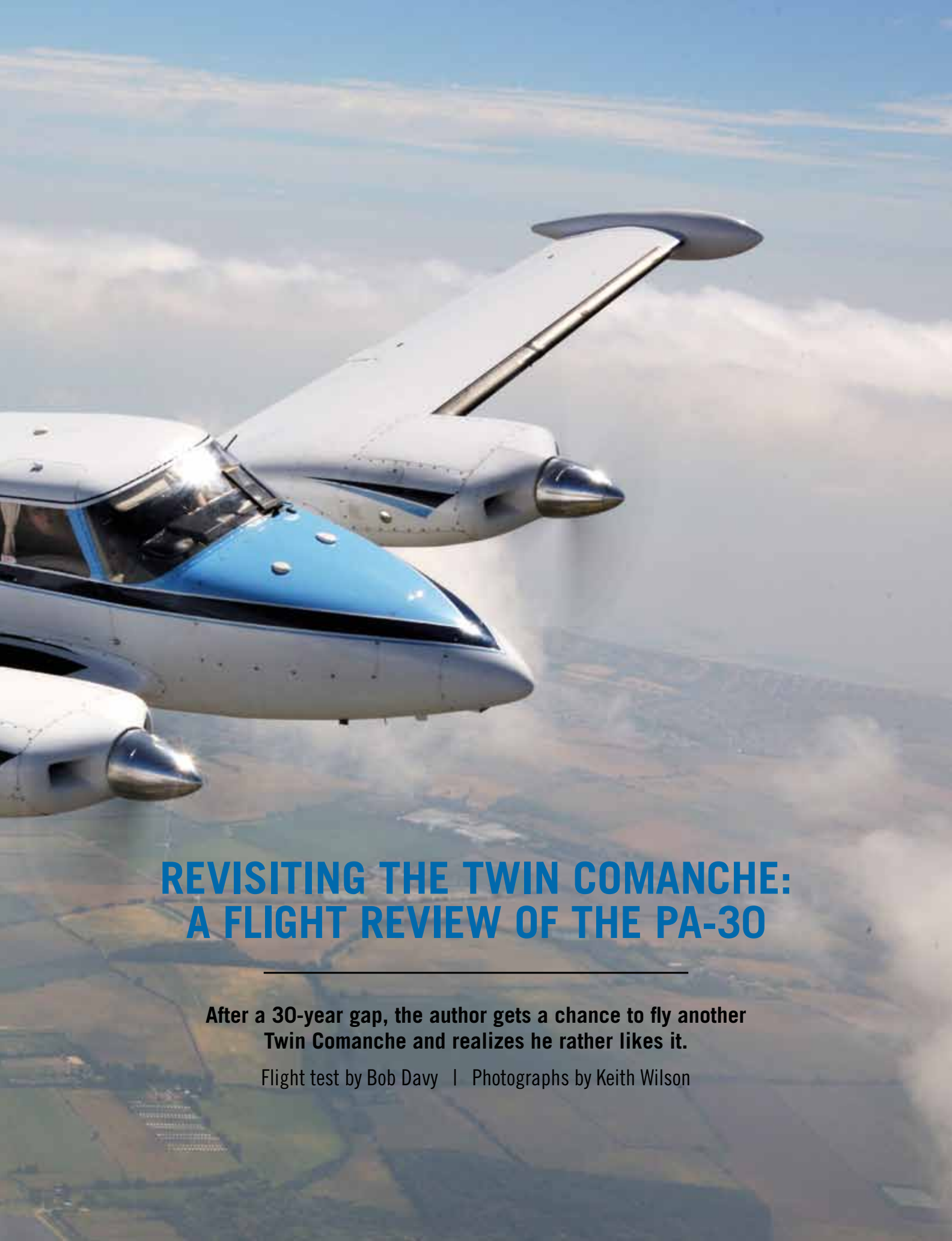


REVISITING THE TWIN COMANCHE: A FLIGHT REVIEW OF THE PA-30

After a 30-year gap, the author gets a chance to fly another Twin Comanche and realizes he rather likes it.

Flight test by Bob Davy | Photographs by Keith Wilson

Its name rather gives the game away with this iconic light twin. The Piper PA-30 Twin Comanche design started with the single PA-24 Comanche, a laminar-winged rocket which itself was a breakaway from the sturdy but slow aircraft that Piper was famous for at the time such as the Cub, the Cherokee and the Apache.

Beech had taken the GA world by storm with the Beech Bonanza, and Piper had to up its game—literally. In order to keep up, along came the PA-24 in 1958. But when the Bonanza begat the Twin Beech and subsequently the Baron, the idea of giving the PA-24 to Ed Swearingen to re-engineer as a twin was a truly inspired one.

The result was an aircraft which could fly faster than the much later Piper Seminole on less horsepower and yet lift more. And despite losing some effective wingspan due to its twin-engine installation, the Twin Com has only 9½ inches more span than the single.

The Twin Com first flew in 1963. It was and is a fantastic little aircraft able to fly at 160 knots below 10,000 feet, burning just 9 U.S. gallons a side on a combined total of 320 hp. Turbo Twin Comanches are particularly fast at altitude, typically cruising at 195 knots or 225 mph at 20,000 feet. With speed mods to the wings, fillets (i.e., fairings) and engine nacelles, this figure climbs—speeds of 200 knots-plus on Twin Comanches are easily doable.

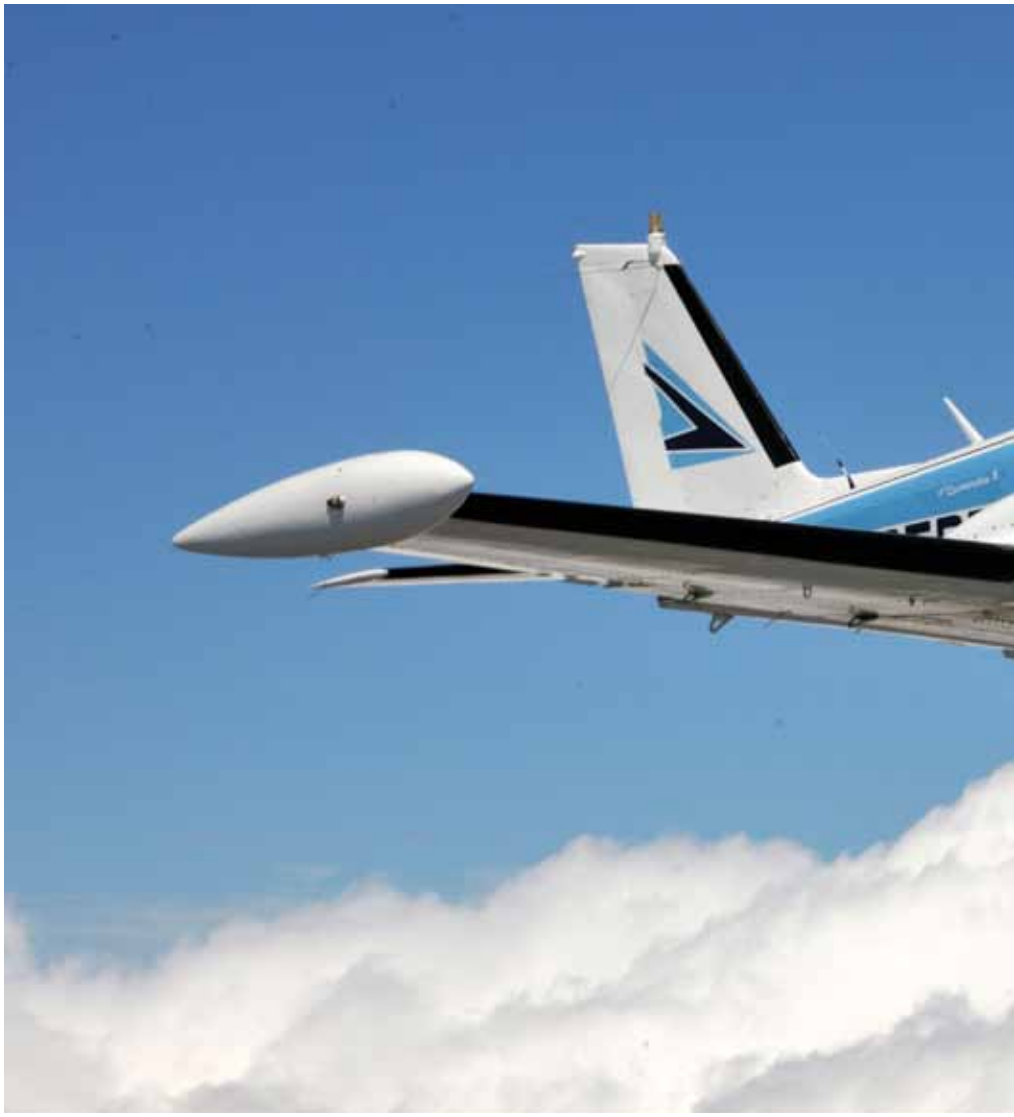
Despite their success, Piper was out of its comfort zone with the Comanches, and when a flood destroyed the Lock Haven factory in 1972, the company possibly used the excuse to stop production when only just over 2,000 Twin Coms had been built. The counter-rotating PA-39 was just getting started, with not even 200 leaving the production line.

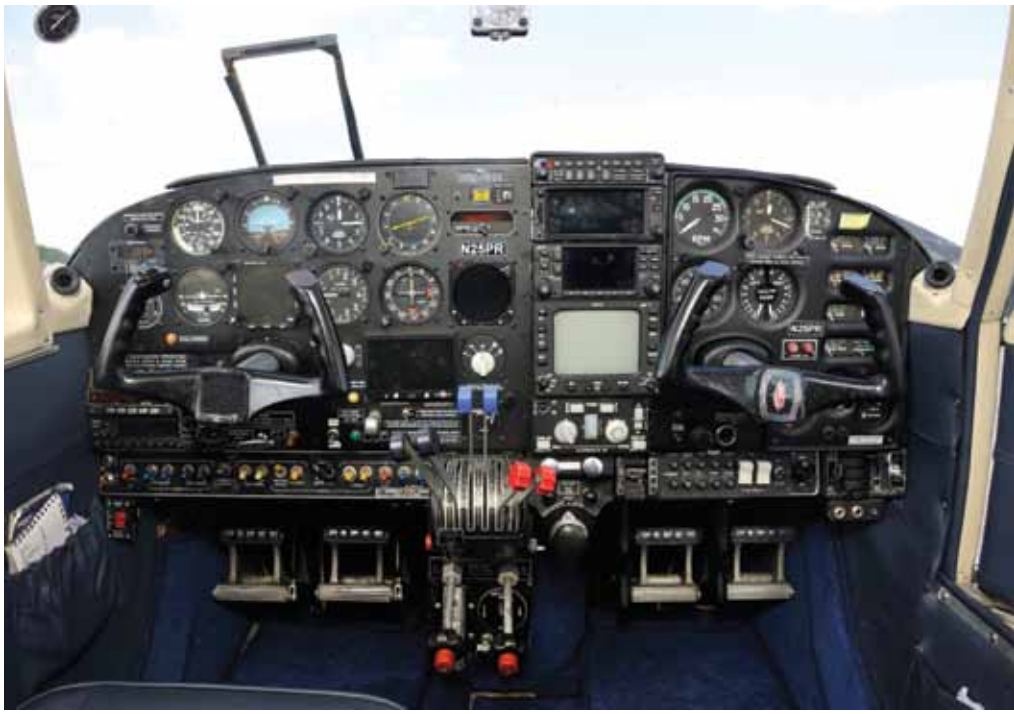
After the recession in the 1980s/1990s, Piper looked at its existing stable of twins and considered restarting twin production. But it was reckoned that the labor-intensive construction of the Twin Com would result in a cost of at least $1 million per aircraft in build cost alone. The much cheaper but less capable Seminole was brought back into production as a result.

Nowadays PA-30s and particularly the small handful of PA-39s are cherished aircraft with a keen following and strong owners groups who make a point of using the types' long legs to arrange fly-ins all over the world.

A bit of a handful

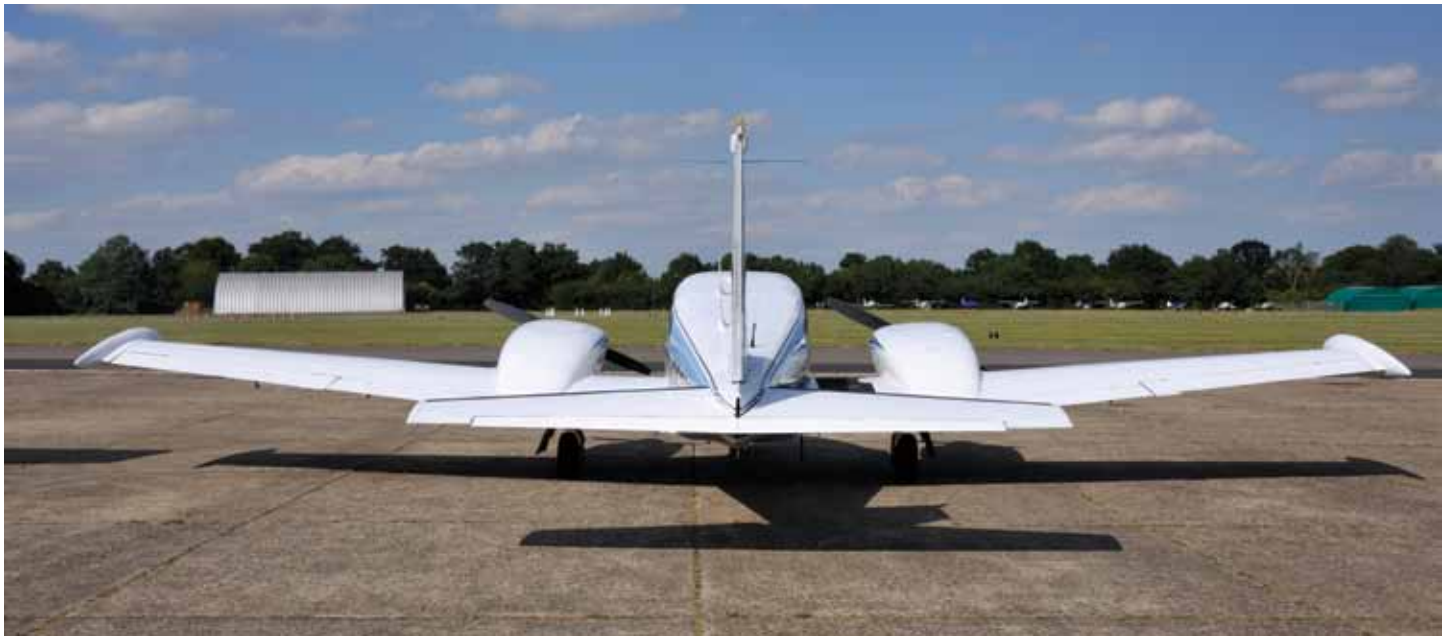
My first experience of the Twin Com was when I did my twin rating in 1985. At the time, both the aircraft which I hired



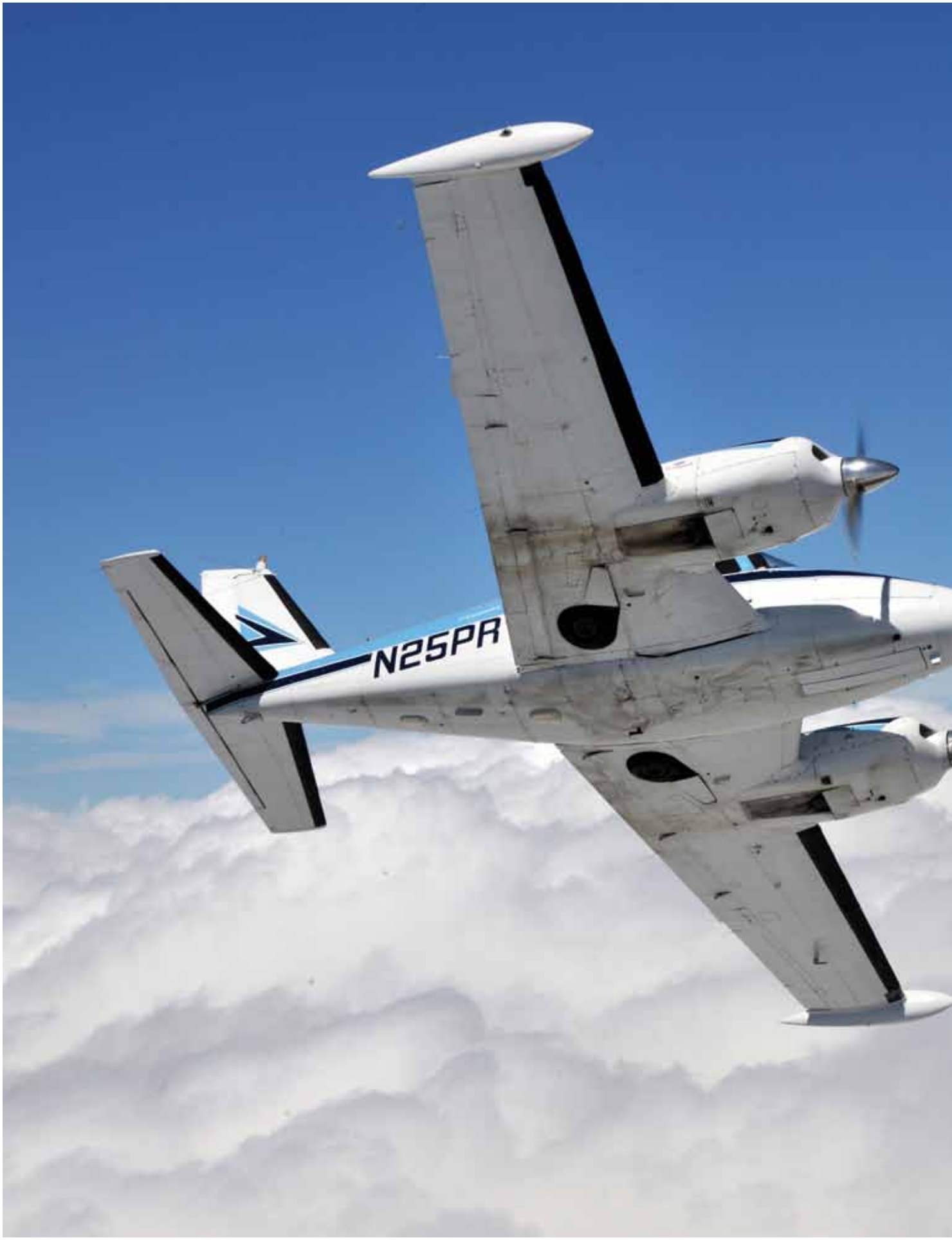


Panel layout is straightforward with ample room for modern avionics upgrades.

Both the normally-aspirated and Turbo Twin Comanches offer excellent speed and surprisingly low fuel consumption.



The wingspan of the Twin Comanche is only a few inches greater than its single-engine sibling.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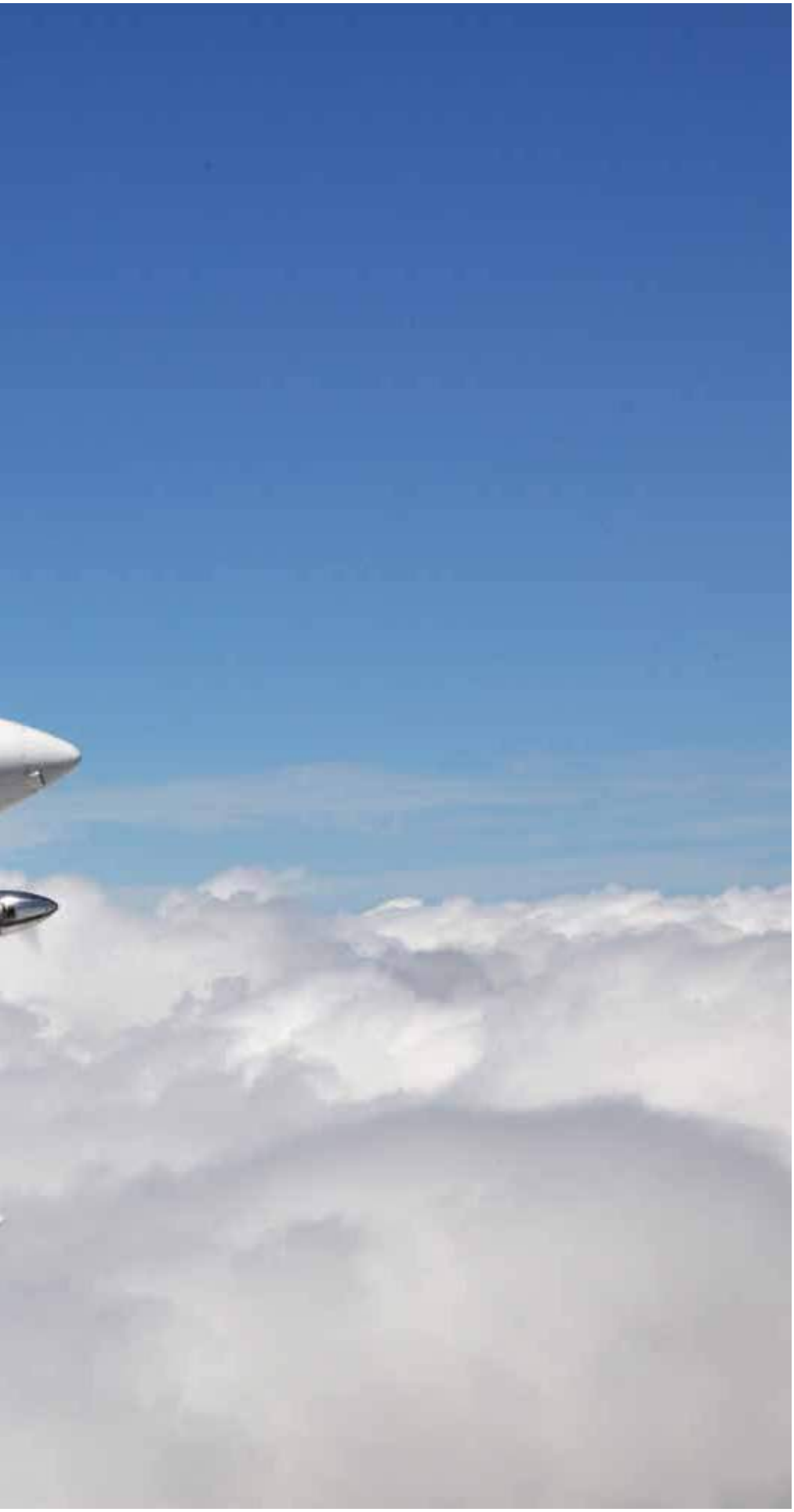


(G-AVVI and G-AXRO for the spotters) were in commercial use as charter aircraft at London Southend Airport (EGMC).

I remembered finding the performance a big leap from the Piper singles that I had flown in. I listened intently to the stories I was told of the infamous laminar wing, how the aircraft could fall from the sky if you flew it too slowly or by the seat of your pants without paying attention to the airspeed indicator.

In aerodynamic terms, up until development of the Twin Comanche, Piper had been very much a one-trick pony, using the old Cub airfoil on its subsequent faster aircraft. These high-lift wings convert airspeed to lift much more readily than with laminar designs. If you've ever wondered why a laminar-winged aircraft cuts through the gusts while the average high-lift-winged Piper will have your head impacting the roof, now you know.

The one big disadvantage with a laminar wing is that its stall is usually much more dramatic than with a traditional airfoil such as a Clark Y. I found this out flying into Le Touquet (LFAT) in northern France not long after getting my twin rating. I was coming into land on the now-disused southwest runway and had reduced my speed to minimum approach of around 80 mph—well below the single-engine safety speed of 105 mph—because I had already committed to land and the runway was short.

As I flared to land, I encountered negative wind shear and the aircraft felt as if it literally fell out of the sky. I managed to firewall the throttles to cushion the impact—but the landing was hard enough that once I had taxied clear, I stopped and got out of the aircraft to examine the main gear to make sure there wasn't any obvious damage before continuing.

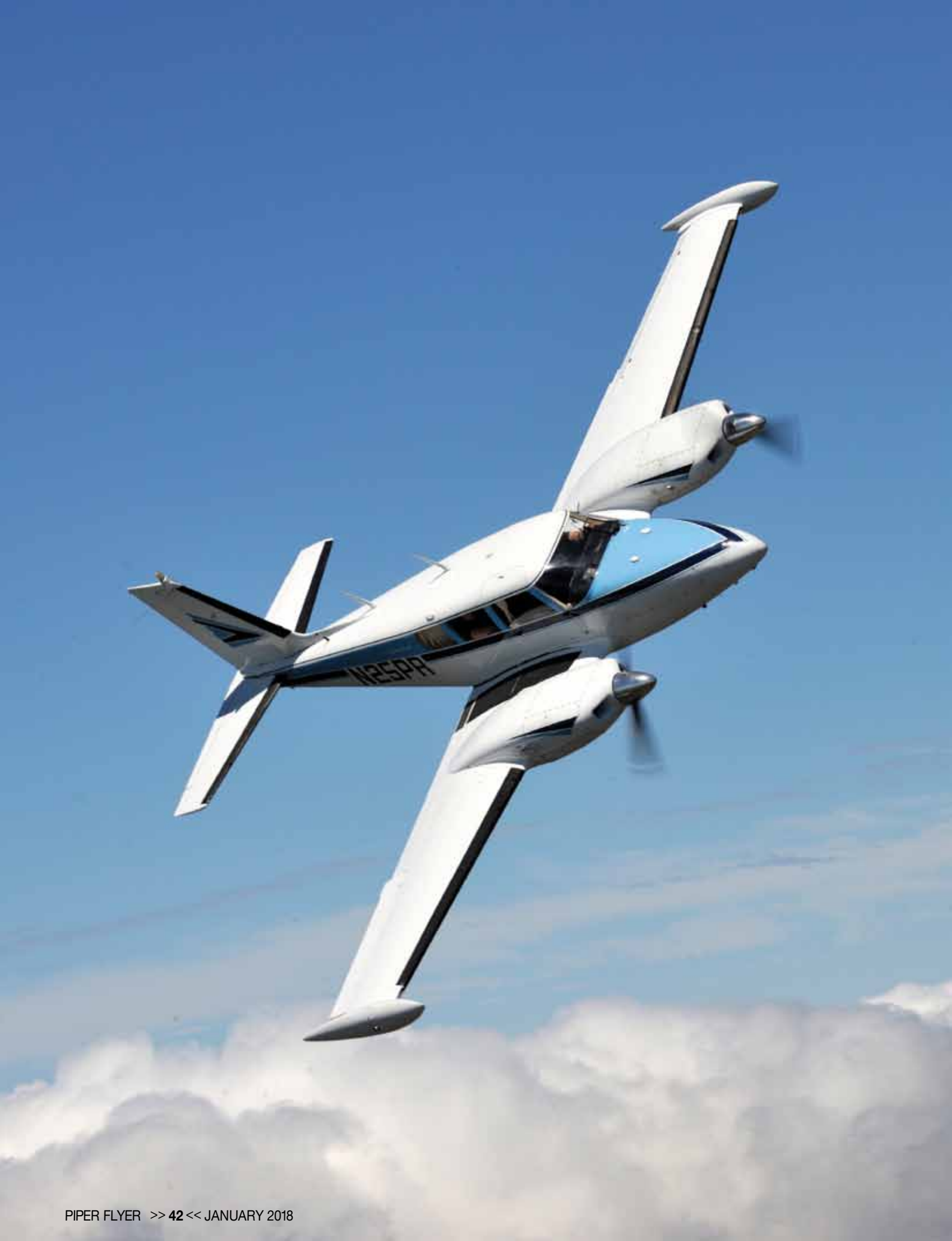
I got away with no damage, but the incident left me shaken.

With the above experience still in my data bank after all these years, I was intrigued to reacquaint myself with the Twin Com. I'm in my 50s now, so not as sharp as I was, but I'm experienced on swept-wing jets and various laminar-winged high performance aircraft, so I was expecting to not be unpleasantly surprised by the Twin Com.

Then again—you never know, do you?

An introduction to N25PR

Owner Mark Hadley showed me around his immaculate 1967 Twin Com Turbo B at North Weald Airfield (EGSX), complete with its beautiful and original blue-and-white paint scheme. You can tell it's a B because of the extra side windows and the facility for an extra row of seats.


N25PR

The first thing that strikes me is its size—so much smaller than the beefy Apache and Aztec, and smaller still than the Seminole trainer that came later.

A Twin Com has 40 less horsepower and 200 pounds less MTOW than a Seminole, but it can propel a similar load considerably faster. No surprise then that it is at least 20 percent better in every way than the old Apache that it replaced.

Climbing inside a Twin Com is the aviation equivalent of entering Doctor Who's time machine, *TARDIS*; the toy-like airplane reveals itself to have a quite large cabin.

It's a serious machine in every way. Controls, levers and dials are in abundance, sprouting from the deep instrument panel. The windscreen almost seems like an afterthought, and the effect is akin to looking out of a letter box—until you get the seat position just right so that your eye height is halfway between bottom and top of the screen.

The next thing I notice are the engines projecting out much farther forward than with many other light twins, so that you sit well behind the props. I'd imagine a World War II de Havilland Mosquito must feel a tiny bit like this.

It's a serious machine in every way. Controls, levers and dials are in abundance…

Once strapped in, the area around the front seats is actually quite roomy. At 44 inches across the cabin, it is 2 inches wider than a Baron, and even the rear seats can be occupied by two adults.

Between the seats—a space wide enough for a traditional flight case—there are panels which lift or detach to expose emergency landing gear lowering apparatus, the fuel tank selectors and an archaic fuel draining setup, which I remember didn't work very well. What you have to do is raise the panel and then pull each drain knob in turn and observe fuel flowing through a clear plastic pipe to see if any water appears.

In reality, the pipes are usually covered in dust and grime and they also have an annoying habit of working their way inside the bottom of the fuselage which means the drained fuel exits inside the aircraft before finding its way through some or other gap and outside. Probably not a good idea to avail yourself of the cigarette ashtrays in the cabin.

The most obviously unusual feature of this cabin, though, is at the bottom of the throttle quadrant: there project two overly large turbo controllers—verniers, like the throttle/prop controls from a Cessna—which are used to bring the turbos online at altitude; and, more importantly, which are used to wind them offline during a descent. If you don't, you will overboost the engines.

Out there on the wingtips are the optional 15 U.S. gallon tiptanks, which up the total fuel capacity to 120 U.S. gallons and, because of the cantilever effect of weight distribution, also increase MTOW by 125 pounds to 3,725 pounds. One-hundred and twenty gallons divided by 18 gph equals 6.6 hours, providing a 1,100 nm range on 320 hp! And for the turbo version it's 1,300 nm-plus! As I said, a serious machine in every way.

Two versus one

The starter, mags, fuel pumps and generators are a line of toggle switches at the base of the instrument panel. Engine starting is classic fuel-injected Lycoming: crack the throttles open, hit the fuel pumps until you see an indication of fuel pressure, pull the mixtures to lean, make sure the generators are switched off, crank each engine in turn after switching the mags on; and, as it fires into life, bring the mixture levers up to full rich. After startup, check oil pressure rising and bring the generators online.

Very straightforward it may be, but there is always a sense of occasion starting up a twin—I remember thinking as a twentysomething that I had finally arrived when I soloed one of these aircraft, and that same rush is still with me more than 30 years later.

I release the brakes with the chrome locking T-handle in the panel under the control column and allow the Twin Com to roll forward under idle power before checking the toe brakes. There is quite a bit of weight on the nosewheel due to those projecting engines, but the steering is actually light and progressive.

A little care has to be taken about the geometry of the toe brakes—they are too upright for my taste; because of a running injury, my right foot can't go less than about 70 degrees to my lower leg, and you can easily taxi with the brakes deployed inadvertently. I slide my feet down a little to stop myself. We are a long way under our MTOW, so the aircraft feels sprightly.

The engine runup and pre-takeoff are quite involved and I opt to use my old commercial pilot checklist from the 1980s, which has been typed out and photocopied to death. But if it was good enough for the

commercial pilots of the time, then it's good enough for me.

I advance the throttles fully forward and the aircraft accelerates well. The previously heavy elevator comes alive in the prop wash and I hold the column neutral as we gather speed.

At 70 knots (80.5 mph) I raise the nose and the aircraft unsticks abruptly. I apply the toe brakes and then raise the gear with the tiny selector to the left of the panel. Gear retraction is normal.

The airspeed indicator is pegged at 1,500 fpm before I bring the throttles and props back to 25/25 then sync the props by pulling one prop lever back and forth to locate which way slows down the "wah wah wah" noise; then keep going until the noise stops completely. From the ground the Twin Com sounds quite noisy because of its unusual exhaust pipes, but in the cockpit there isn't as much noise as in a comparable single.

As we break out of the circuit and head for the Essex coast I start to get a feel for the aircraft again after my 30-plus year gap. It feels like a larger aircraft than it is. The elevator is firm but correct for this type of airplane, roll control is lively and with high hysteresis in roll—or roll inertia—due to the wing-mounted engines. If you come from high-wing singles, this will take some getting used to, and you will find yourself seesawing in roll until you settle down.

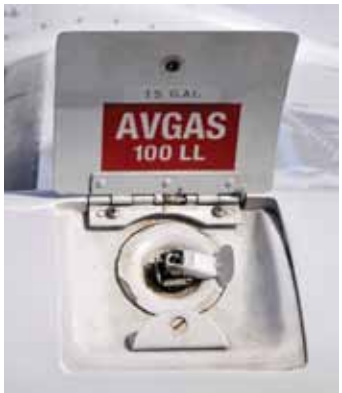
The Twin Com is actually lovely to hand-fly and I didn't use the autopilot at all during our hourlong flight. Formation flying with the camera ship was pretty straightforward, although it was easy to get unsighted during the breakaway maneuvers due to all the hardware obscuring the view.

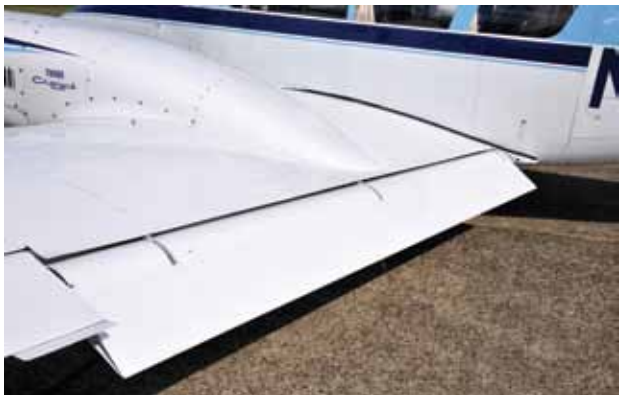
The turbo controllers are used as follows: when the desired manifold pressure can no longer be obtained by advancing the throttles in a climb, you turn to the verniers and start winding them in until manifold pressure is restored. By 20,000 feet they will be all the way in and you will be flying at 195 knots (225 mph) or better.

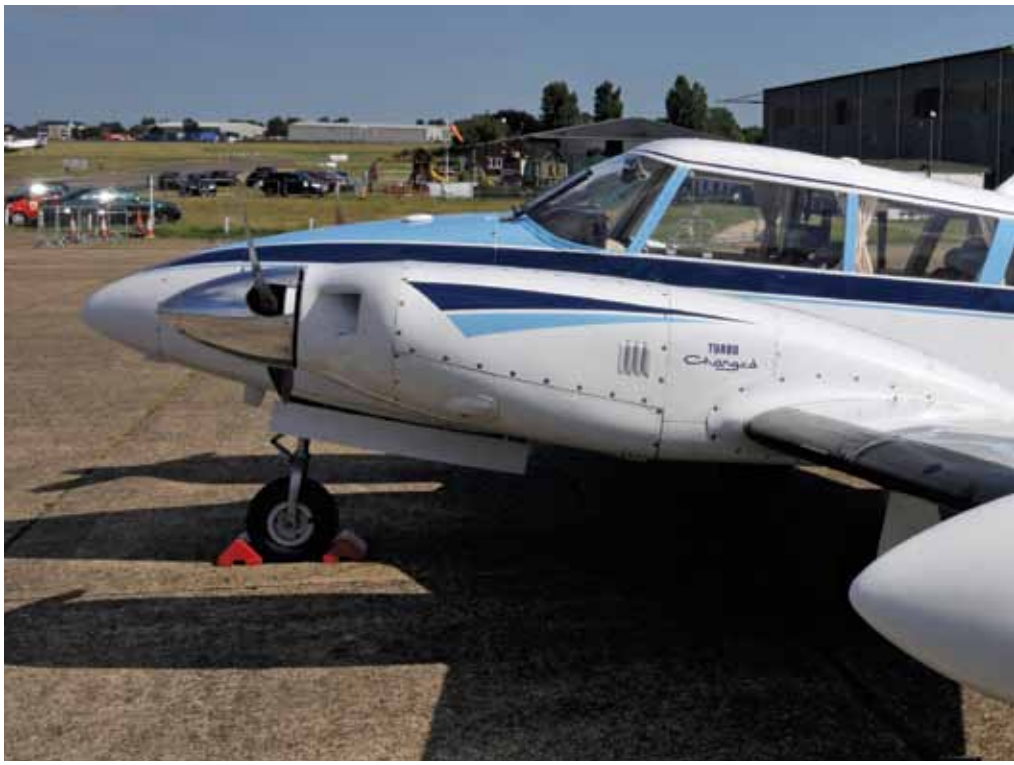
In the descent, the opposite is the best way to proceed—rather than abruptly disengaging the turbos, just leave the throttles fully forward and progressively wind the turbo verniers out until they are all the way back, then slowly retard the throttles. Yes, it requires a bit of work, but then this is a 50-year-old airplane.

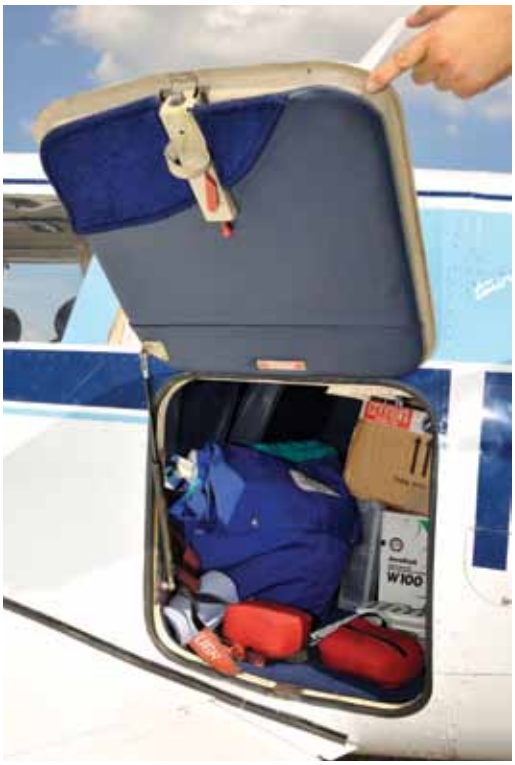
One out

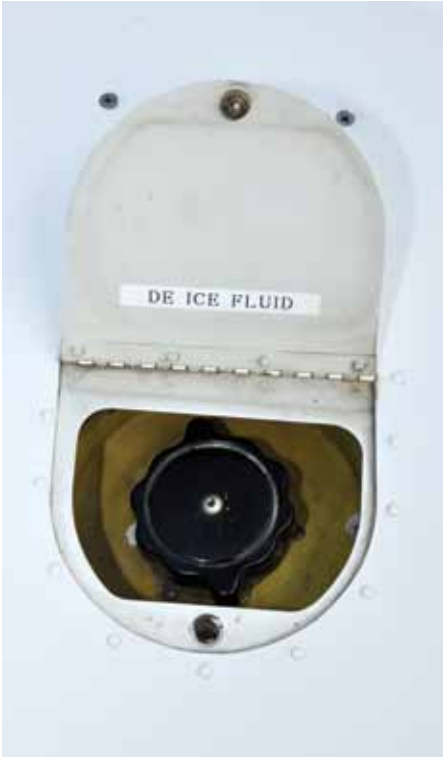
Next, we try flying on a single engine. I get owner Mark to feather our left engine as I keep control of the aircraft and allow the camera ship to fly alongside.

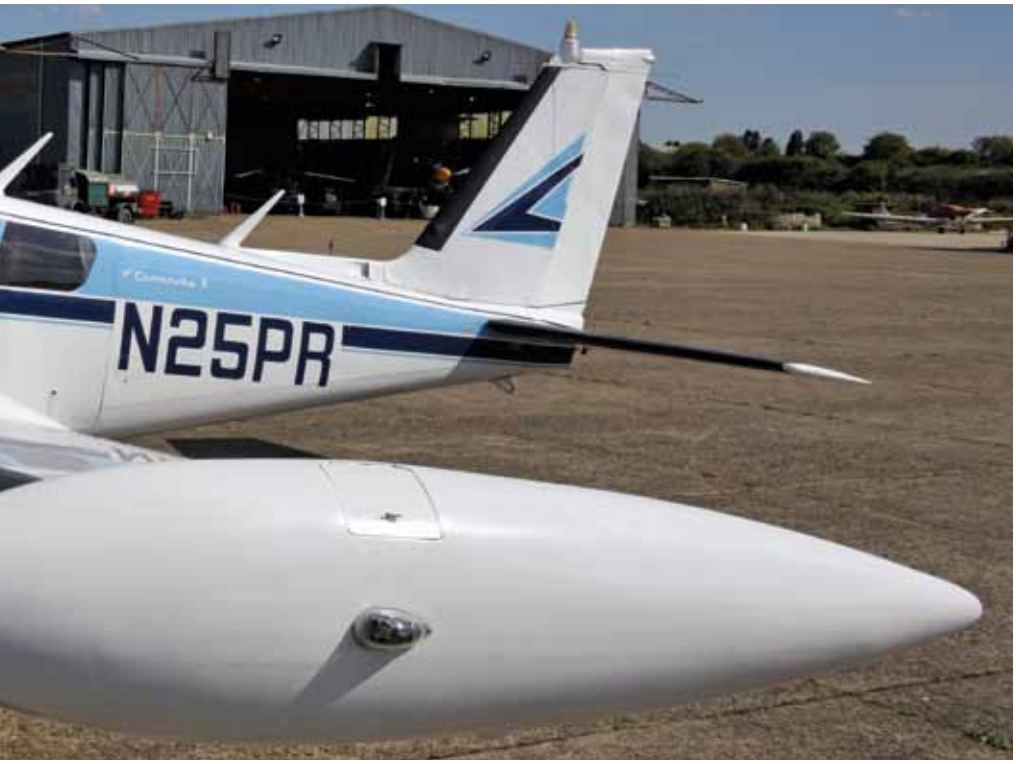












The rudder is powerful and I can easily hold the out-of-trim forces with one engine shut down, although the use of rudder trim and a little bit of aileron trim means I can actually fly hands-off. Why aileron trim? Because a wing without the benefit of prop wash creates less lift—even a laminar one.

Slow-speed flying is also predictable, as is the abrupt *g* break you get clean or dirty. Add power and the *g* break is accompanied by a wing drop of as much as 45 degrees. To stop it, just unload the wing with a shove of forward column and that's that. All laminar wing aircraft that I have flown are the same as this.

Approach and landing

Back on the approach the Twin Comanche behaves itself, just so long as you remember to adhere to the correct speeds. I am having no problems going down, slowing down, and fitting into slower circuit traffic at North Weald.

The aircraft is not particularly trim-sensitive, and the old fashioned, roof-mounted trim wheel feels instinctive as I progressively wind it backward for nose-up trim as we slow down, and then introduce progressive flap, then gear down (no trim change).

I fly finals at 105 mph, remembering the old blue line safety speed from my training many years ago; then back to 90, then 80 as I cross the fence. Throttles closed at the same time as, but not before (laminar wing, remember) a small flare and we land on the main wheels in a flat attitude, quickly followed by the nosewheel.

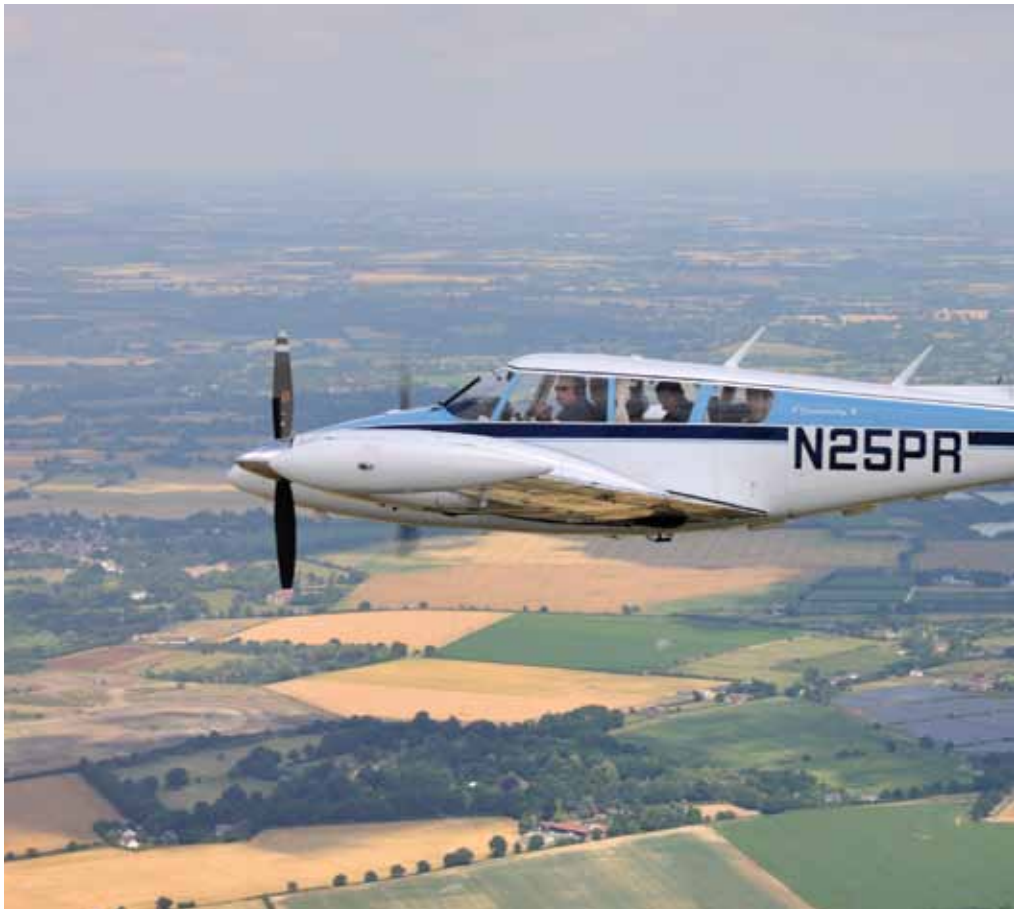
Some owners pump the main wheel oleos to the full extension to avoid this, but then the ride suffers on the ground. Running down along the hard at North Weald feels the same as the ride you get in a 1950s British sports car.

How much?

I looked at the U.S. market for used aircraft and PA-30s were all in the $45,000 to $120,000 price bracket. That's pretty wide, but it reflects the cost of replacing two engines and two propellers in addition to the usual variations in condition and equipment.

I couldn't find a single PA-39 for sale—and that's Situation Normal considering how few were made.

A large (6-foot, 4-inch and 252-pound)



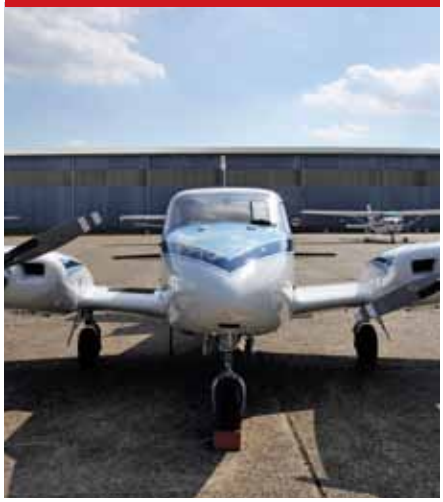
The rudder of the Twin Comanche is powerful and the pilot can easily hold the out-of-trim forces with one engine shut down.

friend of mine has been looking for a twin for some time to commute 600 nm at a go, and was looking at Barons and Cessna 310s, which have twice the burning/running costs of a Twin Com. He thought the PA-30 too small—but I think he might well change his mind when I arrange for a flight in one in the next few weeks.

A bit of a handful? Not at all; just don't get slow. PF

Bob Davy is s commercial pilot and aviation journalist from London, England. He spends most of his time flying around Europe in Avro RJs for airlines and private clients. He has 15,000 flying hours in nearly 300 different fixed-wing aircraft. Davy knows he is lucky because he regularly flies three of his five favorite aircraft: the P-51, the Nanchang CJ-6 and the Pitts Special. (His other two favorites are the Hawk and Spitfire). Davy has been published all over the world. In addition to writing hundreds of flight tests, he has also written a novel, "In Case of War Break Glass," which takes place in World War II and is loosely based on the life of Robin Olds. The sequel is underway. Send questions or comments to editor@piperflyer.org.

PIPER TURBO TWIN COMANCHE SPECIFICATIONS



Piper PA-30B

DIMENSIONS

Length: 25 feet, 2 inches / 7.67 meters

Height: 8 feet 2 inches / 2.49 meters

Wingspan: 36 feet, 9 inches / 11.20 meters

Wing area: 178 ft² / 16.54 m²

WEIGHTS AND LOADINGS

Empty weight: 2,408 pounds / 1,092 kg

Max gross weight/AUW:
3,725 pounds / 1,690 kg

Useful load: 1,317 pounds / 597 kg

Wing loading:
20.92 pounds per ft² / 102.18 kg per m²

Power loading:
11.64 pounds per hp / 6.78 kg per kw

Fuel capacity: 120 U.S. gallons / 455 liters

PERFORMANCE

Vne: 240 mph / 208 knots

Cruise (75 percent): 223 mph /194 knots

Stall (gear, flaps down): 69 mph / 60 knots

Climb rate: 1,460 fpm / 7.11 m/sec

Service ceiling: 30,000 feet / 9,144 metres

ENGINES

(2) Lycoming TIO-320-C1A engines producing 160 hp and driving (2) Hartzell two-blade metal variable-pitch propellers