

Owner of an original Twin Comanche finds that counter-rotating props give an excellent model added features, making it easier to land and easier to fly. He expects C/R to spread to other models

# The TWIN COMANCHE-- A New Plane?

by MAX KARANT/AOPA 18

■ Can twin-engine flying be made easier, less deadly to the novice pilot?

Piper not only thinks so, they've done something about it. It's a new version of the *Twin Comanche*, the *Twin Comanche C/R*—which is somewhat misleading, because the C/R (for counter-rotating) is really a whole new plane, despite the fact that the average person could hardly tell them apart.

The original, and best-known, *Twin Comanche* is the PA-30; the C/R is the PA-39, which means Piper started from the beginning and completely certificated a whole new model. Cal Wilson (AOPA 108766), project engineer on both types, said that, with the extensive changes to the original PA-30, they would have had to put it through so many tests that they decided to treat it as a totally new model.

The C/R is to easier twin-flying what the *Skymaster* has been to Cessna's line of multi-engine aircraft. Piper's *Twin Comanche C/R* is aimed at the same goal as is Cessna's center-line thrust (CLT). Both are considerably easier for the single-engine pilot to fly. And with the state of the art being what it is in 1970, there's no real reason why twins should not be this easy to fly. Once Piper finds they have a good thing going for them, I'd expect them to come up with a C/R *Aztec*, and perhaps even a C/R *Navajo*.

In spite of all the technical changes in the C/R *Twin Comanche*, the PA-39 is essentially a PA-30 with counter-rotating props. It's very much in the image of the old Lockheed *Lightning* (P-38) twin-engine fighter of World War II, a counter-rotation twin which pilots loved to fly. As a matter of fact, I am puzzled as to why Piper didn't take whatever advantage there might have been in designating the C/R *Twin Comanche* the PA-38, instead of 39. Apparently the sales department wasn't very impressed.

I flew up to the Piper plant in my own *Twin Comanche* (N13K), a stan-

dard PA-30 which I've had since 1964. As I write this, N13K has 2,200.7 hours on it, so I feel I can discuss the PA-30 with some certainty, and also be quite aware of the differences in the PA-39.

The original model is a delightful plane to fly, and unquestionably the most economical twin to operate in the entire industry. It's excellent on instruments, has long legs with its 90 gallons of fuel (just over six hours), and—despite all the propaganda about its fatal accidents—is one of the gentlest, most forgiving planes around. And it's also just about the damndest plane to land smoothly I've ever flown.

There's sort of an informal club



among *Twin Comanche* owners (the PA-30 model). The watchword that introduces you to any other owner, anywhere, goes something like "Have you figured out how to land it smoothly yet?"

Well, that club is about to start its decline, because the *Twin Comanche C/R* is almost exactly the opposite of the earlier model. I flew N8839Y about 13 hours for this article, and I never

made a bad landing with it. Short fields, rough strips, turbulence and crosswinds—every landing was just about as docile as with an *Aztec*, *Cherokee* or *Bonanza*. This doesn't sound like much to someone who hasn't flown one of the original *Twin Comanches*, but it certainly is significant to me.

This change came about as the result of several steps Piper took in the design of the PA-39. The most important appears to have been that Piper decided on the counter-rotating feature in the first place. They did this by getting Lycoming to take their standard IO-320 (the same engine that's in the PA-30) and reverse its rotating direction on the right engine. Technical designation of that engine now is LIO-320-B1A, while the left engine is the normal IO-320-B1A; the "L" means the rotation is to the left. There were several other modifications, such as new flow strips, and interconnecting ailerons and rudder (a la *Tri-Pacer* and *Ercole*). Most important, however, was the change in the total airflow on both sides of the fuselage and back over the tail. With both engines now rotating inward to the nose, the airflow was equalized on both sides and over the tail, and with improved stall characteristics, but surprising landing characteristics. 39Y was as easy and gentle to land as N13K is hard.

There is virtually no torque on take-off. I tried several takeoffs with my feet flat on the floor; the C/R *Twin Comanche* stayed headed straight down the runway. It's pretty much the same on landing. Slow flight and stalls also have been improved, with the latter being of most concern to pilots, because of the original *Twin Comanche*'s accident record. 39Y stalls gently, even with one engine out. Technical reason is that

N8839Y at the Lock Haven Airport. The *Twin Comanche C/R* weight, specifications and performance figures are the same as those of original *Twin Comanche* model.

there's no longer a "critical" engine; both rotate toward the plane's nose.

Stalls with one engine out lie at the root of most accidents with the old *Twin Comanche*. There are a number of easily understood reasons. Because the

airplane is the cheapest twin to buy and operate, schools use them for multi-engine training. Unfortunately, a lot of instructors were not qualified to teach in the *Twin Comanche*, and the plane got away from them, usually when the student stalled the plane into the dead engine, in a turn at low altitudes.

As one FAA test pilot told me, after he'd been sent to Lock Haven to wring the plane out because of the accidents, "Hell, it flies a lot like the DC-3. Do an engine-out stall, turning into the dead engine, and she'll swap ends before you know what happened." So will most other twins.

In this unfortunate series of accidents, Piper's merely been repeating what happened to them when they first put the original *Apache* on the market. And Beech went through the same thing with the original *Bonanza*. Once the instructors got the message, and the salesmen stopped their overzealous efforts, both the *Apache* and *Bonanza* settled into the "baby buggy" category.

The new C/R is available in the same versions as the standard *Twin Comanche*: turbocharged, and with tip tanks. Weights and specifications are the same, as are the performance figures. Prices are up, just like meat, vegetables and taxes. Base price of 39Y (which wasn't turbocharged) is \$43,990; with all the equipment it comes to \$63,555. And because a lot of *Twin Comanche* owners immediately began to ask the obvious question—"Can I convert mine?"—Piper already has a kit. For my plane, the cost would be \$2,077 for the kit, plus an estimated 110 hours of labor.

N8839Y is very attractive and utilitarian in the cabin. There's an attractive cradle-switch panel on the wall to the left of the pilot's seat. Full IFR equipment is neatly laid out, including two

Narco Mark 12Bs, transponder, DME and ADF. The Mitchell Altimatic IIIb autopilot is the best yet, although it's much too easy to brush up against the protruding red shutoff button on the left control wheel and inadvertently turn off the entire pilot without knowing it.

Having had a few years' experience with getting parts and service for my *Twin Comanche*, I must admit to being concerned about the fact that the new C/R version could pose additional problems. I've had several experiences in ordering routine replacement parts for either my plane or engines. All too often, despite the most painstaking effort, the parts that are finally returned to you, wherever you may be stuck, are either the wrong numbers, or misnumbered. So you start all over again, usually on the long-distance telephone. Unless it's a vital airframe part, you can get along until the mistake is cleared up somewhere down the line, or at your home base. But engines are something else; a malfunctioning engine or damaged prop grounds you. With the C/R, it's now easy to get mixed up over the right or left engine—and there you are, in West Nosebleed, Ark., waiting for the mistake to be corrected by low-speed mule train.

Of course, Piper is well aware of this, and they say they have amply stocked their dealers and distributors with separate parts and props for both the right and left engines. From the buyer's standpoint, it's well worth keeping an eye on. I know a man who bought the most elaborate version of a twin (not Piper) that his unlimited funds could buy. It's a beautiful plane, a delight to fly, and (as I commented to him one day) should be a wonderful magic carpet to take him almost anywhere in the world.

"Not me," he quickly responded. "I've already had the experience down in the Bahamas. Some little thing went wrong with one of the engines. Turned out the engines were so special that the only place I could get a part was clear back in the Middle West, and even then I had to wait several days for air express." He also had the costliest radios, radar, and other fancy equipment, and imagine the flap if something went wrong in, say, Italy, the Middle East, Asia, or just South America.

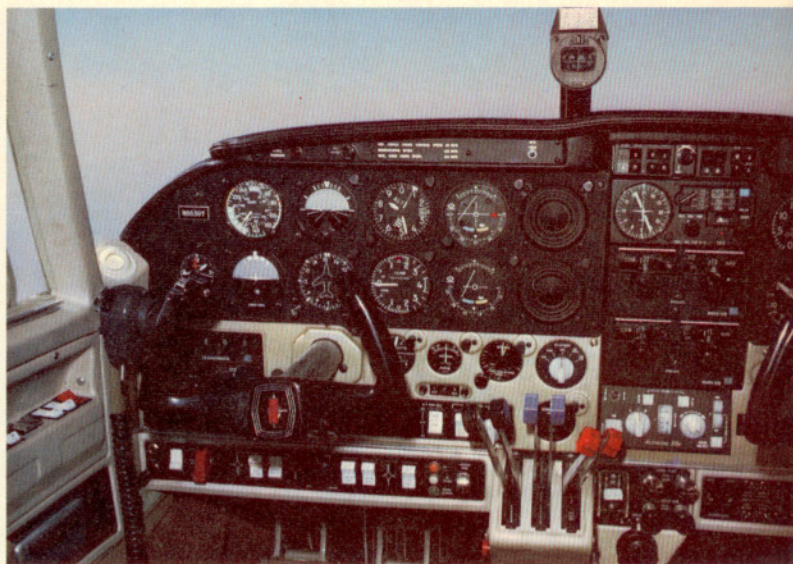
But if anyone can cope effectively with this problem, it's certain to be Piper. Parts for everything from the *Cub* to the *Aztec* can be found in most parts of the world, largely because these models are so widely used.

A puzzling "new feature" with the C/R: they've simplified the power-setting chart with the plane to the point where you can't accurately set your cruising power without also consulting the Lycoming engine handbook (which I've never been able to decode). I asked why, and Piper pilots just shrugged and said they didn't know. The new chart just lists four headings: normal, intermediate, economy and long-range. And just three settings: 2,200 r.p.m., 2,300, and 2,400. Luckily, I had a copy of the power table from my own plane, which I used.

The original *Twin Comanche's* performance figures remain the same: 184 m.p.h. true at 8,000 feet at 65% power, climb over 1,000 f.p.m. at sea level, and the stall at 70. So no matter what you read about the C/R now being an entirely new airplane, from the user's point of view, it's the same excellent *Twin Comanche* with counter-rotating props, which now give it excellent landing characteristics to add to all its other fine features. □

## Twin Comanche C/R Specifications and Performance

Engines	IO-320-B1A
H.P./R.P.M.	160 at 2,700
Gross weight (lbs.)	3,600
Empty weight (lbs.)	2,270
Useful load (lbs.)	1,330
Wingspan (ft.)	36
Wing area (sq. ft.)	178
Length (ft.)	25.2
Height (ft.)	8.2
Propeller diameter (in.)	72
Power loading (lbs./h.p.)	11.25
Wing loading (lbs./sq. ft.)	20.22
Luggage capacity (lbs.)	250
Luggage space (cu. ft.)	20
Fuel capacity (gals.)	90
Wheel base (ft.)	7.3
Wheel tread (ft.)	9.8
Stalling speed (flaps extended, m.p.h.)	70
Takeoff ground run (ft.)	940
Takeoff distance over 50-foot barrier (ft.)	1,530
Landing ground roll (ft.)	700
Landing distance over 50-foot barrier (ft.)	1,870
Accelerate-stop distance (ft.)	2,470
Best-rate-of-climb speed (m.p.h.)	112
Single-engine best-rate-of-climb speed (m.p.h.)	105
Rate of climb (ft./min.), sea level	1,460
Best-angle-of-climb speed (m.p.h.)	90
Single-engine rate-of-climb (ft./min.)	260
Ceiling (ft.)	20,000
Single-engine ceiling (ft.)	7,100
Top speed (m.p.h.)	205



Instrument panel of 39Y, flown by author, contained full IFR equipment, including two Narco Mark 12Bs, transponder, DME and ADF. There is cradle-switch panel on wall to left of pilot's seat. Mitchell Altimatic autopilot shutoff button is on left control wheel.

Photos by the author