

THE ULTIMATE TWIN COMANCHE

BAILEY BULLET: ONE-OF-A-KIND AIRPLANE, IN SEARCH OF A MARKET

May 5, 1998

To many pilots, Piper's Twin Comanche represents an apex of light twin design. It offers an excellent blend of speed, fuel economy, control feel, and range. Oh, and it looks good, too. That's why some 2,155 Twin Comanches were sold during the airplane's 10-year (1963 to 1972) production run.

If a stock Twin Comanche catches your eye, then get a load of the Bailey Bullet. The Bullet is a highly modified Twin Comanche, fitted out with just about every aerodynamic, appearance, comfort, and avionics upgrade available. We're talking beyond better-than-new.

Famed defense attorney and unabashed aviation enthusiast F. Lee Bailey came up with the Bullet concept. The idea was to blast the Twin Comanche out of every vestige of the past, bring it up to modern standards, and make its interior resemble that of a Lexus. Bailey is no stranger to aircraft manufacturing, having once been owner and CEO of the Enstrom helicopter company, between 1970 and 1980. A Marine pilot who flew F9F Panthers and F4U (a.k.a. F-86 Sabre) fighter jets in the 1950s, Bailey has owned many airplanes over the years. He's a certifiable aviation nut, having started out with a Luscombe 8A and later owned a Swift GC1B (the sale of which helped to finance his law school tuition), a Cessna 172, a Cessna 310B, a Piper Cherokee Six, a Beech Duke, Rockwell 685 and 690 Twin Commanders, a pressurized Piper Navajo, a Swearingen

Merlin IIIB, and a Lear 23. As his law practice grew, Bailey operated an FBO at the Marshfield, Massachusetts, airport and was a dealer for Cessna, Rockwell, Piper, and Fairchild.

With the Bullet, Bailey — in partnership with his son, Scott F. Bailey — intends to go into a remanufacturing business of sorts. The company's name is Palm Beach Roamer. Here's how Bailey says the process will work:

First, a customer brings his/her tired, worn old Twin Comanche to Bailey's facility at the Palm Beach County Park Airport (better known as the Lantana Airport), just south of Palm Beach International. Don't have a Twin Comanche, you say? Then fork over the cash for Bailey to find you one.

After the starter kit, so to speak, is on site, the entire airframe is stripped, bead-blasted, inspected, and made to comply with all applicable airworthiness directives. Bailey plans to replace all fuel and hydraulic lines, as well as electrical wiring, as part of this process. Everything that moves or wears will be replaced by new components, he says. That includes fuel cells, landing gear, and cables and pulleys.

Factory-new engines are provided. These will be the same 160-hp Lycoming IO-320 engines as those used in the original PA-30s, but set up in a counterrotating configuration (i.e., with the right engine turning counterclockwise) so that the critical-engine effects of the original airplanes are eliminated. (The critical engine is the engine that, if it were to fail, would produce the most adverse handling characteristics. In the original Twin Comanche, the critical engine is the left engine.)

The old 12-volt electrical system is gutted in favor of a 24-volt conversion. Powering the new system will be two mighty 130-ampere-hour alternators of the type normally found in the Beech Duke piston twin airplanes. Of course, this means that all the old pumps and motors will be replaced by 24-volt components.

The Bullet needs that kind of power. The four 4,500-BTU/hr heating units (two in the nose, two

above the aft baggage compartment) are electrically powered (the stock airplane's fuel-fired Janitrol heater is discarded), and a new, 16,500-BTU/ hr air conditioning system will be installed. Three large blowers keep the cabin air moving. Then there's the instrument panel, which features a two-tube AlliedSignal Bendix/King EFS-40/50 Electronic Attitude Direction Indicator (EADI) and Electronic Horizontal Situation Indicator (EHSI), a BFGoodrich WX1000 Stormscope, a Century 2000 autopilot with flight director and altitude preselect, a Ryan TCAD, an Argus 5000 moving map system, and a Bendix/King KLN-90B IFR-approved GPS receiver.

Let's pause to take a breath.

The panel also has a Bendix/King radar altimeter, two transponders, a conventional navcom, a second GPS (a Bendix/King KLX-135 GPS/com), and an RDR-2000 vertical-profiling color weather radar. Radar imagery can be superimposed on the EHSI, as can the route and waypoints flight planned on the KLN-90B.

There are no vacuum instruments because there are no vacuum pumps. Electrically powered gyros provide attitude and heading information, and there's a standby electrical gyro in case the primary source of gyro information fails. A second attitude indicator serves as a backup in case the primary attitude indicator suffers a failure. There's even a Bendix/King KR-87 ADF.

But wait. There's also a Sony compact disc player and a specially soundproofed interior so that you can boogie in style on those long, quiet legs. Windows are one-fourth-inch thick, and the windshield is the thick, one-piece design used in the Piper Arapaho, a beefier derivative of the Twin Comanche that never made it out of the prototype stage.

It was Tony Bongiovi (yes, the uncle of Jon Bon Jovi; you know, the rock star) who customized the Bullet with enough soundproofing to allegedly subtract 10 decibels from the cabin's ambient noise level. With the Bullet's 160-watt amplifier chugging away on 10 cabin speakers, Bailey says, no headphones are needed to enjoy the "surround sound" effect whether you're listening to "Ride of the Valkyries" (when flying around convective weather) or "Stayin' Alive" (when approaching Teterboro).

There's more. The seats are — no, not rich Corinthian leather — currently made of the soft leather usually found in Lexus automobiles. For the demonstrator, Bailey cadged some leather from a Lexus distributor.

Airframe mods? Sure. These include LoPresti Speed Merchants' "Wow Cowl" nosebowls, flap hinge fairings ("Speed Splitters"), gap seals, and "Speed Spats" — small projections aft of the main gear wheel wells that LoPresti claims reduce drag. At one point, LoPresti claimed that a Twin Comanche with all these drag-reduction mods would cruise at 175 knots. Sorry to say, but after 35 hours of flying Ol' Bullet, the highest true airspeed recorded was 166 knots.

The STCed Miller nose conversion adds to the Bullet's sleek looks, and so do the Miller wing lockers, which extend the nacelle lines past the wing trailing edges. You can put a lot in them, too. They're long enough to handle a garment bag and deep enough to easily accommodate bulky objects eight inches high. You say you want more fuel capacity? Then the Bullet can be fitted out with two 20-gallon locker-type fuel tanks in the engine nacelles.

In short, the Bailey Bullet is the no-options, full-up, killer Twin Comanche of all time. The only option that it does not have is some form of ice protection. Bailey wanted to install a TKS weeping-wing anti-ice system, but the certification costs were prohibitive, he said.

Deep down inside, however, this particular Bullet is a 35-year-old Piper. The stabilator trim control is a hand crank mounted above your head. When you go to crank it, you always move it the wrong way — the first time, every time. Run the Bullet's yoke-mounted pitch trim switch and the crank moves with it. The cowl flap controls are push-pull control rods, and one of them is hard to move. The emergency gear extension procedure requires that you open up a miniature hellhole in front of the pilot's seat, disengage the gear motor from the transmission, and then use a telescoping handle to ratchet the gear down. (If the airspeed is below 100 knots, the gear should free-fall down, and no ratcheting should be required.)

The Twin Comanche's fuel drain system is another Gothic touch. Piper's intention was to allow the pilot to drain all fuel-cell sumps from the cockpit, thus avoiding the need to scuttle beneath

the low-slung wings, sampler cup in soiled hands. To drain the sumps, the pilot uses the fuel selectors to choose the tank to be drained, then pulls up on a drain valve. The fuel sample then flows out a central drain point on the airplane's belly — where, presumably, someone other than the pilot, with soiled hands and clothes, waits to catch the sample and examine it for contaminants.

The drain valves are under a large inspection plate between the Twin Comanche's front seats. Lift the plate and there you see the fuel selector linkages, looking for all the world like an erector set gone mad. Somewhere in there are the two drain knobs.

The point of all this? That the Twin Comanche's fuel system (and that of Comanche singles, too, for that matter) discourages thorough preflight inspection of fuel samples.

I flew N808BB over the course of three weeks, and in many different situations. What stood out most was the heating system. It didn't seem to work very well in really cold (below freezing) temperatures. The air conditioning, however, displayed terrific temperature drawdown. It could take a 110-degree cabin and bring it to 70 degrees in a minute or less.

The panel was the most satisfying part of the Bullet experience, followed next by the interior comfort and, last but certainly not least, the airplane's long range.

The EFS 40/50 will spoil you very quickly. While an EFIS display may look anachronistic in an airplane of the Twin Comanche's vintage, it grows on you. It's easy to operate, and soon you find yourself working different ranges on the four-by-four-inch screen, calling up your active route, punching up RMI pointers, and scanning for weather — or doing all of the above at once. The demonstrator Bullet uses Electronics International manifold pressure, rpm, and fuel flow/computer gauges. Although colorful to look at (they use a display of arcing illuminated dots that denote the green, yellow, and red arcs found in conventional analog engine instruments), it takes awhile to get accustomed to the light show. More precise power settings can be made by using the digital liquid crystal displays in tiny windows within each gauge — but this readout is so sensitive that you can easily find yourself chasing very minor fluctuations.

By now you're probably wondering how much an airplane like 808BB will set you back. The answer is — drum roll, please — about \$450,000. Most of that price is tied up in the EFIS and its symbol generator, but the rest of the mods and improvements also do a really good job of bumping up the price.

If this makes you apoplectic, remember that the airplane we've been discussing here, N808BB, represents a *ne plus ultra* version of the Bailey Bullet. That particular airplane holds 13 separate STCs for all its add-ons.

Twin Comanche owners who are interested in upgrading to Bullet status have a variety of options available to them. They can go for any combination of the features mentioned above, customizing the airplane according to individual tastes and bank balances.

For example, staying with the stock 12-volt electrical system, keeping your PA-30's vacuum system and Janitrol heater, and not choosing the radar can save you quite a bit of cash. You could even choose only the airframe mods and leave out the panel and other equipment. (There's about \$168,000 tied up in the Bailey Bullet's panel alone.) However, the airframe and engine work must be performed under the terms of the basic agreement.

So, don't think of a Bailey Bullet as a nonnegotiable, \$450,000 project. The cost of a basic Bullet upgrade can range from \$150,000 up, depending on airframe fixes. Even when you add the price of buying a nice used Twin Comanche — which goes for \$60,000 to \$80,000, depending on the model and its equipment — the total cost of a Bailey Bullet can come in below today's asking price for a new Cessna 182.

Buying a Bullet involves a series of five progress payments. The transformation from plain-Jane Twin Comanche to Bullet should take about six months, Bailey says. He also estimates that once production ramps up, two to three Bullets could be produced per month. The work will be accomplished at the Lantana Airport.

The agreement also calls for pilots to receive recurrent training from a designated training

organization. At the moment, Bailey is leaning toward using Larkin Training Associates, a Florida-based pilot training outfit at Vero Beach that specializes in Comanches and Twin Comanches.

Right now, N808BB is a one-off airplane. It's a beauty all around, and a blast to fly. If it had the TKS ice protection package, it'd be as close as you can get to an all-weather light, light twin. You can fly out of 2,000-foot strips; cruise at 160-plus knots, burning 14 total gph; and fly for almost seven hours if you have the 15-gallon tip tanks full. (I flew from West Palm Beach to Tallahassee, Florida, on the tips alone. N.B.: The tip tanks feed directly to the engines. Should you exhaust the tip tanks, it will be a short, attention-getting time before the fuel flow from the main or auxiliary tanks reaches the engines.) There's no vacuum pump or gyro failures to worry about, the seats are plush, the ride is as quiet as a piston twin gets — and everywhere you go, pilots, linemen, mechanics, and airport bums are sucked out of their hangars and FBOs to gawk at what is really quite a remarkable airplane.

1963 PIPER PA-30 TWIN COMANCHE

(STANDARD AIRPLANE)

PRICE NEW, AVERAGE EQUIPPED: \$42,000

BAILEY BULLET CONVERSION, AS TESTED: APPROXIMATELY \$450,000

SPECIFICATIONS

Powerplants Recommended TBO	Lycoming IO-320-B 160hp @ 2,700 rpm 2,000 hr
Length	25 ft 2 in
Height	8 ft 2 in
Wingspan	36 ft
Wing area	178 sq ft

Wing loading	20.2 lb/sq ft
Power loading	11.3 lb/hp
Seats	4-6
Standard empty weight	2,207 lb
Maximum gross weight	3,600 lb
Maximum useful load	1,393 lb
Payload w/full fuel (with tip tanks)	673 lb
Maximum landing weight	3,600 lb
Fuel capacity, std	90 gal
Fuel capacity, w/opt tip tanks	120 gal
Baggage capacity	250 lb
PERFORMANCE	
Takeoff distance, ground roll	1,250 ft
Takeoff distance over 50-ft obstacle	2,160 ft
Accelerate-stop distance	3,000 ft
Rate of climb, sea level	1,460 fpm

Single-engine ROC, sea level	260 fpm
Cruise speed/endurance w/45-min rsv 120 gal fuel (fuel consumption, ea engine) @ 75% power, best economy, 7,000 ft @ 65% power, best economy, 7,000 ft	168 kt/6.2 hr (8.6 gph) 162 kt/7.1 hr (7.6 gph)
Service ceiling	18,600 ft
Single-engine service ceiling	5,800 ft
Absolute ceiling	20,000 ft
Landing distance over 50-ft obstacle	2,100 ft
Landing distance, ground roll	700 ft
LIMITING AND RECOMMENDED AIRSPEEDS	
VMC (min control w/critical engine inoperative)	78 KIAS
VSSE (min intentional one-engine operation)	84 KIAS
VX (best angle of climb)	78 KIAS
VY (best rate of climb)	97 KIAS
VXSE (best single-engine angle of climb)	82 KIAS
VYSE (best single-engine rate of climb)	91 KIAS
VA (design maneuvering)	141 KIAS

VFE (maximum flap extended)	107 KIAS
VLO (maximum gear operating)	130 KIAS
VNO (maximum structural cruising)	168 KIAS
VNE (never exceed)	200 KIAS
VR (rotation)	78 KIAS
VS1 (stall, clean)	66 KIAS
VSO (stall, in landing configuration)	60 KIAS

All specifications are based on manufacturer's calculations. All performance figures are based on standard day, standard atmosphere, sea level, gross weight conditions unless otherwise noted.

For further information about the Bailey Bullet project, contact Palm Beach Roamer, Inc., 1400 Centrepark Boulevard, Suite 909, West Palm Beach, Florida 33401-7490; telephone 561/687-3709; fax 561/687-3708.

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