

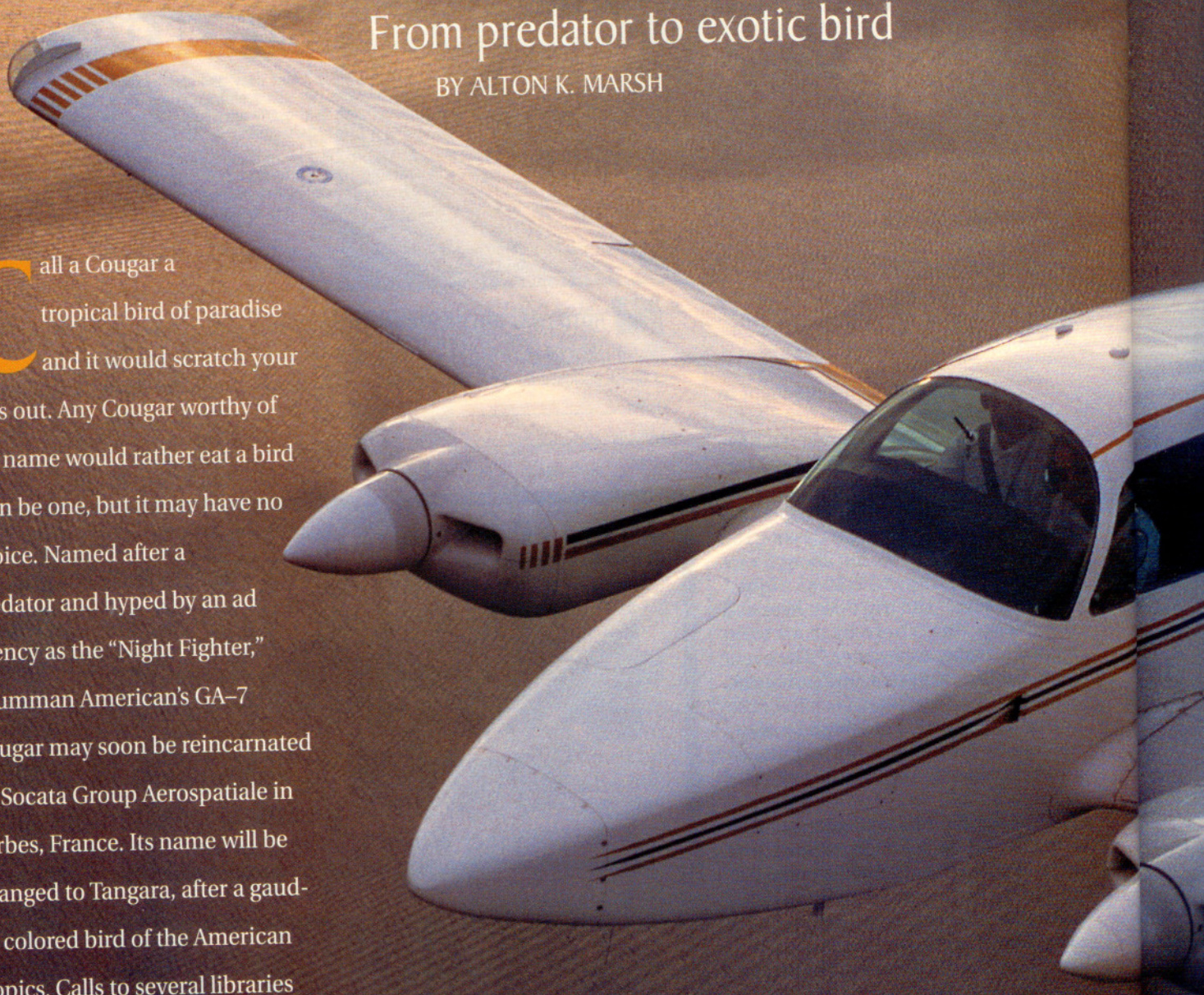
RETURN OF THE NIGHT FIGHTER?

From predator to exotic bird

BY ALTON K. MARSH

Call a Cougar a tropical bird of paradise and it would scratch your eyes out. Any Cougar worthy of the name would rather eat a bird than be one, but it may have no choice. Named after a predator and hyped by an agency as the "Night Fighter," Grumman American's GA-7 Cougar may soon be reincarnated by Socata Group Aerospatiale in Tarbes, France. Its name will be changed to Tangara, after a gaudily colored bird of the American tropics. Calls to several libraries revealed that the tangara is known for peculiar hopping and bowing. For example, it can sit on top of a branch and twist its head enough to grab a bug on the underside of the branch. It doesn't seem fair

PHOTOGRAPHY BY MICHAEL P. COLLINS



that a fierce American mountain lion should re-emerge as a six-inch-long oddball bird, but it beats remaining in a hibernation that has lasted 17 years.

That's a lot of names for an aircraft that was in production only two years. Out of 115 built, 50 to 60 still fly in the United States; the majority of the remainder went to English flying clubs. All but seven are still flying somewhere in the world, says David Fletcher of FletchAir in Houston. The production line opened to rave reviews in the 1970s, with most of the aviation press concluding then, and years later, that the Cougar was an overlooked diamond in the rough and a solid performer. It turned out to be a tame machine, as well, even without counterrotating props adopted by other twin trainers. It stalls before reaching minimum-controllable airspeed with one engine inoperative, a characteristic on which the Grumman American engineers spent a lot of effort. Most of the reviews noted that the Cougar was overbuilt (but, for a reason), had a huge fuel capacity of 114 gallons (again, for a reason), bore an oversized vertical stabilizer, and was extremely docile with one engine out; so it was.

From the first stroke of the pen, after all, the Cougar was designed for 250-horsepower engines, not the 160-hp powerplants used initially. The higher horsepower model would be, the designers thought, a business dream machine—faster than a Beech Baron, they promised. Engineering drawings for the more powerful model still exist.

First, however, it would be an economical, fuel-stingy trainer, reflecting a marketing move that would create a corps of pilots eager to buy the more powerful Cougar. The first part of the plan went well, and the Cougar continues today as a student-friendly trainer at several flight schools, such as Flying Tigers (once a Grumman American dealer, and thus the name) at Donegal Springs Airport near Marietta, Pennsylvania. But the metamorphosis into a business machine never took place.

What went wrong? The answer lies in the aircraft manufacturer's history. Single-engine sales were booming in the early 1970s for American Aviation, before it was sold to Grumman, and many of the 187 dealers asked for a step-up airplane.

The Cougar was originally designed for 250-horsepower engines, not the 160-hp engines used initially.

Bill Seidel, then general operations manager, said that a large, single-engine aircraft to compete with the Cessna 210 and Beech Bonanza was considered at first, but it never entered production.

"How do you out-210 the 210, or out-Bonanza the Bonanza?" asked Roy C. Garrison, then a senior vice president. Plans for a monster single were put aside, and attention was

diverted to the development of the successful Tiger model. But American Aircraft President Russ Meyer (now head of Cessna Aircraft) thought that the company ought to offer a bigger airplane, a twin. So Garrison, Seidel, and Dick Kemper, then vice president and operations general manager, turned their attention instead to an airplane that would outperform both the 210 and Bonanza, yet offer an extra engine—something that they believed would appeal to the businessman concerned about night flying.

It would remain a four-passenger airplane even after getting the larger engines, the planners decided, because six-place airplanes rarely, if ever, are used to carry six people. That would leave a huge baggage space. (With the back seats folded down, it is more than seven feet long.) From the earliest ads, the Cougar was aimed at the business traveler, even though early models had 160-hp engines. The plan was for the businessman to learn in the lower-powered model and move up.

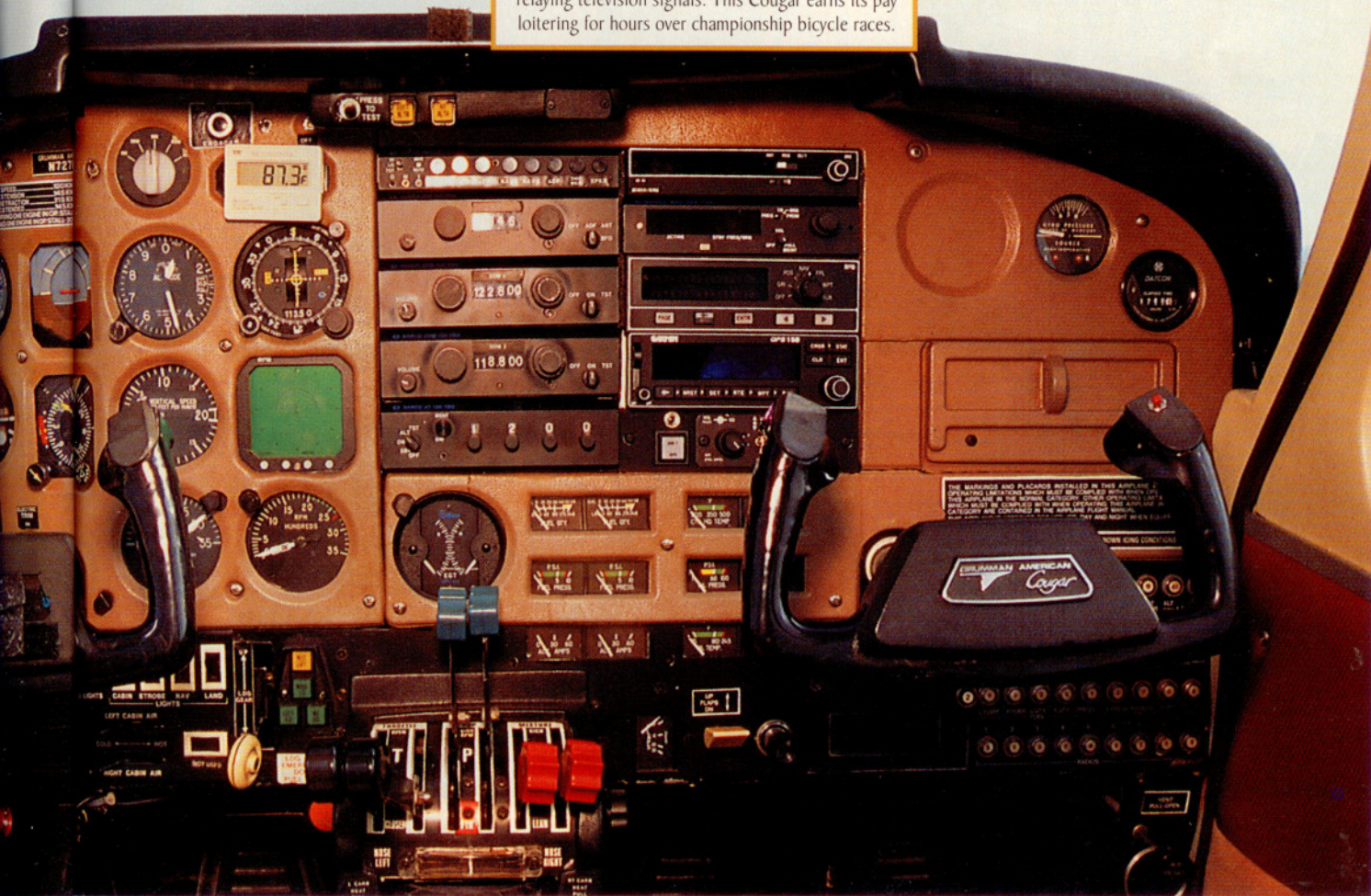
The "Night Fighter" moniker continued the military theme of a successful ad campaign used by American Aircraft for its single-engine line, which included the Yankee, Lynx, Cheetah, Traveler, Trainer, and Tiger. But the term "Night Fighter" also offered a subtle hint to businessmen concerned about single-engine flying at night. Grumman bought the company when the Cougar was midway through development.

Planning proceeded at full speed in the mid-1970s, but things don't always work out as planned. The main problem was parent company Grumman's ignorance of lightplane manufacturing. Garrison could only watch from the door of his office in Cleveland, where American Aviation was then located (it was later moved to Savannah, Georgia), as more and more test-equipment-toting engineers arrived from Grumman's Bethpage,





The Cougar's distinctive, pointed nose offers excellent forward visibility; the pilot can barely see it. Visible under the nose on the right side is an antenna for relaying television signals. This Cougar earns its pay loitering for hours over championship bicycle races.



New York, headquarters. The engineers were determined to build the Cougar the same way they built all their military aircraft. The Bethpage way was to test and compute, fiddle with the answers, and then test again. Compounding the problem, Grumman American engineers felt that they needed extensive wind-tunnel testing. The whole process took 18 months, Garrison recalled, and the delay cost Grumman American the light-twin trainer market.

Here's why. Garrison had calculated that there was a market for 450 trainers the size of the Cougar—and, as it turned out, he was right. But by the time Cougar deliveries began, the Piper Seminole and Beech Duchess had entered the arena with 180-hp four-seat trainers. Those 450 sales on which Grumman American had counted were instead divided among the three companies. "It wasn't profitable for anybody," recalls Garrison, who later joined Cessna and is now

retired and living in Wichita.

But that wasn't what put the Cougar into its current 17-year hibernation. Allen Paulson, who purchased Grumman American for \$52 million in 1978 and moved it to Gulfstream American in Savannah, Georgia, decided that there was more money to be made from Gulfstream II jets than from light aircraft. Even after Paulson sold his company to Chrysler for \$650 million in 1985, Cougar production was not restarted. In 1991 there was a brief effort to build the aircraft in what was then the Soviet Union, but the plans never materialized.

Today the Cougar fleet has proved that Grumman could build a rugged airplane, so all that design time and testing paid off. Airframe maintenance costs are low. As proof, parts are readily available today, and they were never needed in the quantities originally forecast. FletchAir, a former dealer, has well over \$1 million in parts inventory remaining, including enough wings for four Cougars. A Pennsylvania FAA inspector, remarking on the airplane's toughness more than a decade ago, said: "The Cougar could hit a moun-

The Cougar was designed for only four passengers because it occurred to engineers that few six-seat aircraft ever carry six passengers.



tain and fly out the other side." That is, of course, an excessive claim, but consider this: Another Cougar was taxied into a hangar at Donegal Springs Airpark, causing \$7,000 in damages to the Cougar—but \$12,000 worth of damage to the hangar; the Cougar was the clear winner.

Also proven over the years is the metal-to-metal bonding that American Aviation helped to pioneer on its single-engine line. Initially, FAA certification inspectors demanded that the aircraft skin be riveted between the engine nacelles and the fuselage. There was too much vibration, the FAA thought, for Grumman American's metal-bonding technique to work. Nearly two decades later the verdict is in: the metal-to-metal bonded skin on the outer wing panels and fuselage has held. Corrosion can loosen it, but corrosion can also be detected and stopped.

The Cougar has proven itself in other ways. The 115 Cougars produced were the subjects of few airworthiness directives against them, according to a list supplied by the American Yankee Association. Seven of the 13 ADs issued affected engine, propeller, and cockpit instruments. Of the remaining six, only one affected all GA-7s—a requirement to inspect the rudder torque tube. Oth-



Routine, predictable maintenance has kept this Cougar's operating costs as low as \$80 an hour. The cost per mile equals that of a Piper Archer.

ers concerned fuel leaks, elevator trim assemblies, and fuel selector valves.

A search by the AOPA Air Safety Foundation for GA-7 accidents since 1982 found very few, and those were attributed to pilot error. A passenger died and the pilot was injured when a Cougar hit some trees and crashed during a nonprecision instrument approach in 1982. In 1987, a pilot flew a landing approach with excessive speed, was unable to stop on the runway because of poorly maintained brakes, and ran off the end. The aircraft's annual inspection was two months overdue, and the pilot's biennial flight review had expired 14 months earlier. In another accident involving the last Cougar built (serial number 115), severe icing led to a stall, loss of control, and a crash killing all on board.

Cougar owners con-

tinue to benefit not only from the aircraft's proven track record, but from the original design features, as well. Routine, predictable maintenance has kept their operating costs as low as \$80 an hour. "I had a Mooney on the [rental] line that cost more to operate than the Cougar," said Gilbert O. Stout of Flying

Pilots sit high off the ground and have the impression of flying a much larger aircraft.

Tigers. "The cost per mile is the same as a Piper Archer," he said. Most owners flight plan for 150 knots and 15 to 16 gallons per hour.

Stout and his son, Jay, still try to help buyers to find a Cougar, but those for sale don't stay on the market long. Most sell for \$60,000 to \$90,000. Owner Terry Phillips, whose Cougar you see pictured here, uses the huge fuel capacity to loiter over the two-week-long Tour DuPont bicycle race,

which last year ran from Wilmington, Delaware, to Greensboro, North Carolina. His job is to provide communications for race officials and to relay television signals for major sports networks.

Another Cougar operator, Great Planes Express at Augusta Municipal Airport in Augusta, Kansas, operates the aircraft for



\$100 an hour. Until it entered charter work, the aircraft flew as a trainer for Aviation Training Specialists, also located at the airport.

Pilots new to the Cougar are impressed by its size and its roomy cabin. The controls have an intentionally heavy feel that helps prevent overcontrolling at low airspeeds. One word describes the maneuvers flown in Jay Stout's Cougar trainer at Donegal Springs Airport: predictable. That goes for stalls, engine-out performance, crosswind performance, and landings.

Landings take a little practice, since the forward visibility is almost too good. A typical reaction from a pilot sitting down in the cockpit for the first time is, "Where's the nose?" Usually it takes only two to three landings for the experienced pilot to get the visual picture right for the correct landing attitude. Stout's trainer is used for giving ATP training to regional airline pilots, and as a charter and rental aircraft. Stout said that there are only three things he would like to change about the aircraft. The door leaks when closed from the outside, meaning that



rain gets in if the aircraft is not hangared. Seats are not vertically adjustable, something Aerospatiale needs to consider correcting. And overuse of plastic on the interior hurts the appearance, he said. Excessive use of plastic was an industry-

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Grumman Cougar

Base price used: \$60,000 to \$100,000

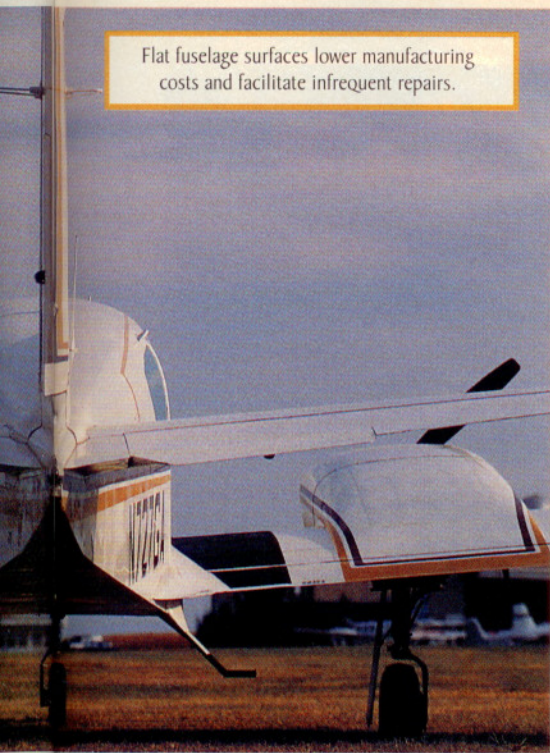
Specifications

Powerplants	2 Lycoming O-320-D1D 160 hp at 2,700 rpm
Recommended TBO	2,000 hr
Propellers	Hartzell constant speed, full feathering, 73 in dia
Length	29 ft 10 in
Height	10 ft 4 in
Wingspan	36 ft 10 in
Wing area	183 sq ft
Wing loading	20.6 lb/sq ft
Power loading	11.8 lb/hp
Seats	4
Cabin length	9 ft 6 in
Cabin width	3 ft 9 in
Cabin height	4 ft 1 in
Empty weight	2,588 lb
Empty weight, as tested	2,722 lb
Gross weight	3,800 lb
Useful load	1,212 lb
Useful load, as tested	1,078 lb
Payload w/80 gal fuel, as tested	598 lb
Payload w/full fuel, as tested	394 lb
Fuel capacity, std	118 gal (114 gal usable)
Baggage capacity	250 lb

Performance

Takeoff distance, ground roll	1,000 ft
Takeoff distance over 50-ft obstacle	1,850 ft
Landing distance over 50-ft obstacle	1,330 ft
Landing distance, ground roll	710 ft
Max demonstrated crosswind component	15 kt
Rate of climb, sea level	1,160 fpm

Flat fuselage surfaces lower manufacturing costs and facilitate infrequent repairs.



wide trend in the 1970s.

The idea to add the Cougar to the Socata line was the brain child of Bill Monroe, past president of Socata Aircraft in Grand Prairie, Texas. Monroe expects that the Tangara, to be assigned the com-

pany designation TB-320, will be available within two years. The company said recently that the aircraft will be offered with 180-hp engines and a 28-volt electrical system. Industry observers suggested at the Paris Air Show two years ago that the price would be in the \$430,000 range, but company officials will say officially only that the price will be "competitive." Perhaps they took note that an IFR Piper Seminole costs \$344,555.

Monroe said that a demonstrator will be used to reintroduce the aircraft to flight schools. His major selling points

will be that the aircraft has a proven record of low maintenance and operating costs.

"The most important factors for flight schools are operating costs and rental rates that assure profitability and offset the purchase price in later years," Monroe said. If he wants to prove low maintenance costs, all he needs to do is point to the still-full Cougar parts bins around the country. If Cougars were, say, tropical birds, it could be said that after nearly two decades they have hardly ruffled their feathers. □

Single-engine rate of climb, sea level	200 fpm
Cruise speed/endurance w/45-min rsv, std fuel (fuel consumption, ea engine)	
@ 75% power, best economy, 8,500 ft	
	160 kt/5.3 hr (7 gph)
Service ceiling	17,400 ft
Single-engine service ceiling	4,250 ft

Limiting and Recommended Airspeeds

V_{MC} (min control w/critical engine inoperative)	61 KIAS
V_{SSE} (min intentional one-engine operation)	85 KIAS
V_X (best angle of climb)	81 KIAS
V_Y (best rate of climb)	95 KIAS
V_{XSE} (best single-engine angle of climb)	85 KIAS
V_{YSE} (best single-engine rate of climb)	85 KIAS
V_A (design maneuvering)	120 KIAS at 3,800 lb
V_{FE} (max flap extended)	110 KIAS
	(10 deg flaps at 145 KIAS)
V_{LE} (max gear extended)	145 KIAS
V_{LO} (max gear operating)	
Extend	145 KIAS
Retract	115 KIAS
V_{NO} (max structural cruising)	160 KIAS
V_{NE} (never exceed)	188 KIAS
V_R (rotation)	70 KIAS
V_{S1} (stall, clean)	71 KIAS
V_{SO} (stall, in landing configuration)	63 KIAS

For more information, contact Socata Aircraft, 2701 Forum Drive, Building J-10, Grand Prairie, Texas 75052; telephone 214/641-3614.

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.



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