

Luxury Liner

European styling, an efficient marriage of airframe and powerplant, Aerospatiale craftsmanship...why not get what you pay for?



Most general aviation manufacturing facilities are only as modern as the airplanes they produce. That means that few truly modern aircraft plants are in operation.

At Aerospatiale General Aviation of France, both the plant and the product are as modern as tomorrow. It takes after its parent corporation, Aerospatiale Group, the giant French consortium that builds everything from Concorde and Airbus A-300s to Exocet missiles. Aerospatiale long has prided itself on building some of the most modern flying machines in the world, and the company has encouraged its general aviation division to do the same.

Aerospatiale builds its TB series of lightplanes at its Tarbes production facility in Southern France, near the Spanish border. The plant is a huge complex, encompassing some 1400 acres of the local airport and 180,000 square feet of developed floor space. In addition to sheer size, however, Aerospatiale's plant is an exercise in sophisticated, computer-controlled automation that would be the envy of any NASA aerospace contractor. The plant is a white-glove facility, immaculately clean and impeccably maintained.

Aerospatiale apparently places considerable trust in its general aviation division because France's major aircraft builder subcontracts to the Tarbes company major parts responsibility on its civil and military aircraft. Aerospatiale produces components for its ultra-modern Astar, Twinstar and Super Puma helicopters, Falcon corporate jets and A-300 airlines.

Despite affectations of the 21st century, however, Aerospatiale isn't new to building airplanes. The company was organized immediately following World War II as SCOATA, an acronym for Societe de Construction d'Avions de Tourisme et d'Affaires, and has since



been responsible for developing some 80 prototypes of new aircraft. Aerospatiale combines old-world experience and ability with modern technology to produce what it feels are superior products.

Certainly, the finished products, the Tobago, Trinidad and Trinidad TC, reflect this commitment to quality. Using CAD/CAM (Computer-Aided Design/Computer-Aided Manufacturing) facilities, Aerospatiale has designed the airplanes for minimum production cost and made an attempt to keep parts' count low. In combination with a maximum emphasis on simplicity, a major commitment to numerical control automation and the experience to make the whole formula work, the company produces a finished airplane in only about 600 man-hours, which makes the Tobago and Trinidad some of the least labor-intensive airplanes in the world.

Yet, the design is among the most sophisticated. Aerospatiale's airplanes incorporate features normally only found on state-of-the-art airliners and fighters. Its Caribbean series incorporates a triple corrosion-proofing process similar to that used on the carrier-based Dassault Super Etendard fighter. Additionally, it's a fully flush-riveted machine, incorporating bonded surfaces, a milled, one-piece spar, push rod control activation and rugged, trailing beam landing gear. Parts'

commonality between models is high, a factor that allows Aerospatiale to be flexible and mix and match when demand shifts from one model to another. All three airplanes are built on the same production line, a trick that wouldn't be possible without a high level of compatibility between airplanes.

Aerospatiale believes its commitment to modern production techniques and considerable experience with the European light aircraft market will guarantee the Trinidad/ Tobago series

of lightplanes a slot in the U.S. marketplace.

Tobago— The Simple Import

To many pilots, aeronautical simplicity is an end in itself. For them, simplicity allows flight without concern for gear or prop position. A fixed-gear, fixed-prop airplane has always had a considerable attraction beyond its mere lack of complexity.

The Aerospatiale Tobago is an excellent example of simplicity carried to its logical conclusion. Although the complete Tobago is a marvel of simplicity, it offers surprising performance, efficiency and comfort in an attractive, stylish package that is basically indistinguishable from the retractable Trinidads on the ground.

In that respect, the Tobago offers the pilot who's interested in flying something unusual a definite change of pace from the me-too airplanes on the market. Flush-riveted and wrapped in some of the smoothest, most colorful paint schemes in the industry, Tobago features the same comfortable cabin as the Trinidad. Climb up on either of the wing walks, swing out the doors and you can't help but be impressed with what the French have accomplished in the Tobago. Overall, the airplane is an exercise in luxury previously unseen in the fixed-gear class. Accommodations are for four (or five, if necessary), but all passengers lux-

uriate in fabric or optional leather interiors. The panel is designed in three distinct modules—flight instruments to the left, avionics down the center and engine-condition instruments to the right.

Visibility from any seat is good. Looking straight forward from the left-front, the view over the panel through the tall windshield is excellent. Looking to the sides and up, door windows curve overhead, so it's possible to see to the top quarter with a minimum of neck movement. The view to the rear is facilitated by aft windows that curve in just behind the rear seats.

The Tobago flies behind what has become perhaps the best-known general aviation engine in the world: Lycoming's remarkable O-360. Turning at a maximum 2700 rpm, the four cylinder pumps out 180 hp and has proven so durable that it could probably deliver this power for the full 2000 hours between overhauls.

In the Tobago installations, 180 hp is more than enough, but less than too much. It provides the airplane with plentiful performance, easily the match of any current production competitor. Push throttle to full power and the airplane will leap off in a little more than 1000 horizontal feet. Even a standard airplane loaded with 100 pounds of options, four 150-pound people and full fuel will climb at almost 800 fpm from sea level.

Set up for max cruise at 7500 feet, you'll see airspeed arc around the dial to a true 127 knots, 117 knots on 65-percent power. With 54 gallons in the tanks, the Tobago can traverse 650 nm on the latter setting, more if you're willing to fly slower and even more efficiently.

If you imagine from the Tobago's sporty good looks that it will handle smoothly and quickly you'd be right. Roll rate is about 70 degrees per second, and pitch response is

very quick indeed. More importantly, control harmony is perfectly suited to the airplane's speed range.

The Tobago is just as talented at the opposite end of the speed spectrum. Stall with the slotted flaps fully extended is 52 knots, and stall characteristics are as docile as a Cherokee's. With the ball anywhere near the center, the airplane mushes straight ahead without tending to

drop a wing.

Such forgiving manners in stall mode, combined with positive controls at low airspeeds, allow short-field approaches as slow as 65 knots. Drawing on the STOL tradition established by the earlier Rallyes, the Tobago offers truly abbreviated landings. If you must ground a Tobago in a super short strip, you can plunk it on and brake to a stop in



just more than 600 feet of runway.

Tobago enters the American market with an emphasis on simplicity and safety. It is an easy-flying machine, aimed directly at the market for airplanes that can either be left to their own devices and still keep a pilot out of trouble or serve as step-up teaching machines for higher-performance flying.

France's Gull-Wing Door Retractable

While it might seem that designing a four-place retractable and introducing it in America in 1985 wasn't terribly opportune, the fact remains that Aerospatiale appears to have made the whole idea work. Much of Trinidad's success lies with the airplane itself.

The Trinidad and Trinidad TC are both interesting examples of what can be done with a design if you let your imagination run free. It's hard to resist making the analogy with the French Peugeot, an automobile previously regarded as a grandfatherly design but now considered by many automobile enthusiasts to be a "performance" passenger car. Like the Peugeot, the top-of-the-line Trinidad TC offers almost living-room comfort, yet, performance and handling are more in keeping with a sports car.

"Sporty," in fact, is the inevitable descriptive sobriquet that will be applied to all the Aerospatiale General Aviation airplanes, which is as it should be, especially on the Trinidads.

The basic TB-20 Trinidad and TB-21 Trinidad TC are far from basic. They incorporate several features not found on other airplanes. First, of course, is the Trinidad's signature, the gull-wing cabin doors. They are hinged near the center of the fuselage top and swing out and up via an overcenter mechanism that does most of the work. Contrary to what you might think, the doors are relatively sturdy. It's possible to taxi with them in the full up position, but that's not advisable if there's significant wind.

The Trinidad's interior emphasizes comfort. In true automotive



fashion, interior appointments and space are most befitting the aforementioned Peugeot than an aircraft that travels more than three times legal freeway speed. The airplanes' bucket seats are heavily padded, offering plenty of support in all the right places. A center console separates pilot and copilot seats, while the rear semi-bucket/bench-style seats could accommodate three passengers if necessary. Cabin width is a spacious 50 inches in both front and rear, the same as a cabin-class Piper Navajo, and height is about 36 inches. Baggage goes aboard at left rear cabin through a separate compartment or may be loaded over the aft seat backs and zipped out of sight under a cargo cover.

The fun really begins when you fire up a Trinidad and fly. Both the Trinidads used severely derated Lycoming IO-540 engines that produce 250 hp. With that much power on tap and only 3083 pounds to lift, the airplane benefits from a power loading of only 12.3 pounds per horsepower. So much power lifting so little airplane results in a takeoff run of less than 1000 feet and excellent upward mobility. Climb at gross in sea level standard conditions, at more than 1200 fpm, is among the best in the class.

Better still, it holds up well at

higher altitudes, where good climb performance can be life-saving rather than simply convenient. Even the normally aspirated airplane is capable of reaching 20,000 feet, a good indication that climb at higher altitude remains strong.

Best cruise performance on the normal version comes at about 7500 feet, and the top number at that height is almost 165 knots. Pulled back to 65-percent power at 10,000 feet for better fuel consumption and improved range, you can still see a true near 160 knots and plan to reach out over 1000 nm, plus reserve.

The turbocharged Trinidad ups the performance

ante even more. It offers approximately the same climb numbers at sea level but obviously holds onto superior climb as it ascends. At a density altitude of 17,000 feet, the VSI will still hang in there at 750 fpm.

Level at FL250 with everything properly trimmed, the top Trinidad can turn in 187 knots at max cruise or 170 knots at 65-percent power. At lower, non-oxygen altitudes, you can expect figures closer to those of the normally aspirated airplane. The TC thereby offers all of the advantages of high-altitude performance with few disadvantages.

Whether you choose the Trinidad or its "big" turbocharged brother, the Trinidad TC, you'll be assured of cross-country comfort and performance uncommon among airplanes in this horsepower class.

Build Your Own Aerospatiale

No, Aerospatiale isn't offering a homebuilt version of the Trinidad or Tobago, but avionics options are so diverse on the French airplane that you certainly can fashion your panel package to your individual needs.

King is the primary manufacturer for factory-installed navcoms on Aerospatiale's general aviation singles. This includes everything from

the basic KX-155 720/200 navcoms to KNS-81 Navigation Management Systems, which provide VOR/LOC/ILS reception and up to nine RNAV waypoints. After the airplane is delivered to the United States, local distributors can fit a variety of Narco and Collins radios to the panel.

Autopilots vary from basic wing levelers to more sophisticated systems capable of maintaining a specific heading or tracking VORs and ILSs. Flight-director options command turns and vertical attitude adjustments and may be coupled to the autopilot to allow essentially automatic approaches. Both King and Century autopilot systems are avail-

able on the Aerospatiale singles.

Additionally, it's possible to buy a variety of other avionics options aimed at enhancing comfort, increasing safety or increasing efficiency. The Avionics West AM-FM stereo cassette systems may be piped through headsets to provide music or other entertainment in flight. 3M's popular Stormscope helps provide information on thunderstorm activity, and Symbolic Displays Inc.'s fuel-management computer provides an accurate handle on fuel flow.

With this many options available, it's possible to tailor a Trinidad or Tobago to your specific individual needs.

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Aerospatiale Tobago

Base price: \$68,400
Engine: 180-hp Lycoming
O-360-A1AD
Usable fuel (gal): 54
Gross weight (lbs): 2535
Useful load (std) (lbs): 1058
Baggage capacity (lbs): 100
Cabin width: 4 ft 2 in
Cabin height (in): 3 ft 8 in
Max level speed (kts): 133
Cruise speed at 75% (kts): 127
Economical cruise speed at 65% (kts): 117
Rate of climb (fpm): 790
Service ceiling (ft): 13,000
Max operating range (nm): 653

Aerospatiale Trinidad

Base price: \$102,800
Engine: 250-hp Lycoming
IO-540-C4D5D
Usable fuel (gal): 86.1
Max takeoff weight (lbs): 3083
Useful load (std) (lbs): 1340
Baggage capacity (lbs): 143
Cabin width: 4 ft 2 in
Cabin height: 3 ft 8 in
Max level speed (kts): 167
Cruise speed at 75% (8000 ft) (kts): 164
Economical cruise speed at 65% (12,000 ft) (kts): 160
Rate of climb (fpm): 1260
Service ceiling (ft): 20,000
Max operating range (nm): 964

Aerospatiale Trinidad TC

Base price: \$121,900
Engine: 250-hp Lycoming
TIO-540-AB1AD
Usable fuel (gal): 86.1
Max takeoff weight (lbs): 3083
Useful load (std) (lbs): 1288
Baggage capacity (lbs): 143
Cabin width: 4 ft 2 in
Cabin height: 3 ft 8 in
Max level speed (kts): 200
Cruise speed at 75% (25,000 ft) (kts): 187
Economical cruise speed at 65% (25,000 ft) (kts): 170
Certification ceiling (ft): 25,000
Rate of climb at 2000 ft (fpm): 1090
Range (no reserve) at 65% (25,000 ft) (nm): 1030