OMAC LASER 300

Can a big cabin and a promise of turbine performance woo away piston-twin operators?

BY RICHARD L. COLLINS

Although it's been in business for 10 years, OMAC, Incorporated, has yet to sell a product. Its airplane has taken different forms, has had several powerplants, and went through some near-disastrous test flights early in the program. The original prototype airplane, though, did make 249 flights over three years, beginning in 1981.

So what is going on in Albany, Georgia, where OMAC is now headquartered? The latest prototype, the Laser 300, is flying. It is an all-new airplane—the first prototype was retired—that will be used to finalize the design. People are being hired for engineering, new funding is being arranged, and when David J. Rooney,

OMAC national sales manager, was asked about how the company has been able to continue for 10 years without a product on the market, he replied, "Our stockholders have a very high threshold of pain." Corwin Meyer, former president of Grumman American, Falcon Jet, and Enstrom Helicopter and current general manager of OMAC, added that the company now has a schedule that will lead to certification and production of the airplane. The plan is to begin work on the second airplane this winter and to complete it in 10 months for participation in the certification process. The schedule calls for basic certification by mid-1990, with icing and autopilot approvals to follow. There is tooling on the production line but little activity as the test program goes forward.

Nobody will deny that the Laser 300 is different in appearance. It is short and stubby enough from the side that OMAC is wisely eliminating three-views from promotional material. But in person the airplane has a purposeful appearance. The whole fuselage is used—not a wasted foot in the tailcone—and the result is a huge cabin that will swallow a three-place couch, two chairs in a club arrangement, a separate aft john, plenty of room for baggage, and 300 gallons of fuel. The airplane is much larger than it appears in pictures.

The amenities can be sampled only in the cabin mock-up that drew crowds at both the AOPA and NBAA conventions. The Laser 300 prototype that is flying is an airframe shell, without environmental systems and rough in spots, that will be used to finalize the aerodynamics and handling qualities of the airplane.

The plan is to certify the Laser to 25,000 feet where the 5.5-psi cabin pressure differential will result in an 8,000-foot cabin altitude. Performance projections call for a 252-knot maximum cruise and a maximum rate of climb of 2,010 feet per minute. The single Pratt & Whitney turboprop is capable of 904 shaft horsepower but is flat rated to 750 shp, meaning that the 750 will be available at density altitudes well above sea level. To put the projected performance in context, a Cessna 421, 750 total horsepower, will cruise at a maximum 234 knots and climb 1,940 fpm. The Laser does show an eventual maximum takeoff weight of 8,350 pounds (421: 7,450 pounds), but the weight will be limited to 7,800 pounds unless a waiver of the Federal Aviation Administration's maximum 61-knot stalling speed for singles can be obtained. All the Laser numbers are projected; at the 59-flight point, the flight test program hadn't yet progressed to performance measurement, and after the sixtieth flight, the aircraft went in the shop for modifications.

The location of fuel is a challenge with a canard configuration. It can't all go in

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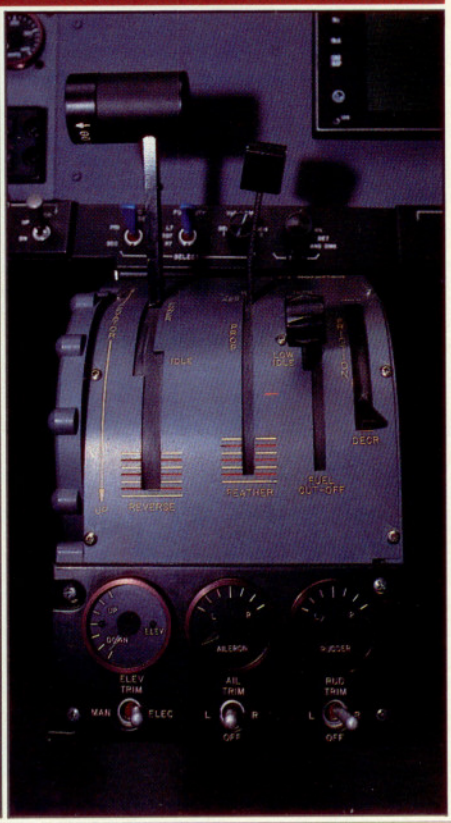


LASER 300
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the aft wing, for obvious center of gravity reasons. If it is split between the aft and forward wings, the fuel system can become complex. The answer with the Laser is, so far, strake tanks that run forward, down the sides of the fuselage from the leading edges of the wings. Nothing is apparently considered ominous about fuselage fuel; business jets and airline aircraft have fuselage tanks, and some long-range aircraft even fill up the vertical stabilizer.

According to Edwin Chaplin, chief of flight operations, the Laser had very little longitudinal stability to start with but was tweaked to where it was quite reasonable by the sixtieth flight. Lateral/directional stability was okay, with some friction in the controls and adverse yaw that will be fixed. Most of the first flying was with the gear down and was exactly as predicted, Chaplin said. The airplane has flaps, but they were not used on the first 60 flights; still, the airplane would easily track a three-degree glideslope at 90 to 100 knots. The landing gear is an electrically operated hydraulic system, much like on Cessna singles. The main gear retracts straight back; the nose gear, forward. The elevator control is on the fixed canard and is only and always an elevator.

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Some of the early interest in the Laser has been from operators that fly high-priority cargo at night. National sales manager Rooney, however, sees the biggest market among pilots now flying the most sophisticated singles and light twins. The direct cost of flying a Laser 300 is projected to be $160 an hour, which would be a step up, but in return there would be turbine power, performance, and that big cabin. According to Rooney, two insurance companies have indicated that they will insure owner-flown Lasers as long as the pilot has 750 hours and an instrument rating and participates successfully in transition and proficiency programs. One of the design goals has been to keep the airplane as simple to operate as possible, making transition and proficiency maintenance easier. Rooney projects that by the end of 1991 the company will be able to build eight aircraft a month. Pratt & Whitney feels there are 18,000 potential single-engine turboprop buyers in the world, according to Rooney. The airplane will be sold factory-direct, with a network of authorized service centers.

Serious thinking about single-engine turboprops as personal airplanes goes back 20 years. One of the leading manufacturers did a safety study then to determine whether the record indicated that a single turboprop would have an advantage over a piston-powered twin. The record to that date indicated strong support for the concept. This wasn't proven in actual practice until recently, as the Cessna Caravan (also powered by a Pratt & Whitney PT6) continues improving on an outstanding reliability rate night after night, in service with Federal Express and other night-haulers. The Caravan is even approved for Category II instrument landings.

If cargo came first, entrepreneurs are not far behind with three high-performance turboprop singles now flying. Piper's stretched turbine Malibu, Aerospatiale/Mooney/Valmet's TBM 700, and the Laser 300 are all in what will prove to be a quite exciting race. □