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New aircraft

Tuning up the **Symphony 160**

A prelude to the launch of a new company

BY JULIE K. BOATMAN

Spring comes slowly to Quebec. It's two days past the vernal equinox and the snow drifts lining the taxiways at Trois-Rivières (*Three Rivers*) airport still challenge the wing tips of the Symphony 160 as we motor out to the runway to fly the first production model of the aircraft's latest incarnation.

Contrary to the snow on the ground, spring is well under way for Symphony Aircraft Industries. It's an appropriate time for the rebirth of the airplane and the restructuring of the idea behind the spunky two-seater. Recent announcements of a glass cockpit from Avidyne and an airframe parachute from Ballistic Recovery Systems (BRS) promise a continued climb. And with a management team completely separate from that of the Symphony's original manufacturer, OMF Aircraft, the skies are indeed cerulean blue ahead.

When Paul Costanzo was brought on board by OMF in a valiant effort to save the company nearly two years ago, he quickly found what a major undertaking that would be. Costanzo has a background in financial management, with a large part of his career spent at Bell Helicopter Textron, most recently as senior vice president of Bell's Commercial Business Unit in Fort Worth, Texas. But OMF was already in the process of collapse—and the parent company declared bankruptcy in Germany only months after Costanzo's first involvement with the company.

PHOTOGRAPHY BY MIKE FIZER



Paul Costanzo (top left), Jacques Simard (top right), and Mirko Zgela (bottom) comprise part of Symphony's management team.

The phoenix

Among the debris, Costanzo identified an idea that deserved another chance: "Success lay in picking up the ashes of something good.

"It took a group that was outside, yet inside," both to understand the complexities of the previous company's collapse and the dance required to obtain the type certificate from the German authorities, says Costanzo. The back story? Prepare for a descent into the world of German corporate policy, some unfamiliar acronyms, and the tale of one long-suffering type certificate.

Well, in December 2003, just after Costanzo was brought on board, parent company OMF GmbH declared bankruptcy in Germany. OMF Canada, the division of the company responsible for the OMF Symphony, ceased operations in January 2004. In April of that year, OMF Flugzeugwerke GmbH (blissfully known as OMFDE) acquired OMF GmbH's assets, while the newly formed Symphony Aircraft Industries (SAI), with Costanzo at the helm, acquired the assets of OMF Canada (which did not declare bankruptcy but found itself with assets—licensing rights—that weren't worth much without the intellectual property of the German company). SAI and OMFDE created a partnership to produce, market, and sell Symphony aircraft worldwide, with OMFDE taking Europe, the Middle East, and Africa, and SAI in charge of the Americas and Asia. SAI was to retain the type design for the 160.

In September 2004, OMFDE hit the wall and determined that it couldn't make money in its current form. SAI bought the remaining tooling and inventory, and OMFDE ceased to exist. This left the type certificate, which had been issued by the European Aviation Safety Agency in limbo—until



EASA transferred responsibility for the type certificate to Transport Canada.

In the meantime, Costanzo had formed SAI's management team and procured investment and buy-in from both the governments of Quebec and Trois-Rivières and financial backing from an American businessman who owned a Symphony. The city of Trois-Rivières built the company a shiny new production facility and office at the local airport with agreeable lease terms in exchange for the jobs that SAI has brought to the area and more it intends to create. The facility itself currently has room for production of up to 144 aircraft a year, and there are plans in place to expand the facility to 300 percent of its current square footage in anticipation of increased production once the ball gets rolling. This means capacity to build up to 400 aircraft a year.

On May 2, 2005, SAI received the updated type certificate from the FAA, permitting it to move forward in its North American markets. Taking the inventory of fuselages and parts left over from SAI's purchase of the former company's assets, SAI has quickly formed a production line and has several aircraft ready for delivery by the end of the year.



While the engine remains the same, changes are in store for the panel (below). SAI has improved the flap indicator and plans additional tweaking as the glass displays go in.

Although the process has taken longer than expected, Costanzo has many positive things to say about SAI's governmental partners. "Transport Canada has treated us like a good customer, and it's incumbent upon us to deserve that," he says.



The American portion of SAI is American Symphony, based in Moline, Illinois. From this hub, sales, marketing, and customer support efforts stem throughout North America. Jeremy Keninger, national sales director, has assembled a network of dealers and service centers, some of which sold and serviced OMF Symphonies and are familiar with the airplane—and happy to see it return.

Nice handling

With me for our photo mission is Jacques Simard, vice president of Symphony and its director of operations and customer support—Simard commands the right seat of the airplane much as he does for the company. As I join up on the Cessna 172 that took off ahead of us—easily catching up in the climb—I appreciate the eyebrow windows that give me a view overhead, as well as the wide side windows and wrap-around windshield.

Although it had been more than a year since I'd flown the Symphony (a model produced by OMF Aircraft prior to its bankruptcy), the control stick felt comfortable in my left hand and the control response accurate and satisfying. The Symphony 160 is a very honest airplane with no bad habits that I could determine over the course of previous test flights and our nearly three-hour photo mission.

The plan was to fly from Trois-Rivières up the St. Lawrence River to Quebec City, and north of the city around an island in the river. Though the air at 1,000 feet above river level was somewhat less than smooth, the Symphony handled the waves like a heavier airplane. In turns, the airplane is well balanced, requiring only nominal attention to the rudder to ensure that fuel flow from the wing tanks remains even.

Of course, a photo shoot often involves multiple 360-degree turns in a single direction, as determined by the sun and backgrounds, and we started back to Trois-Rivières with decidedly more fuel in one tank than the other. Flying with the ball out to the opposite side on our trip back corrected the fuel balance. Having an incentive to fly coordinated is a good thing—no feet-on-the-floor flying here.

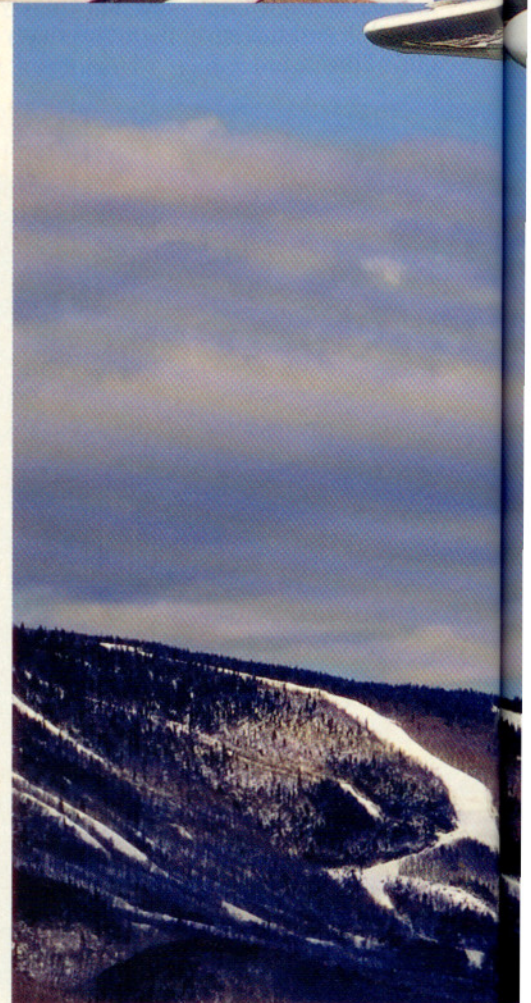
Upon entering the pattern at Trois-Rivières after 2.7 on the Hobbs, we had about 8 gallons of fuel remaining. The Symphony's 160-horsepower Textron Lycoming O-320-D2A had burned about 8.2 gallons per hour at the fairly rich, high-percent-power setting, leaving us about an hour reserve. Admittedly, cruise settings will produce a more favorable burn and, thus, range—normal fuel burns are less than 8 gph, according to the company. But if the Symphony has a weakness, it is a little short-legged. The company is well aware of the aircraft's minor range limitations and during my visit it was hinted to me that improvement in this area is in the cards.

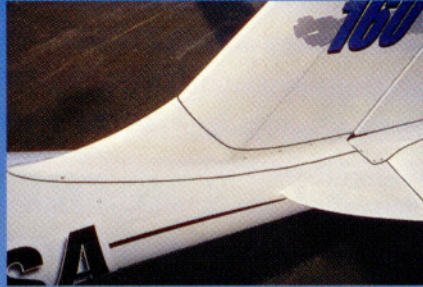
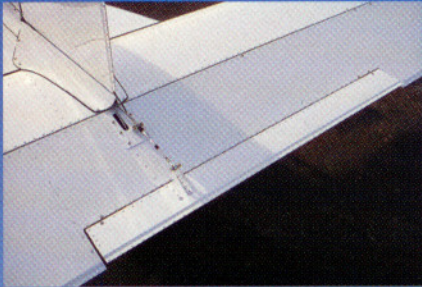
Landing the airplane should come naturally to most pilots trained in two- or four-seat high-wing aircraft, and should come relatively easily even to those who aren't. Set up an approach airspeed, manage the descent with power, close the throttle over the numbers, and bring the nose up to land on the mains. One landing, standard style. The airplane will sink if allowed to get too slow on approach—like with most any GA airplane, the back side of the power curve still applies here—but overall its slow-speed handling characteristics are excellent.

This is in part because of the aerodynamic spades that are found on the Symphony 160's wings forward of



A four-point harness and rugged seats are just two of the many safety features found in the 160. The addition of a BRS airframe parachute will up the safety ante further still.





A fillet to the horizontal stabilizer aids in longitudinal stability in cruise. The elevator trim is electrically actuated.



the ailerons. Because of the way they energize the airflow and keep it attached to the wing and control surfaces, aileron authority down low in the slow-flight regime is excellent—and may in fact spoil a pilot for less forgiving aircraft. In both slow flight and stalls, handling is superior—trying to get the stall to break produces nothing more than a mush.

Process improvement

During my visit, Mirko Zgela, SAI's vice president of engineering, was working several fronts in the planned development of the 160. First he showed me a proposed panel layout with room for two 10.4-inch-diagonal displays. This was the template for SAI's subsequent announcement at the Sun 'n Fun Fly-In that Avidyne would produce its FlightMax Entegra avionics suite for the Symphony.

There's plenty of real estate in the panel for the primary flight display (PFD) and multifunction display (MFD), and at that time Zgela had the backup attitude indicator, airspeed indicator, and altimeter in the upper-center portion of the panel—an arrangement that I was really impressed with as it would reduce a pilot's head motion to refer to the backup instruments in case of a display or system failure. It remains to be seen how the final layout will look.

While glass is coming to just about everything with wings and a maximum gross weight above that of a Canada goose, its introduction certainly makes sense in the Symphony. Because rather than being sold as a trainer, the airplane is more directly aimed as a recreational vehicle—much like a motorcycle or boat. The company intends for pilots to use it for cross-country flying, the regime in which pilots most benefit from a big MFD and wide horizon line.

Other improvements on the radar include the BRS parachute option, which adds \$18,500 to the base price of the airplane.

The diesel version of the two-seat Symphony, the 135D, is also still on the books, as are eventual plans for a four-seat model. But Costanzo enjoys the position as a conservative player when it comes to forward marketing. "Instead of going out and making a bunch of noise and raising a bunch

SPECSHEET

SAI Symphony 160

Base price: \$139,900

Price as tested: \$154,900

Specifications

Powerplant.....	Textron Lycoming O-320-D2A 160 hp @ 2,700 rpm
Recommended TBO	2,000 hr
Propeller	MT Propeller, 73 dia, fixed pitch
Length.....	22 ft 10 in
Height	9 ft 3 in
Wingspan	35 ft
Wing area	128 sq ft
Wing loading	16 lb/7 sq ft
Power loading	13.4 lb/hp
Seats.....	2
Standard empty weight	1,450 lb
Maximum gross weight	2,150 lb
Maximum useful load	700 lb
Payload w/full fuel	505 lb
Fuel capacity, std.	32.5 gal (29.1 gal usable) 195 lb (174.6 lb usable)
Baggage capacity	165 lb

Performance

Takeoff distance, ground roll.....	982 ft
Takeoff distance over 50-ft obstacle	1,309 ft
Max demonstrated crosswind component	17 kt (landing)

Rate of climb, sea level.....	710 fpm
Cruise speed/range w/45-min rsv (fuel consumption), 8,000 ft @ 74% power, best-power mixture	128 kt/370 nm (8 gph)
Service ceiling	16,400 ft
Landing distance over 50-ft obstacle	1,827 ft
Landing distance, ground roll	715 ft

Limiting and Recommended Airspeeds

V _X (best angle of climb)	70 KIAS
V _Y (best rate of climb).....	80 KIAS
V _A (design maneuvering)	116 KIAS
V _{FE} (max flap extended)	90 KIAS
V _{NO} (max structural cruising)	130 KIAS
V _{NE} (never exceed)	162 KIAS
V _R (rotation)	52 KIAS
V _{S1} (stall, clean)	60 KIAS
V _{SO} (stall, in landing configuration)	51 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.

of debt, we're taking this approach. To do differently puts more weight on the price of the airplane in the end," and Costanzo hopes to keep that price reasonable. Currently the VFR version of the 160 is priced at \$139,900, with the IFR version at \$154,900. The glass-cockpit version of the Symphony 160 is priced at \$189,650. These prices reflect the airplane's position as a "heavy" two-seater—while it has but two seats, it commands a 700-pound useful load, making it competitive to some four-seat aircraft in terms of carrying capability.

SAI also recently announced that it will offer the Meggitt/S-Tec System Thirty autopilot in its standard IFR configuration, with the System Fifty Five X autopilot offered in its IFR glass-cockpit configuration.

Quite a mature systems set for a recreational airplane, *n'est-ce pas?* **ACRA**

E-mail the author at julie.boatman@aopa.org.

i Links to additional information about Symphony aircraft may be found on AOPA Online (www.aopa.org/pilot/links.shtml).



SAI has partnered with Avidyne to bring the FlightMax Entegra to future Symphonies. Stay tuned for certification, expected by the end of 2005.