



Europa Returns!

After a rocky middle act, the quick, efficient, superb-handling Europa is ready for an encore.

BY MARC COOK



The Europa XS trigeer is expected to be the volume leader going forward. This aircraft celebrated the 1000th Europa kit sold in 2005.



Ivan Shaw's speedy two-seater burst onto the scene in 1995 as a modern, high-performance homebuilt with a twist. Or two. Aside from its sleek composite construction, at the time straddling the new technologies of molded shells and cloth-over-foam (like the Long-EZ), the Europa was a standout for other reasons. The close-cut cabin helped reduce wetted area and gave it impressive speed for just 80 horsepower. The single mainwheel retracted into the belly, like a high-performance sailplane—outriggers that canted aft as the wheel came up helped add a dash of U-2 to the mix.

Each of those semi-mid-mounted wings is easily removable, a task simplified by carriage of the fuel in the fuselage and special stubs to transmit aileron and flap commands to the control surfaces. Shaw designed the Europa for, no surprise, European-style flying: relatively local, a big emphasis on fuel efficiency and the convenience of removable wings to allow it to be housed away from the airfield during the non-flying months. (It does rain in the U.K., we're told.)



A Rotax 912 and a Whirl Wind prop combine to offer 140-knot cruise speeds in the Europa monowheel.

Almost Undone

In the mid-1990s, Europa was poised for success overseas and began making strong inroads into the burgeoning U.S. marketplace. But a series of calamitous events scuttled those efforts. Twice, leaders of the company mismanaged events—according to those in the know, malfeasance that included misrepresentation and outright fraud. As Europa

struggled to grow, it had to outsource composite construction to Slingsby Advanced Composites. Eventually, the company went into receivership. Builders were left without parts, salesmen were shorted their due commissions, and the reputation of the design took a major hit—it was a mess, top to bottom.

But that's history now. In 2008, the Europa brand was purchased by Swift Technology Group, owned by David Stanbridge. The purpose of Swift is to build a new two-seat trainer as a certified aircraft. Stanbridge, whose acumen in the oil and gas industry made the development of Swift possible, decided that keeping Europa alive and in the U.K. was critically important. What he found was a company in distress, with outdated facilities and a scorched reputation but a superlative product.

In the last year, Stanbridge, under Swift, moved Europa into new headquarters and brought the composites manufacturing in-house; it had been subcontracted to another firm, and that made Europa vulnerable to variations in

the market and unable to manage costs as it would like.

Isat down with Europa Sales Manager Mike McLean at Sun 'n Fun this year, and he showed me the presentation he'd prepared for the U.S. distributor and sales force. Any comparison of the new and old facilities would show just how far the new company has come. It has a dedicated inventory control system,



Handles galore. The large metal lever to the left extends the flaps and the single landing gear together. The throttle is in the center, with the single brake to the right.



A tidy cockpit reflects a normal instrument panel arrangement for 1996.

plus a proper manufacturing setup with modern tracking and quality-control features. Where the old Europa was almost literally a cottage industry, the new company, under Swift, picks up many of the positives of a certified production line—all without losing the Europa's cheerfully quirky character.

Looking Ahead

As Europa continues to regroup and develop the airplane line, it will do so starting from the latest versions of the kit. The original monowheel Europa was, when introduced, a bit of an oddity, but the strangeness began to wear off as more of them flew here in the states.

The follow-on aircraft, the Europa XS, introduced a couple of key improvements to the design.

First of those changes was a move from glass-over-foam construction for the wings to a more modern molded-shell design, a concept that's used on just about all current composite designs. The benefits are obvious: The builder does not have to shape the foam—though Europa owner Kim Prout, whose airplane is featured here, says that obtaining the proper airfoil profile wasn't difficult. By creating shells that are the right shape, Europa allowed XS builders a bit of confidence that the wing would be built according to the desired airfoil.

EUROPA

Kit Price.....	\$38,100
Estimated completed price.....	\$48,000 - \$114,000
Estimated build time.....	1200 hours
Number flying (at press time).....	450
Powerplant.....	Rotax 912, 80 hp @ 5800 rpm
Propeller.....	Whirl Wind two-blade, constant-speed
Powerplant options.....	Rotax 912S, 914, Jabiru

AIRFRAME

Wingspan	27 ft 2 in
Wing loading	13.43 lb/sq ft
Fuel capacity.....	18 gal std, 28 opt
Maximum gross weight	1370 lb
Typical empty weight.....	600 lb
Typical useful load.....	770 lb
Full-fuel payload	665 lb
Seating capacity.....	2
Cabin width	44 in
Baggage capacity.....	100 lb

PERFORMANCE

Cruise speed	155 mph (135 kt) TAS
8000 ft @ 75% of max-continuous, 5.0 gph	
Maximum rate of climb.....	1300 fpm
Stall speed (landing configuration).....	51 mph (44 kt) IAS
Stall speed (clean).....	60 mph (52 kt) IAS
Takeoff distance	590 ft
Landing distance.....	600 ft

Specifications are manufacturer's estimates and are based on the configuration of the demonstrator aircraft. As they say, your mileage may vary.



The passengers sit ahead of the mainspar carry-through structure. The tank behind the passenger is the 10-gallon auxiliary fuel supply, supplementing the 20-gallon main fuel tank buried in the fuselage.

Assessing the Europa Classic's Handling

Editor's Note: We're happy to have Paul Nafziger contribute his flight-test skills to this evaluation. Nafziger is a former USAF Test Pilot Instructor and is well-versed in flight-test protocols. He's also a builder. His Lancair 320 is based near his home in Tehachapi, California.

The evaluated aircraft is one of the earliest Europa designs, so it does not benefit from the "high top" modifications to increase headroom. As a result, the cockpit is a tight fit for this 6-foot-2, 210-pound test pilot. Owner Kim Prout, in excellent shape and compact, says the Classic fits him well. You enter by climbing on the wing, sitting on the seat back (that doubles as structure) and sliding in. On the ground, visibility forward is limited but excellent to the sides. The canopy features simple, intuitive operation. The controls are all within reach, but full aileron throw is restricted by this test pilot's legs.

The engine start is typical Rotax 912. Choke when cold, mind the proper idle speed. The next step, taxiing, is interestingly different. Forward visibility remains restricted, but is adequate for taxi without S-turns. It's important to hold aft stick to ensure pressure on tailwheel steering. The hand brake is easy to operate and intuitive, but old habits die hard: I tried to press on rudder pedals for braking. Pilots with more than a few moments in a Europa will probably get over that tendency. With the single mainwheel and, obviously, no differential brake action, it's important to keep the tailwheel on the ground or the Europa simply can't be steered.

The power required for normal taxi is about 1000 rpm, and the short wingspan makes it easy to navigate past obstacles. Owner Prout cautioned me to avoid taxiing in the center of the taxiway's drainage canal to keep from "high centering" the only wheel with a brake on it.

Our takeoff occurred during slightly gusty winds. (I watched the editor of this magazine make a sporty landing or two in his much heavier Sportsman just before Prout and I launched; he blamed it on the wind.) Back in the Europa: When the tail was raised, the aircraft immediately moved left, easily countered, but it made for an interesting ride. It's extremely important to hold the tail down until rudder and ailerons are effective. The elevator becomes effective almost immediately because of prop blast; we were airborne at 55 knots indicated airspeed (KIAS). As in the taxi mode, forward visibility was poor until rotation, then excellent. Eighty horsepower accelerated the aircraft smartly to climb speed, with gear/flap retraction at about 70 KIAS. The Europa was speed stable throughout acceleration.

In the climb mode, the Europa has good visibility and stability; it was easy to hold 95 KIAS. The initial climb rate at that speed was 1000 fpm at 2000 feet MSL, decreasing to 700 fpm at 4000 feet MSL on a warm day. With our fuel and passenger load, the aircraft was at its maximum-gross weight of 1300 pounds.

The level-off presented no problems, and the aircraft displayed positive speed stability as we accelerated to cruise speed. An intermediate cruise setting was selected prior to attempting handling evaluation— at 4500 feet MSL, we selected 4900 rpm, which equated to 120 KIAS. Unfortunately, light to moderate turbulence precluded precise quantitative analysis, but qualitative evaluation was possible. The control system is tight, with no slop detected. Breakout forces were light, as were control forces. The Europa exhibited good control harmony and provided good pilot feedback. One might expect the aircraft to be

short-coupled because of the size, but this was not apparent. I found the control system and stability of the aircraft made the aircraft easy to maneuver precisely.

Short-period damping was deadbeat, but phugoid period and long-term damping could not be evaluated because of the turbulence. The Europa proved to be speed stable throughout the envelope tested. We limited maximum airspeed during the evaluation to 135 KIAS because of turbulence. The aircraft was directionally stable both statically and dynamically. Either wing can be lifted with the rudder, indicating positive dihedral. The Dutch roll exhibited about four overshoots, again estimated because of the turbulence.

Spiral stability was neutral in both directions. Interestingly, I could vigorously slap the stick in roll and the aircraft would roll, but immediately stop and maintain the bank angle. Roll inertia was very low.

The aircraft was easily controllable in steep turns up to 60° of bank. I detected no tendency of stick forces to decrease with G or any "dig-in" tendency of the aircraft. There was positive stick force and displacement with G—a real pleasure to fly up and away.

The visibility is excellent in flight. The pilot position ahead of the spar allows high look-down angles. While obviously not as good as a high-wing aircraft, it's much better than most low-wing monoplanes.

In the clean configuration (65 KIAS, 4500 feet MSL, 5500 rpm), the handling qualities in the approach-speed regime were similar to those in cruise. Using the same speed and power setting, but in the landing configuration, the Europa showed no unusual tendencies.

Stalls were similar in both clean and landing configurations. There were no artificial warning devices installed, and the aircraft doesn't need them. Warning buffet occurred at about 3 to 4 KIAS above the stall—in Prout's airplane, that was 61 KIAS clean and 49 KIAS in the landing configuration. The stall was characterized by the nose dropping in both configurations. There was a slight right wing drop in the landing configuration, but controllable. Relaxing back pressure immediately recovered the stall with altitude loss of less than 100 feet. Both the ailerons and rudder were effective throughout the maneuvers.

We returned to land, evaluating the approach and landing qualities on the way. The aircraft is very clean, but will descend well with power fully pulled back. Because the 912 is liquid-cooled, there are no shock-cooling worries. No trim changes were needed as gear/flaps were extended. In this configuration, visibility was excellent over the nose. The best-glide speed of 75 KIAS was used in the pattern and down final approach until the landing was assured. Then the speed was reduced to 65 KIAS. Visibility degraded during flare, and no brake was required until ready to exit the runway.

The Europa has excellent handling qualities and is a joy to fly. It clearly has an efficient engine/airframe combination for good performance. There is only one caveat, and it doesn't apply as much to the current XS and the "high top" kits: Large people should try one on before they buy.

—Paul Nafziger





The Europa looks like nothing else on the ramp.

The original and future Europas maintain a clever wing attachment method that uses composite spars with aluminum hard points that are easily slid into recesses in the fuselage. In this design, the spars overlap and mate to the fuselage structure behind the seats—many tractor aircraft need the spars to

be either right where the pilot is (a difficult requirement to meet) or have the spars running beneath the knees of the occupants. The Europa method has a massive composite tunnel that runs laterally inside the fuselage, creating the seat backs and the spar support structure. (Even the Liberty certified model derived from the Europa retains this basic design concept, though differently executed.) In the monowheel aircraft, the wide center tunnel provides a stiff longitudinal structural member.

Placing the occupants ahead of the spar combines with the desire to keep the wings simple for easy removal and suggests a fuel tank in the aft fuselage as a good solution. That's what the Europa has. It carried 20 gallons in the early aircraft. In the current kits, there is a choice of an 18-gallon vessel or a long-

range version at 28 gallons. For a Rotax 912, that's a generous amount of fuel in long range, and about right at the standard configuration.

While Europa Aircraft maintains the monowheel XS on the docket, it's expected that the most popular models will be the XS trigeared and, when it's ready, the LSA-legal version of the XS. The trigeared is a mix of the conventional—normal tricycle gear with a free-swiveling nosewheel—and the unconventional—the airplane steers with differential braking, but not through the rudder pedals. Instead, twin levers in the cockpit activate the left and right wheelbrakes independently. It's a bit like steering a normal twin-engine aircraft with differential power.

Because the Europa was best suited to modestly sized pilots, the clamor



The Europa's generous tail area improves stability. Unusual for a homebuilt, it uses an all-flying stabilator with an anti-servo/trimtab inboard.



Owner Kim Prout was once a salesman for Europa and remains a fan of the design.



Outriggers balance the airplane on the ground and retract aft when the gear/flaps are raised.

rang out for a modified version to better accommodate larger souls. That became the “high top” iteration, a change that saw the top of the cabin raised and a new cowling developed to maintain roughly the same windscreen profile. Some pilots felt it made the Europa look a bit chubby, so the future version will be different. The airplane will revert to the original cowling, have slightly less rake to the windshield and extend the lower corners of the windshield downward. “This does offer a slight [visual] discontinuity, but it provides a lot more headroom and better visibility,” says McLean. “I think a clever bit of trim [color] will help hide that, no problem.”

In Europe, there is also a motorglider option for the Europa. Extending the wingspan of an XS monowheel to 47.3 feet (from 27.1 feet) provides a 200-fpm minimum sink with the Rotax 912 or optional Rotax 914 shut down and the prop feathered. According to the company, the motorglider’s cruise speed is reduced significantly to 110 knots true at 8000 feet on the Rotax 912S, or 151 KTAS using the turbocharged Rotax 914. For comparison, a monowheel XS is capable of 140 KTAS on the Rotax 912S, or a truly eye-opening 174 KTAS with the 914 at 10,000 feet. (Prout’s



The fuel filler is behind the cabin along the roofline. Fuel vents face forward.

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cruise figures are equivalent to the non-turbo XS's, with his smaller, 80-hp 912 compensated for by the slightly slicker airframe of the early Europa.) Trigear versions are 5 knots slower, according to the company.

The key to performance is an efficient airframe and low weight. The Europa has both. Maximum gross weight for the XS trigear is 1370 pounds, against a typical empty weight under 600 pounds. No wonder the airplane is capable of a 1000-fpm climb (1300 fpm with the turbo engine). A typically equipped long-range Europa has a full-fuel payload of more than 600 pounds. That's impressive. My old Aero Designs Pulsar, a smaller, lighter competitor to the Europa in the day, weighed 560 pounds empty against a 1060-pound max gross, and was just a tad slower than the best Europa configuration.

Light Sport, Too?

If that max-gross limit for the Europa made you think about its viability as an LSA, you're on the same mental track as the company. In fact, one of the current projects is development of a new wing that will help get the Europa's clean stall speed below the 45-knot LSA



Large gullwing doors permit easy access to the cabin and allow you to reach the baggage compartment without too much stretching.



The single beefy main tire is kept at a relatively low inflation pressure to reduce landing shock. The faired tailwheel is under the empennage; later Europas have the tailwheel further aft.

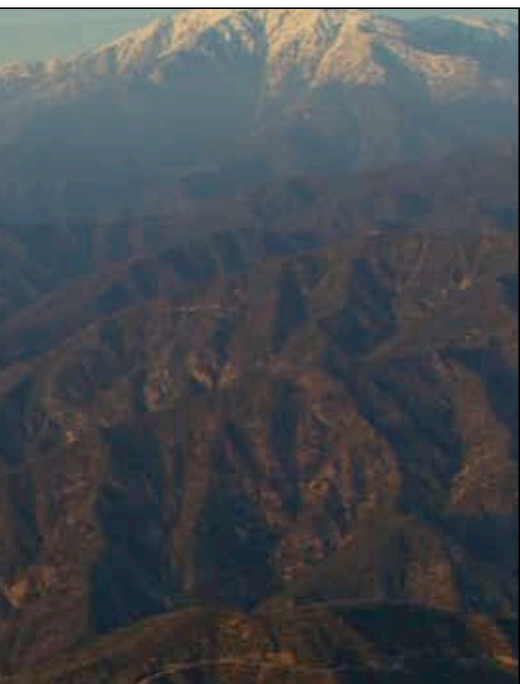


maximum. Otherwise, the airplane is very close—a small reduction in max weight along with the right prop will help it meet the 1320-pound/120-knot (at sea level) limitations. According to McLean, development of the LSA-legal kit is on the front burner, and discussions are continuing with headquarters to make the motorglider available again to U.S. customers.

Another program on the docket are, according to McLean, a true taildragger version. Individuals have converted Europas to this traditional configuration, “but we have another set of solutions,” he says.

If ever there were a time to hope that the Europa would fulfill its potential, it’s now. Stanbridge is a successful businessman with a careful, conservative plan; his investment in the future of the line is clear from the factory revamp. The company has a stable U.S. distributorship in Custom Flight Creations. After all the drama this design and its builders, admirers and owners have endured, everyone hopes the plot twists and complications are past, and the Europa will survive to hear the applause. †

For more information, visit www.europa-aircraft.com. Find a direct link at www.kitplanes.com.



ESCAPE

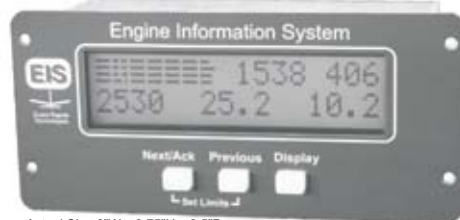
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