



Sport Aviation

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Onex

— Pronounced one-x for one seat



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Women take controls of historic airplanes

FLYING THE NEW
SINGLE-SEAT
ADDITION TO
THE SONEX LINE

BY CHAD JENSEN

SONEX
ONE X



The locking mechanism is simple to use, and it is easy to identify that it is locked. There are no mechanical connections at the wing fold for the ailerons. The genius in the aileron actuation is the use of paddles to make the “connection.” I noticed zero slop in the controls when flying it. In fact, this airplane is even sportier than the Sport Trainer, but I’m getting ahead of myself.

Flying the Sport Trainer with two people on board was snug. It wasn’t uncomfortable by any means, but snug. The first thing I noticed as I slid into the Onex for the first time was the ample amount of room. The simple instrument panel evokes the spirit in which the airplane was designed: simple and fun. An MGL Stratomaster Extreme, MGL radio, MGL g-meter, and a compass are all that this airplane sports in the panel. Everything else is purely look-out-the-window information.

With the parking brake set, the first thing you have to do to start the engine is to bring your foot back toward your body and up to flip the fuel valve on at the base of the fuel tank. Then it’s a simple matter of working left to right on the panel. With the switches all on, crack the throttle, press the starter button, and the little 80-hp AeroVee 2.1 engine starts right up with the greatest of ease.

Not only is Jeremy good at running the family business, he is also good at communicating how to fly the airplanes.

The airplane felt exactly the same as the Sport Trainer with its spring aluminum gear and VW engine power. The Onex has all-aluminum construction, stainless steel blind rivets, a simple instrument panel, direct-steering nose wheel (or tail wheel), and split fiberglass cowling allowing full engine access. The family resemblance is all there, just in a smaller package.

ONEX SPECIFICATIONS (with 80 hp AeroVee engine)

GENERAL CHARACTERISTICS

Crew: one
Length: 16 ft 5 in (5.00 m)
Wingspan: 20 ft 9 in (6.32 m) Wings fold for storage and transport; option for wingspan of 18 ft 9 in (5.72 m).
Wing area: 84.4 sq ft (7.84 m ²) With 18 ft 9 in (5.72 m) wingspan, wing area is 78 square feet (7.2 m ²).
Airfoil: NACA 64-415 [7]
Empty weight: 600 lb (272 kg)
Gross weight: 950 lb (431 kg)
Fuel capacity: 15 US gallons (56.8 liters)
Powerplant: 1 × AeroVee four cylinder, four-stroke, Volkswagen air-cooled engine, 80 hp (60 kW)

PERFORMANCE

Cruise speed: 135 mph (117 kn; 217 km/h) at sea level and 185 mph (161 kn; 298 km/h) at 8,000 ft (2,400 m).
Stall speed: 45 mph (39 kn; 72 km/h)
Never exceed speed: 216 mph (188 kn; 348 km/h)
Range: 535 mi (465 nmi; 861 km)
Service ceiling: 16,000 ft (4,877 m) (calculated service ceiling)
G limits: +6/-3 at gross weight
Rate of climb: 700 ft/min (3.6 m/s) to 900 ft/min (4.6 m/s)
Lift-to-drag: 10:1
Power/mass: 11.875 lb/hp (7.223 kg/kW)

Note from *SONEX*:
This is a typo! Published cruise speed for the Onex at 8,000 ft is 155 mph TAS

I’ve been very fortunate in my flying career to have flown many different types of airplanes: slow, fast, low-fliers, high-fliers. Some were more difficult to fly than others, and some were just pure fun!

Sonex Aircraft in Oshkosh, Wisconsin, has come up with an airplane that falls solidly in my “fun” column. I recently became only the fourth person in the world to fly the Onex, and the first person not employed by Sonex.

Because the Onex is a single-seat airplane, there is no way to check out in one. However, the Sonex Sport Trainer flies similarly, and so I met with Jeremy Monnett, CEO of Sonex Aircraft, for our first training session on a beautiful, but windy, afternoon in mid-April. I hadn’t had the pleasure of flying any of the Sonex line during my 13 years of flying, and I now know what I was missing! Not having flown one in the past gave me a fresh perspective on the line of aircraft it offers.

I flew a tricycle-gear version of the Sport Trainer from the right seat to familiarize myself with the control layout of the Onex. We ran through all of the various maneuvers to give me a feel for the airplane in the practice area, and then came back to Wittman Regional Airport for touch-and-goes. I don’t recall exactly how many we did, but I sure got good at learning the speeds and subtleties of the Sport Trainer.

When we taxied back to the Sonex hangar, Jeremy declared me ready to fly the Onex. While I appreciated his confidence in my flying, I was running short on time and felt like I wanted to

fly the Sport Trainer one more time before declaring myself ready. The very next day, I met up with Jeremy to fly the Sport Trainer again, and this time we spent the entire time in the pattern doing touch-and-goes and working on various speeds and flap settings. It was a windy day again, but crosswind practice is always welcome and needed from time to time.

Before we took off on this particular training flight, we had planned for me to fly the Onex that afternoon if I felt I was ready. As it turned out, not only is Jeremy good at running the family business, he is also good at communicating how to fly the airplanes they designed. After making the circuit around Wittman several more times that day, the time had come, and I was ready to launch in the single-seat Onex.

After our taxi back, we immediately went over to the Onex to preflight it and go over its most unique feature: the folding wing and locking mechanism. The design was focused around the folding wing so the plane can be trailered home.





For the taxi out, there was really no need to pull on the brake handle other than to stop at the hold short line, in which case pulling the brake lever actuates both left and right brakes at the same time and the Onex comes to a stop. I did the run-up and called the tower for takeoff clearance from Runway 27, and then rolled onto the centerline.

The Onex was just as happy at 65 with the flaps on as it was at 120 mph in cruise flight.

WHAT'S IT LIKE TO FLY?

Jeremy's training in the Sport Trainer was invaluable to me when flying the Onex. It's not a hard airplane to fly by any means, but I wasn't about to fly it without some transition training. As I advanced the throttle, it felt just like the Sport Trainer, albeit a bit quicker. I rotated the Onex, just as I had been trained in the Sport Trainer, right at 80 mph, and the airplane came off the runway with zero fuss. As is my usual practice, I let the airplane accelerate in ground effect for a short while and then began my climb.

Since I was in a lighter airplane—both in overall weight, and the fact that it's just me—it climbed better than the Sport Trainer. I used 100 mph on the climb-out, and that gave me a solid 750 fpm as I made my way to the west practice area. This flight wasn't about finding the preciseness of the Onex; it was

about getting to know the airplane and having fun, and that is a very easy thing to do in this airplane!

I leveled out at 2,500 feet and let the airplane accelerate while adjusting the trim to maintain level flight. The engine revved right up to 3200 rpm, and without throttling back, I saw a steady 133 mph. Then, after pulling the throttle back to a quieter 2900 rpm, I ran at 120 mph. That's a very respectable number for an airplane that is intended to be used to go up and have some fun!

Speaking of fun...wow! This airplane is every bit of the definition of that word. Since straight and level flight wasn't what I was looking to do during this flight, I gave it some good aileron input, and it rolled quickly. I would easily compare it to my previous RV-7 in roll. I flew some steep turns, climbs, and descents, and then slowed it down to hold 65 mph with flaps. There is only one pull on the flap handle, and that goes all the way to 45 degrees. I did not practice slow flight without flaps on this flight. The Onex was just as happy at 65 with the flaps on as it was at 120 mph in cruise flight.

After thoroughly enjoying a half-hour out in the practice area, I decided to head back to

Wittman to give Jeremy the thumbs up. Slowing the airplane down for pattern entry was a simple matter of planning ahead just a bit. As many slick experimentals go, planning your descent is the key. It slowed down easily enough, though, and as I made my way back to the runway environment, I experimented with different power settings to see how quickly it would slow down and accelerate. The tower had several airplanes in the pattern, including EAA's Cessna 210 photo airplane, a Cessna 172, and a Basler BT-67. The Onex played well and integrated into the traffic pattern with ease. The only issue was one I found out about after I landed. The pilot of the 210 told me that the Onex was hard to see, but it was yellow, so he could still pick it out against the blue sky.

While flying the abbreviated pattern, it was important to remember to keep the speed and altitude up. A nice advantage of the Sonex line is its short-field capability. But that capability means that if you don't carry speed and altitude in the pattern, you best be prepared to add one or the other back in because they descend quite nicely with flaps and no power.

Landing the Onex for the first time was just like landing the Sport Trainer. It is amazing how





similar the airplanes are, understanding that the Onex is just lighter and a bit quicker in roll. I made a nice, stabilized approach and flew it in to the flare, touching down on the mains on Runway 36, with a slight crosswind, just ahead of the purple dot. The airplane tracked nicely in the touchdown phase with plenty of rudder authority, and the nose came down gently shortly thereafter.

After a very short rollout, I turned off the runway and taxied it about a mile and a half back to Sonex with a huge smile on my face the entire time. I gave the thumbs up to Jeremy, opened the canopy, and simply said, "I want one."

HEAVILY INFLUENCED

I asked Jeremy about the Onex design and where it originated. "Like all aircraft and engine designs that have hatched from the Hornet's Nest in Oshkosh, the Onex has taken major elements of its design from many aircraft that have come before it," he said. "From spinner to tail wheel, every design element was thought about and selected based on the usual Sonex design criteria of affordability, simplicity, and safety."

Those three criteria are what make the Onex so appealing to me as a builder. Jeremy noted the three largest influences on the Onex design were the Sonerai I, the Monex Racer, and the Sonex. Those familiar with these designs will pick up on many influences these aircraft have had on the Onex. I have had the privilege of sitting in all three designs, and while all three feel different, the family resemblance is certainly there.

When asked specifically about the design features of the Onex, Jeremy said he simply took what worked on the Sonex and designed to that spec. "The integrated crush/plate spinner, fixed-pitch wood and wood-core composite-coated propeller, polycarbonate windshield with acrylic canopy, single-piece fiberglass wheelpants, welded steel pushrods for primary controls, the same airfoil, the same 6061-T6 aluminum primary structure, and the same tail sizing are all based on an 85 percent Sonex," he said.

There are several other advantages to this particular airplane. Fewer parts mean it costs less. It has a lower frontal area, so there is less drag, and it goes faster on the same power. Because of the lower drag it goes farther on less gas. With a 15-gallon fuel tank, your range in a Onex can exceed 500 miles. Jeremy said that a big part of designing this airplane was the smaller form factor combined with the folding-wing feature, which means you can easily store it at home in your single-car garage, share a small T-hangar with four other Onex pilots, or place a couple of Onex aircraft under the wings of a Cessna 172.

Sonex has a winning design in the Onex. At \$25,000 to complete, it is certainly competitive in the affordable column. It will pull some g's and has more quick-build features than ever. The only negative I can come up with is the fact that it holds only 15 gallons of fuel. Why is this a negative? Because when it uses four gallons an hour, that's only three and a half hours of flying, and there will be times when that simply isn't enough fun! *EAA*

Chad Jensen, EAA 755575, is EAA's communities manager. He has built an RV-7 and is currently working on a Wittman Tailwind W-10 and a Nesmith Cougar.