

A Sporty SportStar

Leading the LSA parade

DAN JOHNSON

PHOTOGRAPHY BY JIM KOEPNICK



Being first is often good in marketing, sports, or life in general, for that matter. In the light-sport aircraft (LSA) certification race, one aircraft has already won: the Czech Republic-built Evektor SportStar. This all-metal, low-wing, bubble-canopy design was the first aircraft to win its airworthiness certificate as a special LSA (S-LSA), and no one can ever take that distinction away.

Evektor Aerotechnik appointed Sport Aircraft International of Kerrville, Texas, as its American distributor. That company is currently in the process of transitioning to Evektor America as its new trade name. At EAA AirVenture Oshkosh 2005, it exhibited a beautifully finished SportStar SE alongside Evektor's four-seat Cobra, which is aimed at the Cirrus market. In the LSA Mall, another SportStar presented itself to thousands of visitors.

I flew the first imported version of the SportStar, then called the EuroStar, a few years ago. The day after EAA AirVenture 2005 ended, I was delighted to join Evektor America President Jeff Conrad and rocket down Wittman Field's runway in the newest SportStar SE (special edition).



The all-metal Eveztor SportStar has evolved from Eveztor Aero-Technik's EuroStar, which the company first introduced in the U.S. Some 470-plus airplanes in the SportStar family are flying around the world since the late 1990s. The Eveztor SportStar was the first special light-sport aircraft to earn certification in that category in the United States.



Prepared for the American Market

Eveztor and Eveztor America prepared well for the LSA category. In the late 1990s, Eveztor derived the eventual SportStar from its Harmony, a fully certificated aircraft under the VLA (Very Light Aircraft) regulations widely used throughout Europe. Reportedly, the Harmony was spun more than 400 times as part of achieving VLA certification. From the start, both the Harmony and the SportStar were designed for factory production line assembly.

The Czech company has succeed-

ed well in proliferating its production. Eveztor says 470 airplanes in the SportStar family are flying, from the EV-97 to the Harmony to the EuroStar and SportStar. They are operating in 38 countries under a variety of regulations, a fact that helped the Czech company prepare for dealing with the new American rules. Jeff Conrad attended the ASTM meetings during which the LSA consensus standards were developed, buttressed by a factory engineer and a foot-thick stack of paperwork to prove the SportStar would meet the LSA regulations. Preparedness usually

pays off, and Eveztor quickly turned its documents into an airworthiness certificate for SportStar.

An Evolved Aircraft

Checking out the latest model, I noted some changes since I first flew the EuroStar. The new SportStars have a substantially larger clear canopy over the cockpit, which gets your attention quickly. Less obvious are the aircraft's higher empty and gross weights and an added 2 feet of wingspan, to accommodate the increased weight.

From the outside the larger bubble

canopy looks large, to the point of appearing bulbous. From the inside, however, it feels quite normal and nicely spacious, even more than its 46.5-inch-wide cockpit suggests. Visibility toward the rear is good.

The SE badge on the nose of the SportStar we flew for this flight test stands for Special Edition. "It's our premium décor package, including a leather interior as well as partial use of metallic colors on the paint trim," Jeff explained.

The all-metal SportStar's fuselage is a semi-monocoque design. The airframe is constructed using epoxy bonding backed with a riveted structure; a method Eveztor believes will ensure a longer lasting aircraft. SportStar's firewall is made of galvanized steel, not aluminum, and should provide greater safety and strength with a modest increase in weight. The entire empennage is also an all-metal construction.

The rectangular, single-spar wing is built with split flaps, ailerons, and fiberglass wingtips. The wings were designed with little dihedral, no taper, and no washout other than that which comes from the large, upturned fiberglass wingtips.

Most S-LSA designs employ some composite materials in their construction. The SportStar is no different, with cowlings made of Kevlar, carbon fiber, and fiberglass. Composite materials are also used in the landing gear. Eveztor said the main gear withstood "enormous deflection" during European VLA certification drop tests. The nose wheel uses bungee cords for suspension.

The upper half of the engine cowl can be removed quickly using 9 Dzus fasteners. Like most Cessnas and Pipers, an inspection port allows access to the dipstick and oil fill point.

Jeff added, "Eveztor SportStar is now available with increased fuel capacity with two (17-gallon) wing tanks for a total usable fuel capacity of 31.2 gallons. With the added tanks the aircraft's new maximum range is 700 nm with eight hours of endurance." This will cut into SportStar's payload, but gives the two-seater a long range.

This new SportStar SE had been busy,



Jeff Conrad heads Eveztor America, formerly known as Sport Aircraft International, of Kerrville, Texas.

logging 125 hours. "We've been flying the pants off of it, and it's due for some minor maintenance," said Jeff. Indeed the SE exhibited squeaky brakes and the left set of spark plugs didn't run as smoothly as new ones. Some rigging adjustments will also remedy a little right turn in the SportStar. With the aileron surfaces lined up visually, the SportStar had a distinctive left turn. Onlookers at EAA AirVenture 2005 had bumped the tab on the right aileron, not an uncommon occurrence when hundreds or thousands of people examine an aircraft.

With our walk-around complete, Jeff and I pronounced the SportStar SE ready for flight.

Greenhouse Warming

Entry to and exit from the SportStar is made easy by the forward-hinged bubble canopy, a huge expanse of optically clear plastic. Step up onto the wing from the rear, as with most low-wing aircraft, and climb inside. Dual gas pistons hold the canopy in place and should prevent blow-open damage. The canopy also mates to a window area in the rear that makes for an airy cockpit.

The SportStar's 46.5-inch cockpit is much wider than a familiar benchmark, the Cessna 150. The bubble can-

opy yields extra room at the shoulders, which seems even larger than it is as you can rest your arm on the interior structure of the canopy. The enormous canopy uses latches on each side to secure it for flight. A larger handle and latch at the top rear center of the canopy complete the locking operation. The canopy cannot be opened in flight.

The SportStar's instrument panel benefits from clear identification labels. Circuit breakers are in a neat row at the lower edge of the panel in front of the left-seat pilot with a trim indicator at the upper left corner. All gauges, lights, or switches are well marked and positioned so that either occupant can read and access them. Map pockets are provided on both sides, and a baggage area aft of the seats will accommodate 33 pounds of baggage.

After securing the four-point shoulder/seat belts and getting our headsets ready, we fired up the 100-hp Rotax 912S, and started our taxi. Even on the day after EAA AirVenture 2005, we had to wait in line for takeoff. In bright sunshine with the canopy secured for flight, the SportStar's cockpit warms quickly.

Unlike some of its LSA competitors, the SportStar uses dual hydraulic toe brakes. The brakes are levers, not pedals, but they are effective. A parking brake lock is located just in front of the flap handle, which is positioned between the seats.

The SportStar's choke lever has a turn-to-lock feature. The choke lock mechanism allows infinite location of the choke, not simply a maximum open and lock position. Similarly, a vernier throttle allows precise power settings with a push-button, free-movement release and a friction lock up against the control panel. The knob is large and convenient to use.

Taxiing along in line for takeoff, the rudder pedals felt firm on the ground. But, regardless of the feel, the SportStar SE was surprisingly agile. It can manage a full 360-degree turn in 25 feet or less, which is less than its 28-foot wingspan. The SportStar also has good prop clearance and stands fairly tall on its landing gear, giving me the feeling that off-field

SPECIFICATIONS

Evektor Aerotechnik SportStar SE

(Note: All specs and performance figures provided by factory. Figures are *unverified* except as otherwise stated in article.)

Dimensions

Wingspan—28 feet 7 inches
Wing area—112.7 square feet
Length—19 feet, 7 inches
Height—7 feet, 8 inches
Seating—2 side-by-side; 46.5-inch cabin width
Empty weight—683 pounds
Gross weight—1,212 pounds
Useful load—529 pounds
Payload—427 pounds*
Fuel—17.2 gallons*
Wing loading—10.8 pounds/square feet
Power loading—12.1 pounds/hp
Powerplant—100 hp
Baggage area—33 pounds

Performance

Max speed—168 mph
Cruise speed (75 percent power)—121 mph
Stall speed, clean—50 mph
Stall speed, best flaps—45 mph
Max rate of climb—850 fpm
Takeoff distance—770 feet
Landing distance—460 feet
Cruise duration—4.6 hours (no reserve)*
Cruise range—560 miles*
Fuel consumption—about 3.7 gph

*An optional 17-gallon fuel tank can be added, offering a total usable fuel capacity of 34.2 gallons with a new maximum range of 800 miles with eight hours of endurance. Payload with two 17-gallon tanks full would be 325 pounds.

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(factory site in English)



At 46.5-inches wide, with leather seats, four-point seatbelt/shoulder harnesses, a well-equipped, well-marked instrument panel, and a full bubble canopy offering 360-degree visibility, the cockpit of the Evektor SportStar is competitive with most aircraft on the market, no matter what category.



A baggage area aft of the seats can accommodate up to 33 pounds of luggage, depending upon the useful load available.

landings shouldn't get too exciting.

Before takeoff and once aloft, most pilots will find the view massive. Of course, you have the usual downward obstruction of a low wing, but checking for traffic before takeoff is a breeze, and in flight you have a broad view.

Jeff recommended setting one notch of flaps for takeoff. Evektor's engineers selected a split flap design, meaning a separate surface on the bottom of the wing pivots down to various angles. Therefore, you cannot see them from the cockpit and must rely on the flap indicator. A long lever with a padded grip makes the flaps easy to deploy. A push button helps you locate the proper flap notch tactilely.

Pushing the button on the throttle, I advanced it to full power and the SportStar SE quickly accelerated. Racing down the runway about 500 feet (we were somewhat under gross), we hit rotation speed, lifted the nose, and smoothly departed. Suggested rotation speed is about 40 knots. We climbed at about 70 knots.

Once aloft a safe distance, I dialed back the throttle slightly. We didn't need full power, and the fuel flow drops sharply at any reduction from maximum throttle.

Sweet SportStar

The SportStar SE is definitely an airplane you can fly with your fingertips. I liked it immediately. A new pilot might find it a bit lively right off the runway, though St. Charles Flying Service (St. Louis, Missouri) is using the aircraft for pilot training with great success. At press time one student had successfully earned his sport pilot certificate in a single week. (See "A Flight School Using SportStar.")

The SportStar's need for control input turned out to be a ground level turbulence issue that disappeared once we got a thousand feet off the surface. Then the aircraft seemed smooth and well behaved in the more pleasant air, but the need for quick response is always less at altitude.

I witnessed a sustained climb rate of about 700 fpm while we flew with full fuel somewhat shy of the aircraft's



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Learning to Fly in a SportStar

St. Charles Flying Service, based just outside the city of St. Louis, Missouri, took a leap into sport pilot training. Company owner Dennis Bampton traveled to the Sun 'n Fun Fly-In in April 2005 to scout the light-sport aircraft fleet for a trainer. After reviewing the choices available, he signed on the dotted line for an Evektor SportStar.

While a wave of such flight school operations is expected as the sport pilot industry develops and is better understood by the pilot population, Bampton is clearly a leader. His gamble appears to be paying off nicely.

Bampton's concept is that a student can come to the flight school with the promise of a sport pilot certificate costing less than \$3,000...for everything. "The sport certificate is more affordable and less time-consuming than other ratings and reduces the hassle that has hampered many people who want to learn to fly," said Bampton.

Included in St. Charles' program are a classroom and DVD ground school; all books and study materials; 20 hours' dual in a 2005 model SportStar; five hours' solo; and three hours pre- and post-flight briefing time. With sales tax and all fees (other than transportation and lodging), the cost of a sport pilot certificate comes to \$2,875.50.

Transportation and lodging are involved as some of the flight school's students have traveled a long way to train at St. Charles Flying Service. As the infrastructure of flight schools, aircraft dealers, repair shops, and test examiners continues to develop and grow, flight schools in many areas of the country aren't yet providing what St. Charles Flying Service offers.

One man who found the Missouri flight school was EAA member Randy DiNapoli of Placerville, California. Randy took advantage of St. Charles' special training program and earned his sport pilot certificate in one

week! "I'd been looking all over the West Coast for someone to train me as a sport pilot, without success," reported DiNapoli. "I checked California, Oregon, and Nevada to no avail." After finding the St. Charles training program through EAA's sport pilot website, DiNapoli flew the SportStar during his training, which led to his certification as a sport pilot in mid-September 2005.

Bampton is sufficiently satisfied with the performance of the SportStar for his flight school that he's ordered another. By itself, that says a great deal about the Evektor airplane.

For more information, contact St. Charles Flying Service at:

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E-mail: stcharlesflying@msn.com
Website: www.stcharlesflyingvs.com

maximum gross weight. This solid rate of climb continued right to 3,000 feet MSL, where we leveled off to further explore the SportStar's handling.

Unlike many of the speedy LSA candidates I've flown, I experienced less difficulty keeping the ball centered in the SportStar. Though you can become accustomed to slipperier models, any aircraft that makes control easy is one fast learned and long appreciated.

One reason why the ball holds steady without much effort is the low rudder input needed. Most of the European-designed LSAs exhibit a similar quality. Many other aircraft require some rudder to make coordinated turns. Heavy-footed ultralight pilots may struggle with this, but at least they know how to use the rudder. General aviation (GA) pilots who fly with their feet on the floor will find their turns slinging the ball off to one side.

However, if you set the SportStar into a trimmed 45-degree bank turn, it will go round and round with little pilot input. You must learn a new coordination of stick to rudder, but the net result is a fine-handling machine that will never tire you. Contrarily, it may work you a bit more flying cross-country without an autopilot. You'll be flying the plane most of the time, and physically easy or not, the constant need for small inputs demands your attention.

I estimated the SportStar's roll rates at a bit over three seconds for the 45-to-45 degree roll reversal test. This places it in the middle-to-faster category. Ailerons retain most of their authority down to stall. Pitch control is stable and not overly sensitive.

On the whole, the SportStar's stick forces are reasonably light, in about the middle of the range for this class of aircraft. Though the rudders felt a bit stiff on the ground, this feeling seemed to disappear in the air. Overall, I found a lot to like about the SportStar's handling, and that's my personal area of focus when flying a new plane.

In high-speed runs upwind and downwind using a GPS, I recorded 128 knots in one direction and 95 knots the other, which averages to 112 knots. The

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November 12 Dallas, TX, Collin Co. Reg. Airport
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Note: The previously scheduled New Orleans tour stop has been cancelled.

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company's brochure states a 75 percent power cruise yield of 106 knots or 121 mph, showing conservative figures in what the factory claims.

The descent rate using zero flaps and the airplane's 57-knot best glide speed turned out to be slightly less than 500 fpm, a reasonably good sink rate for this size machine. The aircraft's pilot operating handbook suggested a configuration of 52 knots with one notch of flaps, which produced a 600-650 fpm descent rate. However, the stated engine-out best glide speed of 57 knots seemed a better choice to achieve a slower-speed descent (even with the engine idling).

What Goes Up...

Eventually airplanes have to come back to roost, so we somewhat reluctantly left the stunningly beautiful Wisconsin sky for some experience with the tarmac.

The SportStar's responsiveness made it easy to hold the nose high enough for a full-stall landing. I prefer this technique; I think it's the best way to have an aircraft meet terra firma. Some airplanes make full-stall landings more difficult, and in my experience, this is more common with low-wing designs. Not the SportStar. All of my landings were good; good enough that Jeff complimented my technique, but the plane simply didn't fight me.

Landings were definitely easier with one notch of flaps deployed. In one no-flap landing attempt, the SportStar's nose got quite high and the plane floated considerably. A new pilot could achieve a landing in this situation, but the operation is much less challenging with some flaps.

Sideslips were not particularly authoritative, but they were hardly needed with good flap control of approach speeds and the SportStar's willingness to fly slowly while retaining good control authority.

When we got back to more turbulent air at lower altitude, the SportStar showed a minor tendency to yaw, something like a V-tail Bonanza. Some observers have noted that the tail on the SportStar might be slightly undersized,

All of my landings were good; good enough that Jeff complimented my technique, but the plane simply didn't fight me.

perhaps contributing to this movement in rowdier air.

Perhaps in concert with the yaw movement, the SportStar does not exhibit a strong tendency to weathercock in crosswinds. I was fortunate and had winds from a favorable heading on the day I performed takeoffs and landings. Heat and humidity conspired to extend the takeoff roll; nonetheless, I believe the aircraft can depart the ground quite a bit faster than the 770 feet stated on factory literature.

A long lever arm between the seats operates the flaps. You can set the surfaces to 15, 30, and 50 degrees, which offers versatility to handle different landing fields. One SportStar owner reported that he landed with a passenger on an 800-foot grass strip and had room to spare.

Even without flaps, the SportStar's ailerons guarantee a wide control range that allows you to perform efficient slips to a landing. Combining SportStar's good slips and deep flaps, you can approach at speeds barely above 40 mph and remain in good control. This is even slower than possible on some ultralights. You can use one notch of flaps for takeoff, though it isn't mandatory. Because they are split flaps, they produce more drag than wing-shaping lift.

See Your 'Star'?

Evektor America may eventually offer an experimental LSA (E-LSA) kit, but for the time being Jeff said his company would concentrate on ready-to-fly S-LSA.

I explored the SportStar kit a couple years ago and found it to be a fairly fast-build airframe kit that requires no

riveting. Evektor describes the kit as a "bolt-together" one that should take about 200 hours for assembly. That kit did not include the engine, prop, instruments, or paint. Perhaps after initial sales success with the factory-built S-LSA SportStar, Evektor America may choose to sell an E-LSA kit.

For now, though, the ready-to-fly SportStars—and the Evektor's emerging four-seat aircraft, the Cobra—are the mainstays of Evektor America. As of EAA AirVenture 2005, its biggest focus was on the deluxe SportStar SE model.

Standard SportStar instrumentation includes the basic engine and flight instruments. Radios and added flight instruments are by customer request, and that remains true on the SE model. The base price of the SportStar without the SE trim and additional panel items is about \$85,000, depending on the dollar/euro exchange rate. The non-SE model has cloth seats and non-metallic paint.

The SportStar SE equipped as flown for this article included a Garmin 296 GPS, transponder, electric trim, landing lights, position lights, leather interior, and accenting metallic colors on the paint trim. This model sells for \$96,500. Among those aircraft turned over to customers as of press time, the average was \$92,000-\$93,000.

For those who can't or don't want to write an almost-six-figure check, financing is available for certificated S-LSA from companies like AirFleet Capital (www.airfleetcapital.com). The LSA market represents a new aviation segment, though, so finance companies will look closely at specific aircraft until they gain more experience. Assuming you qualify, you could cut SportStar's sale price to about an \$18,000 down payment and about \$900 a month for 10 years at just over 8 percent interest. (This information is subject to change and will be evaluated for each purchase. The preceding figures are merely an example.)

At these finance figures, your payments are not dramatically higher than many sport utility vehicles. So, if a SportStar puts flights of fancy in your head, you can make fantasy into reality.

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