

SEEN IN

SEBRING



Three new LSAs
get test flights



THE U.S. SPORT AVIATION EXPO in Sebring, Florida, gave a revealing glimpse at the innovation and refinement taking place in the Light Sport Aircraft category. The fourth annual event got the 2010 flying season off to a promising start with a healthy turnout among both exhibitors and attendees. This year's gathering marked the first time AOPA has had a display at the event, and AOPA's 2010 Fun to Fly Sweepstakes Remos got lots of attention after making the 800-nm trek from Frederick, Maryland, to the warmth of Florida's winter sunshine (and back!).

Piper Aircraft made the biggest news by unveiling its PiperSport. The airplane, built in the Czech Republic (and formerly known as the Sport Cruiser), fits neatly into the Piper line with its metal construction, low wing, and obedient handling qualities.

The U.S. Sport Aviation Expo also gave AOPA editors Jill Tallman and Dave Hirschman the chance to fly some of the many exciting aircraft on display. Here's some of what they found:



PiperSport

The PiperSport (above) was unveiled at the U.S. Sport Aviation Expo in Sebring, Florida, in January. Our staff flew the Jabiru J230 (top left), PiperSport (center left), and Carbon Cub SS (below left) in Sebring.

THE FIRST THING THAT STRIKES YOU about the PiperSport is its sleek, streamlined appearance. From its beefy, free-castering nosewheel to the pointy tip of its rudder, the airplane is made of metal and held together with pop rivets. Czech Sport Aircraft has been building Sport Cruisers since 2006, and the metalwork is flawless—as you'd expect from the metalworking masters in the Czech Republic who, for decades, have turned aluminum into flying works of art ranging from Blanik gliders to Aero Vodochody jets (such as L-39s).

Piper has rebranded the Sport Cruiser as the PiperSport in an effort to break into the LSA market with a ready-for-primetime airframe that hasn't done well in North America for what the Vero Beach, Florida-based company says, diplomatically, are "other-than-airplane-related" (in other words, financial) issues. With Piper's dealership network, credibility, and staying power, the company expects the PiperSport to compete with LSA market leaders.

The PiperSport's front-hinged bubble canopy offers easy, over-wing access to the cockpit—and sturdy handgrips on the glareshield and a metal post between the two seats make it possible to climb in without stepping on the seat cushions. The baggage area behind the seats can accommodate up to 40 pounds. It's also got a pair of wing lockers that can store up to 88 pounds. That's not bad by small-airplane standards—and downright voluminous in the LSA world.



Piper will offer three versions of the PiperSport panel, including this version with a Garmin GPSMAP 496.

The PiperSport is also generous in the fuel department, carrying up to 30 gallons in a pair of 15-gallon wing tanks. The airplane's endurance is far longer than just about anyone cares to sit behind a Rotax 912 ULS, a fuel-sipping 100-horsepower engine that typically burns about five gallons an hour in cruise. The propeller is a three-blade, ground-adjustable Woodcomp model, also made in the Czech Republic.

Piper plans to offer at least three versions of the PiperSport: a base model with minimal instrumentation; another with a Dynon EFIS and engine monitor, and a Garmin GPS-MAP 496 (soon to be converted to a Garmin aera GPS) in the center; and third model that adds a Dynon autopilot. All will have 12-volt electrical systems.

The preflight is standard. Drain the fuel from three sumps, one for each wing tank and for the firewall-mounted gascolator. Move the control surfaces; all except for the rudder are actuated by pushrods. Pull the propeller through until the Rotax "burps" (a sound that in actual fact is more like a toilet flushing), and then check the oil and engine coolant.

Board from a step behind the wing, settle into the 46.5-inch-wide cockpit, and latch the four-point harness. Piper Chief Pilot Bart Jones left the canopy open during the engine start—a move prompted by both the warm Florida sunshine and the rugged construction of the canopy and its airframe attachments.

We taxied (with the canopy down) to Sebring's Runway 18, ran up the engine, and launched southbound. Acceleration seems unusually brisk for such a diminutive airframe and engine, and the PiperSport reached its 45-knot rotation speed in about 300 feet. The rudder has plenty of authority and tracking the centerline is a simple matter.

Even though I'd been warned that the PiperSport is light in pitch, I still managed to over-rotate on takeoff. Yeah, it's light in pitch, and the elevator works really well, too—even at just 45 knots. Best rate of climb is 65 knots, and the rate is impressive: about 1,000 feet per minute and a 12-degree deck angle with two FAA-standard-size adults aboard (and almost full tanks on an 80-degree Fahrenheit day).

The field of view is exceptional as you'd expect for an airplane with a bubble canopy. But even the downward visibility is better than many other low-wing aircraft because the seating position allows occupants to peer slightly forward of the leading edge.

The flight controls are lighter in pitch than roll—but not twitchy in either. And the forces seem to vary little from stall speed to high cruise. Four buttons on the joystick electrically adjust elevator and aileron trim. The prop pitch was set so that the engine reached its 5,500 rpm continuous operating limitation just before the PiperSport arrives at the LSA category's maximum 120-KIAS level-flight speed.

Power-off stalls are preceded by an unusually prolonged (and hard to ignore) airframe buffeting, followed by a crisp break at about 42 KIAS. With the flaps down, there's some buffeting before the break, but not nearly as much. Slow flight at 50 KIAS, with 30-degree bank angles, is rock solid. The PiperSport is placarded against intentional spins and aerobatics.

The electric flaps, controlled by a rocker switch on the instrument panel, can be deployed at up to 75 KIAS, and the downward pitching moment is minimal. We flew final approach at 60 KIAS and slowed to 50 over the threshold, and the airplane's behavior was both conventional and obedient. Jones said the PiperSport flies well on blustery days. "It's a solid airplane that flies well and is extremely conventional in design and construction," he said.

Piper intends to make the airplane a staple for flight schools as well as an enjoyable alternative for seasoned pilots looking for a capable, nice-handling aircraft with low operating costs.

"The PiperSport isn't toy-like," Jones said. "It's a real airplane, and it flies like a Piper. I have no trouble envisioning our Meridian or Mirage owners buying a PiperSport for fun flying. And after all, isn't fun the reason we all started flying in the first place?" —Dave Hirschman



Jabiru J230



THE JABIRU J230 BOASTS a pair of winglets. It sits low on its wide main gear, not unlike Jackie Chan doing a horse stance in a martial arts film. (That's a good thing.) But what really catches the eye is its spacious rear baggage compartment that bears no resemblance to the luggage spaces on most other LSAs. This one looks as if it could hold another passenger, if that were legal (which it's not). But you could

put a good-sized dog there, and buyers have been known to do that.

The center-mounted stick presents no obstacles when climbing into the airplane. The J230 I flew at the U.S. Sport Expo had a U-shape stick so that it could be flown from the left or right seat, but most buyers prefer a single stick, according to Nick Otterback of Arion Aircraft, who gave me my introduction to the J230. The seats aren't adjustable, but adjustable rudder pedals are available as an option.

Sold as an SLSA or as a kit, the 230 flies behind a 120-horsepower Jabiru 3300 engine. The company likes to say that it couldn't find an engine it liked for the aircraft, so it built its own. The 3300 is a six-cylinder, four-stroke, air-cooled engine with a TBO of 2,000 hours. Also available are the J170, which uses an 85-horsepower engine, and the J250—which is similar to the 230 except that its wing has a lower aspect ratio, and therefore no winglets. The J230 holds 36 gallons of fuel. Fuel consumption is said to be five gallons per hour at gross weight in cruise (2,580 rpm). Jabiru says the airplane cruises at 120 knots.

The J230 flown for this report held no surprises (again, that's a good thing). Otterback advised me to lead turns with the rudder and not to expect to apply much stick

force. The J230 seemed stable; once you cranked it into a 30-degree bank, it stayed put. Power-on stalls were so tame that I asked Otterback to demonstrate one a second time just to see it again. The airplane simply settled. Stall speeds at gross weight are 38 knots for a full-flap stall and 45 knots clean.

As we flew over Lake Istokpoga, I wished for slightly better visibility out the front windshield, which seemed somewhat narrow for a high-wing aircraft.

Jabiru, based in Australia, has been building and certifying light sport aircraft since 1991. Jabiru USA has built aircraft at its Shelbyville, Tennessee, facility since 2005.

—Jill W. Tallman

The Jabiru J230-SP comes standard with wheel pants. The roomy cabin measures 44 inches at the hip.

Carbon Cub SS

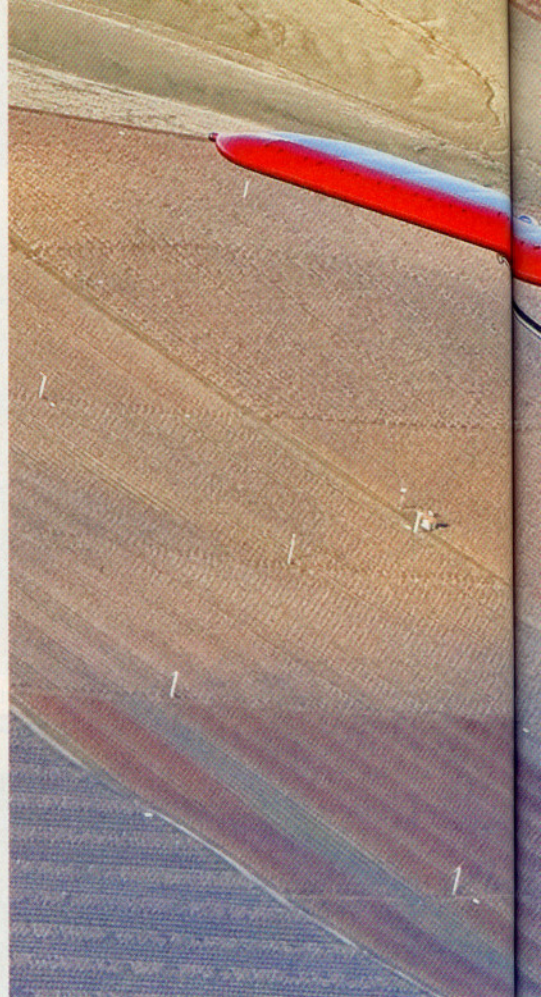
WHEN THE AIR TRAFFIC CONTROLLER requested that the Carbon Cub SS make an "immediate departure," the airplane didn't just comply. It redefined the term.

The 180-horsepower LSA leapt off the ground in about four airplane lengths, carrying two people and more than 20 gallons of fuel skyward at 1,700 feet per minute and 60 MIAS. Built by CubCrafters in Yakima, Washington, the carbon-fiber rocket ship proves that LSAs don't have to be boring. They can offer stellar, pulse-quickening performance.

"This airplane will be ready to fly by the time you get the throttle all the way forward," Chris Cater, a CubCrafters dealer from Michigan, said. "With a light load, it's off the ground in three airplane lengths."

In an LSA category dominated by composite, Rotax-powered European aircraft, the Carbon Cub SS is an American-built, fabric-covered, Lycoming-propelled anachronism. Its outward appearance bears a strong resemblance to the Super Cubs first built in the late 1940s. But its design and construction have been changed so thoroughly with expanded dimensions, fewer parts, new materials, and modern engine technology that the Carbon Cub SS is categorized as an entirely different airplane.

The standard panel includes basic flight instruments, but this test airplane was equipped with a Garmin GDU 370—based on Garmin's portable GPSMAP 695.



CubCrafters sells the Carbon Cub SS as both a factory-built SLSA and a kit ELSA. The cockpit is 30 inches wide at the pilot's shoulders (about four inches wider than a Super Cub), and the designers made extensive use of lightweight composite materials that put the airplane's empty weight at 900 pounds—about 250 pounds less than a standard Super Cub, and giving the LSA a 420-pound useful load. CubCrafters subjected the airplane to FAA Part 23 load tests at weights as much as 40 percent beyond LSA limits.

Engine start was standard Lycoming, and taxi was normal for tailwheel airplanes with toe brakes—although the forward visibility was so good that only slight S-turning was required.

Engine run-up was a bit unusual in that the customary magneto drop was absent, thanks to the engine's dual electronic ignition. Moving the key switch between Left, Right, and Both produced no reduction in engine rpm. Instead, a pair of red lights on the instrument panel alternately showed that one ignition, or the other, was off. Fuel is stored in a pair of 12-gallon wing tanks, and the quantity is read directly through clear sight gauges in each wing root.

COURTESY OF CUB CRAFTERS



Electric elevator trim is controlled via a rocker switch on the joystick. There's no trim indicator in the cockpit, so the pilot must look outside at the elevator before takeoff to confirm the tab is set in the neutral position. The aircraft comes standard with vortex generators (VGs) on top of the wings and on the bottom of the horizontal stabilizer. The VGs raise the critical angle of attack, lower stall speeds, and shorten takeoff and landing rolls. The aircraft also contains four-point AmSafe seatbelt harnesses with airbags. The flap handle is hinged near the upper left wing root, and moving it requires depressing a trigger-like mechanism. We used the first notch of flaps for a short-field takeoff—and the rapid acceleration and short ground roll were truly breathtaking.

The semi-reclined seating position when the airplane is on the ground with a high deck angle becomes more upright in level flight. The instrument panel is both lower and moved four inches forward from the Super Cub's, and visibility over the nose in flight is excellent. However, the wings block a significant portion of the pilot's field of view in steep turns, so it's a good practice to lift a wing and check for traffic before starting steep turns.

Elevator and aileron forces are well balanced with little adverse yaw. Rudder forces are surprisingly heavy, both on the ground and in the air, but not disagreeable.

The POH allows full power to be used for up to five minutes in takeoff and climb, and limits pilots to 80 horsepower in cruise flight. The manufacturer relies on the honor system for compliance, so nothing prevents pilots from flying at higher power settings (and greater speeds) than the POH dictates. The airplane is limited to the LSA maximum 120 KIAS in level flight—and the tundra tires were terrific speed brakes.

Stalls were benign affairs that took place at an absurdly slow 32 MIAS and fell below 30 MIAS with flaps. They're preceded by mild aerodynamic buffeting about three knots before the break. Ailerons are crisp and effective even after the stall break, and recovery is standard.

We flew the pattern at 70 MIAS, about 20 miles per hour faster than normal. A three-point landing in a 10-knot crosswind resulted in a ridiculously short landing roll, and although we touched down less than 200 feet from the runway turnoff, we could have halved that.

The Carbon Cub SS is an exciting and versatile aircraft that has exceptional short-field and climb capabilities, and good cross-country performance with speed and economy that compare favorably to Super Cubs. However the LSA category's maximum gross weight restrictions limit the Carbon Cub SS's payload, to far less than what traditional Super Cubs are allowed to carry.

A high-lift airfoil and a powerful engine with variable ignition timing (instead of fixed-timing magnetos) give the Carbon Cub SS big advantages in hot-and-high conditions where high density altitudes degrade aircraft performance. Anecdotal information suggests the Carbon Cub SS is capable of climbing well into the flight levels. LSAs are limited by regulation to 10,000 feet and below, but it will be interesting to see what individual do when building the Carbon Cub SS as Experimental aircraft. It's easy to envision clipped-wing versions, constant-speed props, and IFR instrumentation.

The LSA category caps such things as gross weight, stall speed, and top speed. But the Carbon Cub SS shows that there's no limit on innovation or excitement.

—Dave Hirschman