





Flying techmobile

TL's StingSport comes loaded with computers

BY ALTON K. MARSH

One of the most flexible things about the special light-sport-aircraft certification process is the ease with which new technologies can be brought to market. That is evident on the carbon-fiber StingSport from the Czech Republic. It offers the same TruTrak autopilot (as an option) that guided the record-breaking Virgin Atlantic *GlobalFlyer* around the world—twice. It was Experimental on the *GlobalFlyer*, but approved under the light sport certificate granted to the StingSport.



**Light
Sport**

TL Ultralight, said to be on the verge of changing its name to TL Sport Planes, distributes its aircraft in this country through SportairUSA in Little Rock, Arkansas. It is redundant to say the StingSport has two seats, weighs 1,320 pounds, and goes 120 knots—since those also are the limitations on the light-sport category—but the StingSport delivers most of those 120 knots.

The StingSport comes standard with TruTrak's pictorial turn-and-bank indicator, which also is used by the add-on one- and two-axis autopilot options. The one-axis

option provides GPS waypoint navigation to the autopilot (\$4,430), and the two-axis option offers that but adds altitude hold (add \$3,934).

The thinking behind the pictorial turn-and-bank indicator by the company's owner, general aviation autopilot pioneer Jim Younkin, was that sport pilots may have very little experience and might get StingSport, certified for day-VFR use only, into a cloud. They will probably focus on one thing to get out of trouble, the attitude indicator. So Younkin put the GPS ground track in a display window in the attitude indicator so pilots can do everything in one place—keep the airplane under control, turn to the opposite heading, and get the heck out of the cloud. It's not just any ground track display, either. You've seen GPS ground track readings that sometimes shift a degree or two every few seconds? This one has an extra processor to average the readings and provide smoother motion.

Younkin also added a red arrow to the attitude indicator that lights up if the bank angle gets much past 30 degrees, especially helpful in the cloud. The arrow even shows which way to move the stick.

That's not the only computer aboard. A Garmin GPSMap 396 is standard equipment, and the aircraft has a docking port allowing the 396 to be

mounted in the panel. The 396 can receive XM satellite weather for a subscription fee. In other electronic tricks, the StingSport's Garmin intercom is wired to receive audible voice alerts from the Garmin 396. There also is a digital engine information display from Grand Rapids Technologies that comes standard.

One of the aircraft's main standard features is the Czech-built Galaxy rocket parachute. Not only does the entire aircraft settle to Earth beneath the Galaxy parachute, but also the rocket that pulled out the chute has its own little parachute to minimize damage to anything on the ground that it might hit.

There is more technology yet to come. StingairUSA distributor Bill Canino said four-point seat belts with air bags (AmSafe Aviation air-bag inflatable restraints) are on the horizon as soon as FAA certification is granted. A four-screen electronic flight information system by Grand Rapids Technologies that features highway-in-the-sky navigation and weather displays is to

be added. An airborne traffic alert system has completed testing aboard a StingSport.

You can learn something about the cost of full certification by perusing the engine options list for TL Ultralight StingSport. The upgrade from the aircraft's standard uncertified 80-horsepower Rotax 912 engine to the uncertified 100-horsepower Rotax costs \$5,294, but the same engine is available as a fully FAA certified aircraft engine, but costs \$11,171. "The [two 100-horsepower] engines are very similar, but you get a lot more paperwork with the certified engine," said SportairUSA technician Mark Miller in Little Rock. Once you have that paperwork, you'll know where every nut and bolt came from—the same place as the nuts and bolts on the uncertified engine.

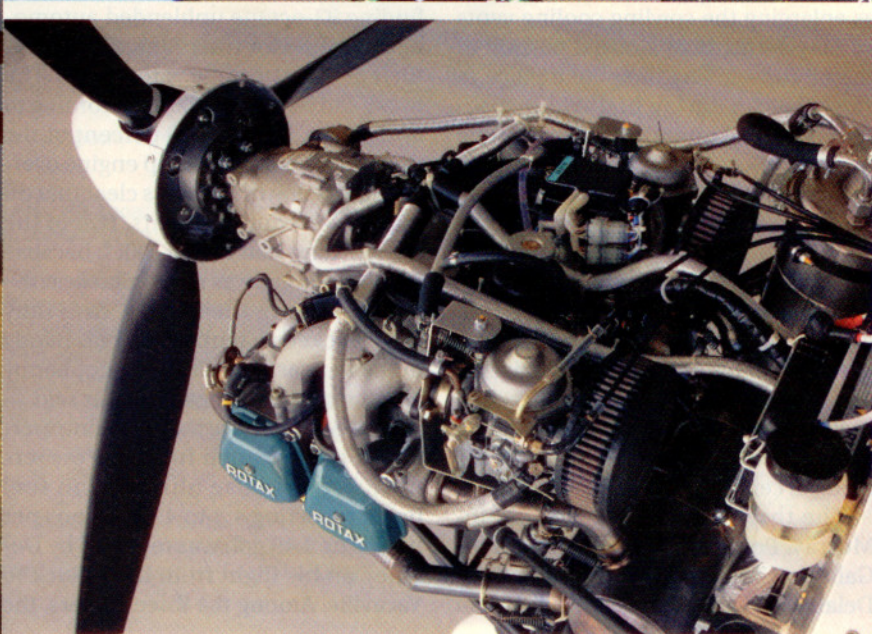
TL Ultralight, based at a sleepy, abandoned Soviet bomber base at Hradec Králové, Czech Republic, employs 80 people. Its president, 41-year-



old Jiri Tlustý, is not only the owner but also the designer of the aircraft. He got started prior to the light-sport movement with the TL 96 Star ultralight, and 150 are now flying. There also are 170 light-sport StingSports flying in the world, for a total of 320 aircraft.

At this writing, the German-built Flight Design CT has more than 70 deliveries in the United States, the Allegro 2000 has more than 40 deliveries (also made in the Czech Republic), and a Cub made by American Legend Aircraft in Texas has more than 30 deliveries, according to the Light Aircraft Manufacturers Association. That brings StingSport in at fourth position with 26 StingSports in the hands of customers. In June, TL was producing eight planes a month, but was increasing production. Tlustý says there are four other

The StingSport features split flaps (below). A center tank (upper right) comes standard, with options for wing tanks. The panel's attitude indicator (right) displays the GPS ground track—designed as an aid to sport pilots who might wander into a cloud.





manufacturers in the Czech Republic that he considers competitors.

Aviation runs in his family: Tlustý's father was leader of a Red Bull aerobatic airshow team. Although the younger Tlustý did the design work himself, he also got two universities involved that supplied many good ideas. Canino, as the North American distributor, has added 100 minor changes as well, such as enlarging the cowling cooling vents so they perfectly fit a raised portion of the oil cap—giving the pilot a place to store the cap during preflight inspection of the oil quantity. Tlustý said he has new sport aircraft on the horizon, with a Cessna 172 look-alike—but one with two seats—planned for 2007.

What the owners think

Canino supplied names of three U.S. owners and true to Tlustý's comments that most of his customers are older pilots, all were in their 60s or 70s. Two switched to the light-sport category because of concerns over keeping their medical certificate in the future.

The three are Jim Fogarty, of McMurray, Pennsylvania; Jeff Reider, of Gallatin Gateway, Montana; and Don Delaney, of Vacaville, California. As you

The cockpit is more than roomy enough for two, and the throttle position (center quadrant, on the left) and trim lever position (next to throttle) are convenient.

might expect from dealer-chosen customers, all are very happy with their aircraft and have had no mechanical problems.

All, however, have had difficulty finding 92-octane unblended automobile gasoline for their Rotax engine. In their areas, 91 octane is the norm. The Rotax can be run on 100LL according to StingSport, but only 30 percent of the time, if owners are to keep engine overhaul costs down. Yet it was clear that on long cross-country flights, two of the owners have had to use 100LL because automobile gas was not available at the airports along their route. And they can't just keep a tank of auto gas handy in the hangar. "My airport is not happy about storage of mogas," Reider said.

The good news is that the StingSport doesn't need much fuel. The owners have kept precise numbers on fuel burn, reporting 4.3 to 4.49 gallons per hour. The 4.49 gph was reported by Delaney on his flight from Little Rock to Vacaville. Among the three owners, the

most popular options are the 100-horsepower uncertified engine, the \$1,039 tinted main canopy, and the \$4,158 option for two auxiliary six-gallon fuel tanks, one in each wing. The main tank is under the belly and is fueled through an opening where the wing joins the fuselage.

The flight test

All new owners get five hours of flight training, as well as training on owner-performed maintenance. I was able to get in three flights, including the one for photos northwest of Little Rock. Aside from the sporty look, and thus the sports-carlike name, I noticed the wheels. Big, beefy three-spoke wheels. They looked like they needed an accessory, like the spinner hubcaps seen on the street that keep on turning after the car stops.

Tlustý said the wheels were designed for grass operations, but after seeing numerous warnings about being kind to the nose gear in the aircraft operating instructions (the light-sport version of a pilot's operating handbook), it would seem prudent to operate only on smooth grass. Canino has had damage to a nosewheel that



Most owners choose the tinted canopy and 100-horsepower Rotax engine upgrade as options. This StingSport was photographed at Little Rock, Arkansas, the distributor's location.

The aircraft has a steerable nose-wheel; engine rpm must be maintained at 2,000 or more during taxi to avoid wear and tear on the gearbox teeth of this geared engine. Takeoff comes a bit earlier than in most GA aircraft: rotation at 40 knots and liftoff at 45 with the split flaps at their half-setting. The climbout requires the throttle to be brought back from 5,800 rpm to 5,500 rpm while the speed is maintained at 75. Leaning is automatic and there is no mixture control.

Stalls, steep turns, and slow flight proved how docile the StingSport is, although I noticed what seemed to be engine vibration during some of the maneuvering. Canino said one flap was drooping slightly in maneuvers that increased G forces and was the cause of the vibration. Later during our 1.5-hour photo flight when no maneuvers were done, the vibration disappeared. A second StingSport just off the boat from the Czech Republic that I also flew had a millisecond interruption in engine operation twice during a short flight—it could have been debris still remaining from manufacturing that we saw while taking fuel samples. All three owners report smooth engine operation. *Continued*

got caught in a large rut while taxiing on rough ground.

Entry by two people must be done one person at a time or the aircraft will settle on its tail. You first support your weight on the back of the cockpit and lower yourself into the seat between the raised canopy and the back of the cockpit using a handhold on the top of the instrument panel. The cabin is 5 inches wider than that of a Cessna 172 and very roomy.

A note about the canopy. I could see no distortion when looking through it against lines in the hangar door, and in

flight that pays off with a view that works not only for you, but also for the camera you bring along. No, you can't open the canopy in flight. The canopy optics are so good that if you leave the canopy raised while the aircraft is parked on the ramp in the sun, the canopy will focus the sun and singe a narrow crescent burn on the upholstery. So leave it closed. There are vents to direct air through the canopy into the cabin, and owners report being comfortable in flight despite obvious greenhouse heating one gets from a bubble canopy.

SPECSHEET

StingSport TL-2000

Base price: \$99,710

Price as tested: \$110,237

Specifications

Powerplant.....80-hp Rotax 912UL (standard)
100-hp Rotax 912ULS (optional)
Recommended TBO for both.....1,500 hr
Propeller.....Woodcomp SR200,
ground adjustable, 3 blade
Recommended TBO.....500 hr
Length.....20 ft 4 in
Height.....6 ft 4 in
Wingspan.....28 ft 3 in
Wing area.....121.49 sq ft
Flap area.....18.6 sq ft
Wing loading.....10.87 lb/sq ft
Power loading w/912UL.....16.5 lb/hp
Power loading w/912ULS.....13.2 lb/hp
Seats.....2
Cabin width.....44 in
Standard empty weight.....780 lb
Empty weight, as tested.....817 lb
Max gross weight.....1,320 lb
Max useful load.....540 lb
Max useful load, as tested.....503 lb
Max payload w/full main tank, as tested ..
.....380 lb

Max payload w/full fuel w/opt tanks, as tested.....308 lb
Fuel capacity, std....22 gal (20.5 gal usable)
132 lb (123 lb usable)
Fuel capacity w/opt tanks.....34.6 gal
(32.5 usable)
207.6 lb (195 lb usable)
Baggage capacity (three aft baggage compartments).....60 lb

Performance

Takeoff distance, ground roll.....490 ft
Takeoff distance over 50-ft obstacle.....940 ft
Max demonstrated crosswind component.....17 kt
Rate of climb, sea level.....810 fpm
Cruise speed/range (fuel consumption) w/reserves
@ 75% power, 80 hp, std fuel.....
.....105 kt/407 nm (4.4 gph)
@ 75% power, 100 hp, w/opt tanks.....
.....115 kt/722 nm (4.7 gph)
Service ceiling.....18,000 ft

Landing distance over 50-ft obstacle...1,150 ft
Landing distance, ground roll.....390 ft

Limiting and Recommended Airspeeds

V_X (best angle of climb).....50 KIAS
V_Y (best rate of climb).....60 KIAS
V_A (design maneuvering).....118 KIAS
V_{FE} (max flap extended).....65 KIAS
V_{NO} (max structural cruising).....118 KIAS
V_{NE} (never exceed).....164 KIAS
V_R (rotation).....45 KIAS
V_{S1} (stall, clean).....44 KIAS
V_{S0} (stall, in landing configuration) ..39 KIAS

For more information, contact SportairUSA, 10401 West Markham Street, Little Rock, Arkansas 72205; telephone 866/359-7846; or visit the Web site (www.sportair-usa.com).

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.

Initially I had the tendency to over-control as the wings banked slightly with every thermal, and Canino suggested I do less. By the time the third flight occurred in formation with a Beechcraft A36 Bonanza, I was moving the stick very little but the StingSport easily stayed in formation position. It also was later in the day when thermal activity had decreased.

Canino teaches landings by reducing the power to idle abeam the touchdown point and leaving it there, flying a curved pattern and—for those new to the aircraft that might undershoot—touching down on the second third of the runway. One of the owners mentioned the airplane does not like to come down, so idle power is a necessity. All the owners were happy with crosswind performance, demonstrated to 17 knots, and while flying at Little Rock I had the opportunity to experience excellent crosswind control as well.

The control surfaces are big enough to side-slip in a roaring crosswind, or to forward-slip to reduce altitude. With such big control surfaces, though, I wondered why the trim tab, easily operated by a lever next to the throttle, is so small. With the trim lever all the way aft, the aircraft still requires back-stick pressure to maintain the desired final approach speed of 60 KIAS. One owner complained that the trim lever on his aircraft tends to creep forward during final approach. (On short final, 55 knots is maintained.)

Fogarty was a USAirways Boeing 767 pilot prior to retirement, and Delaney was an Air Force Lockheed C-5 pilot. Reider was a Cessna 172 pilot before buying the StingSport. None of the three reported difficulty transitioning to the StingSport.

As Fogarty notes, however, the really important attributes have more to do with quality of life than aeronautical prowess. "It is easy to move on the ground, inexpensive to operate, and it draws a crowd." A good day in the air means not only having fun on the way to the hamburger, but also drawing a crowd when you get there.

ACPA

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

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