Dova Skylark LSA: Czech-Made

SLICK AERODYNAMICS, GOOD LOOKS, AND A SPACIOUS CABIN CREATE AN INDUSTRY-LEADING LSA

BY BILL COX

PHOTOGRAPHY BY JESSICA AMBATS

Light-sport aircraft may not be as complex or sophisticated as normal-category airplanes, but the LSA trend has produced some very sophisticated machines. Some LSAs are remarkably reminiscent of their more-expensive counterparts; a few even offer benefits you can't buy for the same horsepower in a "normal" airplane.

The Dova Skylark is one of those. From your first look at the airplane, you have to be impressed with how much it resembles both a normal-category trainer and a personal two-seater at the same time. Indeed, the Skylark's creators hope it will be attractive to both personal buyers and flight schools alike.

The Skylark is primarily the brainchild of David Marsden, a Professor of Aeronautical Engineering at the University of Alberta in Edmonton, Alberta, Canada. Marsden conceived the Skylark with the help of the university's wind tunnel, a definite advantage in avoiding the aerodynamic glitches that can afflict new aircraft designs. For that reason, the Skylark was essentially a clean-sheet-of-paper airplane, with little dependence on ideas borrowed from other LSAs.

From the beginning, Professor Marsden set himself three goals in designing what he hoped would be a competitive LSA. First, and perhaps most important, Marsden wanted to create an airplane that would provide good performance and handling with special emphasis on pilot-friendly manners both at cruise and in the low-speed regime. Marsden hoped to

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SPECIFICATIONS

Base price: $100,600
Engine make/model: Rotax 912S
TBO (hrs.): 1500
Horsepower@altitude: 100@SL
Fuel type: 100/100LL
Propeller type: Fixed Pitch
Landing gear type: Tri./Fixed
Max ramp weight (lbs.): 1320
Gross weight (lbs.): 1320
Landing weight (lbs.): 1320
Empty weight, std. (lbs.): 653
Useful load, std. (lbs.): 667
Usable fuel, std. (gals.): 24
Payload, full std. fuel (lbs.): 523
Wingspan: 26 ft.
Overall length: 21 ft. 7 in.
Height: 7 ft. 5 in.
Wing area (sq. ft.): 101
Wing loading (lbs./sq. ft.): 13.1
Power loading (lbs./hp): 13.2
Seating capacity: 2
Cabin width (in.): 43

PERFORMANCE

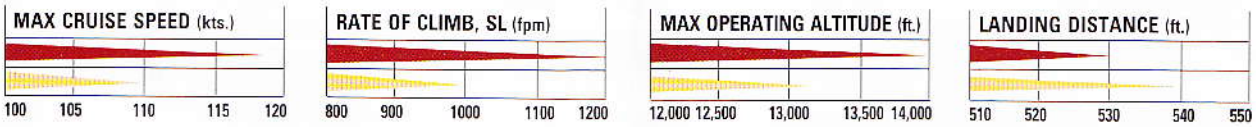
Cruise speed, 75% power (kts.): 117
Fuel consumption, 75% power (gph): 4.0
Max range (nm):
75% power: 457
60% power: 543

V_{so} (kts.): 37
Service ceiling (ft.): 14,000
Best rate of climb (fpm): 1200
Takeoff ground roll (ft.): 500
Landing ground roll (ft.): 530
Source: *Manufacturer's Specs*

WHAT'S AN LSA?

Now that LSAs have become an economic force in general aviation, it's important to remember the limitations associated with the type. LSAs are nonpressurized, single-engine piston airplanes with a maximum of two seats and a gross weight of 1,320 pounds or less. The gear and prop must be fixed, though the latter may be ground adjustable. Maximum speed is limited to 120 knots and stall speed must not exceed 44 knots. Contrary to popular belief, LSAs can use any available engine consistent with the limitations above.

■ DOVA SKYLARK ■ EVEKTOR SPORTSTAR



create a design with the highest performance ratio (cruise speed divided by stall speed) of any LSA. He achieved a ratio of 3.16. For nonturbo airplanes, that's nearly equal to the Mooney Ovation's 3.22, long considered one of the most efficient machines in the sky.

Second, the Canadian was determined to create something new, not just another "adapted" LSA that's an obviously scaled-up ultralight redesigned to meet LSA specs. The Skylark was a new design, owing nothing to anything that had come before.

Finally, Marsden wanted the airplane to have a large enough cabin so that both pilot and passenger would be comfortable, whether they flew for an hour or five hours in one day.

To that end, Marsden conceived an innovative LSA, but one built in a traditional manner. He first licensed Dova Aircraft of the Czech Republic to produce the Skylark, then sold them all rights to the design two years ago.

The Skylark is an all-metal airplane, constructed mostly of 2024-T6 aluminum. The designer came up with a semi-NLF (natural laminar flow) airfoil intended to keep airflow attached as far aft on the chord as possible. The wing is also fitted with swept winglets to convert part of the wingtip vortices to lift. The engineer configured the airplane with a T-tailed empennage that mounts the elevator high up out of the wash of the prop so it's less susceptible to power changes.

WAYPOINT

Winglet technology is hardly new. It has been employed on both jets and piston products for years.

Inside the fuselage, the Skylark features conventional sticks for roll and pitch control, a forward-sliding canopy and a 43-inch-wide cabin. The airplane is mounted above a standard tricycle gear fitted with slickly faired wheel pants. The nosewheel is steerable, and braking is via conventional hydraulic toe brakes rather than heel brakes, a hand brake, finger brakes or some other system.

Like so many of the first-generation LSAs, the Skylark mounts a four-cylinder, 100 hp, Rotax 912 engine, originally an Austrian mill, but now also produced by Bombardier of Canada under license. TBO is a theoretical 1,500 hours, with overhaul costs on the order of $15,000.

The T-tailed Skylark was originally licensed in Europe and recently earned its U.S. certification in the special light-sport aircraft category. This means the Czech parent company, Dova Aircraft, can build the airplane and market it

without requiring the buyer to do any construction at all. Dova exports the Skylark to a half-dozen countries.

Here in the United States, www.sportsplanes.com of Salt Lake City, Utah, is the Skylark's exclusive distributor, selling the airplane through one of its 15 regional centers. Sports Planes represents a half-dozen LSAs and has made a business of offering foreign aircraft on this side of the Atlantic. (The company also markets two all-American LSAs.)

The Skylark's gross weight is 1,320 pounds, and an empty airplane weighs about 650 to 660 pounds. That means a typically equipped Skylark can carry nearly its own weight in useful load. Fill the twin wing tanks with 24 gallons of fuel, and you can still fly away with well over 500 pounds of payload. That's a pair of 250-pound Dallas Cowboys linebackers or a more standard-sized pilot and passenger plus the allowed 50 pounds of baggage.

The Skylark uses the same engine as many other ultralights and a wing that's comparable to the competition in size, but stall speed is only 37 knots. That translates directly to good short-field performance, specifically about 500 feet of runway. This is one airplane that should be able to utilize unobstructed, 1,500-foot strips with ease.

Once it does transition to the sky, the Skylark's climb performance scores an initial 1,200 fpm. Dova lists a service ceiling of 14,000 feet, but optimum altitude is around 7,500 feet. The Skylark claims a fuel burn of only 4 gph at 75%, though even 5 gph would still allow four hours of endurance plus reserve.

True to the promise of its slick design, the Skylark turns in impressive cruise performance, despite flying behind the same 100 hp Rotax that powers practically everything else in the LSA class. The additional aerodynamic lift generated by the winglets undoubtedly contributes several knots to the airplane's speed.

Bottom line is better than 110 knots. The company advertises a 117-knot cruise speed, which is only three knots below the FAA's LSA speed limit. While that speed probably is possible with everything running perfectly, even 110 knots is impressive, equal to or better than virtually any other LSA on the market.

In-flight handling is quick enough to be fun, but not so fast as to be quirky. Predictably, the tall horizontal stabilizer is the most responsive control, providing good bite, from cruise to the airplane's 50- to 55-knot approach speed.

Price for the basic Skylark is 82,950 euros, and even with a reasonable stack of options, you'd be hard pressed to exceed 90,000 euros. In case you don't have a currency converter, the late-November exchange rate was .824 euros per dollar. That translates to $100,628, perhaps $110,000 fully equipped for navigating and communicating in Class B airspace.

If esthetics matter (and they do), the Skylark will attract more than its share of attention in North America. It has a slick design, and it's not hard to imagine a scaled-up, four-seat version being licensed in the normal category. With a combination of efficient aerodynamics, an attractive design and plentiful cabin room, www.sportsplanes.com has every reason for optimism in the future of the Dova Skylark. P&P

FACTORY COMPARISON	DOVA SKYLARK	EVEKTOR SPORTSTAR
Horsepower:	100	100
Max Cruise Speed (kts.):	117	110
Rate Of Climb, SL (fpm):	1200	1000
Max Operating Altitude (ft.):	14,000	13,100
Takeoff Distance (ft.):	500	500
Landing Distance (ft.):	530	540
Gross Weight (lbs.):	1320	1320
Useful Load (lbs.):	667	652
Wing Loading (lbs./sq. ft.):	13.1	NA
Power Loading (lbs./hp):	13.2	13.2
Cabin Width (in.):	43	46.5
Fuel Capacity (gals.):	24	31.2
Landing Gear Type:	Tri./Fixed	Tri./Fixed
Seating Capacity:	2	2

SOURCE: *Manufacturer's Specs*

With its 43-inch-wide cabin, the Dova Skylark could possibly seat a pair of 250-pound Dallas Cowboys linebackers quite comfortably.