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A star is born

The Evektor SportStar SLM – the full-fat version of the popular Eurostar – isn't any faster than its lighter stablemate, but is a superb luxury touring machine with a huge payload and range

Words and photos by **David Bremner**

THE Czech Republic has a strong history in aviation, making a determined effort to establish its own manufacturing industry at the end of the First World War despite the offer by the French government to provide 127 aircraft.

They were early adopters of the low-wing monoplane configuration, and they acquired an enviable reputation between the wars with manufacturers such as Aero, Avia and Letov, so it's not surprising that today there are no fewer than 10 Czech light aircraft manufacturers listed on Wikipedia.

Evektor was started in 1991, has about 350 employees today and is one of the premier organisations in this crowded market, known primarily in the UK for the Eurostar aircraft which has been imported in ready-to-fly and kit form since 2001.

The aircraft we went to see recently is the SportStar SLM, which looks like a sort of overweight Eurostar.

Getting to know you

We met up with Roger Cornwell, proprietor of Ascent Aircraft, the agency for Evektor, at his local strip in Gloucestershire. He'd invited us to take a look at G-CLSC, the first UK example of the SportStar SLM.

If you look at the Evektor website, you will see

a bewildering range of very similar-looking low-wing tricycle machines, from the Eurostar SL and SL+ to the Harmony LSA and SportStars RTC and SLM.

And you probably won't be surprised to learn that the reason for this range of variants is the many different regulations they have to meet in different markets. The Eurostar is designed to a maximum all-up weight of 472.5kg to match the old European microlight definition.

The Harmony is designed for the American LSA regulations at 600kg, and the SportStar is intended for the new European microlight regulations (600kg as well, but different in other ways).

Approaching G-CLSC from a distance, it does have a strong family resemblance to the Eurostar, but come closer, and it's clear this is a lot more than a mere upgrade. Evektor has started with a clean sheet of paper and only used elements of the Eurostar where it couldn't find any better way.

The first thing you notice, of course, is the huge bubble canopy that hangs over the sides of the fuselage like the stomachs of many of us of an age to be able to afford such a beautiful machine. The rear glazing has a much smoother line into the fuselage, and the styling of the cowling is more angular, more aggressive.

But the changes don't stop there. Internally the wing has been totally redesigned to contain petrol tanks – no less than 60 litres a side – and that's meant a total redesign of the internal structure.

The wheels, too, are a lot more substantial, and inside the cockpit the baggage area is much larger and the whole thing is a step up in style and design, with copious use of carbon fibre, digital instruments and very much nicer controls, with adjustable rudder pedals, a control column with electric trim buttons and a fancier flap lever between the seats.

The larger baggage area is made possible by the replacement of the old central fuel tank with the 60-litre wing tanks. Oh – and the seats and seatbelts are a big step forward in comfort too.

Looking in detail at the flying surfaces, the wings externally are pretty much the same – the flaps occupy about 75% of the trailing edge, and the ailerons about 25%. One noticeable difference is the trim tab set into the port aileron, so that you can adjust the roll trim depending on whether you're carrying a passenger or not.

One change you are unlikely to notice is the wing-span. The Harmony has a span of 9.25m; the standard SportStar RTC (Restricted Type Certificate, if you must know) has a span of 8.65m, but the SLM ver-

Above
For any owners of Eurostars looking to upgrade, the SportStar SLM should be a very simple transition



tion is being sold in the UK with a smaller wing of only 8.1m – the same as the Eurostar.

The tail feathers look much the same, though all the control surfaces have Flettner tabs – strange-looking T-shaped excrescences on the trailing edges that improve the control effectiveness at small deflections. And the elevator trim tab is electrically operated – something for which I'm very grateful. I found the old manual trim lever between the seats was hard to operate intentionally and rather too easy to operate unintentionally.

Forward of the firewall, there's a neat hatch to allow access to the oil, and removing the cowl top half is very straightforward, with about a dozen cam-lock fasteners. Inside is a gleaming new Rotax 912iS. I'd not seen one before in the flesh, but I was impressed with the compact design, and certainly the installation in the SportStar feels spacious, with good access all round.

There's one important element of a flight test that can't be verified, and that's the empty weight. All of us who fly microlights know only too well how much that can limit our flying, and look forward to the freedom that 600kg will give us. G-CLSC comes in at 320.5kg, leaving a massive 279.5kg of payload – that's two 100kg occupants, 25kg of baggage and 75 litres of fuel. Amazing!

Up, up and away

Introductions over, it was time to find out if her style and looks were matched by her manners in the air.

The front-hinged canopy makes entry and exit very straightforward. There are walkways on both sides, and while these are slightly narrow – you do need to be careful not to overstep the mark – it's one of the easiest aircraft to access.

The standard RTC version has a small step below and behind the wing and this would make the whole process even easier if fitted to the SLM.

Step on the seat, then snuggle yourself down into the contoured velour, and let your hand drop to your side and check that the drinks bottle holder has been correctly filled with your choice of refreshment.

With the canopy closed, I found the headroom was marginal – the headset strap was nearly touching the glazing, and perhaps anyone over 6ft 3 in – 1.9m – would wish to consider different cushions to be fully comfortable on long flights.

The canopy latch is much smarter than the one on the Eurostar, and sensibly includes a microswitch connected to a light on the panel to warn you if it's not fully closed. There are fabric sunshades which were withdrawn for this flight, but I suspect I might have found the fabric tickling my head had they been extended.

On entry, the pedals were a bit close, and I was delighted when Roger showed me a little lever under the panel that allowed one to adjust the pedals to one of three positions. The longest setting was fine for me. I did note, however, that it was possible for the pedals to be accidentally set at different positions, and this could lead to embarrassment or worse if you taxied straight into an adjacent aircraft!

The other controls came readily to hand: separate floor-mounted control columns with roll and pitch trim buttons and a PTT switch, and the three-position flap lever between the seats. There are toe brakes on the rudder pedals.

The throttle is a centrally-located push-pull type with a push-button friction release. There is no standard instrument panel layout, but G-CLSC has a client-specified Dynon panel on the left, an iPad running SkyDemon in the middle, and analogue instruments on the right, together with all the isolating switches and circuit breakers.

The start up routine for the 912iS engine is significantly different from the carburettor versions, but it rumbled into action from cold without any fuss. We

Photos

- 1 Engine layout
- 2 Huge baggage compartment
- 3 General front quarter view
- 4 Instrument panel wide view
- 5 Excellent canopy latch with panel warning light if not properly engaged
- 6 Seats and controls, with the fuel tank selector in the middle
- 7 View on takeoff is excellent



With a full tank it should be possible to travel 700nm without stopping – if your bladder will stand it

▷ taxied out, and the view – as you would expect with this configuration – is terrific. I was impressed with the turning circle too – its centre was about 30% in from the wingtip.

Takeoff was unremarkable despite the increased weight. We lifted off at around 40kt indicated on wet grass and somewhat less than maximum weight, less than halfway down the 750m strip. We climbed into the rather murky sky at around 1000ft/min at 65kt.

We had to search around to find a clear enough bit of sky for manoeuvring, but a reasonable playing area appeared just in time. Turns are generally well-balanced using stick alone. For those of us brought up on older microlights, it may take a while to educate your feet to keep still!

Eurostar owners know that steep turns generally cause some slight wrinkling of the wing skins, but the Sportstar shows no such tendencies, I'm pleased to report.

The view from that goldfish bowl canopy is superb, apart from straight down, which is obscured by the wings, of course. The climb is sufficiently steep to justify an occasional dip of the nose to check ahead, but in turns it's absolutely unobstructed.

Serious photographers will object to the fact that you can't open a window in flight, but the canopy is

optically perfect as far as I could make out, and DSLR users should be able to get good results with a rubber hood on the lens that you place against the glazing.

It was a bit cool when we flew, but the canopy frame includes direct air vents, and Roger is considering fitting the bigger vents in the canopy itself for those hot days, when the cockpit can become a real suntrap.

Full throttle straight and level gave just over 100kt, and around 4200rpm gave around 75kt and a very impressive 9 l/h indicated fuel consumption. Fuel management is a little more complex than on the Eurostar, the fuel feeding from each tank individually with a control valve in the central console. There's no direct visual indication of the level, but they do have electrical sensors that display on the panel.

Sideslips demonstrated that she was positively stable in roll and yaw, but didn't seem to produce as much drag as I would have expected. As with the Eurostar, stick-fixed pitch stability is very good (stick forces increase quickly the further out of trim you fly) and stick-free stability is positive but not as well damped as some other types.

We tried the stall with increasing flap, and I was surprised at how little difference it made to the stall speed, which was around 40kt in all cases. They

were generally benign, though the full-flap stall was pretty brisk, and accompanied by a marked left wing drop. All of them were preceded by plenty of warning through the stick.

Applying flap generates a marked nose-down pitching moment, and you'll need to be prepared to apply trim reasonably briskly to counter it. And speaking of trim, it's as powerful as it is on the Eurostar, so you should treat the trim buttons on the stick with some caution. If you hold them on for more than a second, the trim change could catch you out. On the other hand, if the flaps don't reduce the stall speed, you may not need to use them as much.

Roger says that with a bigger rudder, the SportStar has a vastly improved crosswind performance to the Eurostar. Although the handbook says 18kt as opposed to about 10 for the Eurostar, he's landed the SportStar in wind gusting up to 27kt at 90° to the runway.

We didn't have such trying conditions on the day of the test, but the weather was forecast to deteriorate, so we headed back to the airstrip, and lined up on the strip. Roger said that the increased weight and stall speed could catch some microlight pilots out, and that would seem to be good advice, particularly if you are transitioning from a lighter, older three-axis machine.

Nevertheless, the numbers are not so far different – we approached with one stage of flap at around 60kt, slowing to around 55 over the hedge, and touched down at about 40kt indicated. The rollout was unremarkable, and I taxied back to the hangar to assess my thoughts.

Thinking cap on

In the next few years it seems likely that there are going to be a lot of new machines for us to choose from, following the introduction of the 600kg rule. The SportStar will be facing a good deal of competition from other European manufacturers.

On the plus side, it will immediately appeal to the many owners of Eurostars looking to upgrade; it will be a very simple transition to an aircraft that flies in pretty much every respect the same, but with the ability to load it up with almost everything including the kitchen sink and stay within limits. Moreover, with 120 litres in the tanks it should be possible to travel about 700nm without stopping – as long as your bladder will stand it.

Those same owners may feel a little disappointed that the performance is, to all intents and purposes, identical, but if I were in the lucky position of being able to make that choice, I think the added luxury and increased payload would be enough to persuade me to upgrade.

Others may prefer a high-wing layout or folding wings or higher speed, and will look elsewhere, but to me the SportStar is a superb touring machine; long range, adequate speed, magnificent view of the countryside and plenty of room for spare clothes and a folding bicycle in the back.

Once travel restrictions are lifted, there would be almost no restriction on how far you could go. □

Evektor SportStar SLM

Test aircraft fitted with Rotax 912iS; figures for Rotax 912ULS version (where different) in parentheses

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SUMMARY

Side-by-side two-seat low-wing cantilever monoplane with conventional three-axis control. Wings have unswept leading and trailing edges, conventional tail. Pitch control by elevator on tail, yaw control by fin-mounted rudder; roll control by 25%-span ailerons; 75%-span split flaps. Undercarriage has three wheels in nosewheel formation. Coil-spring suspension on nosewheel, composite cantilever suspension on mainwheels. Nosewheel steering connected to aerodynamic controls. Disc brakes on mainwheels, incorporating parking brake. Rivetted semi-monocoque, metal composite structure consisting of metal reinforcement, frames and Duralumin sheet skin. Single-spar wing with auxiliary rear spar carrying ailerons and flaps. Fibreglass wingtips rivetted to wing ends. Fin integral with fuselage. Engine mounted above wing on steel firewall, driving tractor propeller.

EXTERNAL DIMENSIONS AND AREAS

Length overall 5.98m. Height overall 2.47m. Wing span 8.1m. Wing area 9.84m². Mean aerodynamic chord 1.25m. Fin area 1.05m². Rudder area 0.43m². Elevator area 0.80m². Wheel track 1.95m. Wheelbase 1.35m. Mainwheel tyre size 15x6. Nosewheel tyre size 14x4.

POWERPLANT

Rotax 912iS Sport engine (912ULS). Max power 100hp at 5800rpm. Propeller diameter 1730mm, DUC or Woodcomp. Gear reduction, ratio 2.58/1. Fuel capacity (wing+wing) 60+60=120 litre. Power per unit area 10.16hp/m².

WEIGHTS AND LOADINGS

Empty weight 318kg* (305kg). Max takeoff weight 600kg. Payload 282kg* (295kg). Max wing loading 60.98kg/m². Max power loading 6.0kg/hp. Load factors +4g, -2g manoeuvring, +6g, -4g ultimate.

* Test aircraft included 5kg of options: as standard, 912iS is 8kg heavier than 912ULS.

PERFORMANCE**

Max manoeuvring speed 110mph. Never exceed speed 168mph. Economic cruising speed 106mph at 13 l/h. Power off stall speed with flaps 44mph. Power-off stall speed without flaps 49mph. Max climb rate at sea level 850ft/min. Best glide ratio with power off 700ft/min rate of descent at 63-70mph. Takeoff distance to clear 15m obstacle 290m on grass. Landing distance to clear 15m obstacle 318m on grass. Service ceiling >10,000ft. Range at average cruising speed 950 miles.

** Under the following test conditions

Airfield altitude 70ft. Ground temperature 19°C. Ground pressure n/a. Ground windspeed calm. Test payload 600kg.

PRICE INCLUDING VAT

Ready to fly from UK factory from £116,000 (£108,000) depending on options.

Data above provided by manufacturer/importer, relates to nosewheel UK factory-built variant, approval reference DAI/8909/84.

Data in text is tester's experience.