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### FLIGHT TESTS

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- King Air B200GT

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Cover: New Sportstar SL. See flight test page 22.

## By John Spiers

With the SL<sup>2</sup> unit expected to arrive in Australia soon, the Evektor Sportstar has become a common sight on the flight lines of GA and recreational flying schools and is growing in popularity with private owners.

Its latest SL model demonstrates just how far and how fast recreational aircraft are evolving and how much is available in these relatively moderately priced and economical-to-operate recreational aircraft – constant speed prop, autopilot, EFIS, GPS etc. Even with the current state of the Australian dollar, a new Sportstar starts from about \$150,000 with freight and GST paid.

I have flown a dozen or more happy hours up in one of the earliest Sportstars to come to Australia – 24-41-89 – on line at Kevin Walters' RA school, in the Lockyer Valley on the western fringe of the RAAF Amberley control zone. There was a lot that was familiar as well as new when I climbed into one of the latest arrivals, VJ-EVK, for a short spell of dodging weather and thick departing traffic on the Sunday following the end of Easter's Naffly at Narronine NSW, with Australian Evektor distributor, Peter Harkov, in the right hand seat.

Creature comforts are always a good place to start – some recreational aircraft (and their doors and latches) seem to have been designed by and for stumpy, underfed skinny people. At about 190cm and of rugby forward build, I am good test for any cockpit. One of the things I liked about the earlier Sportstar is its generous headroom and adequate legroom, with excellent visibility. Following recent surgery, I am not as limber as I was, so it was good to find that the Sportstar cockpit is still easy and simple to step in and out of.

The SL has a slightly lower and more streamlined canopy which, with other modifications, is claimed to give it an extra 2-3 knots. I was a little alarmed to find on closing the canopy that, wearing a headset with a thickly padded headband, I was touching the canopy in some positions – something that did not happen on the older model, which was a major reason why I was partial towards the type. But once I settled down a little more in the seat, with feet on pedals set fully forward, the headband did not touch the canopy again for the rest of the



flight. Seating and control position felt comfortable and familiar.

In the earlier model, the forward-upward opening canopy is of very light and somewhat flimsy-feeling construction until you find the detents and lock it closed behind you. The SL canopy is a much more substantially-built affair and gives you the feeling that it is part of a more substantial aircraft. Twist-open ball vents replace sliding scoop vents and there is a convenient elbow rest when the canopy is closed.

You can still use the experienced Sportstar pilot trick of propping the canopy open with your elbow to get extra

ventilation during taxi. I recall that on my first Sportstar flight on a hot Queensland day, ventilation seemed a little lacking. Peter pointed to a small pop out panel at the back of the cockpit lining that can be removed to increase airflow. The panel is still there on the new model but as the new canopy has increased ventilation and the day at Narronine was cool, it stayed in place.

A notable difference is a fuel selector rising between the seats. The earlier Sportstar carried fuel in a single fuselage tank at the rear of the cockpit. EVK has wing tanks and the fuel selector lets you select either tank or both off.

# Legroom, headroom and new tech



“ Its latest SL model demonstrates just how far and how fast recreational aircraft are evolving and how much is available in these relatively moderately priced and economical-to-operate recreational aircraft. ”

the left hand seat. In truth, until you get used to it, there is more information available on this screen than you can readily absorb in flight and will keep a decent lookout. Once you have had a little experience of these displays, reading them and responding appropriately is quite intuitive.

On our relatively short flight from Narromine to Trangie and back, I found only one point to criticize on the general display - the horizontal situation indicator consists of a tiny triangle pointing up for down with a digital readout of vertical fpm. I have seen other displays of this kind with a much clearer bar indicating up or down. On this panel, you have to look for the tiny triangle then the numbers before taking action to correct. On a separate page, the traditional attitude indicator and YSI display is much easier to read at a glance.

The panel includes the ubiquitous Garmin GPS, radio and magnetometer package. All the circuit breakers are along the bottom of the panel, where is convenient to run your finger during pre-start checks and there is the usual range of switches just above them.

The engine is a standard Rotax 100 HP and there is nothing remarkable about its handling for anyone familiar with these now-common engines. One

not entirely common feature in the SL is a carb heat control. Unlike many RA aircraft with air intake within the engine compartment supposedly removing the need for carb heat, the SL takes true outside cold air and has a large carb & heat exchange box.

You can manage performance and parameters quite minutely using the extensive readouts available on the EFB including rpm, oil temp and pressure, CHT, EGT, engine hours, manifold pressure, fuel pressure, fuel flow and a fuel computer showing time used, time left, range at current speed etc. The fuel gauges read true in straight and level but you may save yourself some anxious moments if you know that they read under or over in climb or descent.

The most unusual and interesting instrument on the panel is the electronic control for the constant speed prop. Being accustomed to an in-flight adjustable prop on 4149, and to the traditional throttle and manifold pressure lever adjustments (like playing an organ) on traditional GA CS aircraft, I was a bit skeptical about how this could work.

On 4149 you set the prop for fine to get good acceleration for takeoff, but have to furiously wind the power back on initial climb to avoid over-speeding the engine as you reach recommended climb speed and altitude. In cruise, you use a substantial ratcheted lever between the seats (where the fuel selector now sits in EVK) to coarsen the prop. I have never been really sure how much this really achieves - perhaps a couple of knots at lower revs, with a few litres saved!

On EVK you have the option of auto or manual mode. Instead of hauling on levers like an old railway signalman in 4149, you can dial the switch on the control panel to manually set the prop full fine for takeoff or landing.

In auto mode, you dial in the engine speed you want and the prop will keep it at that unless you make rapid and extreme changes. If you pull the engine

EVK is equipped for night VFR operations and is used in this role in a WA flying school. It comes with a glare shield attached to the canopy which comes down neatly over the panel when the canopy is closed, assisting readability of the electronic displays in daylight.

While 24-4149 has a traditional GA panel of familiar "steam gauges", EVK's panel looks more like a mini version of a modern airliner.

Apart from a conventional air speed indicator and altimeter, all the flight and engine instrument information is on the Devox EFB panel (electronic flight information system) directly in front of

“ He likens the system to driving an automatic car after being accustomed to a manual. ”

back to idle, the prop will go to fully fine. In theory, you cannot over-rev the engine in auto mode and you do not have to worry about constantly adjusting the Woodcomp three-bladed electric prop.

It is easier to do in practice than it is to describe. As someone brought up on the idea of having large levers on the throttle quadrant to adjust while watching engine instruments, it was going to take more than one flight to convince me that all that stuff could be replaced by dabbling a button on a small panel instrument, then leaving it to handle things for the rest of the flight. So we reverted to manual full fine for the landing, although all that is still set by that little button on the panel.

Peter tells me that with experience he has overcome similar reservations and now likens the system to driving an automatic car after being accustomed to a manual. He says he does complete

flights on automatic, setting the prop for 5100 rpm for takeoff and allowing the system to maintain that in cruise, before closing the throttle for descent and landing when the system will warn that because not enough power is available, it is resetting the prop to fully fine.

Our flight was not long enough to get any real performance indications but Peter claims the CS prop Sportsstar will cruise at about 170kts (compared to 18 kph for fixed prop aircraft) at 5100 rpm with throttle pulled back about two inches, and with a passenger, at about 100kts. If you want to hurry things along, full throttle and pitch set for 5400 rpm will get about 122 kts at 25 kph.

Another slightly unusual feature of the instrument panel is the ASI - conventional except that it goes around twice. First time around the needle goes from 0-100 knots and the second time around it can go out to 200 knots. It may

Rejoining circuit at Narranmore . . . Sportsstar has excellent visibility, although flyeye lens exaggerates perspective.



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not be what most of us are used to, but in practice it works very well, particularly in the 100-105 KIAS cruise speed has the needle sitting near vertically at the top of the dial. Peter says such instrumentation is common in Europe.

As a package, the Sportstar works very well on the ground and in the air. I never found the older Sportstar any problem to handle on the ground, but the new version has a six inch wider undercarriage track and the ground steering has been softened. Taxiing and keeping straight on takeoff is no drama.

The newer aircraft has a 15 per cent bigger fin and rudder, so control in the air is a tad more positive and, according to Peter, gives more authority in a cross wind takeoff. In another touch of the unusual, the handbook gives three different crosswind limits - a maximum of 22 knots for experienced pilots, 14 knots for average and 10 knots for novices. In the light and variable conditions prevailing, we did not get to test any of these. The handbook also gives options for lowering flaps - one stage at 80 knots, two at 75 and full flap at 70 knots.

Some claim the earlier version has

# SportStar<sup>SL</sup>



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a tendency to buffet in turbulence. Never having flown 4109 in anything more than light-to-moderate turbulence, I cannot say I have found anything to worry about in its handling. All recreational aircraft are more touchy in turbulence than their heavier GA brethren and although the Sportstar has a higher wing loading than some recreational types – recreational types are not generally your aircraft of choice if there is a flight you really want to do that is likely to involve significant turbulence.

I always found the Sportstar's handling quite comfortable and "neutral" – it goes where you point it without fuss and once trimmed up will not keep trying to sneak off your vertical or horizontal line.

Another refinement on EVK is aileron as well as elevator electric trim, both on the control stick. If you are flying one up or two up, a dial on the trim button helps to keep wings level hands off. This is one of those aircraft you can easily fly hands off by moving your body – lean left or right and it will turn in that direction. Lean forward or back and the nose rises or falls.

We tried stalls with and without flaps. Like its predecessor, EVK takes a lot of provocation to stall, with nose ridiculously high and lots of airframe judder. Only after much holding of such a ridiculous position does the nose finally drop fairly gently with modest height loss before the aircraft starts flying again with no further attention. When I first tried stalls in 4109 and applied standard power-on recovery techniques over a series of three stalls, I found I had stalled my way upwards by about 1000ft because of minor height loss and rapid recovery.

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There is no aural stall warning and it is not needed before a clean stall in the mid 40s and well down in the 30s with two notches of flap.

There is ongoing debate about the useful life of recreational aircraft, which are undeniably lighter-built than the new or stalwart older versions of FAR-23 aircraft. In an era when even Cirrus has opted to build a "light sport" two seat trainer to replace the venerable 152, rather than build a new FAR 23 two seat trainer, it is a bit hard to take seriously those GA diehards who refuse to admit that recreational aircraft are now a permanent part of the training scene – for GA as well as recreational pilots.

What will be the life of recreational aircraft? Clearly not likely in average usage to be anywhere near some FAR 23 aircraft – not a few of which are soldiering on into their fourth chronological decade.

But is this an entirely good thing? Flying schools using modern recreational aircraft report that they bring a surge of new business from intending flyers who tend to be put off by the archaic appearance of well-worn FAR 23 aircraft, even when refurbishment and rebuilding has covered most of the signs of aging like collagen and boxes.

Sportstars come with a two year 200 hour warranty. They are factory assembled and test flown then the wings are taken off and two are put in a container for shipment direct to buyers.

Peter says that, unusually among recreational aircraft, the Sportstar is almost identical to the EASA Pt 21 certified towed Harmony aircraft with a projected life of 9000 hours life on airframe, which the company is considering re-certifying to 14,000 hours.

He points out that its aluminium structure is well bonded, gaud and riveted and corrosion proofed – but admits that this does not mean it will still be around in 40 years, unless particularly well looked after.

Peter says about 75 per cent of Sportstar sales are to flying schools and about two thirds of these are VFR registered – a clear indication of the inroads that recreational aircraft types are making into traditionally GA training organizations. About 10 per cent are equipped for night VFR and the majority are legal to operate in controlled airspace (by an appropriately licensed pilot) with approved engines, props and other equipment. The Erekor factory recently announced an IFR-equipped version of the Sportstar.

Schools with Sportstars often turn them over at about 3000 hours to private owners who pick up a relatively modern and well equipped aircraft at reasonable acquisition and operating costs.

Many GA schools still question how well recreational types will stand up to abuse, such as being dropped from unreasonable heights by ham-fisted students. One of the first things learned by a GA pilot converting to recreational is to do a round out within centimetres of the runway, rather than feet. It is quite entertaining when doing a BFR in a GA aircraft, to see the instructor start to panic and reach for the controls if you do a recreational-style roundout.

However, there are many GA schools using recreational aircraft who say that with appropriate training of students, they do not have problems in this area. They also say that because recreational types are lighter and more sensitive on the

“ They also say that because recreational types are lighter and more sensitive on the controls, they provide a better ab-initio training experience. ”

controls, they provide a better ab-initio training experience, and that students who move on to GA types, find them very easy and forgiving to handle. Personally, I have had very little trouble in accommodating any differences in handling when moving between GA and recreational types – once additional adaptation was completed.

I find the Sportstar more than adequately answers the other common complaint one hears about recreational types – that they are poky and any sort of big bloke has trouble getting in and out and finding a comfortable position for feet, knees, hips, elbows, shoulders and heads. I find the Sportstar outstandingly good in this respect – better, in fact, than some GA aircraft. Some high wing recreational and GA types also have good headroom – but tall people like me often have their head well up between the wing roots and have to bend down to take a good look around.

I find the Sportstar a very good comfortable and confidence-enhancing all round cruising aircraft for its category. It is no surprise that it is enjoying steady sales. ■

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