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# SPORT *Flyer*

**S**o you want to fly for less, cut the hassle and step up the fun factor? Then you're the ideal candidate for our new section covering sport flying – GA's new wave, based on smaller, low-cost aircraft, shorter strips and efficient engines



**p30** Sport Cruiser



**p36** Ecolights







Home assembly  
PFA aircraft

# CZAW's Sport Cruiser



**General aviation is changing. Lighter designs, lower costs and fuel-efficient engines. Ian Seager takes a look at the future**

**H**ere's a prediction for you. If the price announced at Aero Expo (£24,950 plus VAT and shipping) is maintained, within a couple of years you'll see over a hundred SportCruisers on the UK register. They'll take their place alongside Evektor Team Eurostars (of which there are almost 100 already), Jabirus (getting on for 200), Ikarus C42s (another 100 or so) and similar aeroplanes like Aero AT-3s, Tecnam's and Alpis – plus quite a few others that are either available now or which are in the pipeline.

The reason for this growth is simple. As I write this, one airfield in Essex is selling avgas for £1.49 a litre. Even for something 'cheap to run' in the old Group A class like a Cessna 152, that adds up to approximately £40 an hour in fuel alone. Add insurance, parking, and all the other costs which go along with using and maintaining an airframe that might be, at very best, twenty years old, and you'll understand why aeroplanes

aren't getting any cheaper to fly – and why for some the ageing rental fleet's value is heading south. Unless they benefit from regular, large investments old rental aeroplanes are just that – safe and predictable, but almost inevitably tatty and in need of regular TLC.

So it's good to learn that the way forward will provide you with cheaper flying, in many cases allied with significantly better performance. What's more, you'll be able to enjoy that flying in sweet-handling, modern aircraft.

### Light Sport Aircraft set the scene

A few years ago the maximum all-up weight for UK microlights was increased to 450 kg (roughly, but not exactly in line with other European countries). Then, after a difficult and prolonged labour, the FAA gave birth in 2005 to a whole new category of aeroplanes known as Light Sport Aircraft. European microlight manufacturers who had been putting their designs on a starvation diet rejoiced. They found themselves with a

potentially huge market – a market that allowed them to build aircraft based on their microlight designs, but with a MAUW of up to 600 kg (1,320 lb if you speak American). Bring on the Apple pies!

European manufacturers have taken the US by storm, and today the vast majority of LSA aircraft sold over there are built over here in Europe. Hurrah, you might say – but it just so happens that many of these same designs fit snugly inside our Very Light Aircraft rules (two seats, 750 kg MAUW and Day VFR only). As an additional bonus EASA is currently

working on the framework for lighter regulation at the smaller end of the market. We almost certainly won't see full alignment with the USA, but almost certainly will see a large degree of convergence.

The end result is that many European-manufactured LSA designs are available over here as

either kitbuilt microlights or group

A aircraft or, if you are willing to pay, EASA certified, factory-built VLAs that can be used for PPL training. It's this last group that you'll start to see on the UK club fleet.



With its wide speed range the SportCruiser can bumble or tour

### Quick info box

**Price £24,950 + VAT**  
**PFA Approval pending**  
**[www.spriteaviation.co.uk](http://www.spriteaviation.co.uk)**

### It's not like building a Jodel

If you are reading this as a traditional club hirer or group owner, I may have some potentially bad news to get out of the way first: you'll need to build the SportCruiser yourself. But stay with me, just for a bit longer – even if you've never so much as drilled a hole or popped a rivet. Building the SportCruiser isn't going to be like building a





**CZAW's CEO Chip Erwin (left) explains how the SportCruiser came to be designed**



**Plenty of room inside, and a huge space behind the seats for luggage**



**The prototype's tubular steel canopy frame has been changed for one made from composites**

Jodel from a set of plans; it's not even going to resemble building a Europa or similar from a kit of parts. This is more 'aeroplane assembly' than kitbuilding, something you and a friend or two will be able to complete over one winter rather than a decade or two. This is the new era of homebuilt sport aviation where it is the flying, not the building, that counts.

Still not convinced you would be prepared to build anything, however simple? Luckily, with the numbers there will be on the fleet, there will always be completed and flown examples for sale – ones where the builders thought they were assembling the machine for themselves, but in fact they were building your pride and joy (they just didn't know it at the time). With so much of the work done by the factory, there shouldn't be any nasty surprises lurking deep within pre-owned machines, certainly nothing that a good pre-purchase inspection won't find, so the 'I'd never own one, because I am not a homebuilder' excuse won't wash with this category of aeroplane.



**With a VP prop fitted, high speed cruise returns an IAS of just over 130mph**



**The throttle lever will be moved forward on production kits. BRS is not a standard item**

### **The prototype comes to Aero Expo**

June's Aero Expo at Wycombe Air Park brought our first chance to try the SportCruiser for ourselves. A good look at an aeroplane on the ground can give a fair idea of what to expect in the air, so with Czech Aircraft Works CEO and demo pilot Chip Erwin busy on an errand of nature, I had a poke around the airframe. Designed specifically for the LSA market, the sleek lines and swept-back tail suggest a fair degree of speed. The Cruiser is powered by the 100 hp Rotax 912S – the water-cooled four-stroke engine that has contributed more to changes in Sport Aviation than any other. In this case, the 912 is mated with an in-flight adjustable, variable pitch propeller that, I was to find, will pull the aeroplane along at a comfortable cruise speed of 130 mph.



**Engine noise isn't too intrusive, but ANR headsets will make life much better**



## Home assembly aeroplanes – what's really involved and is it something you could do?

New generation 'home-assembly' machines generally have all of the skins pre-cut and drilled. They will have all of the structural or critical work completed at the factory. Fuel tanks will have been built and probably sealed, wings may need as little as closing up by pop riveting just one, pre-drilled skin. Some of these aeroplanes (the AT-3 and Tecnam, for example) travel down the same production line as their identical, certificated brothers, only to be diverted to a checking and packing

department somewhere near the end of their factory journey.

You'll have a fair amount of riveting to do but, in the case of the SportCruiser and most of its direct competitors, any structural solid riveting will have been done at the factory. This will leave you to become expert at pop riveting, which can be done by hand, or by a pneumatic gun. You will also be responsible for the upholstery, instruments, wiring and painting, much of which many people contract out (perfectly legally).

The aluminium skins are pop riveted (a generic term that Chip dislikes, preferring 'Avex drawn rivets'). The tailplane sits somewhat behind the vertical stabiliser, à la TB range (which, incidentally, also makes use of pop rivets in its construction). Curiously, for an aeroplane this light, in addition to the normal elevator trim there's an aileron trim too – a sign of high stick forces, I wondered? The huge bubble canopy covers a couple of seats which you couldn't quite call reclined, but which are nevertheless somewhat laid back.

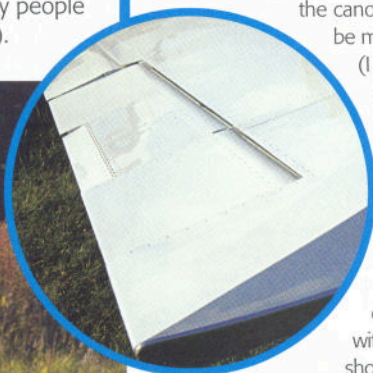
This was the prototype and Chip was keen to point out that something like 60 changes were being made in bringing the design to production standard, mostly very small cosmetic details. The wheel spats, for instance, were not production items, but some of the other changes would be more significant: for example, rather than a tubular steel frame for the canopy, the production item is to be mounted in a composite frame.

(I saw some pictures of prototype and first production aircraft side by side, and the composite frame looks sleeker and even improves slightly on the Cruiser's already attractive lines.) Other changes involve slimming down the centre console which, when combined with the composite canopy frame, should give more shoulder and backside width to the cabin (the production kit should offer about 47 inches). The throttle lever will also be moved further forward so that it falls more naturally to hand.

Time to climb on board and there's a step behind the wing to help you up. I do prefer this: many aeroplanes have steps in front of the wing and, although the statistics to suggest this is more dangerous don't exist as far as I can see, climbing out of an aeroplane towards the propeller is something that I feel uncomfortable about.

The brakes on the prototype are in the P1 position only (P2 brakes are a \$450 option) so Chip, not unreasonably, keeps them for himself. The seat is comfortable semi-reclined and for me, at a somewhat 'insulated' 5 ft 10 inches, the stick falls to hand, the throttle position is acceptable and the

The composite main gear is more than capable of dealing with uneven grass



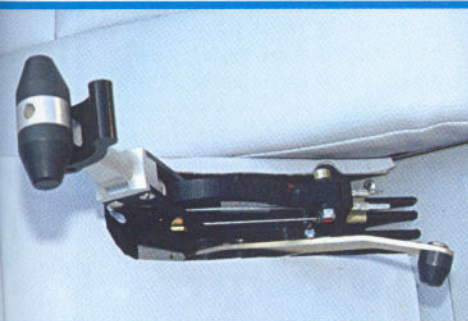
Electric aileron trim operates a tab on the starboard surface

If you decide to build a SportCruiser, then all of the solid riveting will have been done at the factory, leaving you with just 'drawn rivets'



With pleasant lines and an aggressive price the SportCruiser should sell well in the UK





**The throttle is a work of art. If only all Rotax 912 throttles were the same...**



**It is positively stable about all three axes, so the SportCruiser should prove to be a relaxing tourer**



**You can vary the propeller pitch in flight: yellow for finer, bleue (Zidane?) for coarser**

rudder pedals are okay, if a little on the close side. With neither the seat or pedal position being adjustable (the distance is set during the build), you may wish to consider the size of your fellow owners, should you want one of these as a group machine – or the size of the original builder if you look to buy a pre-owned example!

The engine can be started with the canopy open – a welcome feature in hot weather – but even when it's closed there's a huge amount of headroom. After checking the canopy is properly latched on both sides we head for Wycombe's grass runway (the huge wings of a Stemme S10 are blocking our way to the hard). As Chip accelerates and then pitches up, the relatively long nose and semi-reclined seat combine to deliver forward visibility that is okay, but not stunning. In this, the SportCruiser is not as good as more 'upright' designs, such as the Tecnams – but equally, the outlook is nowhere near as restrictive as in the Dynamic, which combines a more reclined seat with a forward wing and a similarly long distance between the pilot's eyes and the nose of the aircraft.

For someone who usually flies a high-wing aircraft the restricted downward view can at first be challenging. Once in level flight, however, the visibility improves, and we put this to a real test by heading off to find a local farm strip neither of us has visited before. It only takes 15 minutes or so to get to the general area and find what we think is the strip; once identified we hold off for a bit and familiarise ourselves with the local area.

For some reason Chip seems reluctant to hand over control (it could have something to do



**The basic kit is cheap (er... I mean cost effective) but doesn't include avionics or BRS**

with the fact that a US journalist recently crashed his prototype Parrot, a cantilever high-winged LSA that the company is also working on) and he proceeds to demonstrate slow flight, pointing out that the speed displayed on the Dynon glass flight information display won't read below 30 mph, and that with a high speed cruise of over 130 mph (with the variable pitch prop fitted)

this aeroplane can both 'bimble' and go places.

Happily, I do eventually get my hands on the stick and discover the SportCruiser is a pleasant aeroplane. It is stable about all axes and, despite the fact that the elevator and aileron trim buttons are fitted to the top of Chip's stick only, even big changes of power or flap are trimmed out easily (although I had to stretch over to do it – P2 trims are available but will set you back an extra \$150.)

I did question the fact that an aileron trim was felt to be necessary and was told that it is there to help trim out forces generated by any fuel imbalance (the wing tanks each hold 56 litres).

In defiance of convention, the ailerons were the heaviest of the three controls – so a forgetful pilot may possibly find themselves with an aching arm without the aileron trim.

The throttle control is worth singling out. The lever

is a joy, both to use and look at. It's

a beautifully sculpted piece of aluminium, with a clever friction device easily operated with two fingers while resting your hand on top of the lever. Indeed, this aeroplane, designed to meet the LSA MAUW of 600 kg, has several features missing from some 'Weightwatcher' designs: the rudder pedals, for instance, are substantial pieces of cast metal, not the lightweight tubing more common at this end of the scale. This model came with two glass screens instead of conventional instrumentation (see 'Glass Cockpits' panel, p. 34) – something I expect to see a lot more of in the future.

### Operating from a 450 m strip

After all too short a time in the local area we head for the strip where I fly an approach partly to confirm that we've identified the right place but mainly to have a look for any errant wildlife that may spoil our day. It is, and there doesn't appear to be. Downwind, and Chip insists on taking control for the landing – prompting a short, frank discussion... The strip is 450 m of ▶



**A very nice touch. Each wing has a baggage locker that is capable of taking another 20 kg per side**



**Loads of space behind the seat, but there's an 18 kg weight here – so it's best suited for bulky yet light items**



## Electrical Variable Pitch propellers

If you have flown anything in mainstream GA with a VP prop, it will almost certainly have had a constant speed unit. Simply put, you use the blue lever to set your desired rpm. After that, changing the power setting with the throttle will result in changes to the manifold pressure, but not to the rpm – which is why it's called a constant speed unit.

The propeller fitted to the prototype

SportCruiser, however, was a variable pitch propeller without a constant speed unit. The propeller pitch is controlled by two buttons, unsurprisingly one to coarsen the pitch and one to make it finer. Once the pitch has been set, any changes to power will also change the rpm, because the propeller otherwise behaves like any other fixed pitch unit – geddit?

LSA regulations stipulate a maximum speed of 120 kt. The basic UK kit and factory-built LSA aeroplane achieve this by fitting the 912S with a two-bladed fixed pitch propeller. Add a VP prop and you'll get better performance over a range of different flight regimes



The fully castoring nosewheel allied to good toe brakes means that the aeroplane can be turned in a tight space on the ground. It's also light enough to be manoeuvred single handedly



beautifully kept, smooth grass with a slight incline and, after touching down, we enjoy a leisurely roll out, the composite undercarriage legs ironing out any small undulations.

After meeting the rest of the **FLYER** team and taking some ground shots, we leave for the air-to-air. The SportCruiser doesn't exactly leap into the air but it only takes between a half and two-thirds of the runway, and given there was no wind and the OAT was in the early 20s, I'd be happy operating the SportCruiser out of short strips on a regular basis. It may not be as STOL as some designs, but it's no runway hog either.

We're out to play with a Piper Cub, not the fastest of aeroplanes in the sky, so we struggle a little not to overshoot. Comms with the Cub are not all they could be, but that's more to do with the ancient intercom fitted to the Cub than the SportCruiser's kit, which works perfectly well with any radio not built by Marconi himself.

The frustration of the radio, the differing speeds and the call of a cold beer bring an early end to the shoot. Chip points the nose in the direction of the Stokenchurch mast, and we head back enjoying the silky smooth air, the golden evening light and good comms. With three or four minutes of the flight left and Wycombe's 'Golden Ball' in sight Chip Erwin hands me control for the landing. The approach in the calm wind is stable, forward visibility in the descent good and the landing is soft, even if I do say so myself.

## Glass cockpits for sport aircraft

The prototype SportCruiser was fitted with a pair of Dynon screens: one an EFIS-D100 showing an AI, ASI, altimeter, VSI, compass and turn coordinator/ball; and the other a D120 showing full engine data, and fuel instrumentation. These units are obviously optional extras on the SportCruiser with each screen adding \$2,600 to the price. The combination of the two instruments significantly reduces panel clutter, and if panel space is at a premium (isn't it always?) they provide an extremely cost-effective solution. As with all glass screens they take a bit of getting used to, and certainly if you have flown with the Avidyne or Garmin G1000 screens you may be a little disappointed at the size and brightness of the Dynons – but then again they cost a fraction of the amount and weigh in significantly lighter (total for the two, including sensors, is about 4 kg).

More information on the units from [www.dynonavionics.com](http://www.dynonavionics.com)





Full fuel will give a bladder-challenging five hour range. More importantly that means three hour legs with plenty of fuel left over to cope with any surprises



The big canopy gives plenty of head room, but for some the 'bulge' slightly spoils the line

## PFA Approval

The SportCruiser was designed as a factory-built LSA machine. As I write this, it is not yet approved by the PFA – but it is making good progress. I spoke to Francis Donaldson, the PFA's chief engineer, who has flown the aircraft and he reports no problems whatsoever from that point of view. The UK dealer's aeroplane will be complete by the time you read this and will form part of the PFA approval process. At least part of the discussion will centre on how much needs to be left for the UK builder to do. The trend is towards ever more complete kits, and I fully expect the SportCruiser to continue that trend.

### I'm impressed...

My short experience with the SportCruiser is over and so far I'm impressed. Some other aeroplanes have a better view, some fly faster, and others have the edge when it comes to handling – but the Sport Crusier isn't bad at any of those things. It will operate from short grass strips, has plenty of luggage room behind the seats and a locker in each wing. The four-stroke Rotax propels it along at over 100 knots and it carries enough fuel to be a decent sport tourer.

Yes, if you want your own now, you'll have to build it – but think of the process as a stroll up Snowdon, rather than an assault on the North Face of the Eiger in winter.

The biggest selling point for this all-rounder is price. The complete kit (minus paint and avionics) costs just £24,950 plus VAT, plus delivery. I call that cheap. Chip, who doesn't like the word cheap, insists on calling it "excellent value for money". Whichever way you look at it, compared to others in the genre, it's aggressively priced. Like I say, expect to see quite a few of these over the next few years. ■



The prototype initially had a 'linear damper' in the elevator control circuit. This has since been replaced by balance horns, which is how production kits will be supplied.