

# Dream machine!

IMPORTER ALLAN ARTHURS AND FORMER BHPA MEMBER BRIAN HARRISON INTRODUCE THE SILENT 2 ELECTRO SSDL SAILPLANE - WITH THE RIGHT LICENCE YOU CAN FLY IT ON BHPA INSURANCE!



Photo: Alisport SRL

**I OUGHT TO BEGIN WITH A CONFESSION. I AM A SAILPLANE PILOT AND THE UK AGENT FOR ALISPORT SRL, MANUFACTURERS OF THE SILENT 2 ELECTRO, AND I HAVE NEVER FLOWN HANG GLIDER OR A PARAGLIDER!** However I have been a keen advocate of the Front Electric Sustainer (FES) since it was first announced, and the combination of this with a modern lightweight airframe – giving the ability to self-launch – seemed to me to be the perfect marriage.

Full of enthusiasm, I made my first visit to the Alisport factory in Cremella (Italy) in January 2014. What I found was even more remarkable; a small company of like-minded people, each hand-picked for their individual passion for sport aviation. The Silent 2 Electro is a microlight, self-launching sailplane designed to meet the new FAI 13.5m class. I returned home with the agency agreement in my pocket and a big smile on my face.

My next visit to the factory coincided with the first Italian FAI 13.5m Championship, held at Alzate Brianza near Lake Como in April/May 2014. The event exceeded all expectations, both in terms of competition itself and the performance of the gliders. The weather conditions were very variable throughout, but under the expert guidance of director Giorgio Ballarati the competitors were able to make the most of every day with some very interesting tasks of between 170km and 320km.

There were seven Silent 2 Electros in the competition and it was impressive to see these aircraft self-launch within seconds of

one another to seek out the first thermals of the day. It later emerged that there was an unofficial competition between the pilots to see who could preserve the most battery power.

This eco-friendly aspect of the competition was much discussed, and much appreciated by the local residents. Another remarkable aspect of the event was the performance of this nimble new breed of sailplane. The average speeds observed over the five days was very respectable, some as high as 114km/h.

Back in the UK, the Government's Red Tape Challenge was the topic of much debate. The CAA had already announced a public consultation on its proposal to deregulate (for airworthiness purposes) all UK-registered single-seat microlight aircraft.

With a Maximum Take Off Weight (MTOW) of 300kg (or 315kg including a Ballistic Recovery System), and a stall speed of no more than 35 knots, the Silent 2 Electro fits perfectly into the category now known as Single Seat Deregulated (SSDR).

While there was never any doubt that our aircraft would meet the requirements for SSDR, the fact that this particular microlight has the characteristics of a glider proved to be a further challenge. This matter was resolved in June 2014 when SSDR was announced and self-launching sailplanes included.

This effectively means that the Silent 2 Electro is not subject to any regulatory airworthiness regime and maintenance is a matter for the pilot – in accordance with the manufacturer's recommendations. Crew licensing is also simplified by the fact that, in addition to a PPL or PPL(M), holders of the new EASA SPL or LAPL(S) licence, with a Self Launch Endorsement, may fly the Silent 2 Electro.

I had waited a long time to fly the glider in the UK, but like all good things it was well worth the wait. The single most interesting aspect of this machine has to be the power plant. The system delivers a total of 22kW and will provide a good 6-knot rate of climb for about 15 minutes. But, unlike a conventional sustainer, the power is

infinitely variable and the system will happily maintain level flight using just 4-5kW for up to an hour. Equally significant is the ease of deployment. With no pylon to be raised the motor is available instantly. Stopping the motor in flight is as simple as reducing power to zero, whereupon the automatic electronic brake stops the propeller and parks it alongside the fuselage. Nothing could be simpler!

The combination of the lightweight airframe with almost full-span (11m) ailerons makes the Silent 2 Electro incredibly manoeuvrable. The glider is trimmed in pitch via an innovative variable-incidence horizontal stabiliser. The stabiliser incidence is coupled to the flap lever, thus defining the trim airspeed in relation to the flap setting while the conventional elevator minimizes trim drag.

When asked to describe the flying characteristics to a fellow glider pilot, I typically explain that it climbs like an ASK6 (as in it will soar with the Buzzards!) and penetrates much like an LS4. As I have no personal experience of hang gliding or paragliding, I have left it to former hang glider pilot Brian Harrison, one of our first UK customers, to share his views [See next page].

## What do I need to fly a SSTR aircraft? BILL BELL EXPLAINS THE LEGALITIES...

You will need to register the SSTR with the CAA. This will cost you £69.

You need to insure the SSTR. As a BHPA member your flying membership covers 3rd-party risks and the CAA will accept a copy of your membership card as proof of insurance: No cost.

You will need a pilot licence. There are a number of options. As a BHPA member with a Pilot rating for hang gliders, paragliders or Foot-Launch Power you get a dispensation for the minimum hours required to complete a National Private Pilot Licence (NPPL) so that it is possible to complete it with as little as five hours training, a series of multiple-choice examinations and a General Skills Flight Test (GST).

This would give you a licence with Operational Limits:

- No passengers
- Cloudbase more than 1000ft above ground and 10kms visibility
- You may not fly further than 8 nautical miles from take-off.

You can remove the operation limits after 25 hours total time, 10 hours solo and a Navigation test.

The version of NPPL you would need depends on what you want to fly. The Silent 2 Electro would need a NPPL(S) version which includes Self Launch Motor Gliders



UK Silent 2 electro importer Allan Arthurs

(SLMG). It is possible to add variants and conversions fairly easily.

These figures are minimums. Realistically, most people will have to figure in some additional elements such as conversion to 3-axis or Differences Training for Self Launched Motor Gliders.

In the real world, if you are not already flying in an environment that offers the training you need, you would have to tour your local clubs and airfields to find out what is on offer. I would strongly urge anyone to spend the time and money on trial flights with several training organisations to find one that really suits you.

You can also fly an SSTR on a full-fat PPL or an LAPL with the chance to fly bigger, faster, and more expensive, aircraft as well.

While the Silent 2 Electro is classified as a Microlight, this particular microlight has all the characteristics of a glider. By far the cheapest route to be able to fly it is to learn to fly a glider. Tuition is free – student pilots pay only the flying fees (launch fees and soaring fees) which needn't be hugely expensive.

At present, this will lead to a BGA Gliding Certificate which is good for most gliders (including EASA gliders until April 2018). However it's not quite enough to fly the Silent 2 Electro, but it's a simple paperwork exercise (and a £70 fee) to convert the BGA Gliding Certificate into a LAPL (S) and then add a Self Launch Endorsement. This last involves some further training (typically in a two-seat motor glider) and five supervised launches on type.

## Acronym-buster

**PPL.** Private Pilot Licence. Allows you to fly heavier machines, fly abroad, and carry passengers. Requires an EASA Class 2 medical (about £120, frequency of testing depends on your age). Realistically, starting from scratch this would cost close to £7,500.

**SPL.** Sailplane Pilot Licence. Internationally recognised (but SSTR aircraft are UK only). Will need a Self Launch Endorsement to fly the Silent Electro. Slightly more stringent medical requirement (EASA Class 2 rather than GP sign-off) than LAPL/NPPL.

**LAPL.** Light Aircraft Pilot Licence. European licence limited to VFR flights, a maximum of three passengers and 2000kg weight limit. Some GPs can issue medicals, otherwise you will need an EASA Class 2 medical as per the PPL. To obtain a licence from scratch would be something like two-thirds the cost of the PPL, say £5,000.

**LAPL(S).** Sailplane variant of the LAPL, also covers self-launching gliders e.g. the Silent Electro. Has slightly different currency requirements and syllabus to the vanilla LAPL.

**NPPL.** National Private Pilot Licence. Limited to UK only, VFR Day, a maximum of three passengers and 2000kg weight limit. You can fly on a medical declaration from your GP. Cost to obtain a Microlight or SLMG flavour of this licence from scratch could be around £4000.

All of the above have significant allowances for previous experience. A BHPA Pilot or FLPG rating can get you a substantial discount on the cost and time required to complete an NPPL, PPL or LAPL licence.

All of the above may also require additional Differences Training for retractable undercarriage, tailwheel or self-launched gliders.

The Silent Electro can be flown on a NPPL(S), LAPL(S) or SPL, however most people flying SSTRs in general will want to do it on an NPPL. This is probably the most appropriate *for the Silent Electro*, but not necessarily so for most other SSTRs.

There are routes to convert between all the different flavours of licence but it all depends where you start from. For the full details, CAA publication CAP804 is your friend. At 888 pages it will provide more than a little bedtime reading.

# Free at last!

BRIAN HARRISON FLIES THE SILENT 2 ELECTRO

By way of introduction, I flew hang gliders from 1976 to 1994. I would describe myself as a club pilot with a great desire to keep improving as a soaring pilot. Over those years I worked for several hang gliding manufacturers both in the UK and USA, in a variety of capacities including development work on powered weight-shift microlights. In 1996 I progressed, like many hang glider pilots, to sailplanes. The soaring and meteorology knowledge gained from hang gliding was easily transferable to enable quick progress. I have enjoyed many memorable days flying cross country with both hang gliders and sailplanes.

For several years I was tempted to convert to a self-launch sailplane. The factors that held me back were that conventional self-launch sailplanes generally use a petrol engine on a pylon which is extended to a high-drag position behind the pilot, and the associated reliability issues which go with two-stroke petrol engines, not to mention the very high cost. Another major consideration was that, prior to UK SSSR and the new EASA licensing regime, the route to self-launch was both complex and expensive.

My perspective on self-launch sailplanes changed when I read an article by Paul Conran in *Sailplane & Gliding* (Feb/Mar 2014).

The major breakthrough in technology is of course the electric power plant. No draggy pylon or unpredictable petrol engine, and no large propeller spinning madly just inches behind my head! Instead, powerful but easily transported Lithium batteries, enclosed in the fuselage at the centre of gravity to drive the front-mounted, two-blade folding propeller. For launch, just turn up the power, much like you would the volume on a radio, and after a short ground run the glider leaps into the air with an impressive climb rate of about 600fpm.

Best practice is to climb at full power to circuit height, typically about 800ft, reduce power to a more conservative climb rate until established in lift, then simply shut-down the motor and go soaring. The propeller blades stop and automatically fold flat against the fuselage to a streamlined position. If the conditions let you down at any time, just turn up the 'volume' to climb away. After the initial launch at full power, there is typically enough capacity left to maintain altitude for some 40 minutes or more, which compares well with most two-stroke sustainers and a full tank of fuel.

In my opinion the Front Electric Sustainer is as significant a breakthrough as when, in 1982, hang glider manufacturers had to

## Specification

Wing span (m)	13.5
Wing area (m <sup>2</sup> )	9.0
Aspect ratio	20.25:1
Wing loading (kg/m <sup>2</sup> )	35.0
Max take-off weight	300kg (315kg with ballistic recovery system)
Best glide	40:1 @ 48 knots
UK airworthiness	Deregulated (SSDR)
UK pilot licensing	PPL/PPL(M) or SPL/LAPL (S) with Self Launch Endorsement
Price	EUR 84,100 (currently c. £61k)*

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\*Ready to fly with basic instruments



Former BHPA hanglie Brian Harrison

Photo: Allan Arthurs



Photo: Allisport SRL

Simple controls. White knob is 'volume' (power) control

play catch-up with the new UP Comet. At that time UP had been the first to enclose the cross-tube within a double-surface sail and create a rigid airfoil section with aluminium battens, a design concept which is still a blueprint for hang gliders to this day.

The Silent 2 Electro is very easy to fly: light and responsive to handle but with all the stability of a sailplane. It turns very tightly in thermals and gives excellent feedback to help to stay centred in the lift. I have been very impressed with the inter-thermal performance; in the speed-flap position the glider settles at about 80kts and returns a very flat glide angle, far superior to my previous 15m unflapped glass glider. The air brakes are powerful and easy to use, making landing simple. The cockpit is comfortable, and I am a lot bulkier than I was in my hang gliding days! The standard of finish is superb and rigging could not be easier. Lastly and most importantly for me, I can launch from my local airstrip on any day of the week. Freedom!

The Silent 2 Electro is a modern lightweight, deregulated, self-launching sailplane that is easy to operate and a delight to fly. What's not to like? We look forward to the next big event; the very first 13.5m World Championships is scheduled for Pociunai, Lithuania, in August. Whatever happens, it's sure to be exciting and we fully expect the Silent 2 Electro to be a serious contender.

Brian Harrison was a member of the SHGC from 1976 - 1994 and the SEWHG&PGC from 1979 - 1983. His best XC distance was 198km (1983), and best UK XC distance 154km (1985) - on an Airwave Magic III.