

Discus-2c FES in Netherlands above the clouds.



A new game for a sailplane, and FAI's just pushed the start button **Discus-2c “supercharged”: The FES**

Think tanks inside the World gliding community are, from time to time, scratching their heads to predict what tomorrow's gliding sport will be like. Around 15 years ago, the Grand-Prix concept appeared and it is now a standard competition in our calendars, spreading even into the Club class and some local championships (see “Formula 1.0” in this release), but what's next? Real life trend is all about techno: Hybrid cars, hybrid cycles, ... but can we introduce a tiny bit of this into our glider world too - and will it still be gliding?

After few attempts from competition, a new interesting electric concept was created few years ago by a young engineer from Slovenia, Luka Znidarsic, and his father, from LZ Design. They won the OSTIV prize with their Front Electric Sustainer: The “FES” was born. Some other solutions appeared before and after, more based on the typical retractable pylone with electric engine, but still the FES gets a fast growing fans community - why?

First, you have to go deep inside the History of gliding to understand the evolution of our sport but also the goals people were following even during the first steps of sailplane manufacturing. Among our company the Gö4 was the first “non experimental” glider to get a “turbo”! This path was natural: Do you know of any sailboat without a small engine for retrieval? No... And the basic problem of our sport was the same in the 40s as today: Perfect gliding weather (with lift) is an “anomaly”, so rarity needs compensation, i.e. an engine. Wolf Hirth was talking about “luft wandern”, basically a walk in the sky, not depending on perfect weather, just good enough to fly and enjoy the glider. French glider manufacturer from the 50s came to same conclusion: Charles Fauvel, well known for his tailless gliders, tried to motorise them as soon as possible, and in an interview he explained that future was about gliders with engine to enjoy them more, more days, more during a day.

Then came the fame of composites with better per-

formance, the Golden Age of the 70s and 80s for gliding, with the purest point of view: No engine, outlanding and adventures, many of us enjoyed this era! This trend drifted then gently, but continuously, towards sustainer-equipped gliders and then self-launchers in the 00s: Open class Nimbus-4M, Ventus-2cM and now Arcus-M are the most used gliders around the world when pilots want to travel and enjoy gliding wherever they are. Just being able to take off, taxi, retrieve, even on areas with no tug planes, they are the perfect tools.

In parallel, competitions pilots went from 15 to 18m class, more and more with a sustainer to avoid outlandings, which risk damage to the glider and are tiring to both pilot and crew. 20m double seater class appeared, almost 100% with engines for the same reason: Who wants to retrieve a double seater from a field?... And competition tasks went from very long to shorter and faster years after years. So question is: What could a hybrid glider offer to the whole gliding community, from club operation to cross country and competition pilots?

Let's first go back to Luka Znidarsic from Slovenia, his story and approach are interesting: Becoming a father, not a big fan of typical greasy engines, model scale pilot at first, then engineer. ...



Installation of the FES system in the fuselage frame needs extra care and precision. Schempp-Hirth Kirchheim.

He still praises his wife for having pushed him enough to create this system, the Front Electric Sustainer. "I was a young father and I flew a lot of competitions and performed many cross country flights. But one day my wife, who is always very supportive and with me on all competitions with the kids, she told me "I will not get you out of the fields anymore" and I can fully understand that... I don't like the engine systems available, greasy, noisy, and you don't have a glider anymore when they run. So I made some tests with an electrical engine on 2 positions on a scale model: Nose position and the typical back pylon position we all know. Fact is, you need much more power from a pylon position and you get no instantly available power like in the nose, so the choice was easy. To make it reality was another story but first glider with a FES was my personal Lak19. Schempp-Hirth Ventus-2cxa, Discus-2c and Ventus-3 followed few years after and today there are many flying around the World."

When you ask him if the idea of the FES was just to offer another sustainer to avoid outlandings, Luka says "At first when we created it yes, but after the first flight I knew it was much more than just a typical turbo solution, as you can adjust power output smoothly, and the glider just acts like a glider even with the power on: Vario information is accurate, feeling in the cockpit is like a pure glider except a bit of noise and vibration, controls are no different, this is just a glider that does not sink anymore! So perhaps a new way of gliding?"

FAI did think twice when the idea to create a new class with new rules was under question. We have already many classes, but e-glidern could be a way to advance our sport. Decision taken, only question left was related to the wingspan. Currently the just born 13.5m class is building up with very few manufacturers in the

competition. Still GP and Lak, and before them Alistar with the Silent series are the main contenders and few of them are electrical. The big number of electrical gliders are currently from 18m class gliders: Lak19, Lak17, Shark, Ventus-2cxa, Ventus-3, Discus-2c... So first attempts to make proper FAI competition including use of engine during the task will be based on 18m class with some handicaps applied on turnpoinmts radius, and completely new rules : total time of flight on task is scoring basis, and naturally use of engine allowed! Hardly flyable weather should not make scrub days anymore thanks to engines, and very likely longer tasks will be set as engines will help a lot to achieve them. But not only competition pilots will enjoy this revolution in our sport, some clubs are already using Discus-2c FES and feedback is very positive, with ease of use in the cockpit, minimal maintenance except care of batteries, and a lot of fun in the air even if you can't (for now) win an OLC day when you use the engine! But perhaps one day...

So what's next? September will be the event in Italy a lot of competition pilots will watch carefully to get feedback from this first "FAI electrical gliders event", held in Pavullo, in parallel to the 13.5m World Championships. More and more people are also asking "When do you make a double seater available with FES?". This may be the next step to turn the e-glidern into a "normality" in our sport. Just imagine making a training course out of the winch with no more time pressure thanks to the FES and no needs of thermal activity...



First E-glider FAI event
Pavullo, Italy
31st Aug. - 7th Sep.

Official website :
1eglidecontest.home.blog





FES glider during ground test, Schempp-Hirth Kirchheim.



Do you want to join this first FAI e-glider event?

Please contact us and we will pass you through FAI team to apply for entry!

info@schempp-hirth.com

Discus-2c FES during flight test in Hahnweide, Kirchheim unter Teck 2018.