The Sleeping Beauty Awakes

Beauty is a fairy tale about a sleeping
who was awoken after a long period of
handsome prince. Such is the tale of
oz', a Polish sailplane that has had a
te - a fascinating story told in detail by
Waszkiewicz, Gliding International's
rrespondent.

Joanna, wrapped up ready for a wave flight, tries out the Perkoz for size.

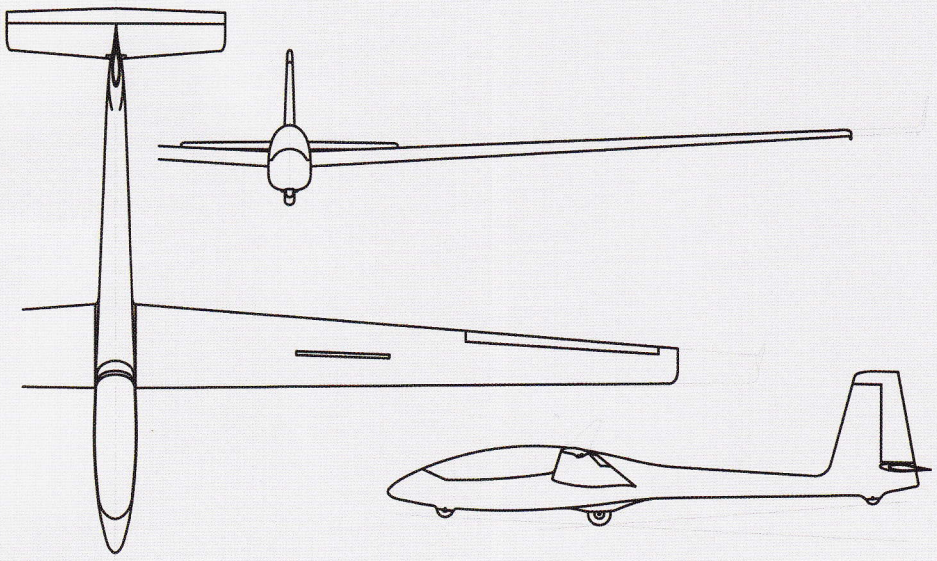
The story of the Perkoz (SZD-54) started in 1984. This two-seat sailplane was carefully developed over a period of seven years until the first prototype took to the air in 1991 over Jelenia Góra in south-west Poland. The flight testing programme however was painfully slow as the state–owned Polish gliding factory, PZL-Bielsko, was in serious financial difficulties at the time.

When the inevitable bankruptcy occurred, the Perkoz (SZD-54) project was forgotten, hidden in a corner of the dilapidated facility where the prototype slept like a sleeping beauty for several years. She was finally rediscovered by Andrzej Papiorek, a new private glider builder and Managing Director of the Allstar PZL Glider company, which had bought a large part of the bankrupted factory's assets.

Allstar re-assembled the sailplane and restored it to its initial beauty, refreshing the paint in 2006.

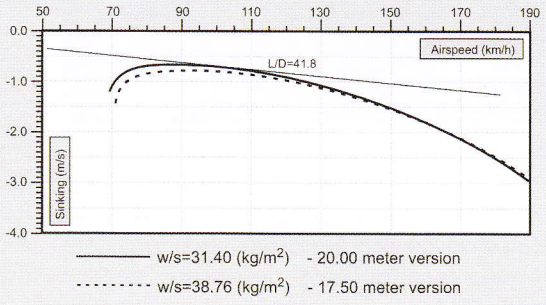
In spring 2007, it was shown at AERO Friedrichshafen in Germany, to see if it produced any interest amongst potential cus-

Sebastian Kawa, the World Champion, gives the Perkoz "the thumbs up"



Span	m	17.50	20.00
Lenght	m	8.25	8.25
Height	m	2.05	2.05
Wing area	m^2	16.36	17.82
Aspect ratio		18.7	24.75
Empty Glider mass	kg	365	379
All-Up mass	kg	585*/565**	600
Wing loading range	kg/m^2	28.1-35.76	27.2-33.7
Load factors	+ -	5.3*/6.6** 2.65*/4.6**	5.3 2.65
Maximum L/D at	 km/h	37 109	41.8 102
Stalling speed	km/h	62.9 (460 kg)	61.6 (485 kg)
Minimum sinking speed at	m/s km/h	0.66 82	0.58 78
Never exceed speed	km/h	240*/265**	240

*- UTILITY category **- AEROBATIC category



——— w/s=31.40 (kg/m^2) - 20.00 meter version

- - - - - - - - w/s=38.76 (kg/m^2) - 17.50 meter version

Design life : 15.000 hrs
Actually approved operating time: approval expected
Factory warranty: 24 months

tomers. Andrzej Papiorek was not surprised to find that the glider did indeed arouse plenty of curiosity within the gliding community. A year later in 2008 after a completing a full technical test programme, Perkoz was exhibited in Orvietto in Italy where it was announced that it would also be a glider suitable for disabled pilots, with an optional hand operated rudder.

Unfortunately, the type's certification process was postponed when the EASA unexpectedly introduced new, more severe demands regarding cabin design of a much higher reinforcement (from 9g to 15g) and changed the glider construction regulations. The Perkoz was built according to the requirements of JAR-22 U (utility) and A (Aerobatics) certification but has not yet been certified.

Right now the factory is building a new version of the Perkoz that will meet the new EASA CS-22 requirements. It is planned to be ready at the beginning of 2010 and the serial production of the sailplane will start during the year. There are already 10 buyers waiting their production turn.

Front cockpit accomodates the biggest of pilots

In the initial stages, the Perkoz was planned to be an upgraded version of the Puchacz (pronounced pu-hatch), a very popular Polish two-seat glider that has seen 300 produced and flying all over the world.

However, the Polish Ministry of Technology has been prepared to consider the financing a completely new sailplane rather than a simple face-lift of an existing one.

Adam Meus an experienced and talented Polish engineer who had designed the Puchacz was extremely happy to commence work on the Perkoz. The engineers knew exactly what should be improved in the new two-seat glider but they have gone even further - designing a sailplane that has many virtues - from basic training, through cloud and wave flights to advanced aerobatics.

Unlike in the Puchacz where the wings have the Wortmann profile, typical for training gliders, the NN-8 aerofoil applied in the Perkoz makes it more like a competitive glider. The same aerofoil is used for example by the Jantar STD. The Perkoz also differs from its older Puchacz brother in that the position of wings have been placed lower - mid height of the fuselage.

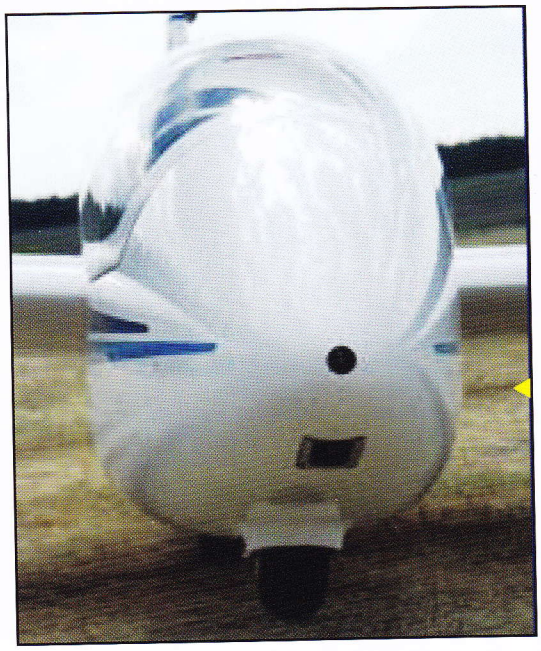
With the pilots' seats re-positioned further aft in comparison to the Puchacz, the Perkoz's wings do not form the characteristic arrow shape of its predecessor. As a consequence, Perkoz has much better spinning characteristics when it comes to entering and recovering from a spin. A lowered tailplane also enables a full range of aerobatics.

The canopy opens very easily and hinges with springs to protect against accidental damage caused by the frequent and careless opening encountered during a busy training season.

The airbrakes have to meet tough regulations which say that in a steep 45 degree dive, with maximum weight, the glider cannot exceed the maximum design speed. When the Perkoz terminal velcoty brakes (TV) are fully open it almost stops in the air, and even in a steep dive, it will not exceed the speed limit.

The Perkoz can fly in two categories with different limits: aerobatic and utility. In the

The back seat cockpit is amongst the biggest - and with great visability. The instrument panel lifts up with the canopy making access very easy.



Note the centre tow-hook location and the re-positioned tailplane

aerobatic version the permitted maximum-speed is 265km/h but with a lower weight (565kg). The original airbrakes were good enough for that version but not for the utility version where the speed was limited to 245 km/h but with a heavier weight (585kg). Therefore the airbrakes had to be modified and now they work perfectly well for both versions.

Zbigniew Weksej has now flown 30 hours in the proto-type and his test reports highlights the gliders advantages:

"It is easy to operate, agile and reacts to controls particularly fast. I could compare it to flying the Junior, (a single seat glider), when it comes to forces and reaction time. It is also surprisingly versatile and as such does not have any competition.

It can perform all aerobatics like the Fox, or ASK-21, (typical aerobatic gliders), but the L/D ratio of the latter is 30 while the Perkoz's is almost 40 (37 for the version with the 17.5m wing span, and 41.8 for the 20m version). It is still however very suitable as a basic trainer like the Bocian, which is not rated for aerobatics.

Now that's a "looker"

Perkoz is as easy to take off and land as the single seat Junior and is also a very docile sailplane that forgives pilots' mistakes. It goes up as nicely on a winch as the Bocian.

For cross-country soaring it is better than the Junior which has a speed limit of 180. The Perkoz can comfortably fly as fast as 240 km/h, like the Jantar (a competitive glider), thanks to its thin aerofoil. At low speed and in a training environment, it behaves like the Junior, but in a race it is more like the Jantar. Flying inverted, it reminds me of the Fox (an aerobatic sport glider). However, the sink speed is lower than aerobatic gliders which allows the Perkoz's pilot to make an extra set of aerobatic manoeuvres from the same altitude. I find it difficult to understand how the engineers managed to combine all those features in one machine. On top of that, the Perkoz with the winglets soars smoothly in thermals. Once you get there and trim its position, it will circle like a bird. It doesn't slip out of the thermals.

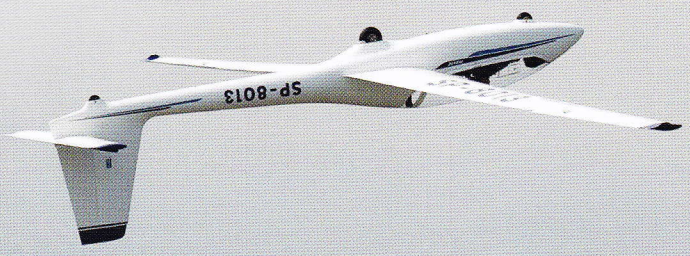
The ailerons are very effective, and the 45 to 45 degree roll is much faster than the Puchacz. Perkoz does not fall into a stall. Even with the stick pulled fully back, the glider remains controlled. A stall needs to be initiated by a positive control column movement and it is easy to recover.

Finally, the cabin is very spacious. The instructor has a lot of space in the back seat and very good visibility. He can take his feet off the rudder and sit comfortably to let the trainee fly on their own. Thanks to the flat control panel, the instructor can easily observe the pupil in front of him."

The Allstar PZL Glider company is located in the beautiful mountain town of Bielsko – Biała, close to the Polish mecca of mountain flying, Żar. The factory produces the SZD-54 Perkoz, SZD-59 Acro, SZD-55-1, SZD-51-1 Junior, SZD-50-3 Puchacz and SZD-48-3 Jantar Std 3.

The price of the Perkoz will be around €65,000 (without instruments) with customers in Germany, Italy, New Zealand and Canada awaiting delivery.

The latest word from the Allstar factory is that the engineers are also working on the powered version of the Perkoz, but that is at leased another year away. "



The aerobatic rating - a feature of the Perkoz.