MINISTRY OF TRANSPORT AND COMMUNICATIONS
OF THE REPUBLIC OF LITHUANIA
CHIEF INVESTIGATOR OF AIRCRAFT ACCIDENT AND INCIDENT

FINAL REPORT
ON AIRCRAFT ACCIDENT INVESTIGATION
No. TA-O-GA-11-1

The sole purpose of this investigation report is to prevent accidents and incidents. The purpose of the investigation is not to apportion blame or liability; therefore, if used for other purposes the report can be unduly interpreted.

Owner	**Aero Club of the Republic of Poland**
Manufacturer	**Alexander Schleicher GmBH, Germany**
Aircraft Type	**ASW-27**
Nationality and Registration	**SP-3635**
Place and date of Accident	**Mikalava village,** **Trakai District Municipality** **10 August 2011**

SHORT SYNOPSIS

On 10 August 2011, during the European Gliding Championship, while descending on a field, approximately 5 km from Aukštadvaris at the edge of the Mikalava village (Trakai District) beside the margin of Karapolis village, the glider ASW-27, national registration SP-3635, piloted by a citizen of the Republic of Poland, hitched bushes and fell down near an uncompleted construction of a resident house. During the accident the pilot of the glider did not suffer any injuries. The glider was damaged irreparably.

1. FACTUAL INFORMATION

1.1. Process of flight

During the European Gliding Championship held on 10 August 2011, in Pociūnai (the Republic of Lithuania), a citizen of the Republic of Poland on the 15 m class glider ASW-27, registration SP-3635, was flying an exercise indicated by the organisers. At the end of the route, on the way towards Pociūnai, beside Aukštadvaris (approximately 5 km to the North-West from Aukštadvaris), the glider got into particularly unfavourable flight conditions. The flight altitude was decreasing and the pilot did not manage to find any rising thermal air flows. As the pilot became aware that it will be impossible to finish the indicated flight route, he started looking for a suitable place to land. The situation was aggravated by the fact that the vicinities of Aukštadvaris are very uneven, hilly with many detached trees and bushes. Data, provided by GPS data logger, shows that at the time of accident there was strong, approximately 10 m/s wind in the 248^{o} direction. Due to the strong wind and close to the ground turbulence, the pilot could not manage to land the glider on the chosen meadow. He flew over it and hitched with the left side of the wing an approximately 60 mm diameter branch of a tree. The impact caused the glider to turn to the left; it hit the ground and stopped after turning counter-clockwise approximately by 100^{o} off the initial flight direction. The accident took place at 15.45 hours.

1.2. Injuries to persons

During the accident there was one crew member in the glider. There were no passengers. Neither the crew member nor other persons were injured.

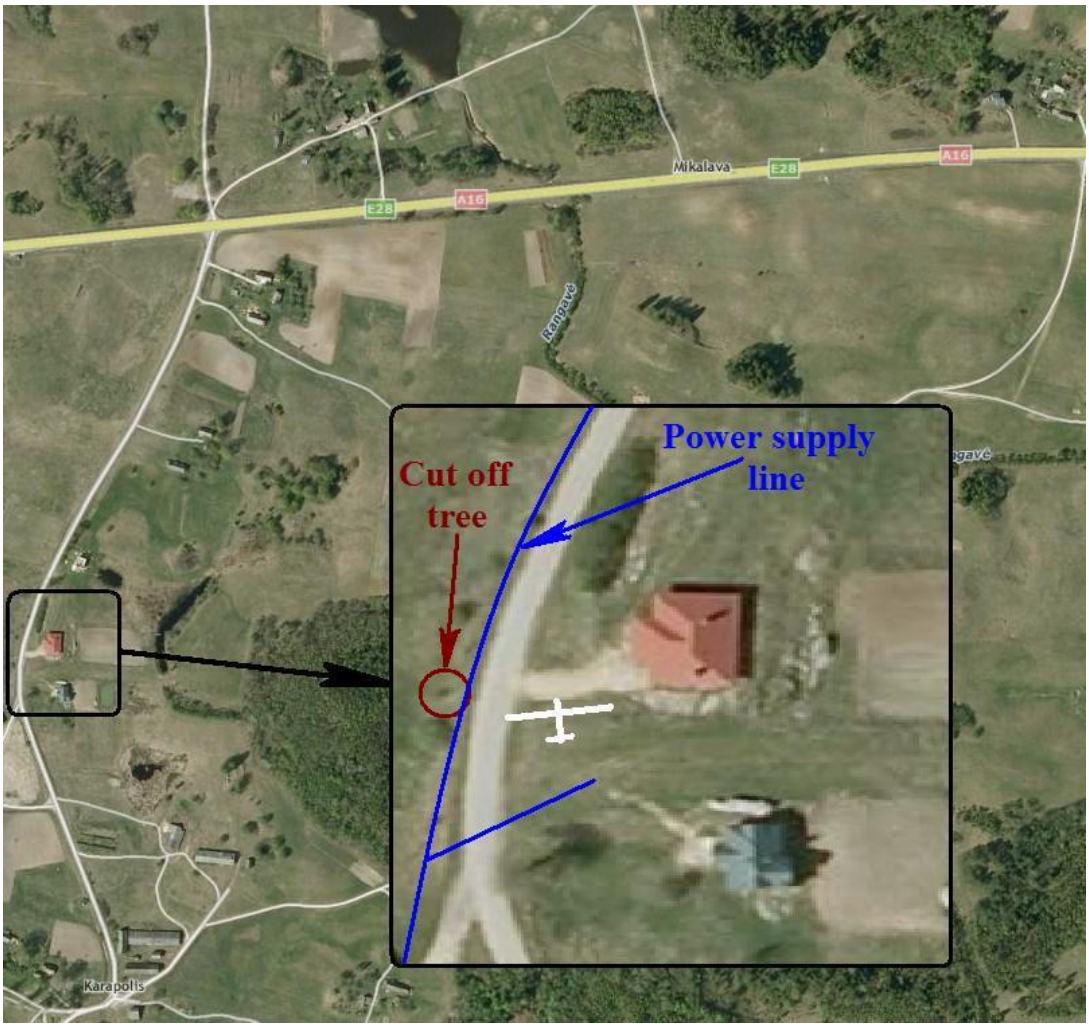

Figure 1. Plan of the glider's landing place.

Figure 2. Graphic image of the data on the glider's last flight stage registered by glider GPS data logger.

1.3. Damage to aircraft

During the accident the right side of the glider's wing broke off. The left side was badly damaged. Due to the impact with the tree leading edge of the L/H wing side cracked (the affected spot – approximately by two thirds of the wing side length from the symmetric axis of the glider), also the glider's core unit was affected.

Figure 3. The glider on the site of the accident (L/H view).

The R/H side of the wing broke off completely and detached from the glider. Only a 1 meter-long section of the core unit of the R/H longeron remained linked with the L/H part of the longeron. Units of wing fixation on the fuselage and on the wing were damaged. Also ailerons and flaps were damaged. The frame fixing the wing and chassis to the central part of the fuselage was pushed from the place and deformed. The tail part of the fuselage broke in two places. Between the fractures, the fuselage came unstuck along the joint. The vertical stabilizer, rudder and horizontal stabillizer were damaged. The front part of the fuselage in the area of the pilot cabin suffered less damage.

Figure 4. The glider on the site of accident from the R/H point of view.

1.4. Damage to third persons

Except the damaged glider, no damage to third persons has been defined.

1.5. Personnel information

The glider was piloted by the pilot, age 30, a citizen of the Republic of Poland. He held a Glider pilot licence PPL(G)-PL issued on 6 July 1998 in the Republic of Poland, valid until 26 May 2014.

The pilot had accumulated 1797.5 hours of flight experience. He pilots gliders from the year 1998. Within the latter 90 calendar days the pilot had flown 91.5 hours, the total time of the period – on the glider ASW-27.

1.6. Aircraft information

Aircraft Type	ASW-27
Manufacturer	Alexander Schleicher GmbH, Germany
Ser. No.	27104
Registration marks	SP-3635
Aircraft Registration Certificate issuance date	23 February 2011
Periodic Validity Certificate of Airworthiness	until 12 May 2012
Owner of the glider	Aero Club of the Republic of Poland
User of the glider	Łukasz Wojcik
Flight hours	1560
Landings	450

The flight weight and the centre of gravity – according to the requirements defined by the flight manual.

1.7. Meteorological information

According to the data, provided by GPS data logger, during the emergency landing the wind in 248^{o} direction was approximately 10 m/s.

1.8. Communications

125.00 MHz frequency radio communication was maintained with Pociūnai aerodrome flight coordinator. Radio conversations had not been audited as non-relevant to the accident circumstances and sequences.

1.9. Wreckage and impact information

The glider hit the ground at the field hillside near the asphalt road and the site of a house construction. The coordinates of the place: 54,573223; 24,457074. A moment before, while flying at low altitude, the glider cut off a treetop by the L/H side of the wing.

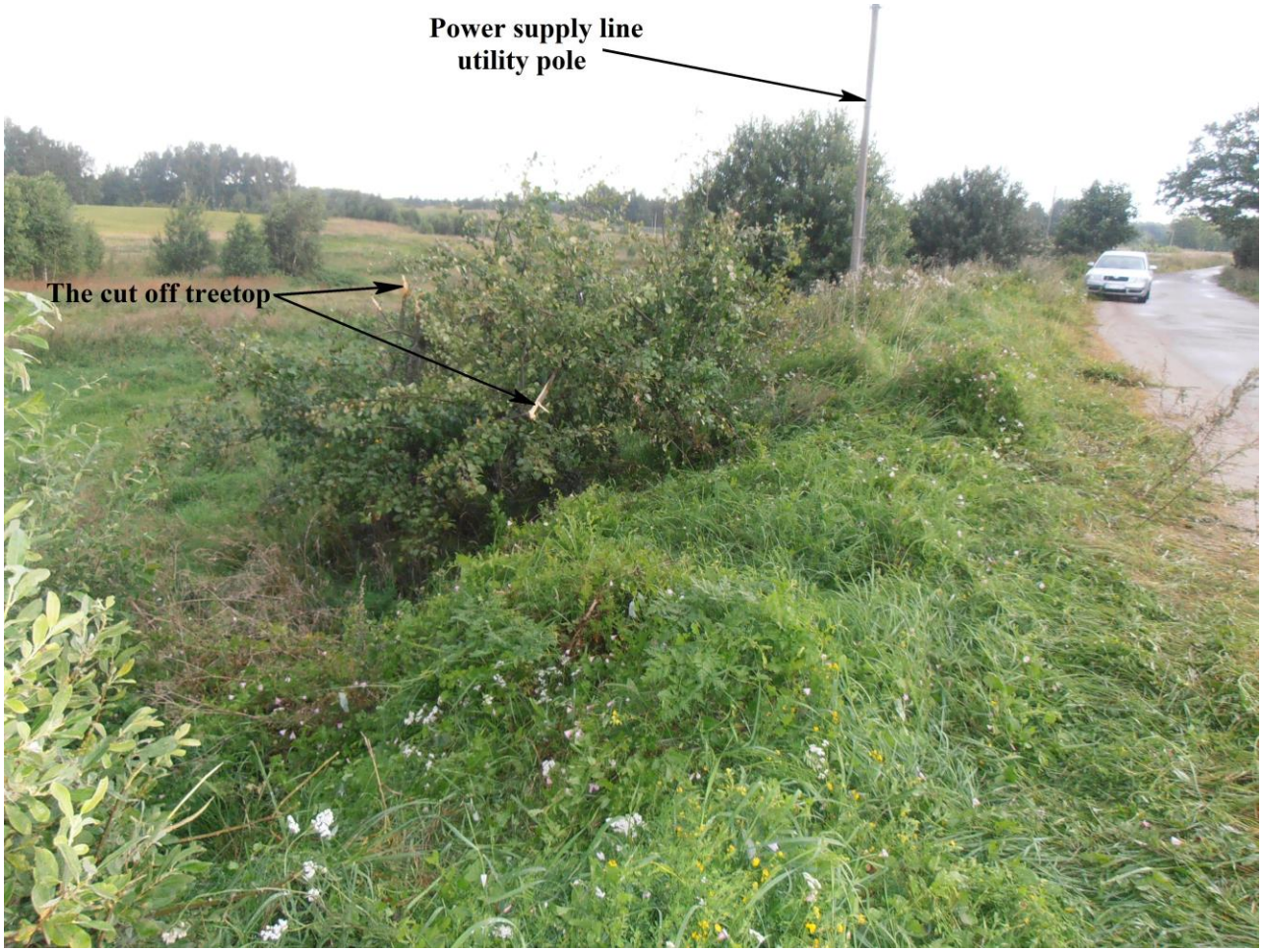

Figure 5. While landing the glider's L/H wing side cut off the treetop.

The cut off top of the tree damaged the leading edge and stuck in the wing. Later on, at the moment of the crash, a part of the treetop fell near the L/H side of the wing.

Figure 6. Damaged parts of the wing and remnants of the treetop.

After flying at a slant trajectory glider hit the ground whittle turning around vertical axis. Due to the inert strain the R/H side of the wing broke off, and the tail wrenched. At the moment of hitting the ground the glider's speed was not high, the flight trajectory made a narrow angle with the ground surface. The fragmenting components absorbed much energy; therefore the glider's cabin did not suffer much damage.

1.10. Flight recorders

Sport gliders are not equipped with self-recording equipment for flight data or cabin conversations. However glider pilots use the GPS flight data logger. Using the GPS information this Recorder enables the monitoring of flight parameters and their reproduction. Figure 2 shows the graphical image of the last stage of the flight.

1.11. Safety factors

The pilot had fastened safety belts, which protected him from injuries during the turning of the glider and at the moment of hitting the ground.

1.12. Fire

None.

2. ANALYSIS

While flying above Mikalava village (Trakai District Municipality) and being aware of the insufficient altitude necessary for the flight to Pociūnai (Prienai District Municipality), the pilot started searching for ascending air flows necessary for raising the altitude. When the altitude of the glider decreased to approximately 200 m, pilot intensified the search for an adequate landing place or for the possibility to raise the altitude. This is proved by GPS data logger record (Figure 2) and the pilot's explanation. Having no possibility for flying up, he tried to land on the field chosen from the air. Having started the landing the glider hit a strong turbulence zone. The pilot could not manage to land the glider on the chosen field. Thus, in the process of flying, the glider's left wing caught a top of a small-sized tree growing close by road. Flying by flat trajectory in a spinning around the vertical axis movement the glider collided with the ground.

Meteorological conditions and a rugged terrain typical to the locality, with numerous single trees and bushes, had the most significant influence on the aftermath of the flight. Furthermore, due to the characteristics of the locality the pilot had to make decision for landing on the field while being on the higher altitude, when still having a possibility to choose a more suitable place for landing.

3. CONCLUSIONS

3.1. Findings

3.1.1. The pilot of the glider had been properly licensed with a considerable flight experience.

3.1.2. The glider had a valid Validity Certificate of Airworthiness.

3.1.3. Technical condition of the glider was adequate.

3.1.4. Due to the hilly relief and bushy terrain the vicinities of Aukštadvaris are complicated for finding a suitable field for safe landing of the glider.

3.1.5. At the time of the accident there were unfavourable meteorological conditions for gliding up and/or landing.

3.2. Additional factors

The glider accident was caused by unfavourable meteorological conditions, when in the region of flight there were no rising thermals flows suitable for gliding up, and a strong catchy wind was blowing on the low altitude. Blowing over the rugged terrain such a wind has a character of high turbulence. The relief of the locality had a considerable influence too, as well as the pilot's late decision for landing on the field.

4. FLIGHT SAFETY RECOMMENDATIONS

4.1. The Civil Aviation Administration should control that organisers of gliding competitions should prepare and provide to participants of the competitions information on the flight routes' regions, where a specific relief of terrain, meteorological conditions or other factors can complicate the landing on sights selected from above. It is particularly important to the pilots having scarce experience of flights in Lithuania.

4.2. The decision for landing has to be taken by pilots at an adequate altitude enabling the estimation of the relief of the terrain below and existing meteorological conditions.

Bronius Merkys
Transport Accident and
Incident Investigation Head of Division
(Chief Investigator of Aircraft Accident
and Incident)