

FINAL REPORT

on investigation into air occurrence to aircraft of a maximum mass below 2250 kg*

This report is a document presenting the position of the State Commission on Aircraft Accident Investigation concerning circumstances of the air occurrence, its causes and safety recommendations.

The report is the result of the investigation carried out in accordance with the applicable domestic and international legal provisions for prevention purposes only. The investigation was conducted without the need of application of legal evidential procedure.

In connection with the Article 134 of the "Aviation Law" Act (Journal of Laws 2006, No 100, item. 696 with amendments), the wording used in this report may not be considered as an indication of the person guilty or responsible for the occurrence.

The Commission makes no judgments about fault and responsibility.

In connection with the above, any form of use of this report for any purpose other than air accidents and serious incidents prevention, can lead to wrong conclusions and interpretations.

This report was drawn up in the Polish language. Other language versions may be drawn up for information purposes only.

- 1. Type of occurrence:** ACCIDENT.
- 2. Investigation conducted by:** SCAAI.
- 3. Date and local time of the occurrence:** 09 August 2011; 12:08 hrs (UTC).
- 4. Place of take off and planned destination:** Pociunai-Kaunas aerodrome (Lithuania); N54°39,40' / E024°02,00'; 65 m AMSL.
- 5. Place of the occurrence:** Glade, approximately 5 km South of Giby near Sejny; place of accident coordinates: N54°00'00,20" / E023°22'45,41", 140 m AMSL.
- 6. Type, model, registration marks, owner and user of aircraft, damage description:** high-performance open class glider Schempp-Hirth Nimbus 4M (with a deployable powerplant based on Rotax 550 engine), serial No N4M1027, year of manufacture - 1994; MTOW 800 kg; registration marks HB-2254; starting markings - NB, single seat, cantilever mid-wing monoplane, composite structure with retractable 1-wheel landing gear, private owner (citizen of Switzerland); private user (citizen of Switzerland); damage - both wings totally destroyed, less damage to fuselage in the area of fixing wings and landing gear (full assessment impossible at the scene). Damage to the glider shown in detail in Annex No 1 - Album of Illustrations.
- 7. Type of operation:** Sport competition.
- 8. Phase of flight:** Landing.
- 9. Flight rules:** VFR, day.
- 10. Weather factor:** VMC, sunny, wind: west, speed 10-11 m/s.

* Form and scope of this Report are not in full accordance with the guidance contained in Appendix „Format of the Final Report“ to Annex 13 to the Convention on International Civil Aviation

Situation: The competition region was between the low with the center over Skagerrak and weak high with the center over Albania to the west of the front associated with the influence of low shifting to the east, in the range of winds blowing on the north-easterly direction.

Conditions forecast for 09 August 2011 were sufficient to carry out the planned competition of the championships. Detailed data showing the meteorological forecast are in Album of Illustrations (maps taken from the website of the championships organizer).

11. **Flight organizer:** Lithuania Aeroclub; Kastonu 4-7, LT-2004, Vilnius, Lithuania; (16th FAI European Gliding Championships, Pociunai 2011);
12. **Aircraft Commander information:** Pilot - male, aged 59, held the Swiss FCL glider pilot license valid until 2012 and had a very large experience in the field of high performance glider sports. For many years he had successfully participated in numerous competitions flying his own HB-2254 glider. His total flight time was over 4633 hours and he completed 1389 flights.
13. **Injuries to the crew and passengers:** None.
14. **Course and circumstances of the occurrence:** On 9 August, 2011, on the eighth day of 16th FAI European Gliding Championships, at 9:34 hrs (UTC), the pilot took off, and at 9:41 hrs (UTC) he crossed the start line to the competition with three points (Rudzic-Grybaulia-Kalvarija) of total length of 382,5 km. Weather forecast provided to the participants allowed to plan such a flight. Initially, the flight proceeded towards the first turning point (Rudzic on the Polish territory), but after covering approximately 34 km of the planned route, weather conditions forced the pilot turn in a southerly direction to look for favorable thermal lifts. After further 43 km flown in approximately southern direction the pilot entered the territory of Poland and the weather conditions began to deteriorate. The pilot continued the flight in the direction generally close to the southern, flying along a broken line about 47 km and then he reached the northern edge of Puszcza Augustowska southwest of the village Giby near Sejny, where further deterioration in weather conditions forced him to turn back from the forest area and look for a landing site. The decision to land was too late and the pilot did not manage to use (start), the auxiliary powerplant.

Still in the forest area, approximately 5 km south of Giby village, the pilot chose for landing a forest clearing, which was intersected by a local dirt road leading from Giby village in the direction close to the southern one. To reach the selected forest clearing, the pilot was twice forced to correct the direction of flight. During approach to landing with the left turn, significant mushing and the rear wind, the pilot did not manage to direct the glider on the longitudinal axis of the forest clearing (Nimbus 4M with deployed powerplant has reduced maneuverability). The last phase of landing, just prior to touchdown was characterized by approach path gradient - approximately 10-12°, left bank of the glider (in the left turn) - about 18° and heading - approximately 105° (at the time of touchdown). The touchdown place was located just behind the road at its eastern side, on the southern edge of the forest clearing.

In this configuration the right wing of the glider collided with a high tree branch located at the height of about 10 m (on the edge of the forest on the western side of the road) broke it, and then the left wing came in contact with the ground just behind the road. At the same time the right wing cut down tops of 6 birch trees located along the road on its eastern side (trunk diameter at the base about 12-15 cm) and knocked down one of them. As a result of impact the right wing was separated from the fuselage and broken in two places.

Strongly bent left wing, moving on the ground, collided with a young pine (trunk diameter at the base about 15-18 cm) and as a result of impact was separated about 7 m from the fuselage.

Touchdown on the landing gear was pretty hard, and during the landing roll the glider turned about 15 degrees to the left, setting the fuselage nose in easterly direction.

The event took place at 12:08 hrs (UTC). The pilot left cockpit on his own, and by mobile phone tried to establish communication with the emergency number 112, which for a long time was not successful due to lack of foreign language speakers (German, English) on duty at the emergency phone and difficulties in determination of the occurrence site location.

After about 2 hours the police, fire brigade and ambulance arrived on the scene. A rescuer examined the pilot on the spot and decided to carry him to the hospital. After examinations the pilot left the hospital at his request, not reporting any complaints.

At 16:25 hrs (LMT) a patrol from the police station in Sejny arrived at the occurrence site and protected the glider until arrival of SCAA Investigating Team on the next day at 11:05 hrs (LMT).

The SCAA Investigating Team made necessary measurements and documentation on the scene. Upon arrival of the pilot the Team received his statement on the course of event and conducted a review of his personal and the glider documentation. Then the glider was released from custody for the disposal of the owner-user and taken from the scene to Pociunai aerodrome by the technical team which arrived earlier. The pilot also provided the logger record of the last flight on pendrive and, at a later date (via email) a written statement describing the event in the German language, and copies of his individual flight log).

The SCAA Investigating Team acquired from the Internet data and documents on 16th Gliding Championships 2011 in Pociunai – including tasks for the accident day, meteorological forecast and organizational documents of championships. The Team made also analysis of meteorological situation on the basis of data obtained from its own sources. Weather conditions forecast by the organizer, flight route, terrain conditions, tracks of the accident, situation during the event and the damage to the glider are shown in detail in Annex No 1 - Album of Illustrations.

The incident was notified according to the applicable procedure to the Aviation Authorities of Switzerland and EASA (Event Notification).

During investigation of circumstances and place of the accident, inspection of the damaged glider, analysis of available documentation and information and analysis of data obtained from the organizer website: (<http://wgc2011.pociunai.lt>) it was determined that:

- The pilot was fully qualified to perform the flight (valid license, very large experience in gliding and gliding sport competitions).
- Documentation of the aircraft was complete and properly kept.
- The aircraft airworthiness did not raise objections, and was confirmed by the valid documents, required also by the organizer of the Championships.
- Weight of the glider and location of its center of gravity were within the limits provided in the Flight Manual.
- Weather conditions affected the occurrence and course of events - their rapid deterioration led to the forced landing of many other competitors - on the same day six other participating gliders landed on the Polish territory and the whole competition on that day was canceled by the organizer.
- The aircraft was insured.
- There was fuel in the glider powerplant tank - fuel spill or any signs of leaks in the fuel system was not found and fuel quantity was not determined.
- Selected landing site was covered with high and dense grass, which was not possible to determine from the air and even a proper touchdown, completely consistent with the intentions of the pilot would have to end up with losing of direction of landing roll, and most likely damage to the glider tail boom.
- Due to lack of GPS device at the disposal of the Police the SCAAI Investigating Team encountered serious difficulties in finding the place of the occurrence due to its inaccurate and completely erroneous determination in the notification.

15. Cause (causes) of the occurrence

Too late decision of the pilot to land in the terrain after deterioration in the weather conditions.

16. Circumstances contributing to the occurrence of the accident:

- 1) Entering woodland in the steady deteriorating conditions for thermal lifts;
- 2) Too late start of activation of the powerplant;
- 3) Psychological factor of competition.

17. Preventive measures applied:

Preventive measures not proposed.

18. Proposed system changes and/or other remarks:

Persons on duty at the emergency phones No 112 in the country should have at least basic command of foreign languages (English, Russian, possibly German), which is becoming essential due to specific cases and circumstances encountered - related not only to aviation.

Composition and signatures of the Investigating Team or Investigating Official

SCAAI Investigator-in-Charge:

Andrzej PUSSAK

Member of SCAAI Investigating Team:

Tomasz MAKOWSKI

ZASTĘPCA PRZEWODNICZĄCEGO
Państwowej Komisji Badania
Wypadków Lotniczych

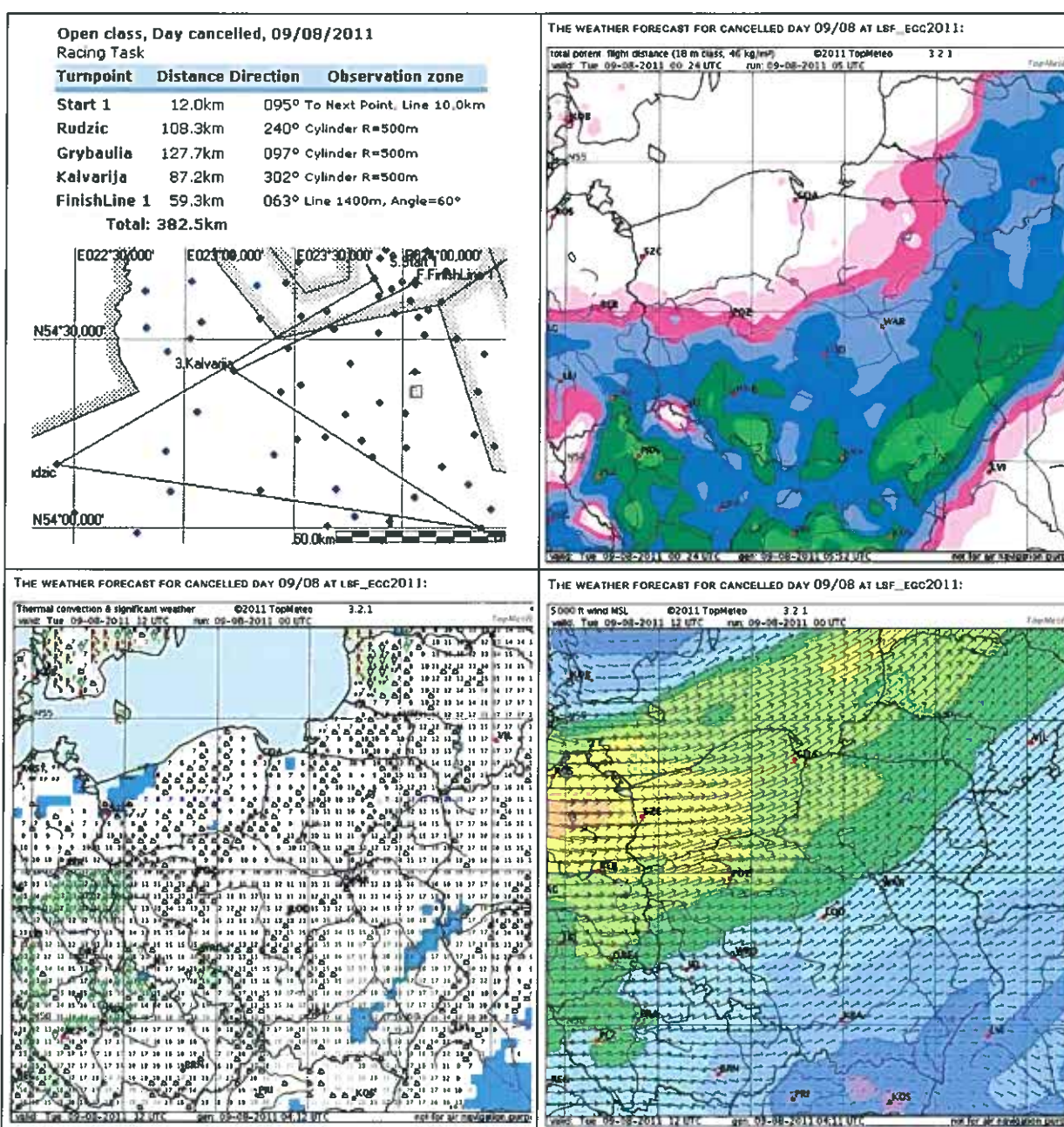
Andrzej Pussak

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(stamp and signature of Investigator-in-Charge/
SCAAI official supervising investigation)

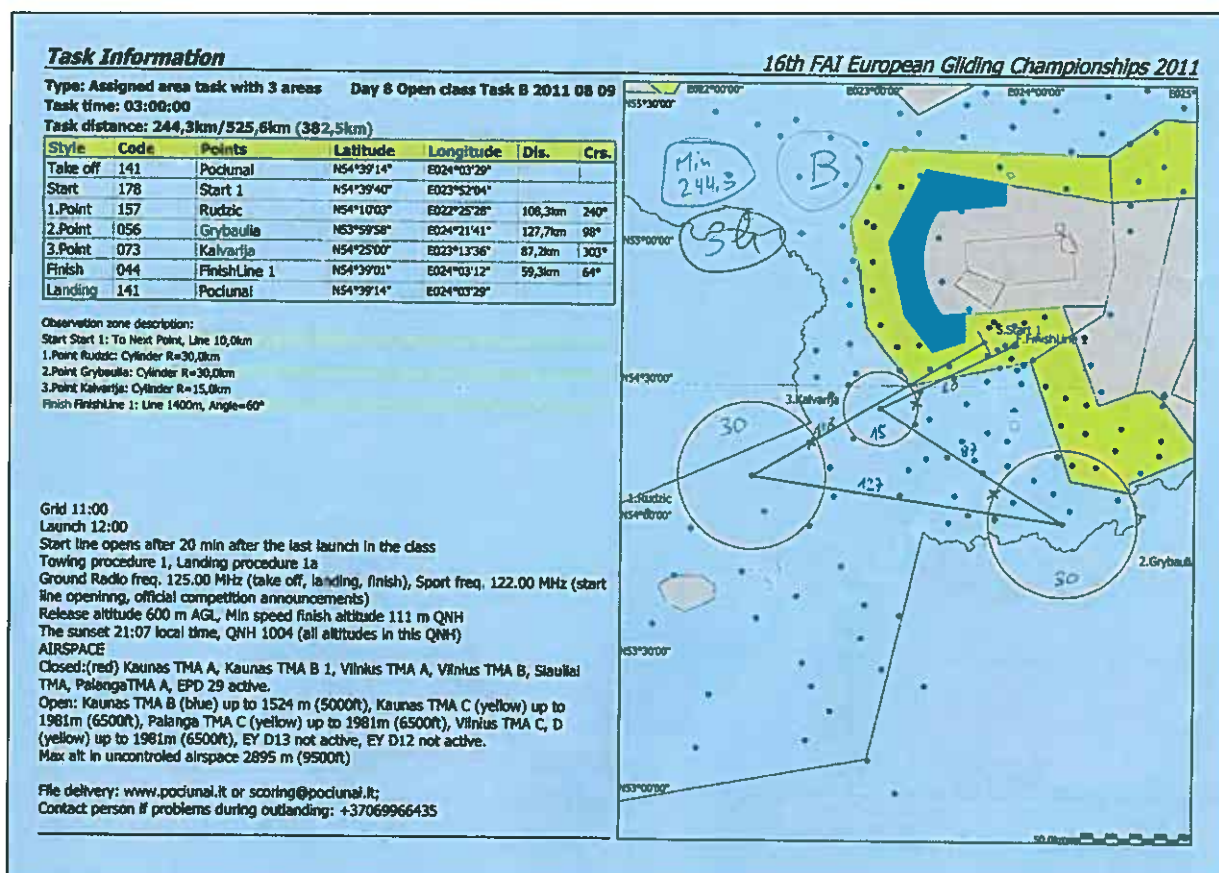
ALBUM OF ILLUSTRATIONS
Schempp-Hirth Nimbus 4M glider; HB-2254
9 August 2011, Giby near Sejny



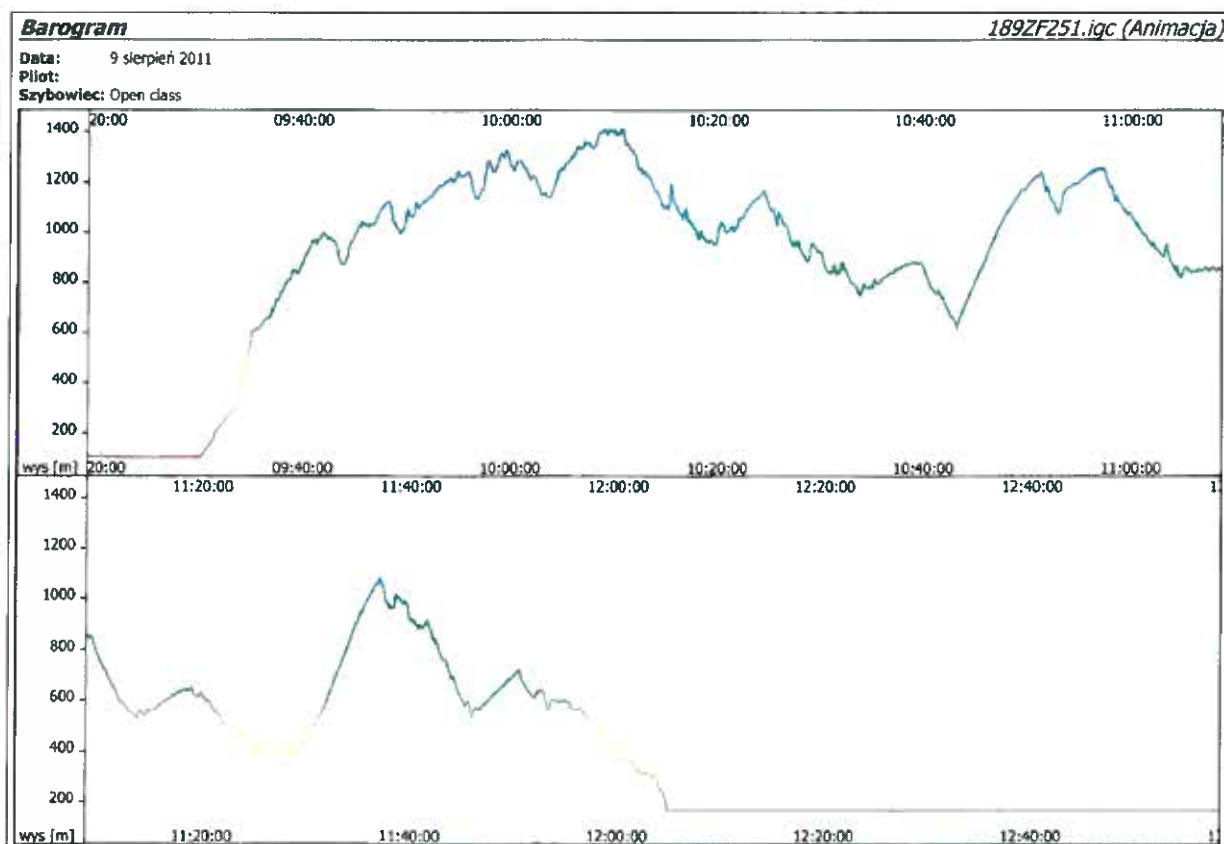
1 –Schempp-Hirth Nimbus 4M glider HB-2254 - photo made prior to the accident [photo.: Jean Jacques Parel - internet]



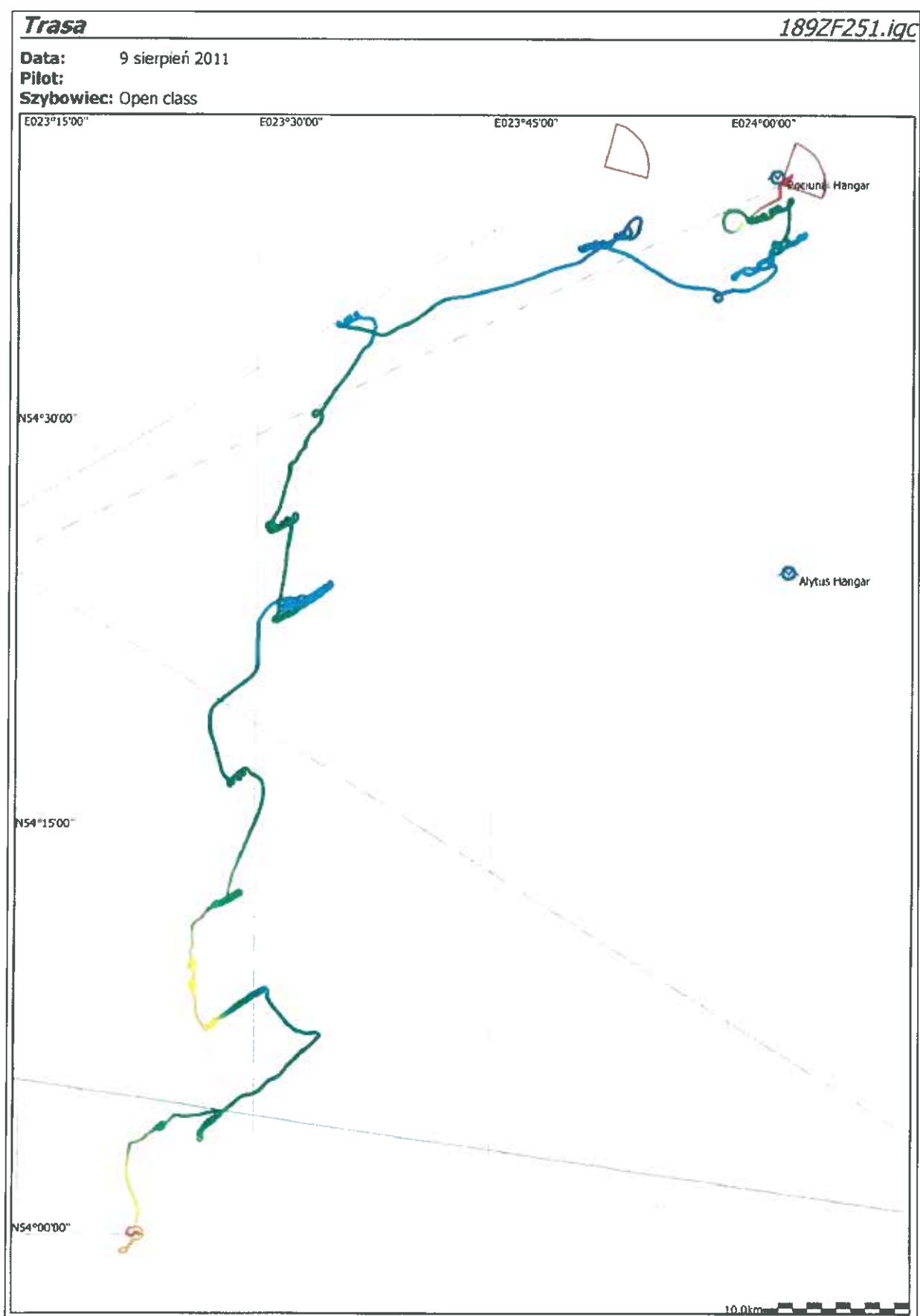
2a, 2b, 2c, 2d – Task for 09 August 2011 during 16th FAI European Gliding Championships, Pociunai 2011 and three maps illustrating meteorological forecast for that day. [illustrations from the Championships website – <http://egc2011.pociunai.lt>]



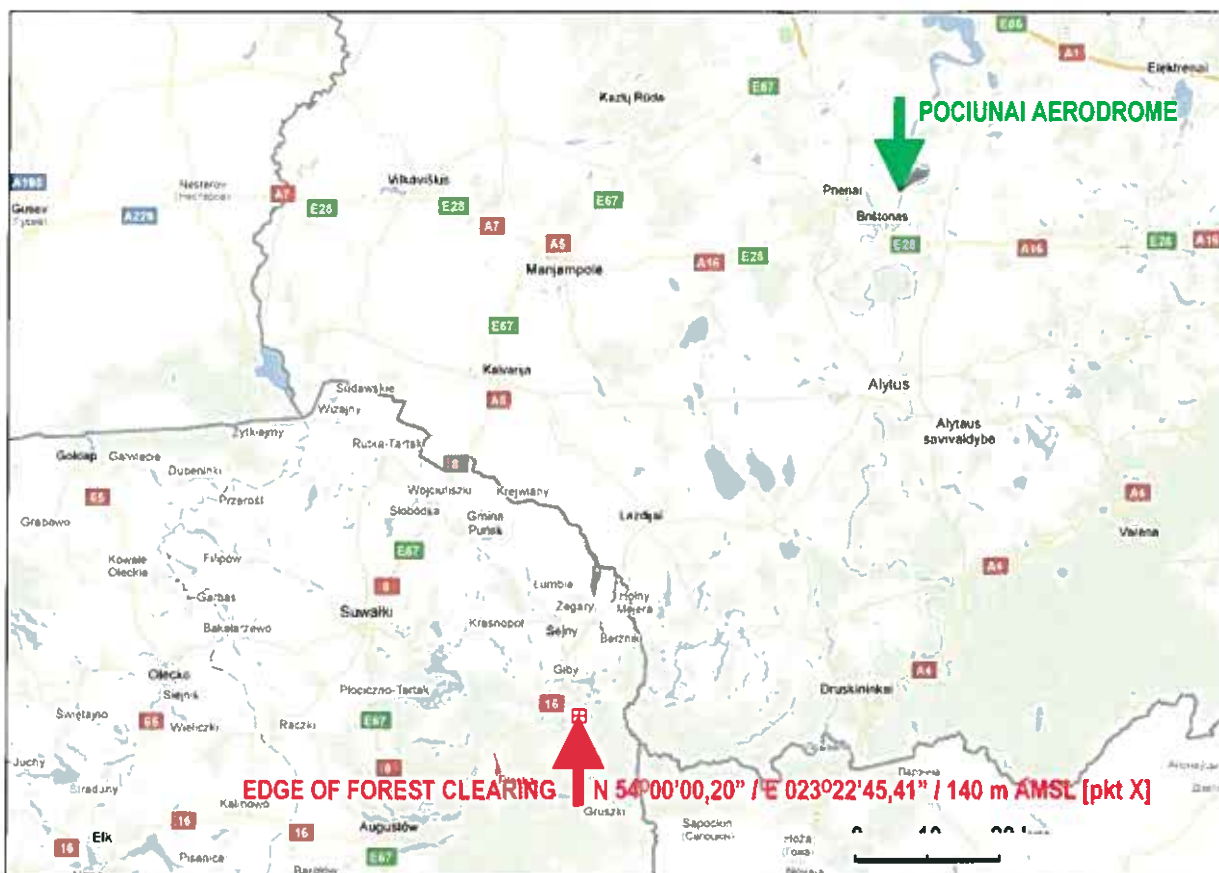
3 – Pilot's map with marked route and competition data for 09 August 2011.



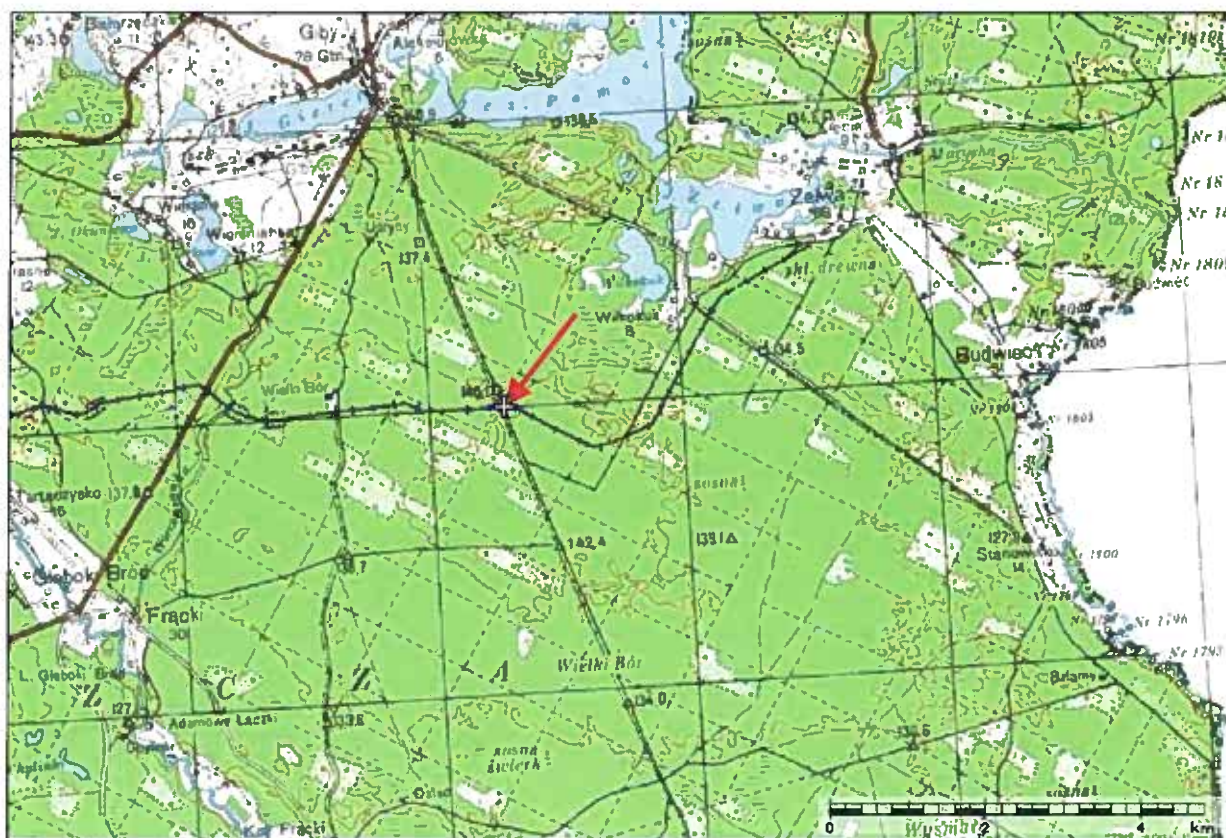
4 – Barogram of HB-2254 flight of 09 August 2011.



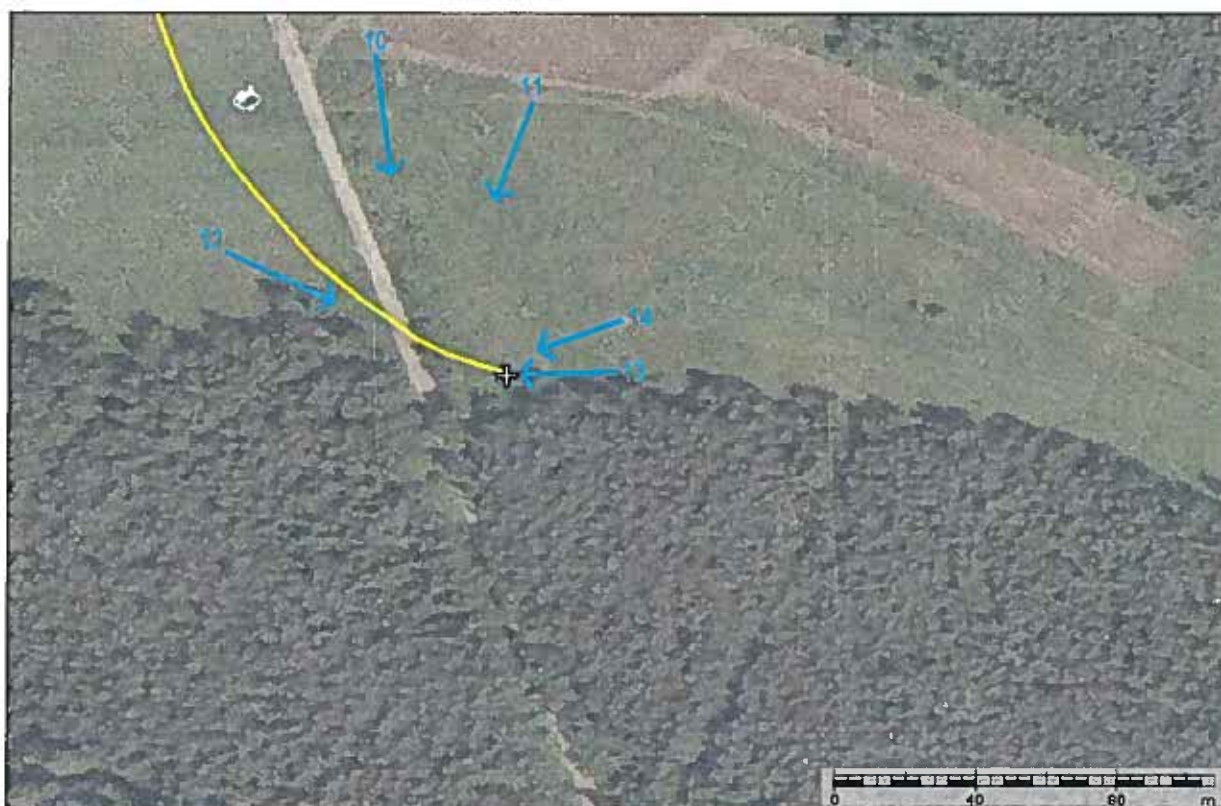
5 – HB-2254 glider logger – flight on 09 August 2011.



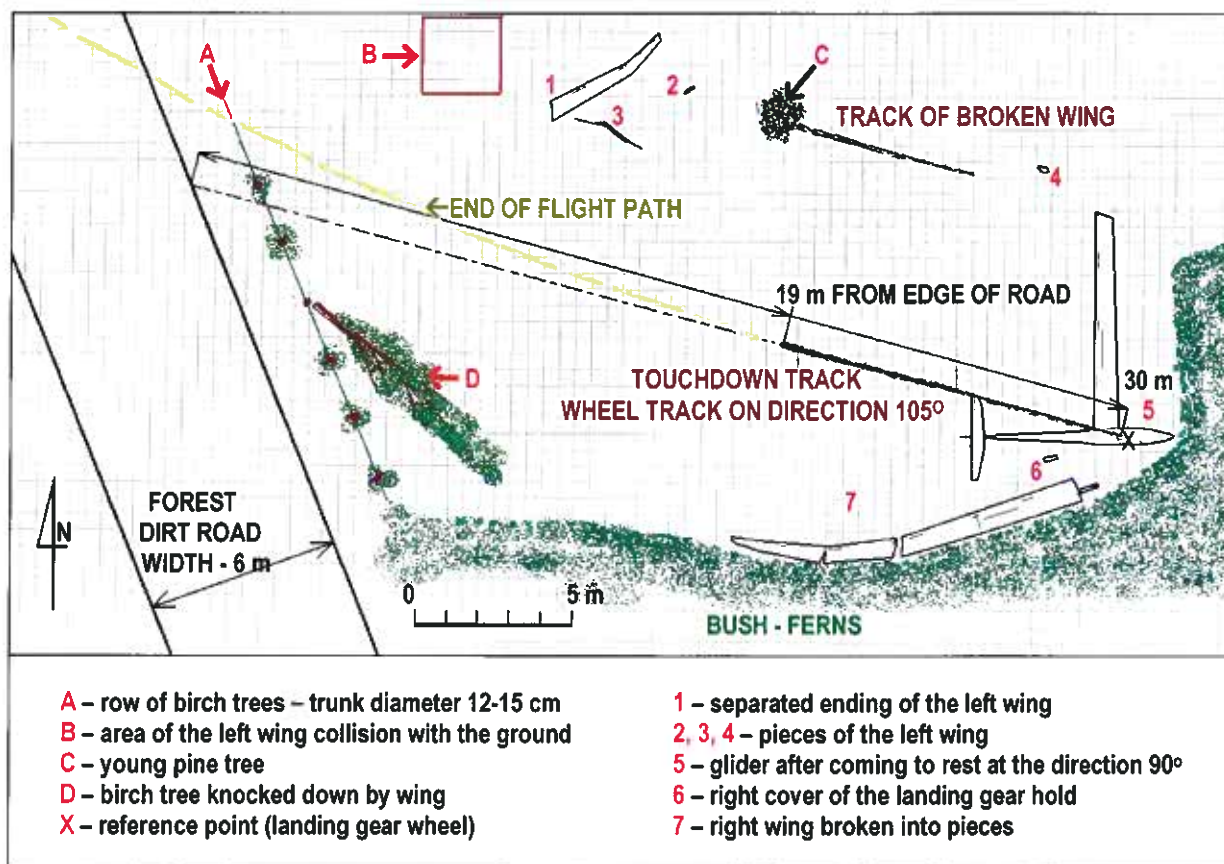
6 – Topographic map of the Polish-Lithuanian frontier (green arrow – take off place) and (red arrow - accident place) [google].



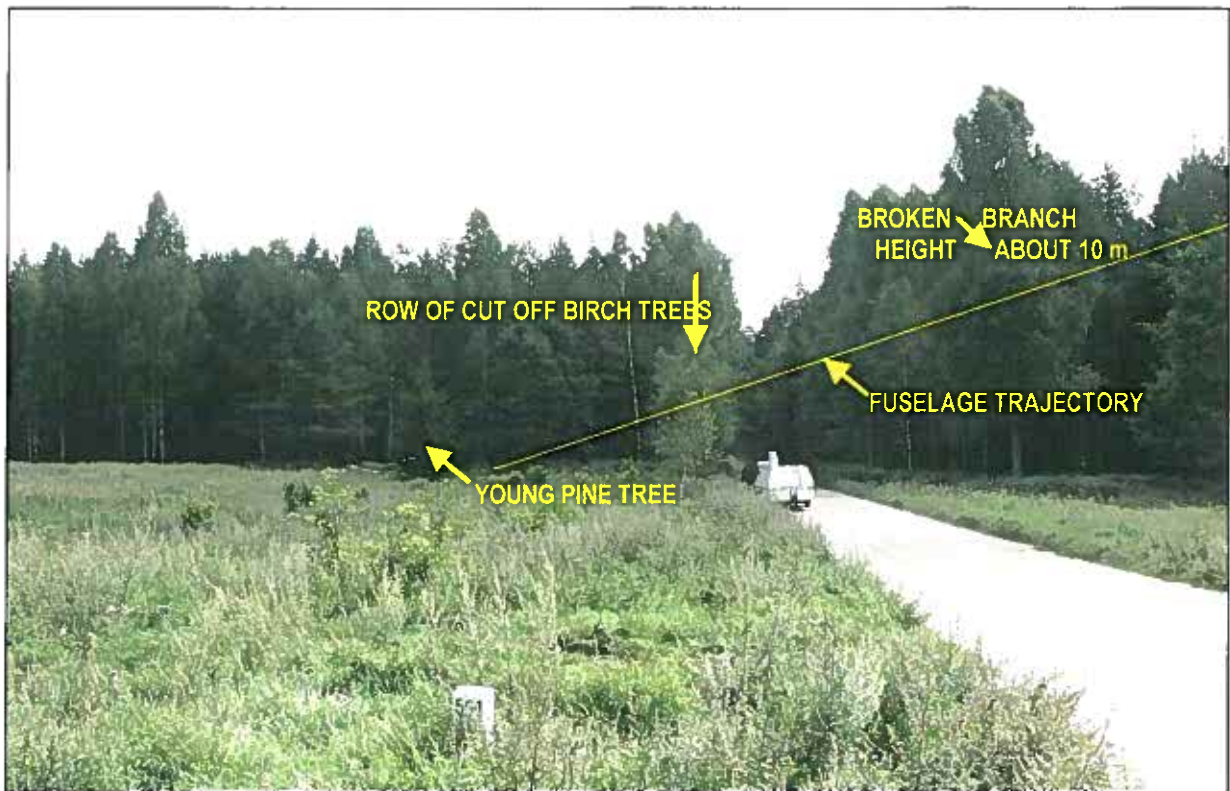
7 – Topographic map of the accident area - the accident site marked with cross and red arrow [geoportal.pl].



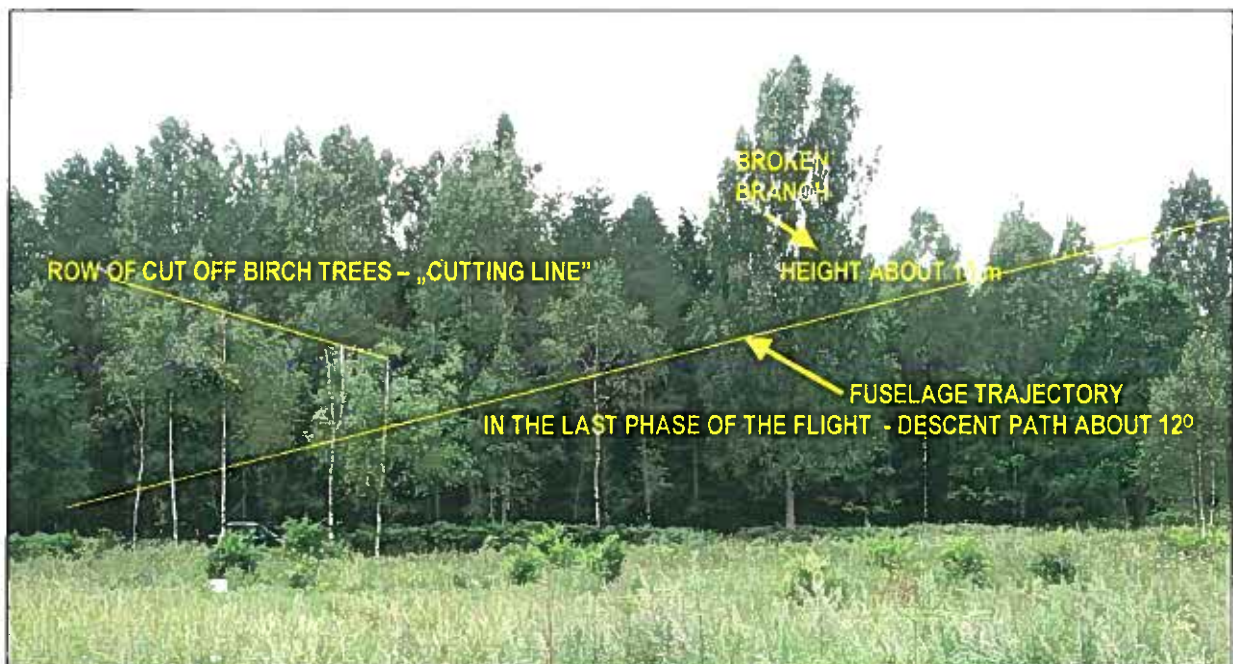
8 – View of the nearest vicinity of the accident site with the marked final portion of the glider flight path. Arrows show the places of the taken photos – the numbers correspond to the photos numbers. [geoportal.pl].



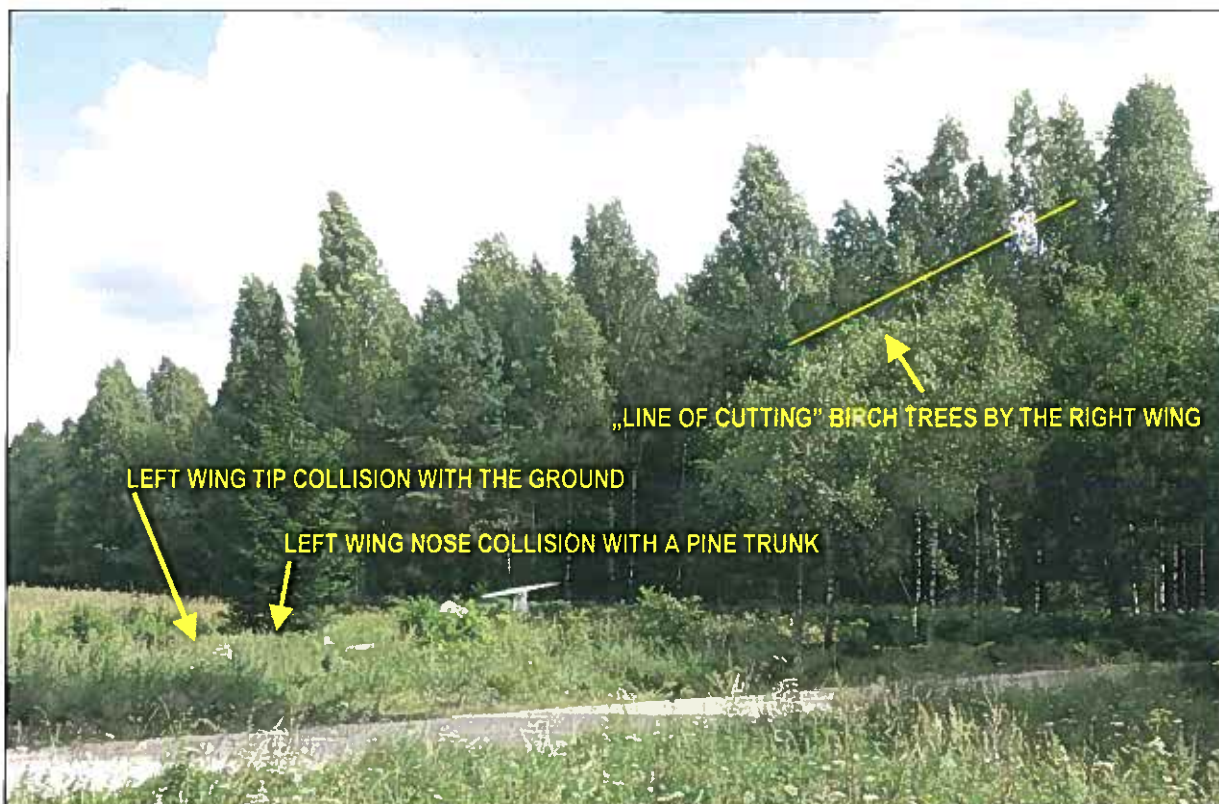
9 – Accident site sketch with dimensions and explanations



10 – General view of the accident site – marked situation elements



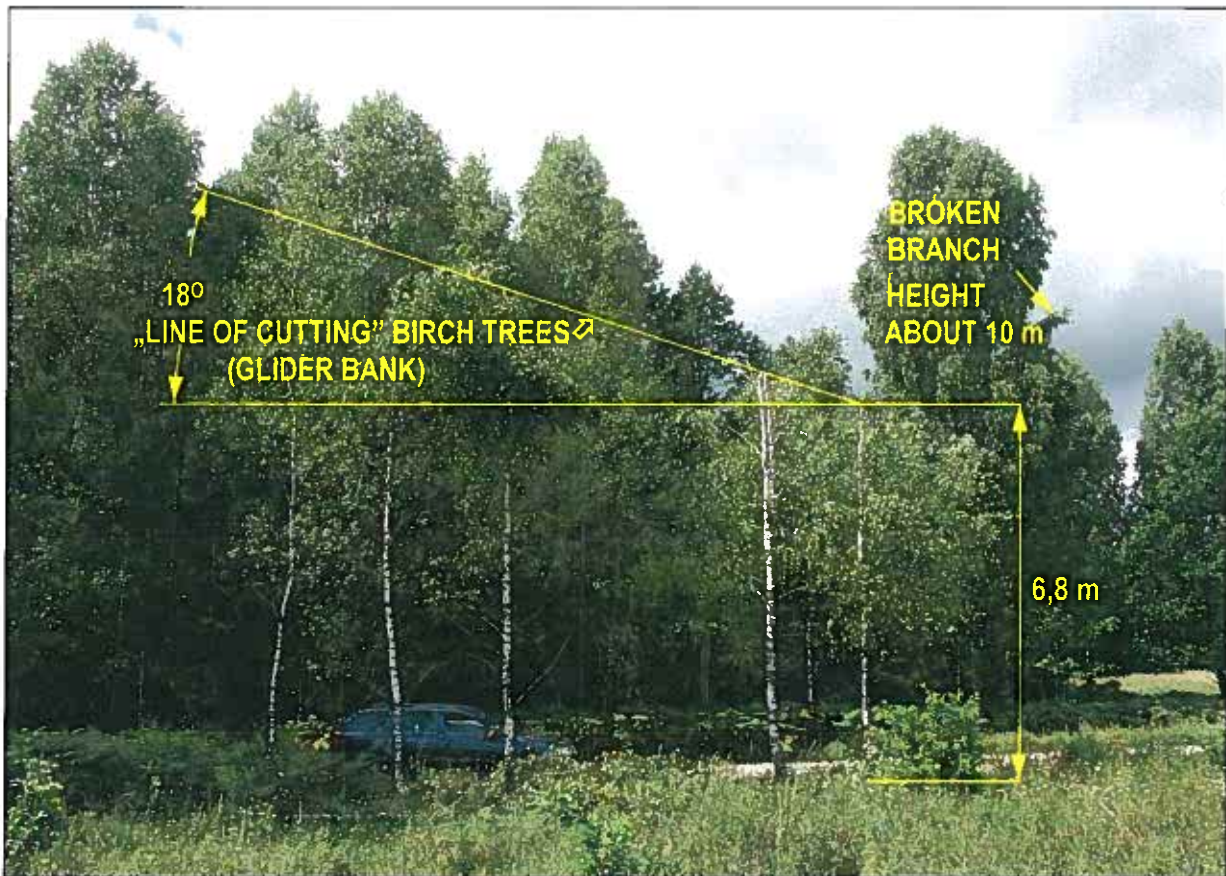
11 – General view of the accident site from the direction perpendicular to the final part of the flight path – marked situation elements.



12 – General view of the accident site in the direction of the final part of the flight path – marked situation elements.



13 – Front view of the glider in the western direction, visible birch trees cut off by the right wing.



14 – Damage to trees in the vicinity of the accident site .



15 – Landing gear wheel touchdown and its track.



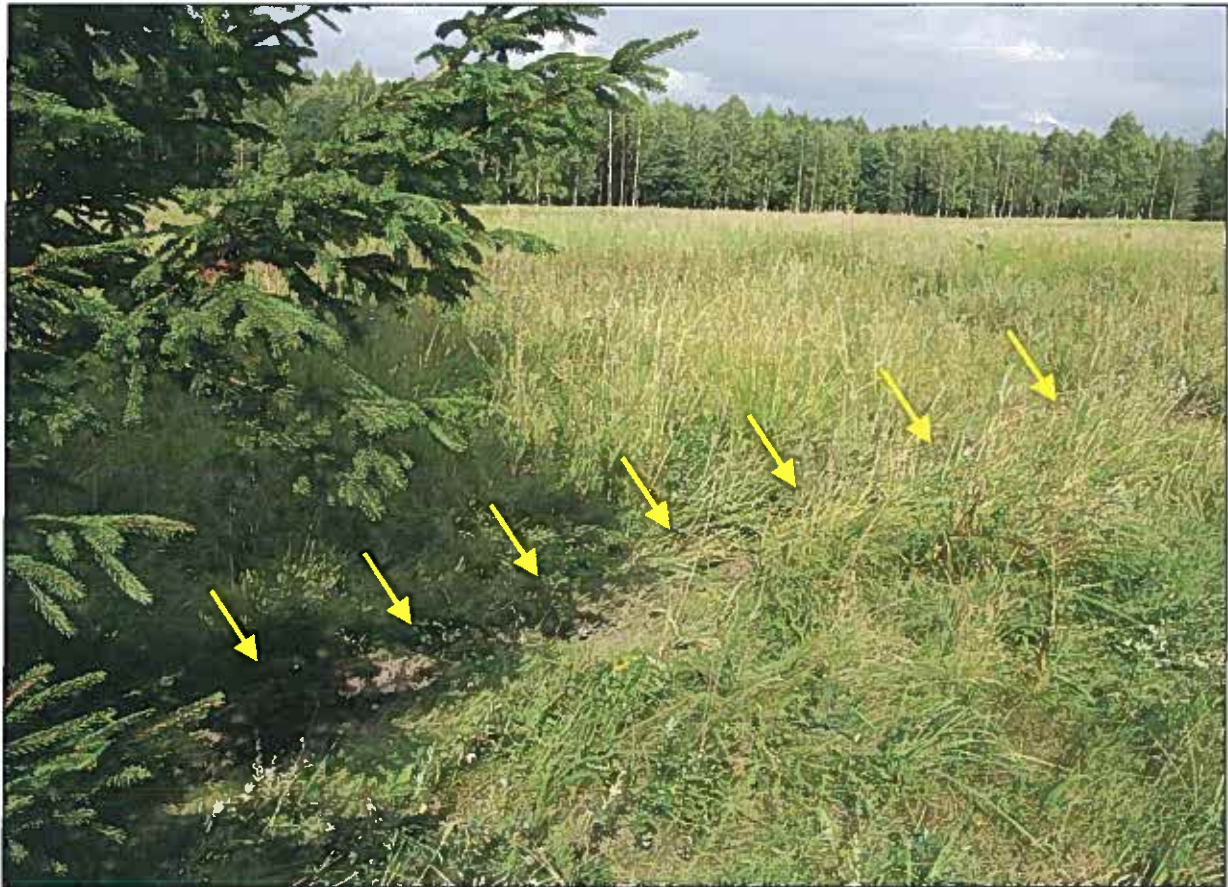
16 – General view of the glider from the left side, in the foreground damaged left wing.



17 – End part of the left wing separated as a result of collision with the ground and pine trunk.



18 – End part of the left wing separated as a result of collision with the ground and pine trunk – close-up.



19 – Track of the broken left wing behind the pine tree which caused separation of the wing end part.



20 – Rear part of the glider fuselage – right side.



21 – Rear part of the glider fuselage – left side, visible separated right wing.



22 – Opened cockpit of the glider.



23 – Left wing root – visible damages and deformations.



24 – Damage to the fuselage skin in the area of the left wing root.



25 – Right side of fuselage – right wing root.



26 – Right side of fuselage – visible main landing gear without the right cover of the hold.



27 – Front view of fuselage.



28 – Opened cockpit – rear view.



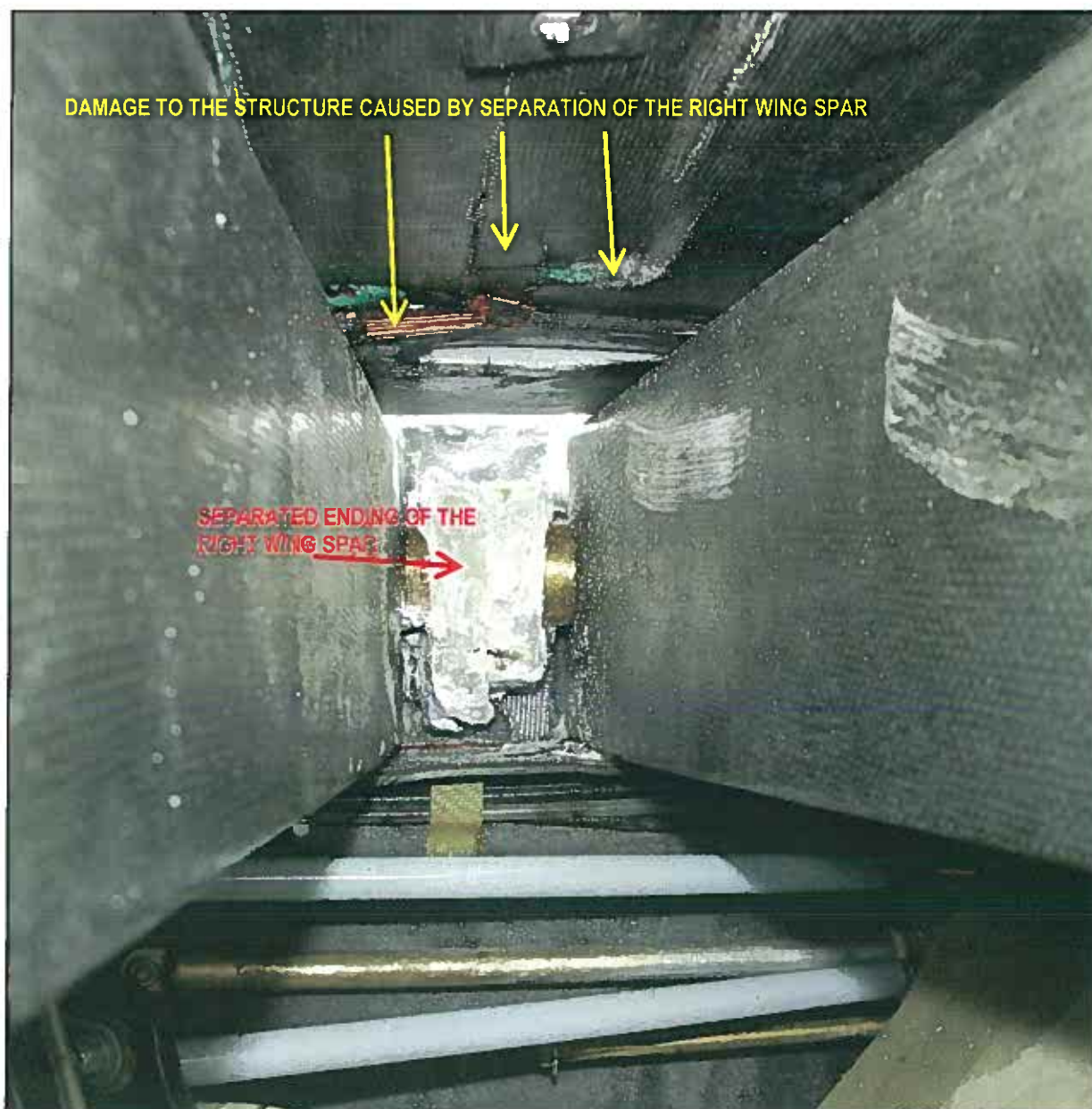
29 – Fuselage and separated right wing. Separated right cover of the landing gear hold visible between wing and fuselage.



30 – Separated right wing, general view. Separated right cover of the landing gear hold visible between wing and fuselage.



31 – Separated right wing, visible crack of the root part of wing spar.



32 – Fuselage inside, visible root part of the left wing spar and its damage.



33 – Fuselage inside after disassembly of wings, visible elements of the control system and structure framework.



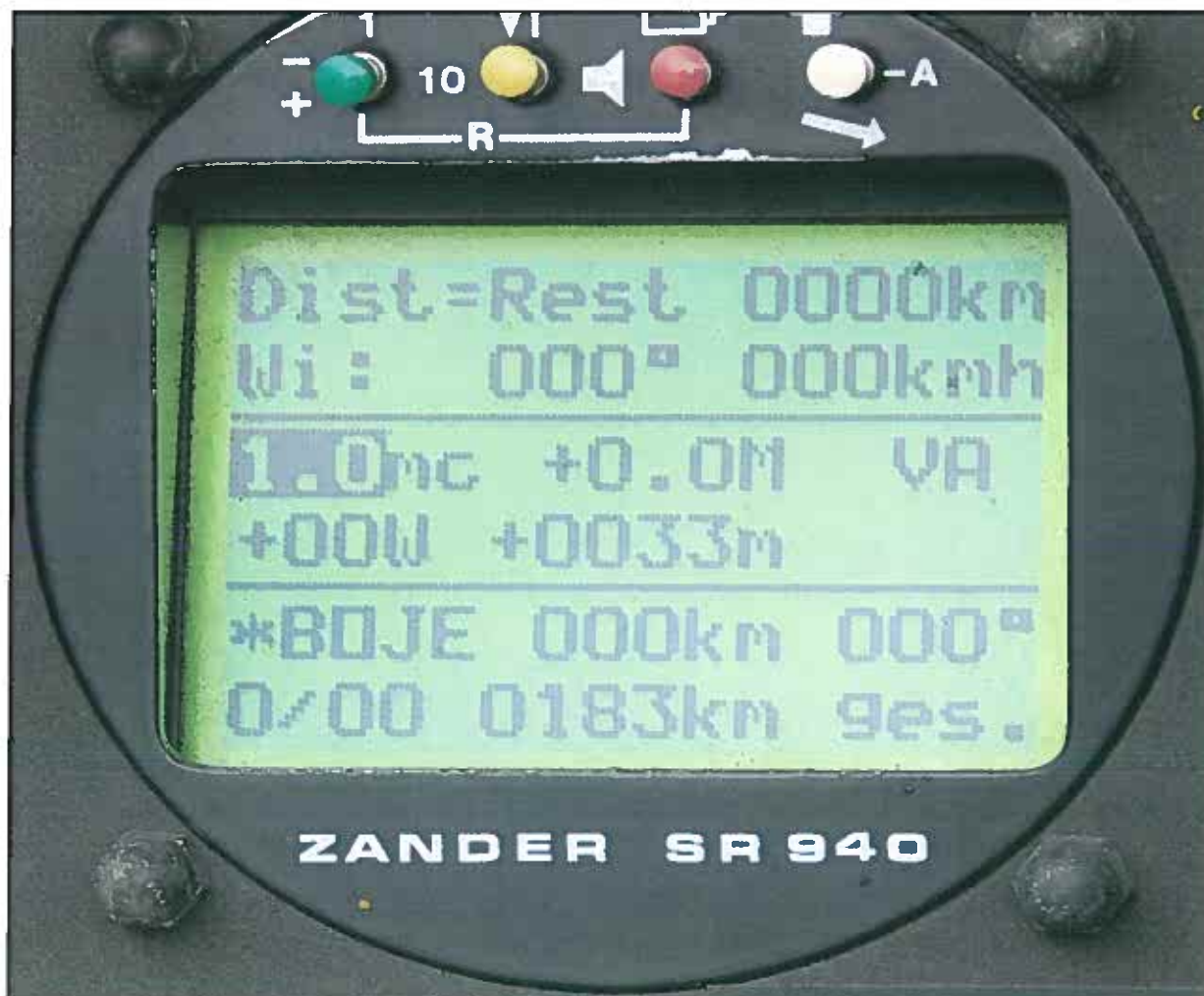
34 – Powerplant in the retracted position.



35 – Powerplant in the deployed position.



36 – Instrument board – general view.



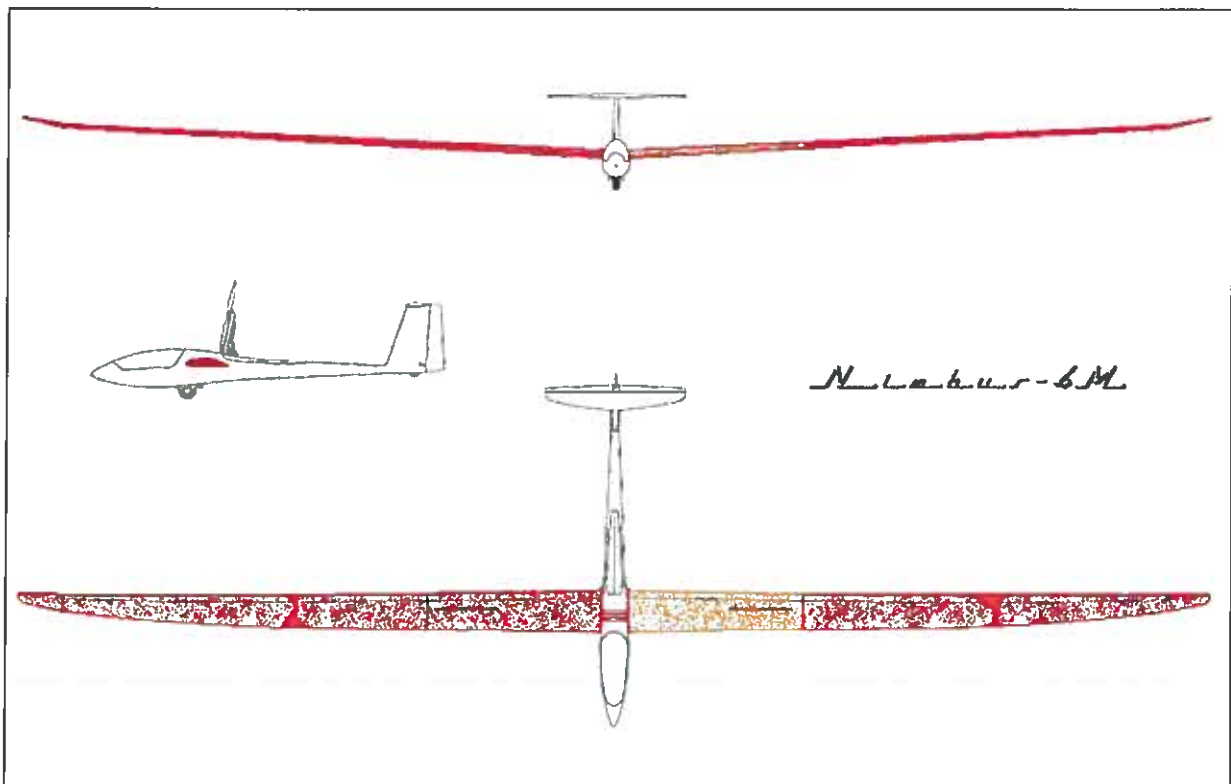
37 – Screen of the board calculator Zander SR 940.



38 – Identification plate and manufacturer plate.



39 – Label with the glider serial number.



40 – Damages to the glider - the destroyed parts marked with red and the damaged parts marked with yellow.

Illustrations – SCAA I [if not indicated otherwise]

END