



ACCIDENT INVESTIGATION BOARD

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TRANSLATION OF

INVESTIGATION REPORT

ON THE ACCIDENT OF THE GLIDER BGA 4026
AT VUOLENKOSKI, NASTOLA ON 31 MAY 1996

NO. C 5/1996 L

1 BASIC INFORMATION

Aircraft: Schleicher ASH 25, BGA 4026, s/n 25615, manufactured 1993,
total flight time 200 h

Place and time of incident: Vuolenkoski, Nastola, 31 May 1996, 17.45

Type of flight: Private flight, training flight

Weather: At 16.58, the weather at the Utti airport was as follows: wind 310°, 8 kt, variable between 270° and 360°, CAVOK, temperature 18°C, dewpoint 3°C, QNH 1020 hPa. The weather at Helsinki-Vantaa and Tampere -Pirkkala airports was not significantly different from that at Utti.

Number of persons on board: 2

Personal injuries: The passenger's knees and back were bruised.

Damage to the aircraft: The glider was seriously damaged.

Other damage: About 10 trees were broken off.

Aircraft crew:

Pilot in command: Male, aged 34 years, glider pilot licence. Total flight time on gliders 1700 hours, of which 40 hours and 20 landings during the preceding 90 days. Total flight experience with this type of glider 320 hours, of which 41 hours during the preceding 90 days. Outlanding experience consists of 40 landings, of which 19 since 1991. This was the first outlanding with this type of glider.

Passenger: Male, aged 37 years. Total flying time with gliders about 350 hours, of which about 30 hours with an ASH 25.

2 HISTORY OF THE FLIGHT

The ASH 25 glider was towed for a European Glider Championships practice flight from Räyskälä at about 12.00, and it started its task at 13.35. On the flight, the pilot-in-command was a glider pilot who was participating in the championships, and his team member was also a glider pilot. The day's task was "area distance", where the competitors flew for four hours between certain turning points in the order they themselves selected. After a flight of about five hours the pilot decided to try to land at the nearest airfield, since the weather would no longer permit a return to Räyskälä.

According to his statement, the pilot flew along streets of lift towards TP 48 (the Vesivehmaa air field) in order to land there, but he passed the lifts and entered sink. He concluded that it would not be sensible to continue to try for the air field, since there was an insufficient margin of altitude, he had never seen the airfield before, and there was no sign of lift. He returned to a point where there had been lift previously and released the remaining water ballast. Near this place were some long fields suitable for an outlanding. However, there was no more lift, and so the pilot selected a field at approximately 1100 ft QFE, although he continued to seek lift immediately near the landing field. At the same time he observed the landing field he had selected, and concluded that this was suitable.

According to his statement, the pilot flew a right-hand base leg at normal circuit height, albeit too close to the field. He selected "Landing Flap" and was about to open the air brake and turn to the final approach, when he decided that he was still too high for a landing on the field within the distance available. The pilot estimated that his altitude was 400 ft AGL. He began a right-hand turn without the air brake on, but after turning 180° noted that the landing flaps were still set, on which he selected "Thermal Flap". At this time the speed was 55 kt (101 km/h). The pilot continued the turn, intending to complete a 4500 turn to the final approach. However, a cross-wind pushed the glider to the left of the centre line, and during the last 180° of the turn the pilot had to push considerably on the stick, due to the very heavy sink. The glider was at about a 450° angle in comparison with the centre line, and considerably to the left. The pilot observed that the speed was not increasing sufficiently and that the descent would remain incomplete, and so he pulled the stick back strongly in order to raise the glider from its ca. 25° nose down position.

The glider straightened out from what was close to a stall, but the speed of descent continued to be great, and the glider hit the tops of some trees. The glider broke off the tops of some fir trees that were roughly 20 m high, was stopped by a large fir tree at a height of about 13 m, and fell to the ground some 150 m to the left of the centre line, into deep woods.

3 DAMAGE TO THE GLIDER

The leading edge of the left wing was badly damaged, and the wing had almost broken off some 2 m from the root. The tip piece had separated. The right wing had almost broken off at the seam of the fuselage, and had broken off some 2 m from the tip. The tip had become detached. The fuselage broke at the base of the tail. The left horizontal stabilizer and rudder had broken off. The canopy of the rear cockpit was holed.

4 ANALYSIS

The pilot completed several 360° turns quite close to the landing site that he had selected. He began his landing circuit near the landing field, but at what he believed to be a normal height of about 400 ft, which is quite low for beginning such a landing circuit. He estimated that he had too much altitude and decided to complete a 360° turn. The nearness of the threshold had influenced his estimate that he was too high. He opened the landing flaps to landing position, which led to a heavy sink, and the glider did not glide as expected. In addition, towards the end the cross-wind pushed the glider away from the intended direction.

The pilot had not completed a normal landing circuit; instead, the circuit was quite small and at a low altitude. He had badly misjudged the altitude and distance, and had used the landing flaps improperly. The glider's flight manual recommends that position L on the landing flaps not be used until it is certain that the threshold will be passed. The rate of descent of the glider increases rapidly with the speed at 120-130 km/h. The control forces increase when the flaps are in the landing position and the speed is over 100 km/h. Rapid raising of the flaps had apparently increased the sinking of the glider. The flight manual cautions against raising the flaps near the field from position L to positions 5 or 4, since there is the danger that the aircraft will lose height.

The pilot had intended to land on a level, somewhat soft field that was more than 1200 m long and 80-120 m wide, with a ditch down the middle. The field was a humus field that had been plowed. Before the threshold there was about 250 m of field. The fields were surrounded by hills. At the end of the field, at a 90° angle, was a grassy field about 400 m long, but this was slightly bumpy, and the pilot would have had to descend sharply from over a hill. Such a descent would have been almost against the wind.

The pilot was unfamiliar with the terrain, and this was his first outlanding with this type of glider. In curving in part over the field and a logged area, the pilot may have received a false impression of his flying altitude. On the other hand, his

reported altitudes during the descent circuits were low, less than the normal landing circuit altitudes. This was due in part to the fact that the pilot began the landing circuit quite close to the intended landing field. The elevation of this field was 20 m lower than that of Räyskälä air field. There had not been a large deviation in the altimeter reading.

5 OBSERVATIONS

1. The pilot did not complete the normal circuit before landing.
2. The pilot misjudged the altitude and distance.
3. The pilot used the landing flaps and air brakes improperly.
4. The pilot had flown 320 hours on an ASH 25, but this was his first outlanding with the type.
5. There was cross-wind on the final leg.
6. The landing site was surrounded by hills.

6 CAUSE OF THE DAMAGE

The pilot did not complete the normal circuit before landing, he used the landing flaps and air brakes improperly and misjudged the distance and altitude, and he did not take into consideration the effect of the cross-wind.

Contributing factors included the fact that this was the pilot's first outlanding with this type of glider, and he was not familiar with outlanding conditions in Finland.

Helsinki, 14 May 1997

Chief Air Accident Investigator Seppo Hämäläinen

Source material filed in the Accident Investigation Board archives:

1. Statements by the pilot, passenger and English team manager
2. Police investigation documents
3. Map of the landing site
4. Drawing of the site of the accident
5. ASH 25 flight manual pages 4.15 - 4.18, 7.5 and 7.6
6. Weather data
7. Photographs and video from the site of the accident