Air Accident Investigation Unit Ireland

ACCIDENT REPORT
SCHLEICHER - ASK 21 (Glider), EI-GLB
Gowran Grange Airfield (EIGN), Co. Kildare
24 October 2010

An Roinn Iompair
Turasóireachta agus Spóirt
Department of Transport,
Tourism and Sport

AAIU Draft Final Report No: 2012-002
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In accordance with the provisions of SI 460 of 2009, the Chief Inspector of Air Accidents, on 24 October 2010, appointed Paddy Judge as the Investigator-in-Charge to carry out a Field Investigation into this Accident and prepare a Report. The sole purpose of this Investigation is the prevention of aviation Accidents and Incidents. It is not the purpose of the Investigation to apportion blame or liability.

Aircraft Type and Registration:	SCHLEICHER - ASK 21 (Glider), EI-GLB
No. and Type of Engines:	Not applicable
Aircraft Serial Number:	21060
Year of Manufacture:	1981
Date and Time (UTC):	24/10/2010 @ 13.15 hrs
Location:	Gowran Grange Airfield (EIGN), Co. Kildare N53° 10.7′, W006° 38.1′
Type of Operation:	General Aviation - Instructional - Dual
Persons on Board:	Crew - 2 Passengers - Nil
Injuries:	Crew - Nil Passengers - Nil
Nature of Damage:	Substantial aircraft damage
Commander's Licence:	Silver C Badge 44/90, Instructor rating PPL (A), Issued by CAA, UK
Commander's Details:	Male, aged 72 years
Commander's Flying Experience:	1,109 hours, of which 190 hours were on type
Notification Source:	Dublin Gliding Club
Information Source:	Pilot Report Form submitted by Pilot, Dublin Gliding Club Report, AAIU Field Investigation

SYNOPSIS

Following a short training flight the glider returned to land on the same runway but in the opposite direction. As it was high on short final approach, side-slip was used to a low height. The landing was heavy and the glider bounced. It subsequently impacted nose down and was substantially damaged. Neither occupant was injured.

1. FACTUAL INFORMATION

1.1 History of the Flight

The crew consisted of a front-seat Student and an Instructor who sat in the rear seat of the tandem glider. As the Student had not flown for six months a short familiarisation flight had been scheduled. The Instructor had earlier flown both the tug aircraft, on which he was qualified, and the accident glider with another student. The weather was good and a light but variable north-westerly wind was reported.

The flight departed from EIGN Runway (RWY) 21. The glider was towed to 3,000 ft and operated to the southwest before returning to land on RWY 03, the same grass runway but in the opposite direction.

The Student stated that the initial approach was high and he made turns to lose height. He unlocked the airbrakes, using up to half. Later in the approach the Instructor took control and side-slipped, which the Student had not experienced before.

The Instructor stated that a straight-in approach was flown and that he took over control at the end of the flight in order to demonstrate the landing. He realised that the glider was higher and closer to the aiming point than he liked and opened the airbrakes fully. The glider did not sink as he had expected. He briefed the Student that he was going to conduct a side-slip, which he had recently conducted in the glider. His speed was 50 kts, the approach speed of the glider.

The Instructor said that the glider did not come out of the side-slip as he expected and by the time it did they were close to the ground. He stated that the touchdown was heavy and that they bounced. The glider impacted to the right of the runway in a right wing, nose down attitude and rapidly rotated 180° before coming to rest.

1.2 Instructor Licences

The Instructor held a Silver C Badge[1] No. 82 issued by the Irish Aviation Club and an Instructor's rating.

The Instructor also held a valid Private Pilot Licence (Aeroplane), which was issued by the UK CAA. His single engine landplane rating and Class 2 Medical certificate were both current.

1.3 Accident Site Inspection

RWY 03 at EIGN is a grass strip 475 metres long. A heavy single wheel indentation was found in the grass in the touchdown area of RWY 03, 150 metres from the threshold. An impact mark was found at a further 57 metres to the right of the runway. The glider stopped 30 metres from that impact, pointing back towards the threshold of RWY03, consistent with a ground loop.

1 Silver C: A glider pilot gains a Silver C when he successfully completes a 50k flight, a 5 hour flight and achieves a height gain of 1,000 metres.

The glider was substantially damaged. The tail section had severed behind the wings **(Photo No. 1)**, but remained attached to the fuselage by control cables. The horizontal tail plane had detached and the nose area was crushed. Mud was found on the right wingtip. A technical inspection of the glider established continuity for flight controls and did not find evidence of any pre-existing defect that might have contributed to the cause of the accident.

Photo No. 1: Final resting position of EI-GLB

1.4 Gliding Club Notice to Pilots

Following the accident the Chief Flying Instructor (CFI) of the Gliding Club issued the following notice to its pilots:

I. Side-slips should be exited at a height well clear of the ground.
A short full-brake side-slip to intercept the desired normal approach slope as high as possible is preferable to a side-slip with reduced airbrake continued to a low level. Remember that you will need to check and possibly correct airspeed after exiting.

2. A side-slip should be entered with sufficient airspeed. The appropriate approach airspeed is the minimum speed for entry. The ASI will not function accurately during the side-slip. Airspeed must be checked and if necessary corrected immediately after exiting.

3. Pilots should be aware that different gliders have different side/slipping characteristics, relating to factors such as all-up weight, profile, and control surfaces.

4. *The rudder of an ASK 21 does not "lock over" during a side-slip, but it will not self-centre; a positive input from the pilot is required to centre it.*

5. *Flights should end with a proper circuit, unless a planned training exercise requires otherwise. For pilots returning without sufficient height for a full or abbreviated circuit, good airmanship requires that they should aim to include at least a base leg before setting up an approach. However the pilot's duty is to make a safe landing in the circumstances - including, if necessary, opting for an out landing.*

2. ANALYSIS

The flight was a normal familiarisation flight up to the point where the training flight returned to the field. Prudent glider pilots generally aim to fly a standard circuit pattern that includes a downwind, base and final legs. This type of pattern allows greater flexibility in positioning the glider to commence the final approach at the correct descent angle, speed and about half airbrake; if the glider is high then the circuit can be widened out, if low then the circuit can be truncated. More precise control of the glide angle is then available from the airbrake, which is used in a manner similar to the throttle on a powered aeroplane.

In this case, the straight in approach that was flown made judging the glide angle much more difficult, as the glider was further than normal from its reference aiming point on the airfield and additional factors such as the clarity of the air and the variable wind direction and speed on the day came into play.

The outcome was that the glider ended high on approach and, though the student had made turns using up to half airbrake, this was not enough and the glider remained high as it commenced the final approach. When the Instructor took control, he fully extended the airbrake and side-slipped to increase the descent rate.

Although the Instructor was practised in side-slip, caution dictates that such a manoeuvre should be conducted early enough to allow the glider to be stabilised at the correct approach speed in order to flare and land. Therefore, as airspeed indications in the ASK 21 glider are lost during a side-slip, the airspeed on exiting from that manoeuvre and commencing the flare was unknown.

It is therefore possible that airspeed had been lost during the side-slip, which could account for the glider not flaring as the Instructor had expected, and consequently a heavy bounced landing ensued during which control was lost.

In view of the "Gliding Club Notice to Pilots" published by the CFI the Investigation considers that no Safety Recommendation is necessary.

3. CONCLUSIONS

(a) Findings

1. The Instructor held a Gliding Silver C Badge with an Instructor qualification that was valid for the operation of the instructional flight.
2. The omission of a circuit pattern, while returning to land, was not in keeping with good airmanship.
3. Due to the late approach being too high a side-slip was initiated.
4. The recovery from the side-slip was initiated at too low a height to allow the glider to stabilise and a correct landing airspeed to be re-established.

(b) Probable Cause

Initiation of a side-slip recovery at too low a height prior to landing.

(c) Contributory Causes

1. Inadequate flight path control during the approach.
2. Omission of a circuit pattern when returning to land.

4. SAFETY RECOMMENDATION

This Investigation does not sustain any Safety Recommendations.

- END -

In accordance with Annex 13 to the International Civil Aviation Organisation Convention, Regulation (EU) No 996/2010, and Statutory Instrument No. 460 of 2009, AIR NAVIGATION (NOTIFICATION AND INVESTIGATION OF ACCIDENTS, SERIOUS INCIDENTS AND INCIDENTS) REGULATION, 2009, the sole purpose of these investigations is to prevent aviation accidents and serious incidents. It is not the purpose of any such accident investigation and the associated investigation report to apportion blame or liability.

A safety recommendation shall in no case create a presumption of blame or liability for an occurrence.

Produced by the Air Accident Investigation Unit

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