Air Accident Investigation Unit Ireland

FACTUAL REPORT

ACCIDENT

Schleicher, ASW 19 B, EI-GLV

Dunlavin, Co Wicklow

27 July 2019

An Roinn Iompair
Department of Transport

Foreword

This safety investigation is exclusively of a technical nature and the Final Report reflects the determination of the AAIU regarding the circumstances of this occurrence and its probable causes.

In accordance with the provisions of Annex 13[1] to the Convention on International Civil Aviation, Regulation (EU) No 996/2010[2] and Statutory Instrument No. 460 of 2009[3], safety investigations are in no case concerned with apportioning blame or liability. They are independent of, separate from and without prejudice to any judicial or administrative proceedings to apportion blame or liability. The sole objective of this safety investigation and Final Report is the prevention of accidents and incidents.

Accordingly, it is inappropriate that AAIU Reports should be used to assign fault or blame or determine liability, since neither the safety investigation nor the reporting process has been undertaken for that purpose.

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[1] **Annex 13**: International Civil Aviation Organization (ICAO), Annex 13, Aircraft Accident and Incident Investigation.
[2] **Regulation (EU) No 996/2010** of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation.
[3] **Statutory Instrument (SI) No. 460 of 2009**: Air Navigation (Notification and Investigation of Accidents, Serious Incidents and Incidents) Regulations 2009.

AAIU Report No: 2021 - 013
State File No: IRL00919038
Report Format: Factual Report
Published: 30 December 2021

In accordance with Annex 13 to the Convention on International Civil Aviation, Regulation (EU) No 996/2010 and the provisions of SI No. 460 of 2009, the Chief Inspector of Air Accidents on 27 July 2019, appointed Paul Farrell as the Investigator-in-Charge to carry out an Investigation into this Accident and on 13 September 2021, appointed Daniel Delaney, Inspector of Air Accidents to prepare a Report.

Aircraft Type and Registration:	**Schleicher, ASW 19 B**
No. and Type of Engines:	**None (Glider)**
Aircraft Serial Number:	**19316**
Year of Manufacture:	**1980**
Date and Time (UTC)[4]:	**27 July 2019 @ 13.05 hrs**
Location:	**Dunlavin, Co Wicklow, Ireland**
Type of Operation:	**General Aviation**
Persons on Board:	**Crew – 1 Passengers – Nil**
Injuries:	**Nil**
Nature of Damage:	**Substantial**
Commander's Certificate:	**Bronze Certificate, issued by the Irish Gliding and Soaring Association (IGSA)**
Commander's Age:	**57 years**
Commander's Flying Experience:	**138 hours, of which 27 were on type**
Notification Source:	**Dublin Gliding Club Flight Instructor**
Information Source:	**AAIU Report Form submitted by Pilot**

[4] **UTC**: Co-ordinated Universal Time. All times in this report are quoted in UTC; local time was UTC plus one hour on the date of the accident.

SYNOPSIS

While flying in the vicinity of Dunlavin, Co Wicklow in a Schleicher ASW 19 B single seat glider, the Pilot was unable to locate thermal activity to obtain sufficient lift to continue the flight and thus completed an '*out-landing*'. The Pilot reported that during the landing roll, the glider impacted a hedgerow surrounding the landing field and sustained substantial damage. The Pilot was uninjured.

NOTIFICATION

The AAIU was notified by a telephone call from an instructor with the Dublin Gliding Club who attended the scene and was assisting with the recovery. The AAIU gave permission for the glider to be recovered from the field following a photographic survey.

1. FACTUAL INFORMATION

1.1 History of the Flight

The Pilot reported that the Schleicher ASW 19 B glider, registration EI-GLV was launched by aerotow[5] from Gowran Grange airfield (EIGN) at 11.52 hrs. He informed the Investigation that the intention had been to complete a '*local soaring flight.*' The Pilot stated that no briefing was needed from the Duty Instructor for a local flight. The Pilot reported that once released from the aerotow, the flight proceeded in a southerly direction using thermals to gain altitude, until the glider was just north of Dunlavin at an altitude of 3,800 feet (ft). The flight proceeded to the south, then routed to the west and then finally to the north of Dunlavin seeking further thermals, but the Pilot reported being unable to locate any.

The Pilot stated that when the glider had descended to an estimated height of 1,000 ft above ground level (AGL), he commenced the search for a field to complete an out-landing[6]. The Pilot informed the Investigation that the glider was at an estimated height of 300 ft AGL when a suitable field was identified. However, during the approach he judged that the glider would be unable to clear the line of trees forming the near boundary of that field, and therefore, '*a turn was made in the valley*' and the glider was landed '*uphill*' in the field short of the trees. The Pilot informed the Investigation that '*due to the tree line and the short field I was unable to stop before hitting the trees in the corner*'. The flight time was recorded as one hour and 19 minutes. The final resting position of the glider is shown in **Photo No. 1** and **No. 2**.

The Pilot reported that he was wearing a parachute and full harness and that there was no damage to the cockpit area. Egress from the glider was made by opening the canopy using the normal mechanism.

[5] During aerotow, a glider is towed behind a powered aeroplane and released to soar, when at a desired altitude.
[6] **Out-landing**: A landing made away from an airfield.

Photo No. 1 and **No. 2:** Final position of EI-GLV

While there was no requirement for a flight recorder to be fitted, the Pilot used a gliding logging tool to record the flight and provided the file to the Investigation. **Figure No. 1** contains an overview of the recorded flight track.

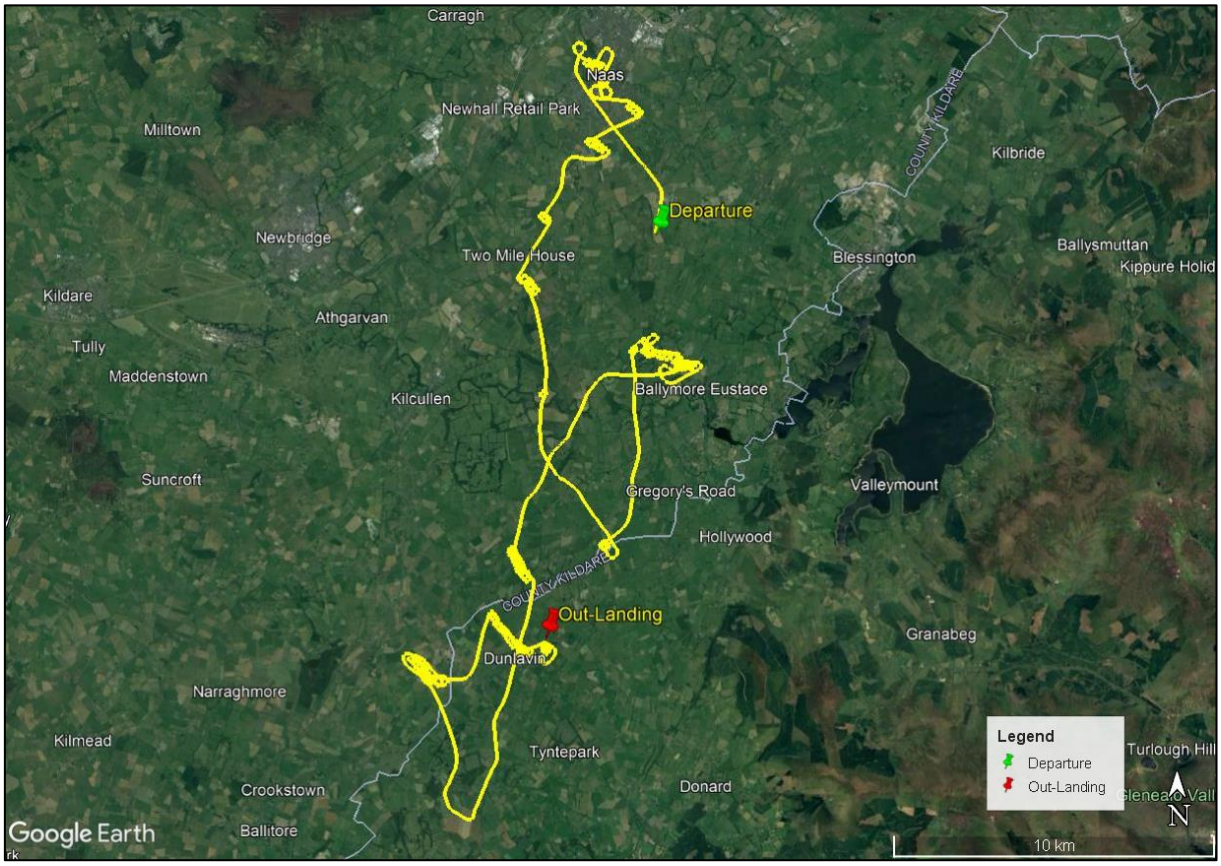

Figure No. 1: The recorded flight track

1.2 Injuries to Persons

No injuries arising from the occurrence were reported to the Investigation.

1.3 Damage to Glider

Photographs taken prior to the recovery of the glider and provided to the Investigation (**Photo No. 3**, **4**, **5** and **6**) indicate that the glider had sustained substantial damage. The left wing had impact damage at the leading edge forward of the aileron and a chord-wise crack with associated delamination of the skin was visible inboard of the airbrake. The right wing also had leading edge damage, close to the wingtip and a chord-wise crack with associated delamination of the skin outboard of the airbrake. Scuff marks were visible on the right-wing upper surface close to the wing root and on the left side of the fuselage close to the left wing-root.

5 **Photo No. 3** and **No. 4:** Damage to the left wing

Photo No. 5 and **No. 6:** Damage to the right wing

1.4 Other Damage

No other damage was reported to the Investigation.

1.5 Personnel Information

The Pilot, who was a member of a gliding club was operating under the rules of the IGSA and held a Bronze Gliding Certificate issued by the IGSA on 7 October 2018. The Pilot provided evidence of an IGSA cross-country endorsement dated 18 January 2019. The Pilot reported that his last proficiency check was completed on 18 May 2019. In addition, the Pilot reported that he did not hold a Medical Certificate or declaration nor was he required to by National Regulations (See **Section 1.10.2** for further information). The Pilot's flying experience, as provided to the Investigation, is summarised in **Table No. 1**.

Total all types:	138.0 hours
Total on type:	27.0 hours
Total on type P1:	27.0 hours
Last 90 days:	17.0 hours
Last 7 days:	1.2 hours
Last 24 hours:	Nil

Table No. 1: Pilot's flight experience

1.6 Aircraft Information

1.6.1 General Information

The Schleicher, ASW 19 B is a single seat, standard class glider, manufactured by Alexander Schleicher GmbH. **Figure No. 2** shows the general layout of the glider. The wingspan was 15 metres (m). The maximum take-off weight specified in the Aircraft Flight Manual (AFM) was 454 kilograms (kg). The AFM stated that a water ballast tank with a 90 litre (l) capacity was standard. However, the Pilot reported that EI-GLV, when imported into Ireland, did not have a water ballast tank fitted and that the maximum take-off weight displayed on a placard in the cockpit was 364 kg. The monowheel landing gear was retractable and a '*squeeze control lever*' was fitted to the control stick to activate the wheel brake.

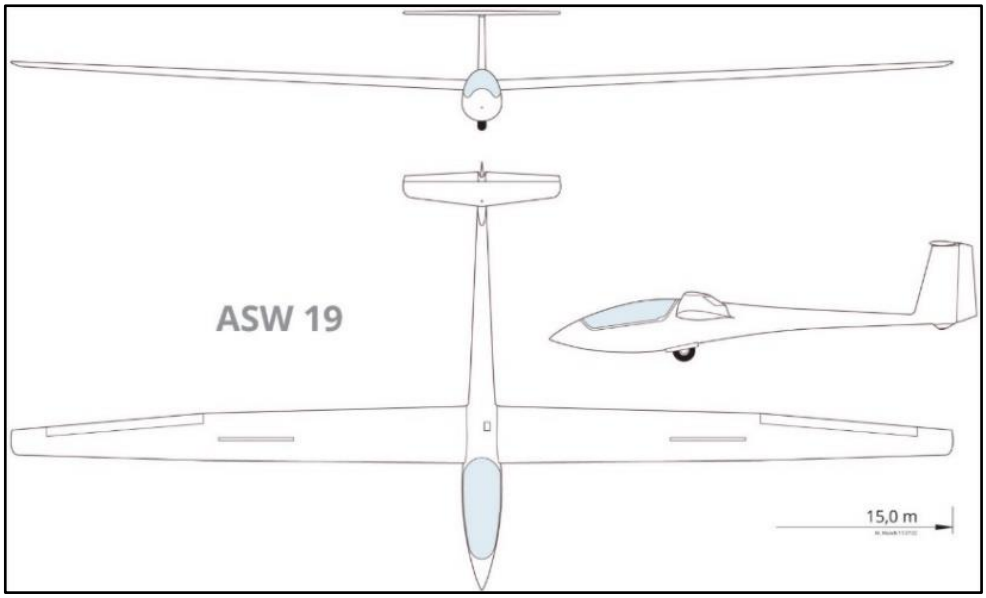

Figure No. 2: ASW 19 B general layout (Alexander Schleicher GmbH, 2021)

1.6.2 Aircraft History

The glider was registered in Ireland as EI-GLV on 28 March 2007. The glider logbook recorded that the glider had completed 796 flights and accumulated a total flight time of 1,040 hours and 19 minutes prior to the occurrence flight. A non-expiring certificate of airworthiness was issued by the Irish Aviation Authority (IAA) on 25 April 2008. The airworthiness review certificate (ARC) was issued by a continuing airworthiness management organisation (CAMO) on 23 June 2019 and was valid until 5 July 2020. The glider logbook records the completion of an annual maintenance check on 19 June 2019 at a flight time of 1,037 hours and 23 minutes.

1.6.3 Operating Airspeeds

The Investigation calculated the speeds applicable to EI-GLV at a mass of 364 Kg based on the speeds specified in the ASW 19 B AFM as follows:

- The minimum flight speed with wings level was 37.5 knots (kt).
- The airspeed for minimum rate of descent was 42.5 kt.
- The airspeed for the best gliding range was 50.5 kt.
- The airspeed for flight in thermals was 42 to 45 kt.
- The recommended approach speed was 49 kt

The recommended approach speed was indicated by a yellow triangle on the airspeed indicator. The AFM recommended using the airbrakes during approach to vary the glide path. The polar curve[7] for the ASW 19 B is shown in **Figure No. 3**. The best glide ratio for the glider is stated as 38:1.

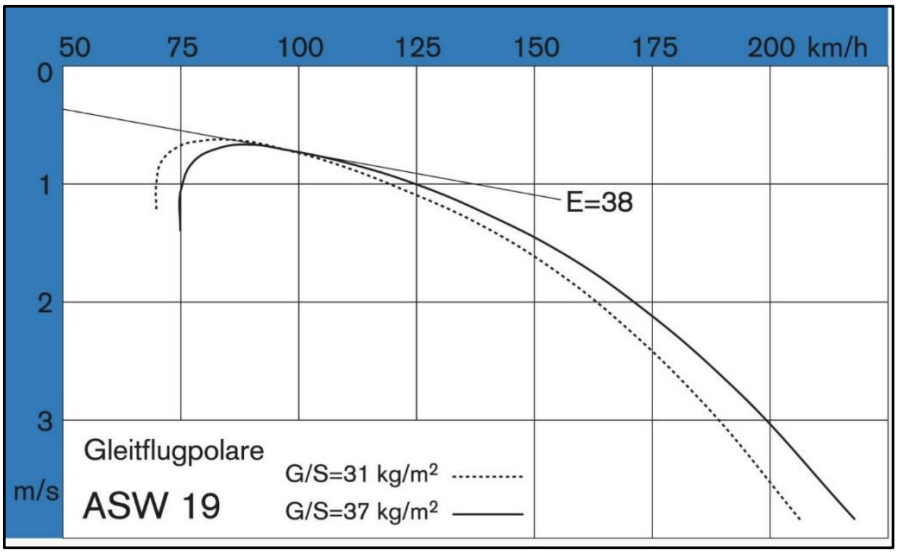

Figure No. 3: ASW 19 B Polar curve (Alexander Schleicher GmbH, 2021)

[7] **Polar curve:** A graph of the aircraft's glide performance at various airspeeds.

1.7 Meteorological Information

The Pilot reported to the Investigation that the weather conditions were: good visibility, no significant weather, the wind was from the north-west, and cumulus clouds marking the presence of thermals.

1.8 Aids to Navigation

The Pilot reported that the glider was fitted with a LX160 electrical variometer and final glide calculator. Without an external Global Positioning System (GPS) device, the LX160 provides a final glide calculation based on parameters, (distance, wind component, altitude of target, and polar curve[8]), entered by the Pilot. When the LX160 receives information from an external GPS device it can calculate a final glide to a location previously selected on the GPS device. A photograph provided to the Investigation by the Pilot showed a Garmin '*Pilot III*' handheld GPS unit fitted on the left side of the instrument panel and the Pilot reported that this handheld GPS unit was connected to the LX160.

1.9 Landing Field

The Pilot described the landing field (**Figure No. 4**) as '*grass farmland*' with an uphill slope in the direction of landing and a '*poor*' but dry surface condition. Photographs taken by the Pilot after landing showed that the field had been subdivided into three parts using an electric fence supported on plastic-covered stakes which remained upright in the post-occurrence photographs. A farm access track ran east-west inside the northern boundary of the field. The distance from the western-most electric fence to the final resting position of the glider was measured by the Pilot in the direction of landing and found to be 61 m. The elevation of the field in the northwest corner is approximately 617 ft (188 m).

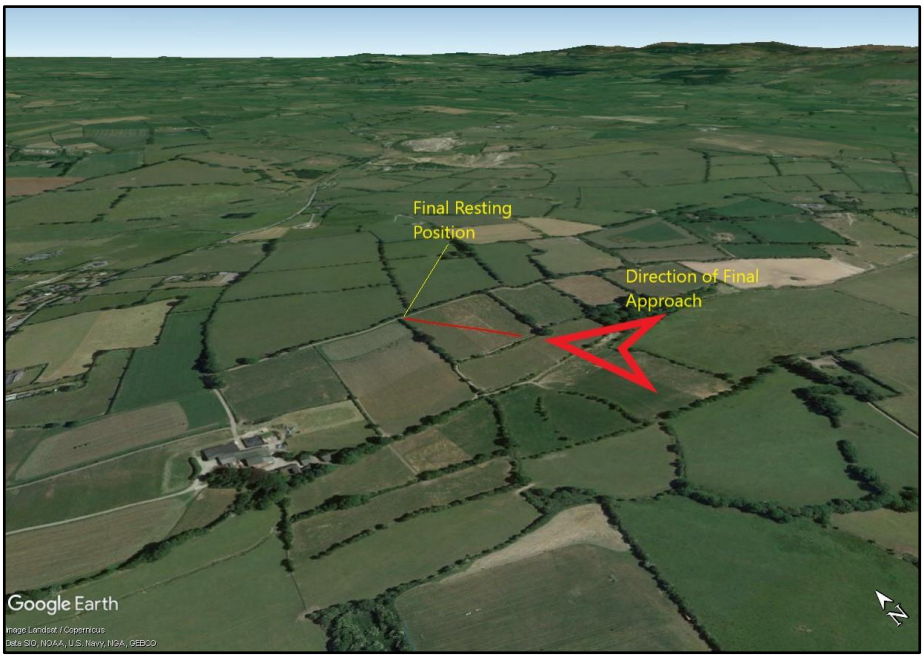

Figure No. 4: Landing field

[8] The LX160 contains a database of polar curves for 95 glider types including the ASW 19 B.

1.10 Organisational and Management Information

1.10.1 General

The IGSA website states that the IGSA is '*the national governing body for gliding in the Republic of Ireland*' and that '*It manages gliding in conjunction with the Irish Aviation Authority*'. The following description of the applicable regulations applies to the date of the occurrence and does not consider the subsequent introduction of the EASA Sailplane[9] Licence effective from 8 April 2020.

1.10.2 Pilot Licensing

At the time of the occurrence, the applicable Pilot licensing legislation relating to glider flying within the State was Statutory Instrument (S.I.) No. 333 of 2000, Irish Aviation Authority (Personnel Licensing) Order, 2000, which stated that the requirement for flight crew members to be licenced '*shall not apply to a person acting as pilot of a glider which is being flown as a private aircraft*' (Article 5 (13)).

The IAA website states that: '*the IGSA oversees pilot authorisation for gliding and soaring operations conducted in the Republic of Ireland*'. The IGSA website described the Bronze Certificate, which the Pilot held, as being:

> '*a certificate which is only issued after a pilot completes a long course of Dual and solo flying and successfully completes a General Flight Test. The syllabus and standards are comparable with a power PPL and comply with, or even exceed, the ICAO Glider Pilot License standards*.'

The IGSA website also states that:

> '*Even when qualified with a Bronze Certificate, a glider pilot, even if they own the glider, still requires approval and a briefing from a Duty Instructor to fly from a gliding club. Clubs generally apply strict currency rules and require even the most experienced pilots to take check flights if they are not current*.'

1.10.3 Glider Pilot Medical Requirements

At the time of the occurrence, there was no requirement specified in S.I. No. 333 of 2000, for Glider Pilots operating privately within the State to meet any specified medical standard or hold a medical certificate.

[9] The term 'sailplane' is synonymous with the term 'glider'.

The IGSA provided the Investigation with the following information relating to their medical arrangements as stated in the '*2017 IGSA Operational Regulations*' which applied to clubs and individuals affiliated to the IGSA at the time of the occurrence:

> '*1.6.3 Solo pilots are required to furnish their CFI with a declaration of medical fitness to fly on reaching the age of 45 and at five-yearly intervals, timed from the date of the medical, thereafter until reaching the age of 70 when annual declarations will be required. The declarations may be self-declarations unless the CFI requests endorsement from a GP or aeromedical examiner (AME).*'

1.10.4 Cross Country Flying

The IGSA website includes details of a cross-country endorsement and states that:

> '*Before a pilot can attempt cross country flights, where there is a real risk of having to land-out, a pilot must gain a cross-country endorsement. This consist*[*s*] *of dual training in field selection and practice field landings. In most countries this is done in motor gliders but can be done in ordinary gliders*.'

The IGSA informed the Investigation that individual briefings are not recorded or noted but are normally given verbally, relating to the specific planned flight; all pilots receive a daily briefing before flying, comprised of weather conditions, airspace restrictions, and relevant local issues.

2. AAIU COMMENT

While conducting a soaring flight the Pilot, who held a Bronze Certificate and cross-country endorsement issued by the IGSA, was unable to locate sufficient thermal activity to obtain sufficient lift to continue the flight or return to the airfield of departure. The search for a field to complete an '*out-landing*' was commenced at an estimated height of 1,000 ft AGL and a suitable field was not identified until the glider was at an estimated height of 300 ft AGL. During the approach, the Pilot realised that he was unable to safely reach the chosen field and adjusted the approach to land in a field short of the chosen field. The Pilot reported that during the landing roll, the glider collided with a hedgerow surrounding the landing field and sustained substantial damage.

- END -

In accordance with Annex 13 to the Convention on International Civil Aviation, 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 this investigation is to prevent aviation accidents and serious incidents. It is not the purpose of any such 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

AAIU Reports are available on the Unit website at www.aaiu.ie

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