Accident

Aircraft Type and Registration:	Rans S6-ESD XL, G-MZBU	
No & Type of Engines:	1 Rotax 503-2V piston engine	
Year of Manufacture:	1996 (Serial no: PFA 204-12992)	
Date & Time (UTC):	30 March 2024 at 1248 hrs	
Location:	Yatesbury Airfield, Wiltshire	
Type of Flight:	Test flight	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Substantial	
Commander's Licence:	National Private Pilot's Licence (A) with Microlight Class Rating	
Commander's Age:	54 years	
Commander's Flying Experience:	Total hours - Not available Last 90 days - 0 hours Last 28 days - 0 hours	
Information Source:	Various witnesses and other sources	

Synopsis

The accident occurred after the pilot lost control of the aircraft just prior to landing. It seems likely that the pilot's lack of recent flying experience resulted in the loss of control.

The maintenance history and airworthiness standard of the aircraft did not seem adequate, and witnesses at Yatesbury Airfield stated that the aircraft's fabric covering did not appear to have been correctly fitted; nevertheless, the airworthiness documentation showed the aircraft was considered satisfactory for flight.

This event has highlighted what can happen if safety responsibilities are not taken seriously; although on this occasion no injuries occured, the aircraft was substantially damaged.

Background information

The pilot, who is also the owner of this aircraft, provided a limited account of the accident together with uncorroborated information, but did not provide all of the information or documentation requested by the AAIB despite multiple requests. The pilot stated that they did not consider the event to be reportable.

The Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 2018 contain the following regulations:

> Regulation 10, (1), *'Notwithstanding the obligations to investigate imposed by paragraphs 1 and 2 of Article 5 of Regulation 996/2010 and by Chapter 5 of Annex 13, the Chief Inspector may cause a safety investigation to be conducted in accordance with Regulation 996/2010, Annex 13 and these Regulations where— (a) an accident, a serious incident or any other incident occurs in or over the United Kingdom; (b) that, accident, serious incident or incident involves any aircraft …;(c) the Chief Inspector expects to draw safety lessons for civil aviation from the safety investigation.'*
>
> Regulation 21 *'Any person who, without reasonable excuse, obstructs or impedes an Inspector in the exercise of any duties, powers or entitlements imposed or conferred by Regulation 996/2010, Annex 13 or by these Regulations, contravenes these Regulations.'*
>
> Regulation 22 *'Any person who knowingly provides false or misleading information to an Inspector in connection with a safety investigation contravenes these Regulations.'*

Contravening these regulations can lead to substantial penalties including a custodial sentence.

The Inspector in Charge of the investigation commented,

> *"It is disappointing that the pilot did not engage fully with this safety investigation, whose purpose is to improve aviation safety by determining the circumstances and causes of air accidents and serious incidents and promoting action to prevent reoccurrence. It is not to apportion blame or liability.*
>
> *Nevertheless, this investigation had sufficient information available to it to highlight important safety messages which are intended to help prevent a further similar occurrence."*

History of the flight

The aircraft had departed from its home base of Draycott Farm with the pilot, who is the aircraft owner, and his son on board. The aircraft was operating on a Permit Flight Release Certificate as its Permit to Fly had expired on 23 August 2023.

A witness at Yatesbury Airfield reported that the approach to Runway 10 appeared '*a bit low*' but the aircraft landed without incident. Other witnesses at Yatesbury stated the pilot had flown-in with the expectation of completing a biennial flight with an instructor, as part of revalidating his licence.

The pilot informed the AAIB that he then decided to conduct a quick circuit so that he could check the maximum engine rpm as part of the permit revalidation test flight. He and his son boarded the aircraft and departed from Runway 10 into the circuit.

Witnesses on the ground reported that on takeoff, the aircraft drifted right and nearly departed the runway; one witness reported that the nose landing gear appeared to enter the long grass beside the runway and was then '*hauled off the ground*'. They all stated the aircraft drifted north of the runway centreline before turning on to the crosswind leg.

The pilot reported that during the landing, at about 10 ft above the runway, he felt the effect of the crosswind and couldn't correct the aircraft's flight path, and as a result landed on the nose and left main landing gear, damaging both. The propeller was also damaged, but the pilot reported no other damage apart from a crack to the windscreen.

The witnesses who watched the takeoff also observed the aircraft make its approach to land. They report the aircraft appeared right of the runway centreline, low and slow, with no flap deployed. One commented, '*it appeared to be heading towards a bank beside the runway*'. Once positioned more over the runway, the left wing was seen to drop, and the aircraft contacted the runway firmly, breaking the landing gear and cartwheeling the aircraft so that it ended up facing the opposite direction, leaving witness marks on the runway (Figure 1 and Figure 2).

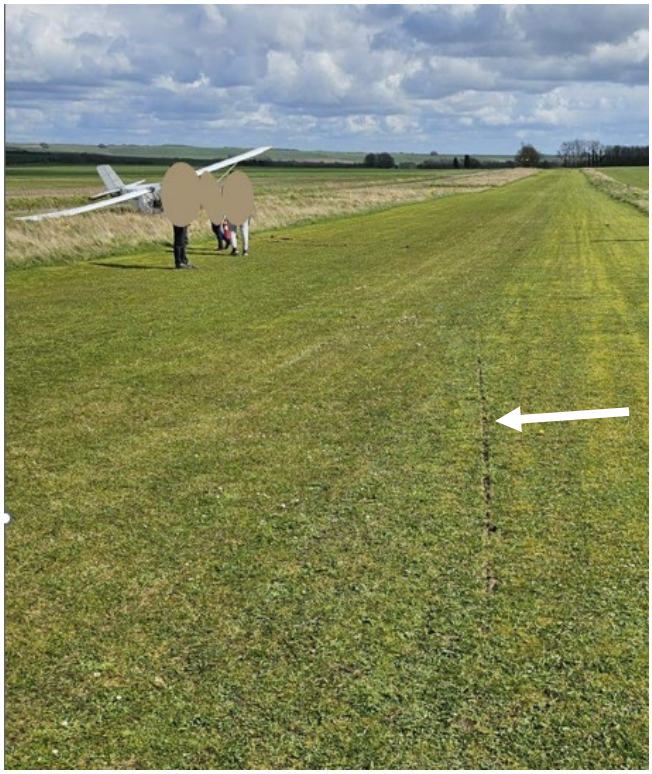

Figure 1

Aircraft's final resting position, looking along Runway 10 in landing direction and showing a runway witness mark
(Image used with permission)

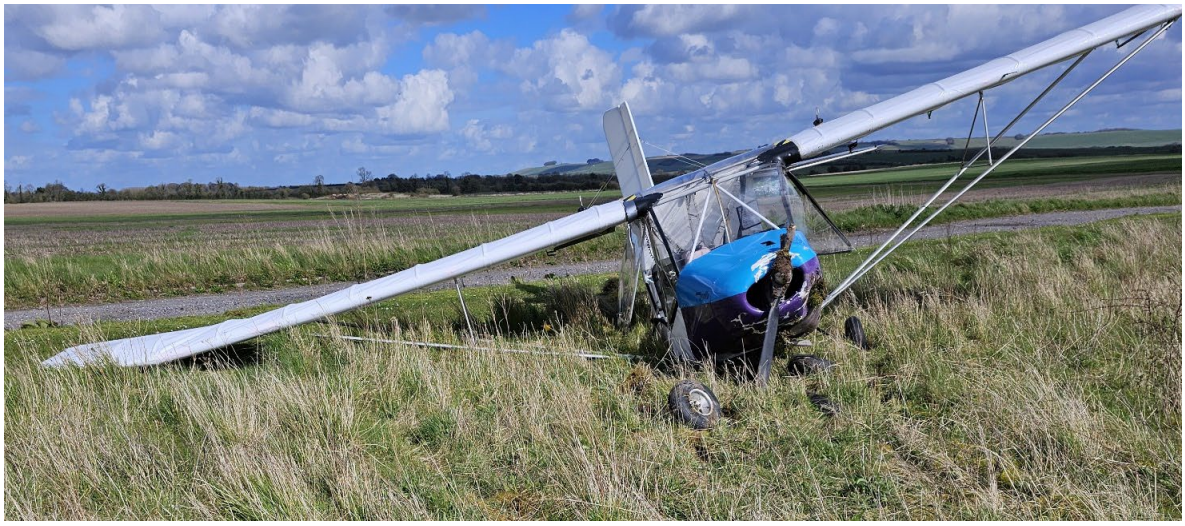

Figure 2

Aircraft's final resting position, illustrating damage sustained
(Image used with permission)

The pilot and passenger were able to exit unaided and people at the airfield ran over, with fire extinguishers as a precaution, to assist the occupants; they also then made the aircraft safe. There was no fire.

Aircraft information

G-MZBU is a Rans S6-ESD XL and is operated on a Permit to Fly administered by the Light Aircraft Association (LAA). The aircraft is constructed of a lightweight metal frame which is covered in fabric in the form of pre-sewn envelopes that are laced to the structure.

The validity of aircraft's Permit to Fly expired on 23 August 2023 and the owner informed the AAIB that since September 2023 the aircraft had been undergoing maintenance which included fitting new skins, new engine rubber mounts and new longerons in the fuselage.

The LAA provided recent maintenance records and related emails it had received for this aircraft, these records included:

- A repeat modification proposal for an alternative skin fabric, dated 20 September 2023.
- Form LAA/CFS-1, Permit to Fly Revalidation Check flight schedule dated 15 August 2023 for a flight between Lower Upham and Draycott airfields, signed by the owner.
- A Duplicate Inspection Record, dated 27 October 2023, for tasks related to recovering the aircraft, but this was only signed by the owner and not by an LAA Inspector.

- Work sheets for aircraft skin replacement, defect rectification and engine maintenance activity; none of which had the permit maintenance release signed and dated as required by an LAA Inspector.

- A weighing report dated 28 October 2023, completed by the owner, and not signed as required by an LAA Inspector.

- The aircraft's maintenance schedule, which had not been signed for the work completed and the required Permit Maintenance Release was not completed by an LAA Inspector.

- Permit Flight Release Certificate, valid between 31 October 2023 and 30 November 2023 with a restriction for a local flight and reposition to new home airfield, which was approximately 5 nm away. This was signed by an LAA inspector.

- Form LAA/CFS-1, Permit to Fly Revalidation Check flight schedule dated 25 November 2023 and signed by the owner.

- LAA/PTF-REVAL, Permit to Fly Revalidation Application, dated 27 November 2023.

- A second copy of the aircraft's maintenance schedule, but this one had been signed by the owner and a different, second LAA Inspector and was dated 9 March 2024.

- A further copy of the weighing report dated 28 October 2023, but now signed by the second LAA Inspector on 9 March 2024.

- Further copies of work sheets for aircraft skin replacement, defect rectification and engine maintenance activity, with the permit maintenance release now signed by the second LAA Inspector and dated 9 March 2024.

- Form LAA/ARR-1, Permit to Fly Airworthiness Review Report dated 9 March 2024 signed by the second LAA Inspector. This form had been initially rejected by the LAA due to several discrepancies including the modification the new skin material which had not yet been approved.

- A second Duplicate Inspection Record dated 25 March 2024, for tasks related to recovering the aircraft, this was signed by the owner and the second LAA Inspector.

- A Permit Flight Release Certificate signed by the same LAA Inspector who signed the second Duplicate Inspection record with a validity from 25 March 2024 until 23 April 2024.

- LAA internal Mod/Repair checklist.

- A copy of the modification approval for this aircraft dated 27 March 2024. The new skin was of an alternative material and its use was approved by LAA Modification 15977.

Other information relating to the aircraft

The AAIB spoke with both LAA Inspectors who had been involved recently with the aircraft.

The first stated they had identified several defects with the aircraft that required attention. The aircraft had its new covering fitted before the inspector was able to verify that all the defects had been satisfactorily remedied. They did however issue the Permit Flight Release Certificate to allow the owner to move the aircraft the short distance to its new home base, as the old base was no longer available, and noted this restriction on the certificate. This inspector later decided to distance themselves from the aircraft due to concerns over the aircraft's maintenance, incomplete records and other issues.

The second inspector stated they had identified several defects with the aircraft and that they had concerns over the lack of maintenance records. They reported they had seen the new skins fitted and noted the skins were '*a bit wrinkly*' but had not seen any documentation for the work. Nevertheless, this inspector had signed airworthiness documentation confirming the aircraft's condition was fit for flight, including the Permit Flight Release Certificate that was valid at the time of the accident.

Several witnesses at the accident airfield, who have experience with this type of aircraft, reported that the reskinning appeared '*not to a good standard and had not been done correctly*'. They reported that the new skins '*appeared wrinkly and baggy*' and '*the aileron and flap skins had been fitted upside down and the bolt holes did not line up with the bolts'*.

Meteorology

The weather at Yatesbury Airfield was reported by an instructor as being '*a bit breezy*' with an approximately 10 kt wind from the south, but it was reported as not causing any operational issues to other similar aircraft.

Aerodrome information

Yatesbury Airfield is situated a few miles East of Calne in Wiltshire. It has one grass runway which is designated 28 / 10 and is 410 m long and 19 m wide. It has a slight downhill slope on Runway 10. A hangar is located to the south and west of the Runway 10 threshold.

Personnel

A report from the CAA showed that the pilot had been issued with a NPPL(A) with Microlight Class Rating endorsed. This initial issue was valid until 30 November 2019 and there is no requirement for the licence holder to inform the CAA of any revalidations. The AAIB was not able to confirm revalidation of the pilot's licence as these details which would be included in the pilot's licence and logbook which were not disclosed to the AAIB.

The pilot had made a Pilot Medical Declaration (PMD) to the CAA in 2017, and was valid up to the pilot's 70th birthday.

The pilot advised the AAIB that his last flight had been in August 2023, and he stated he had not flown anything since then. This flight is likely to be the revalidation test flight recorded on 15 August 2023. Copies of records provided by the LAA indicate the pilot signed for completing a further revalidation test flight on 25 November 2023.

The pilot's home airfield was contacted and there was no record of these flights in the airfield's booking-in and booking-out sheets.

As the pilot did not provide the AAIB with copies of his or the aircraft's logbooks, these flights cannot be matched with those recorded in the logbooks or elsewhere.

Other information

As part of standard LAA practices to revalidate an expired Permit to Fly, a Permit Flight Release Certificate (PFRC) can be issued by an LAA Inspector within the 12 months following expiry provided the inspector considers the aircraft is fit for flight. The PFRC permits flights for checking purposes only and contains the following warning,

> *'Flight for any other reason must not be undertaken until the Permit to Fly has been revalidated.'*

CAA document CAP1535 Skyway Code[1], reminds pilots of the requirements to carry passengers,

> *'Carrying passengers*
>
> *90 day rule: In order to carry passengers, you must have completed within the previous 90 days, three take-offs and landings as sole manipulator of the controls in the same type or class to be used on the flight.'*

Analysis

The aircraft had valid paperwork that stated the aircraft was in a condition suitable for flight. Despite this, both LAA inspectors who had recently been involved with the aircraft stated they had concerns about the owner's attitude towards maintaining the aircraft and both stated the aircraft had defects when they last saw it.

One inspector felt that the defects had not been dealt with correctly, and had concerns over incomplete maintenance records.

A second inspector later stated that the replacement fabric '*appeared wrinkly*' but was apparently sufficiently satisfied to certify airworthiness documents in March 2024, stating the aircraft was in a suitable condition to fly. The airworthiness documents including, a

Footnote

1 CAP1535: The Skyway Code | Civil Aviation Authority [accessed 09 Jan 2025].

weighing report, maintenance schedules and work sheets, and a duplicate inspection record, had all been previously submitted to the LAA in late 2023. The were unsigned by any inspector and before this second inspector became involved with the aircraft.

Witnesses at the accident airfield also raised concerns about the condition of the fabric covering stating the skins '*appeared wrinkly and baggy*' and '*the aileron and flap skins had been fitted upside down and the bolt holes did not line up with the bolts'*.

The pilot was operating the aircraft on a valid PFRC as its Permit to Fly had expired. The PFRC permits flights for checking purposes only and warns against flights for other purposes. A check flight would typically involve a short local flight from the home airfield to perform the flight test schedule.

On this occasion the pilot had flown to another airfield with the reported intention of completing a biennial review flight with an instructor. This review flight would have been outside that permitted by the PFRC. A flight for this purpose would require the aircraft to have a valid Permit to Fly, which it did not have as it was still going through the revalidation process.

The pilot had taken his son with him on the flight in the role of a check flight observer, which is permitted under the conditions of the PFRC. It is also a requirement that before carrying a passenger, a pilot must have completed at least three take-offs, approaches and landings in the 90 days preceding the flight. The pilot's last flight recorded flight known to the AAIB was conducted at least 126 days before the accident flight.

Conclusions

The accident occurred after the pilot lost control of the aircraft just prior to landing. The weather conditions were suitable for the flight and other similar aircraft were operating without issue.

The pilot had not flown for at least 126 days and the accident landing was only his second since then. It seems likely that the pilot's lack of recent flying experience resulted in the loss of control.

It is possible the reported poor fitting of the fabric skins may have degraded the aerodynamic performance and handling of the aircraft, which could have contributed to the accident.

The pilot was carrying his son as a passenger and to act as a flight test observer to note the performance figures obtained. The pilot was not in compliance with the 90-day rule and was not permitted to carry a passenger, as he had not completed the required three take-offs and landings within the previous 90 days.

The maintenance history and airworthiness standard of the aircraft do not seem adequate based on verbal reports of two LAA inspectors who had been involved with the aircraft, and witnesses experienced with this type of aircraft at the accident airfield. Nevertheless, the airworthiness documentation showed the aircraft was considered satisfactory for flight.

The aircraft was operating on a Permit Flight Release Certificate which allows flight for checking purposes only. Flight for other purposes, such as the intended biennial training flight for licence revalidation, was not permitted.

AAIB Comments

This event has highlighted what can happen if safety responsibilities are not taken seriously; on this occasion, no injuries occurred.

The LAA provides considerable information for owners of LAA aircraft including Technical Leaflet 2.01, A guide to LAA Aircraft Ownership. This summarises an aircraft owner's responsibilities. Further guidance and advice is available to owners from the LAA's network of Approved Inspectors. The CAA also provide a wealth of more general aviation safety related information in various publications including the Skyway Code and Safety Sense Leaflet 23, Pilots – It's Your Decision.

It is incumbent on aircraft owners and pilots to ensure their aircraft are maintained and operated to the correct standards. This involves adhering to the various rules and regulations that are in place whilst maintaining a positive approach to a strong safety culture. These together, help avoid accidents and maintain safety at an acceptable level.