Accident

Aircraft Type and Registration:	Slingsby Swallow T45, BYJ	
No & Type of Engines:	None	
Year of Manufacture:	1967 (Serial no:1568)	
Date & Time (UTC):	7 November 2023 at 1330 hrs	
Location:	Bishop Hill, near Portmoak Airfield, Kinross	
Type of Flight:	Private	
Persons on Board:	Crew – 1	Passengers – None
Injuries:	Crew – 1 (Serious)	Passengers – N/A
Nature of Damage:	Substantial	
Commander's Licence:	Other	
Commander's Age:	68 years	
Commander's Flying Experience:	114 hours (of which 2 were on type) Last 90 days – 1 hour Last 28 days – 0 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The glider struck the ground after experiencing turbulence and a high sink rate whilst flying near to the ridge line of Bishop Hill, near the village of Scotlandwell. The pilot sustained serious injuries during the accident. It is likely that, upon encountering turbulent air, the glider's lower than recommended airspeed resulted in it having insufficient energy to safely manoeuvre away from the hill.

History of the flight

The pilot had planned to ridge soar at Bishop Hill, near Scotlandwell, which is about 1 nm north of Portmoak Airfield, Kinross. The reported wind was from 270° at between 8 to 10 kt. At about 1325 hrs the glider was winch launched to a height of about 1,100 ft agl (1,450 ft amsl) from the westerly runway at Portmoak Airfield. The pilot then headed directly towards Bishop Hill, whose summit extends to about 1,400 ft amsl and was the area in which the pilot intended to fly. The pilot advised that the glider's controls were responding normally.

The pilot could see two other gliders and at least one paraglider flying near the ridge line ahead of him. The pilot recalled that as he approached the hill the glider's airspeed was about 45 kt (1.4 V_s[1]). He then made a left turn onto a northerly heading to fly approximately

Footnote

[1] V_s stated by the pilot was 32 kt.

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parallel to the windward ridge line. The glider momentarily started to climb, but then experienced turbulence with the vario indicating “severe sink”. The glider was now below the summit of the hill, at a visually estimated height of 800 ft, and the pilot stated that he had intended to make a left turn, away from the hill. However, his next recollection was of the glider striking the side of the hill and travelling through gorse shrubs before coming to a stop on a south-easterly heading (Figure 1).

The glider’s wings and cockpit were damaged. The pilot suffered injuries to his spine and was attended to at the accident site by emergency services and mountain rescue, prior to being airlifted to hospital.

The continuity of the glider’s controls was checked shortly after the accident and no anomalies were found.

Guidance information on hill soaring

The BGA provides information[2] and references other recommended publications concerning hill, ridge and mountain soaring. This includes ‘*Safety in Mountain Flying*’[3] provided by the French gliding association FFVP[4]. The FFVP recommend a minimum airspeed of ‘*1.45 Vs (stall velocity)*’ when hill, ridge and mountain flying. This excess energy enables the glider to fly quickly through areas of strong sink or windshear without stalling.

Figure 1

Accident site (the glider is circled)

Footnote

2 BGA - managing flying risk - Hill, ridge and mountain soaring [accessed 12 December 2023].
3 Mountain Flying Safety [accessed 12 December 2023].
4 Fédération Française de Vol en Planeur [accessed 12 December 2023].

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Conclusion

The pilot considered that the reason for the accident was a loss of lift after encountering strong sink whilst flying near to the ridge line at Bishop Hill.

Based on the pilot's recollection, the glider's airspeed as it approached the hill was just less than the 1.45 V_s recommended by the FFVP. However, it is likely that the glider's airspeed was lower than this when it encountered turbulent sinking air, resulting in insufficient energy to safely manoeuvre away from the hill.

This accident highlights the safety risks of ridge soaring. Information on managing these risks is available from the BGA website.

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