

LIMITED OCCURENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/2/3/10172						
Classification	Accident	Date	12 June 2022	Time	0900Z		
Type of Operation	Private (Part 94)						
Location							
Place of Departure	Worcester Aerodrome (FAWC), Western Cape Province		Place of Intended Landing	Worcester Aerodrome, Western Cape province			
Place of Occurrence	Worcester Aerodrome (FAWC)						
GPS Co-ordinates	Latitude	33°39'55.80" S	Longitude	019°25'04.04" E	Elevation	663ft	
Aircraft Information							
Registration	ZS-GUJ						
Make; Model; S/N	Glaser-Dirks; DG-500M (Serial Number: 5E114M51)						
Damage to Aircraft	Substantial			Total Aircraft Hours	2 207.7		
Pilot-in-command							
Licence Type	Glider Pilot Licence		Gender	Male		Age	47
Licence Valid	Yes	Total Hours	1 782.1		Total Hours on Type	46.7	
Total Hours 30 Days	10.9		Total Hours on Type Past 90 Days	10.9			
People On-board	1 + 1	Injuries	0	Fatalities	0	Other (on ground)	0
What Happened							
<p>On Sunday morning, 12 June 2022, a pilot and a passenger on-board a Glaser-Dirks DG-500M self-launch power glider with registration ZS-GUJ intended to engage in a private flight with the take-off from Runway 33 at Worcester Aerodrome (FAWC) in the Western Cape province and, thereafter, land back at the same aerodrome. A flight plan was filed for the flight. The aircraft was operated under visual meteorological conditions (VMC) by day and under the provisions of Part 94 of the Civil Aviation Regulations (2011) as amended.</p> <p>The pilot reported that after rotation at approximately 50 feet (ft) above ground level (AGL) at an airspeed of 40 kilometres per hour (km/h), he was unable to maintain the runway heading due to a sudden gust of wind which caused the glider to veer off to the left-side of the extended centreline of Runway 33. The take-off speed of the glider is 100km/h. According to the pilot, he lost control of the glider, and it entered an uncontrolled left spiral before it impacted terrain approximately 70 metres (m) from the edge of Runway 33. The runway in use at FAWC is 1600m long and 25m wide with an elevation of 653 ft.</p> <p>According to an official weather report that was obtained from the South African Weather Service (SAWS), the prevailing weather conditions at the time of the flight were as follows: surface wind at 340°/18 knots and temperature at 21°C; there were no clouds of operational significance, and the</p>							

visibility was 10 kilometres (km). No person was injured during the accident sequence. The glider was substantially damaged.

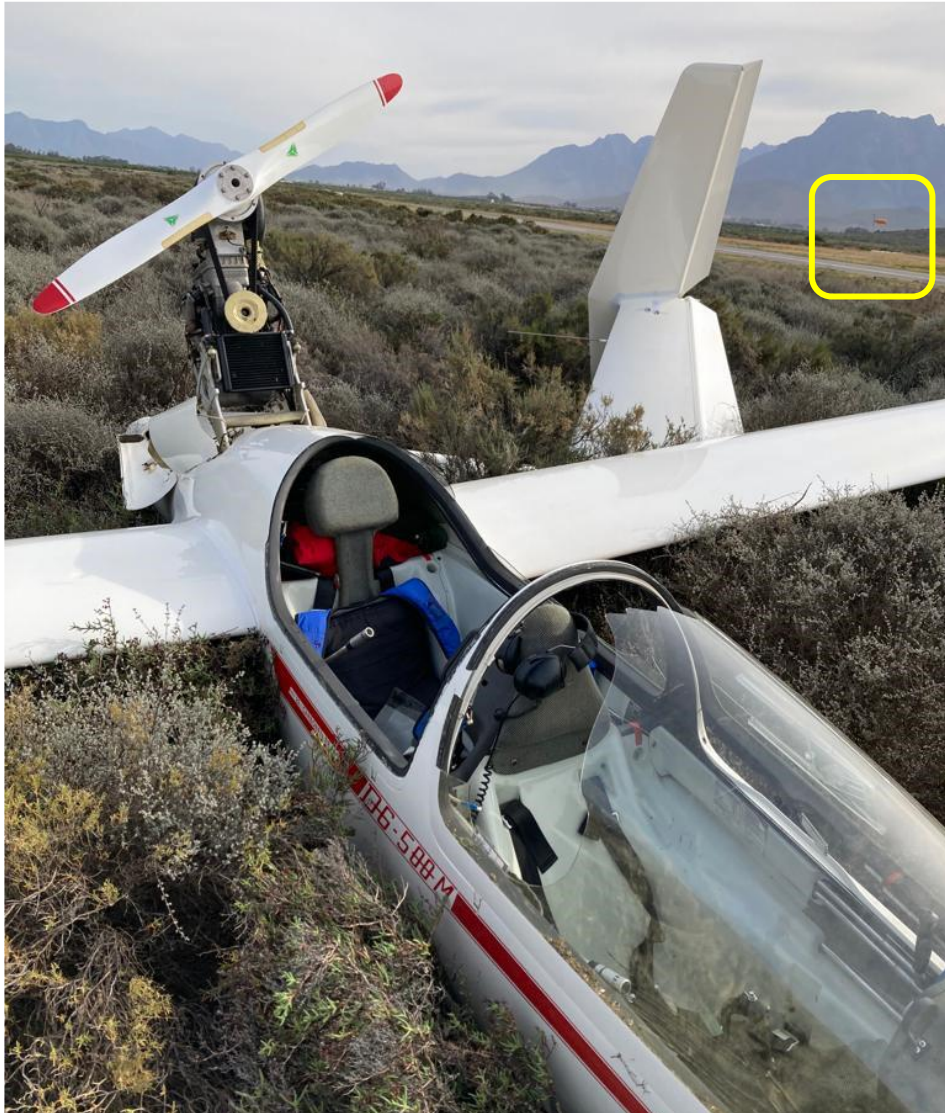


Figure 1: The motorised glider as it came to rest. (Source: Owner)
The windsock in the yellow window indicates wind blowing from the north-west.

What was found:

The following information was obtained from the South African Weather Service (SAWS):

The Significant Weather (SigWX) low-level chart valid for 0900Z showed that there were no significant clouds expected closer to the time of the accident. It also indicated that severe mountain waves were expected in the vicinity of the accident. The 00:00Z Cape Town upper ascent, which was the closest available upper air ascent to the time of the accident, showed dry conditions at low level of the atmosphere, which indicated the absence of significant clouds. The profile also indicated the presence of low-level turbulence.

The information below is an extract from <https://www.theweatherprediction.com/>

The flow over elevated terrain can set up turbulence that produces unique cloud formations and airflow patterns that can be dangerous to aircraft. As air flows over the mountain or mountain range it is forced upwards. If the air is unstable, the air will continue to rise and can produce rain or storms in the vicinity of the mountain. Mountain wave turbulence is typically set off when the air is stable. This is because as the air is forced lifted, after it goes over the mountain it will want to return to its original elevation. As the air moves downstream it will overshoot and undershoot this equilibrium point as it continues to move downstream. This produces a wave pattern to the airflow. What is dangerous to aircraft is the turbulent eddies that can be set off as air moves through a curved pattern at the base and top of each wave. This produces dramatically different wind directions over a short distance. An aircraft trying to adjust to a certain wind speed and direction will suddenly be impacted by a totally different wind speed and direction. This can produce severe turbulence as the aircraft goes across the eddy.

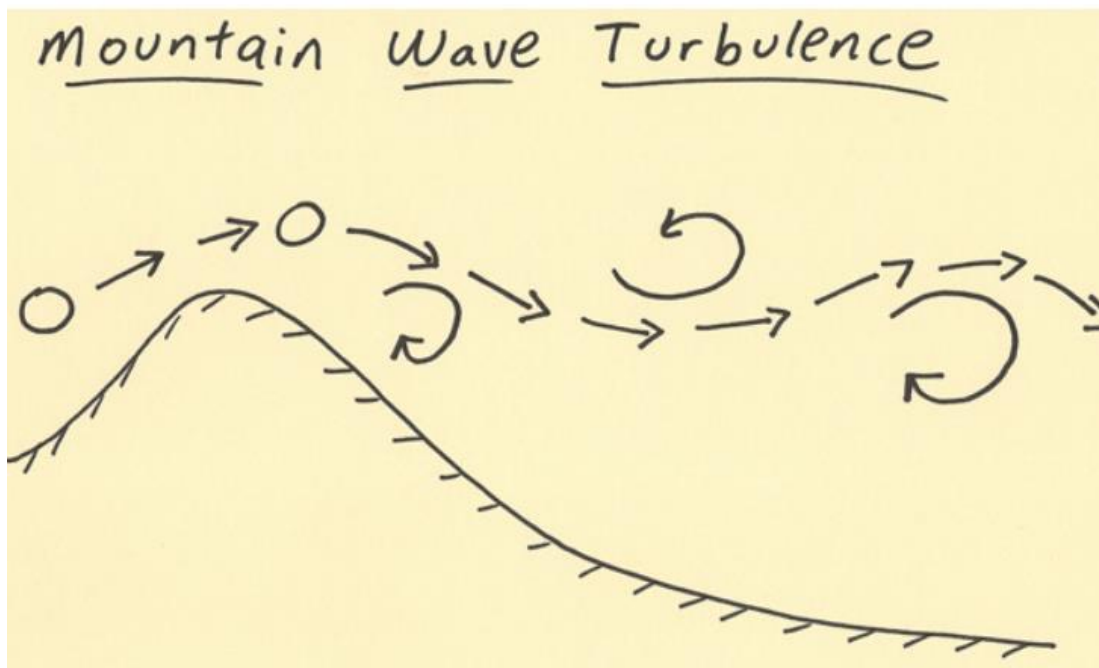


Illustration 1: Mountain wave turbulence. (Source: Google)

Findings
<ul style="list-style-type: none"> • The pilot was initially issued the Glider Pilot Licence (GPL) on 19 March 2019, which was renewed by the Regulator (SACAA) on 14 March 2021 with an expiry date 13 March 2023. • The pilot was issued a Class 2 aviation medical certificate on 1 December 2021 with an expiry date of 31 December 2023. • According to the pilot, he had flown a total of 1 782.1 hours, of which 46.7 were on the glider type and 10.9 hours were flown during the past 90 days. • The glider was operated under the provisions of Part 94 of the Civil Aviation Regulations (CAR) 2011 as amended. • The glider was issued a Certificate of Registration (C of R) by the Regulator on 17 March 2022. • The glider had a valid Certificate of Release to Service (CRS) that was issued on 16 March 2022 at 2195.6 hours, with an expiry date of 16 March 2023 or at 2 295.60 hours, whichever comes first. • The glider had accumulated 2 207.7 hours at the time of the accident. • The glider had a valid Authority to Fly (ATF), which was issued by the Regulator on 29 March 2019 and renewed on 5 April 2022 with an expiry date of 31 March 2023. • The pilot took off at a speed of 40km/h, and the recommended speed as per the Pilot's Operating Handbook is 100km/h.
Probable Cause(s)
Incorrect technique during take-off and lack of situational awareness during low-level wind shear and buffeting. The aircraft's speed was too low at lift-off.
Contributing Factor(s)
None.
Safety Action(s)
None.
Safety Message and/or Safety Recommendation/s
None.
About this Report
<i>The decision to conduct a limited investigation is based on factors, including whether the cause is known and the evidence supporting the cause is clear, the level of safety benefit likely to be obtained from an investigation</i>

and that will determine the scope of an investigation. For this occurrence, a limited investigation has been conducted, and the Accident and Incident Investigations Division (AIID) has relied on the information submitted by the affected person/s and organisation/s to compile this limited report. The report has been compiled using information supplied in the initial notification, as well as from follow-up desk top enquiries to bring awareness of potential safety issues to the industry in respect of this occurrence, as well as possible safety action/s that the industry might want to consider in preventing a recurrence of a similar occurrence.

All times given in this report are Co-ordinated Universal Time (UTC) and will be denoted by (Z). South African Standard Time is UTC plus 2 hours.

Purpose

In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011 and ICAO Annex 13, this report was compiled in the interest of the promotion of aviation safety and the reduction of the risk of aviation accidents or incidents and not to apportion blame or liability.

Disclaimer

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**This report is issued by:
Accident and Incident Investigations Division
South African Civil Aviation Authority
Republic of South Africa**