

LIMITED ACCIDENT INVESTIGATION REPORT

Reference Number	CA18/2/3/10125					
Classification	Accident	Date	24 February 2022	Time	0605Z	
Type of Operation	Agriculture operations (Part 137)					
Location						
Place of Departure	Groenvlei Private Farm, Standerton, Mpumalanga Province		Place of Intended Landing	Groenvlei Private Farm, Standerton, Mpumalanga Province		
Place of Occurrence	Katdoornkraal Private Farm, Standerton, Mpumalanga Province					
GPS Co-ordinates	Latitude	S27° 05'.02"	Longitude	E029° 20'.52"	Elevation	5300 feet
Aircraft Information						
Registration	ZU-IGM					
Model/Make	Zenith Stol CH750 (Serial Number: 198)					
Damage to Aircraft	Substantial		Total Aircraft Hours	150		
Pilot-in-command						
Licence Valid	Yes	Gender	Male	Age	63	
Licence Type	Private Pilot Licence (PPL)					
Total Hours on Type	47.6		Total Flying Hours	194.6		
People On-board	1 + 0	Injuries	0	Fatalities	0	Other (On Ground) 0
What Happened						
<p>On Thursday morning, 24 February 2022, the pilot on-board a Zenith Stol CH750 aircraft with registration ZU-IGM took off on a crop-spraying flight from Groenvlei private farm airstrip located in Standerton, Mpumalanga province, with the intention to return to the same farm. Visual Meteorological Conditions (VMC) by day prevailed in the area. The flight was conducted under the provisions of Part 137 of the Civil Aviation Regulations (CAR) 2011 as amended.</p> <p>The pilot stated that before departure, he conducted a pre-flight inspection on the aircraft and no abnormalities were detected. The aircraft had 50 litres of Avgas 100LL fuel in the tank and about 60 litres (l) of agricultural pesticide spray mixture in the hopper tank. The runway at the farm airstrip is a flattened gravel, which is about 850 metres (m) long and 30m wide. After the engine start-up, the pilot taxied the aircraft to the runway threshold and took off into the wind at 75 miles per hour indicated air speed (IAS). The aircraft rotated and flew towards Katdoornkraal farm which was approximately 1.6 nautical miles (nm) north of Groenvlei farm where the pilot commenced with</p>						

spraying the pesticide chemical on the soybean field. The aircraft was being operated about 10 feet (ft) above ground level (AGL).

The weather in the area at the time of the flight was described by the pilot as fine and clear with some high clouds and no wind; the outside air temperature was about 16° Celsius (C). During the crop-spray application run, the soybean plant branches got entangled on the spray-boom (structure that supports spray nozzles along the wingspan of the aircraft) and the aircraft flipped over, coming to rest in an upside-down position. The aircraft sustained substantial damages during the accident sequence and the pilot was not injured. Third party damage was limited to the crops in proximity to the site of the accident.



Figure 1: The aircraft at the accident site (Source: Operator)

Aircraft Information:

The Zenith Stol CH-750 is a two-seat side-by-side high-wing amateur built aircraft with serial number 198. It was manufactured in the United States of America (USA) and was fitted with a Rotax 912 ULS four-cylinder, naturally aspirated, four-stroke engine generating 100 brake horsepower (BHP) output at 2 750 revolutions per minute (RPM). The aircraft has a chemical hopper tank with the capacity of 70 litres.

The aircraft was imported to South Africa as new, and the Certificate of Registration was issued on 15 September 2021. At the time of the accident, the aircraft had a valid Authority to Fly (ATF) certificate that was issued on 30 September 2019 with an expiry date of 30 September 2022. The last annual inspection that was carried out on this aircraft prior to the accident flight was certified on 6 September 2021 at 95.4 airframe hours by an approved person (AP). The Certificate of Release to Service was issued on 6 September 2021. Following the annual inspection, a further 54.6 hours were flown with the aircraft. There were no defects entered in the flight folio that could have contributed or have caused the accident since the annual inspection was certified. The pilot

also stated that the aircraft was airworthy prior to the flight. The crop-spray operation was conducted in a private capacity and the aircraft was not listed in any of the air operating certificates (AOC).

What was found:

- i. No mechanical malfunction with the aircraft or its engine was noted that could have contributed or have caused the accident.
- ii. The weather condition was favourable for the flight and did not contribute to the accident.
- iii. The pilot did not have an agricultural pilot rating which was in contravention of Part 61.25.1 of the South African Civil Aviation Regulations 2011 as amended.

Requirements for Agricultural Pilot Rating:

61.25.1 (1) *An applicant for an Agricultural Pilot Rating must–*

(a) hold a valid pilot licence issued in terms of Part 61 or Part 62 in the category aeroplane or helicopter, as applicable, and in the event of acting for remuneration, hold at least a valid CPL (Aeroplane or Helicopter) or a valid Part 96 authorisation, as applicable;

(b) hold the appropriate class or type rating;

(c) hold a current Pest Control Operator's Certificate issued in terms of the Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947);

(d) have acquired the experience that include at least completion of not less than 300 hours of flight time, which must include not less than 30 hours in the case of aeroplanes and 10 hours in the case of helicopters, of flight experience in aerial application under supervision; and

(e) have undergone the skills test referred to in regulation 61.25.2. (2) At least 2 hours of the flight experience referred to in sub-regulation (1) must be dual instruction conducted by the holder of an appropriately rated Grade I or a Grade II flight instructor who shall be the holder of the appropriate category, class or type rating and the Agricultural Pilot Rating. The balance of the prescribed flight experience may be conducted under the supervision of the holder of a valid CPL or ATPL (Aeroplane or Helicopter, as the case may be) with an Agricultural Pilot Rating, designated by the Director in writing for the purpose.

The pilot had a Private Pilot Licence (PPL). The pilot had a valid Class 2 aviation medical certificate, which was issued on 14 September 2021 and was valid until 30 September 2022. The pilot had a restriction to wear suitable corrective lenses for defective distant, intermediate and near vision.

<p>At the time of the accident, the pilot had accumulated a total of 194.6 hours of which 47.6 hours were on the aircraft type. He obtained his rating on the aircraft type on 5 October 2021. During his conversion, he had flown three hours with an empty hopper tank under supervision of a Grade 2 flight instructor who was rated on the aircraft type.</p>
<p>Probable cause:</p> <p>The aircraft spray boom got entangled in the soybean crops during the spray application run on a farm. The pilot lost control of the aircraft and it flipped over, coming to rest in an upside-down position.</p>
<p>Contributory factor:</p> <p>The aircraft was flown close to the ground during a crop-spraying operation, leaving the pilot with very little margin for error.</p>
<p>Safety Action/s</p>
<p>None.</p>
<p>Safety Message and/or Safety Recommendation/s</p>
<p>None.</p>
<p>Purpose of the Investigation</p>
<p><i>In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011, 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.</i></p>
<p>About this Report</p>
<p><i>Decisions regarding whether to investigate, and the scope of an investigation are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, no 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 brief report. The report has been compiled using information supplied in the initial notification, as well as follow-up information 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 accident.</i></p> <p><i>This report provides an opportunity to share safety message/s in the absence of an investigation.</i></p> <p><i>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.</i></p>
<p>Disclaimer</p>
<p><i>This report is produced without prejudice to the rights of the AIID, which are reserved.</i></p>

This report is issued by:

**Accident and Incident Investigations Division
South African Civil Aviation Authority
Republic of South Africa**