



LIMITED ACCIDENT INVESTIGATION REPORT
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Reference Number		CA18/2/3/10153					
Classification	Accident	Date	4 May 2022	Time	1000Z		
Type of Operation		Private (Part 91)					
Location							
Place of Departure		Botselo Private Airstrip, North West Province		Place of Intended Landing		Botselo Private Airstrip, North West Province	
Place of Accident		Botselo Private Airstrip, North West Province					
GPS Co-ordinates	Latitude	S26°02'10.0"	Longitude	E025°18'17.2"	Elevation	4110 feet	
Aircraft Information							
Registration		ZS-OBR					
Model/Make		Air Tractor / AT-502B (Serial Number: 502B-0431)					
Damage to Aircraft		Substantial		Total Aircraft Hours		6445.3	
Pilot-in-command							
Licence Valid		Yes	Gender	Male	Age	72	
Licence Type		Commercial Pilot Licence (A) (CPL)					
Total Hours on Type		5134.6		Total Flying Hours		14583.5	
People On-board	1 + 0	Injuries	0	Fatalities	0	Other (On Ground)	0
What Happened							
<p>On Wednesday, 4 May 2022, a pilot on-board an Air Tractor AT502B aircraft with registration ZS-OBR was engaged in a crop-spraying operation at Botselo Private Farm when the accident occurred. The aircraft took off from Botselo Private Farm Airstrip with the intention to land back at the same airstrip. The flight was conducted under visual meteorological conditions (VMC) by day and there was no flight plan filed. The flight was conducted under the provisions of Part 137 of the Civil Aviation Regulations (CAR) 2011 as amended.</p> <p>The pilot reported that at approximately 1000Z, he uplifted his 11th load of crop-spraying solution and took off from the airstrip at 290° heading. Before rotation, the aircraft accelerated to the indicated air speed of 80 miles per hour (mph). After rotation and during the climb phase, the aircraft experienced a loss of lift and, later, crashed on the maize field.</p>							

The pilot indicated that the wind direction changed from 180° to 220° shortly after take-off and the aircraft lost lift during climb out. The aircraft descended rapidly and crashed on the soft ground before it nosed over. It came to rest in an inverted position.

The weather information obtained from the pilot questionnaire indicated wind direction of 180°, surface wind of 3 knots, and temperature at 22°C. The weather information obtained from the South African Weather Service (SAWS) indicated the prevalent fine weather conditions at the time of the flight with the surface wind of 220° at 6 knots, temperature at 23°C, and cloud base at 4000 feet. The pilot took off with 250 litres of Jet A1 fuel in the tanks. The fuel tank capacity of the aircraft is 600 litres. The pilot did not sustain any injuries during the accident sequence, and the aircraft was substantially damaged.



Figure 1: Direction of flight.



Figure 2: The length of the take-off runway/road is approximately 1318.37 metres.

Item	Weight in LBS (pounds)	Arm in inches	Moment
Weight	4201	21.8	91581
Pilot	198	74.0	14652
Fuel	460	33.0	15180
Hopper	810	12.0	9720
	5669	23.13	131133

The maximum all-up weight for the aircraft is 8000 lbs.



Figure 3: The aircraft as it came to rest in an inverted position. (Source: Pilot)

What was found

- The last mandatory periodic inspection (MPI) prior to the accident flight was certified on 3 March 2022 at 6376.6 airframe hours. The aircraft was flown a further 68.7 hours since the last MPI.
- The aircraft was issued a Certificate of Release to Service on 19 December 2021 with an expiry date of 18 December 2022 or at 6261.3 hours, whichever occurs first.
- The Certificate of Airworthiness (CoA) was initially issued on 23 January 2002, with a reissued expiry date of 31 January 2023.
- The Certificate of Registration was issued to the current owner on 6 December 2017.
- The pilot was issued a Class 1 medical certificate on 15 February 2022 with an expiry date of 31 August 2022.
- The aircraft type was endorsed on his licence.

- The capacity of the fuel tanks is 600 litres. The pilot took off with 250 litres of Jet A1 fuel in the tanks on the day of the accident.
- The recorded wind on the day showed southerly winds to south-westerly winds which could have affected his take-off as they were tailwinds. This meant that he would have required a longer take-off run for the aircraft.

Probable Cause

It is probable that the aircraft did not use the entire length of the runway or road, which resulted in the pilot rotating prior to attaining the required speed (to rotate) and causing the aircraft's failure to climb; hence, the subsequent crash.

Contributory factor

None.

Safety Actions

None.

Safety Recommendation

Pilots engaged in aerial work are advised to always evaluate risk and mitigate it prior to engaging in their operations.

Purpose of the Investigation

*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**.*

About this Report

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.

This report provides an opportunity to share safety message/s in the absence of an investigation.

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.

Disclaimer

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This report is issued by:

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