

PRELIMINARY ACCIDENT REPORT

Accident and Incident Investigations Division

Accident
- Preliminary Report -
AIID Ref No: CA18/2/3/10640



Figure 1: The file picture of the ZS-XAP aircraft. (Source: www.nac.co.za)

Description:

On Wednesday, 25 February 2026, a pilot on-board an Air Tractor AT502-A aircraft registered ZS-XAP departed on a crop-spraying flight (insecticide chemical application) from Hulpmekaar Farm situated north-west of Wesselsbron in Free State province with the intention to land back at the same farm. The first eyewitness who was driving in a motor vehicle on the R34 road stated that she spotted the aircraft as it was flying in a southerly direction and, thereafter, it climbed. Moments later, it turned right and started spinning in the same direction (right). It later disappeared from her line of sight; it was during this time that it was descending before it crashed in Qwaggavlake Farm, north-west of Wesselsbron. The second eyewitness, a truck driver who was also on the R34 road, saw the aircraft as it descended and crashed. He brought his truck to a stop on the side of the road and climbed on top of it to check the location of the crash site; he spotted the aircraft's tail section protruding in the maize field. The aircraft was destroyed and the pilot was fatally injured.

Occurrence Details

Reference Number : CA18/2/3/10640
Occurrence Category : Accident (Category 1)
Type of Operation : Agricultural Operations (Part 137)
Name of Operator : Natal Aerial Spray
Aircraft Registration : ZS-XAP
Aircraft Make and Model : Air Tractor (AT-502A)
Nationality : South African
Place : Qwaggavlake Farm, north-west of Wesselsbron
Date and Time : 25 February 2026 at 1252Z
Injuries : Fatal
Damage : Destroyed

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.

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.

Investigation Process

The Accident and Incident Investigations Division (AIID) was notified of the occurrence involving an aircraft at Qwaggavlake Farm, north-west of Wesselsbron in Free State province on 25 February 2026 at 1252Z. The occurrence was classified as an accident according to the CAR 2011 Part 12 and the International Civil Aviation Organisation (ICAO) STD Annex 13 definitions.

The AIID has appointed an investigator-in-charge and a co-investigator to conduct a full investigation. The investigators were dispatched to the site. Notifications were sent to the State of Registry, Operator, and Design and Manufacturer in accordance with the CAR 2011 Part 12 and the ICAO Annex 13 Chapter 4. The State of Design and Manufacturer has appointed a non-travelling accredited representative. The AIID will lead the investigation and issue the final report of this accident in accordance with the CAR 2011 Part 12 and the ICAO Annex 13.

The information contained in this preliminary report is derived from the information gathered during the on-going investigation into the occurrence. Later, an interim or final report may contain altered information in case new evidence is found during the on-going investigation that requires changes to the information depicted in this report.

The AIID reports are made available to the public at:

<https://www.caa.co.za/industry-information/accidents-and-incidents/accidents-and-incidents-archive/>

Notes:

1. *Whenever the following words are mentioned in this report, they shall mean the following:*

Accident — this investigated accident

Aircraft — the Air Tractor (AT-502A) involved in this accident

Investigation — the investigation into the circumstances of this accident

Pilot — the pilot involved in this accident

Report — this accident report

2. *Photos and figures used in this report were taken from different sources and may have been adjusted from the original for the sole purpose of improving clarity of the report. Modifications to images used in this report were limited to cropping, magnification, file compression; or enhancement of colour, brightness, contrast; or addition of text boxes, arrows, or lines.*

Disclaimer

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Abbreviation	Description
°	Degrees
°C	Degrees Celsius
AGL	Above Ground Level
AIID	Accident and Incident Investigations Division
AMO	Aircraft Maintenance Organisation
ARCC	Aeronautical Rescue Coordination Centre
ATPL	Airline Transport Pilot Licence
CAR	Civil Aviation Regulations
C of A	Certificate of Airworthiness
C of R	Certificate of Registration
CRS	Certificate of Release to Service
CVR	Cockpit Voice Recorder
ELT	Emergency Locator Transmitter
FAA	Federal Aviation Administration
FABL	Bram Fischer International Airport
FDR	Flight Data Recorder
ft	Feet
GPS	Global Positioning System
hPa	Hectopascal
kts	Knots
kW	Kilowatts
L	Litres
m	Metres
METAR	Meteorological Aerodrome Report
MPI	Mandatory Periodic Inspection
nm	Nautical Miles
NOSIG	No Significant Change
SACAA	South African Civil Aviation Authority
SAWS	South African Weather Service
TBO	Time Between Overhaul
QNH	Altitude Above Mean Sea Level
VMC	Visual Meteorological Conditions
Z	Zulu (Term for Universal Co-ordinated Time - Zero Hours Greenwich)

1. FACTUAL INFORMATION

1.1. History of Flight

- 1.1.1. On Wednesday, 25 February 2026, a pilot on-board an Air Tractor AT502-A aircraft registered ZS-XAP took off on a crop-spraying flight from Hulpmekaar Farm, north-west of Wesselsbron in Free State province with the intention to land back at the same farm. The flight was conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 137 of the Civil Aviation Regulations (CAR) 2011, as amended.
- 1.1.2. The operator stated that the pilot took off from Hulpmekaar Farm in the morning and routed to Qwaggavlake Farm, approximately 10 nautical miles (nm) west of Wesselsbron. Upon arrival at the farm, the pilot descended to a lower altitude and started spraying the insecticide on the maize crops. Around 1235Z, he landed the aircraft back at Hulpmekaar Farm and uplifted approximately 1800 litres (L) of insecticide in the hopper tank before taking off again to Qwaggavlake Farm to continue with the crop-spraying operation.
- 1.1.3. At approximately 1252Z, the first eyewitness who was driving on the R34 road stated that she saw the aircraft engaged in a crop-spraying operation on a maize field whilst flying at a low-level. She further stated that after every spray run application, the aircraft flew over the road that ran between the two sections of the farm in a northerly direction. Later, the aircraft climbed and the pilot initiated a right turn; however, moments later, the aircraft entered a spin. The eyewitness stated that the aircraft completed approximately three rotations before it disappeared from her line of sight. It was during this time that the aircraft impacted the ground. The eyewitness stopped her car on the side of the road; however, she could not spot the accident site from her location (road).
- 1.1.4. The second eyewitness, a truck driver who also witnessed the aircraft during its descent, brought his truck to a stop on the side of the road and climbed on top of it to gain a better view of the crash site. He spotted the aircraft's tail section protruding from the maize crops at Qwaggavlake Farm, north-west of Wesselsbron. The aircraft was destroyed and the pilot was fatally injured.
- 1.1.5. At approximately 1316Z, the Aeronautical Rescue Coordination Centre (ARCC) received a notification of an aircraft accident in the vicinity of Wesselsbron. In response, the ARCC immediately activated emergency protocols and dispatched the first responders to the accident site. The aircraft was found destroyed and the pilot fatally injured.

1.1.6. The accident occurred at Qwaggavlake Farm, north-west of Wesselsbron at Global Positioning System (GPS) co-ordinates determined to be 27°51'01.0" South 26°11'28.2" East, at an elevation of 4166 feet (ft).

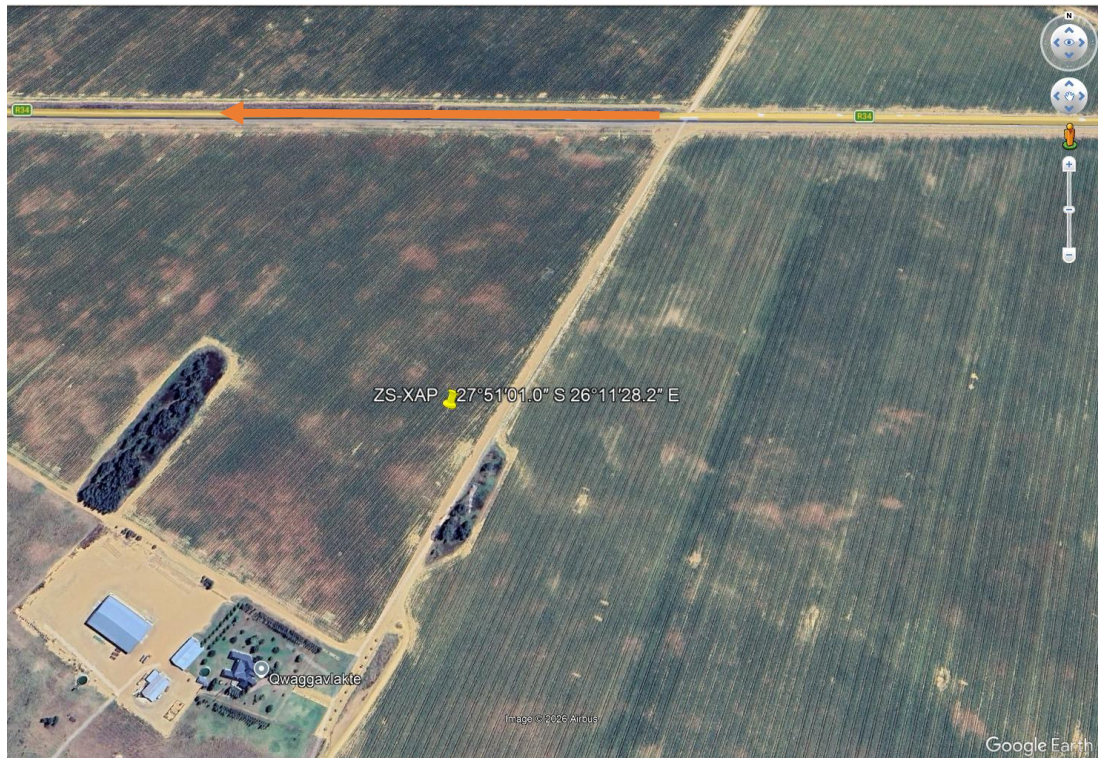


Figure 2: An aerial view of the accident site (yellow pin) and the direction of travel of the eyewitness' motor vehicle and truck. (Source: Google Earth)

1.2. Injuries to Persons

1.2.1. The pilot was fatally injured.

Injuries	Pilot	Crew	Pass.	Total On-board	Other
Fatal	1	-	-	1	-
Serious	-	-	-	-	-
Minor	-	-	-	-	-
None	-	-	-	-	-
Total	1	-	-	1	-

Note: Other means people on the ground.

1.3. Damage to Aircraft

1.3.1. The aircraft was destroyed.



Figure 3: The aircraft at the accident site with the tail protruding between the maize crops (yellow arrow).

1.4. Other Damage

1.4.1. Third-party damage was limited to a portion of the maize crops.

1.5. Personnel Information

Nationality	South African	Gender	Male	Age	34
Licence Type	Airline Transport Pilot Licence (ATPL)				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Agriculture and Instrument				
Medical Expiry Date	30 November 2026				
Restrictions	None				
Previous Accidents	None				

Note: Previous accidents refer to past accidents the pilot was involved in, when relevant to this accident.

Flying Experience:

Total Hours	6 228.4
Total Past 24 Hours	1.0
Total Past 7 Days	26.9
Total Past 90 Days	Unknown
Total on Type Past 90 Days	Unknown
Total on Type	Unknown

- 1.5.1. The flight hours captured above were extracted from the pilot's logbook with recorded information until 9 December 2025.
- 1.5.2. The pilot had an Airline Transport Pilot Licence (ATPL) that was initially issued by the Regulator (SACAA) on 4 February 2019. The licence was renewed on 5 May 2025 with an expiry date of 30 April 2026.
- 1.5.3. The pilot had a Class 1 aviation medical certificate that was issued on 3 November 2025 with an expiry date of 30 November 2026. The pilot had no medical restrictions.

1.6. Aircraft Information

1.6.1. Air Tractor (Source: airtractor.com)

The Air Tractor AT-502A is an agricultural aircraft with an all-metal low-wing monoplane structure and tail dragger configuration. The aircraft is equipped with a chemical hopper tank with a capacity of 1 893 litres (500 US gallons) located between the cockpit and the engine firewall. The aircraft is fitted with a Pratt & Whitney PT6A-45R turboprop engine which produces 647 kilowatts (kW) (867 shaft horsepower) driving a four-blade Hartzell propeller.

Airframe:

Manufacturer/Model	Air Tractor Inc/AT-502A	
Serial Number	502A-3368	
Year of Manufacture	2022	
Total Airframe Hours (At Time of Accident)	159.2	
Last Inspection (Date & Hours)	2 February 2026	95.8
Hours Since Last Inspection	63.4	
CRS Issue Date	2 February 2026	
C of A (Issue Date & Expiry Date)	25 October 2025	31 October 2026
C of R (Issue Date) (Present Owner)	4 October 2022	
Type of Fuel Used	JET A1	
Operating Category	Agricultural Operations (Part 137)	
Previous Accidents	None	

Note: Previous accidents refer to past accidents the aircraft was involved in, when relevant to this accident.

Engine:

Manufacturer/Model	Pratt & Whitney/PT6A-45R
Serial Number	PCE-VB0152
Part Number	3916
Hours Since New	154.2
Hours Since Overhaul	Time between overhaul (TBO) interval is 3000 hours. TBO not reached

Propeller:

Manufacturer/Model	Hartzell Propellers/HC-B4TN-3C
Serial Number	CDA6008
Part Number	HC-B3TN-3D
Hours Since New	154.2
Hours Since Overhaul	TBO interval is 2000 hours. TBO not reached

- 1.6.2. The last mandatory periodic inspection (MPI) of the aircraft was conducted and certified on 2 February 2026 at 95.8 total airframe hours after which a Certificate of Release to Service (CRS) was issued with an expiry date of 1 February 2027 or at 195.8 hours, whichever comes first.
- 1.6.3. The aircraft had a Certificate of Airworthiness (C of A) that was initially issued by the Regulator on 25 October 2025 with an expiry date of 31 October 2026.
- 1.6.4. The aircraft Certificate of Registration (C of R) was issued to the present owner on 4 October 2022.

1.7. Meteorological Information

- 1.7.1. The weather information below was obtained from the Meteorological Aerodrome Report (METAR) that was issued by the South African Weather Service (SAWS), recorded at Bram Fischer International Airport (FABL) on 25 February 2026 at 1230Z. The accident site was located 75.3nm from the FABL.

Wind Direction	230°	Wind Speed	6kt	Visibility	9999m
Temperature	11°C	Cloud Cover	FEW	Cloud Base	3000 ft
Dew Point	26°C	QNH	1017hPa		

1.8. Aids to Navigation

1.8.1. The aircraft was equipped with standard navigational equipment as approved by the Regulator. There were no records indicating that the navigational equipment was unserviceable prior to the flight.

1.9. Communication

1.9.1. The aircraft was equipped with a standard communication system as approved by the Regulator. There were no recorded defects with the communication system prior to the flight.

1.10. Aerodrome Information

1.10.1. The accident occurred at Qwaggavlake Farm, north-west of Wesselsbron at Global Positioning System (GPS) co-ordinates determined to be 27°51'01.0" South 26°11'28.2" East, at an elevation of 4166ft.

1.11. Flight Recorders

1.11.1. The aircraft was neither equipped with a flight data recorder (FDR) or a cockpit voice recorder (CVR), nor was it required by regulation to be fitted to the aircraft type.

1.12. Wreckage and Impact Information

1.12.1. The accident occurred at 1252Z on a maize field in Qwaggavlake Farm, north-west of Wesselsbron. Evidence at the site indicated that the aircraft impacted the ground in a nose-down attitude. After impact, the leading edges of both wings contacted the ground. The left-wing fuel tank ruptured and fuel spilled out. The hopper tank also ruptured, and the remaining insecticide spilled out. The aircraft came to rest in an upright position facing east.



Figure 4: An aerial view of the aircraft at the accident site.
(Source: Drone from the farming community)

1.12.2. All components of the aircraft were accounted for at the accident site. The front portion of the aircraft was destroyed by impact forces, and the leading edges of the wings were flattened (see Figure 6). The cockpit/cabin was damaged. Only two of the four propeller blades were intact. The spray boom equipment had remained attached to the fuselage. The aft part of the fuselage and empennage sustained minimal damage.



Figure 5: The front portion of the aircraft and the two propeller blades that had remained intact.



Figure 6: The flattened leading edge of the left wing and the impact mark on the ground (yellow arrows).

1.13. Medical and Pathological Information

1.13.1. To be discussed in the final report.

1.14. Fire

1.14.1 There was no pre- or post-impact fire.

1.15. Survival Aspects

1.15.1. The accident was not survivable due to high impact forces that were deemed to exceed the maximum threshold tolerance of human physiology.

1.15.2. The aircraft was equipped with an emergency locator transmitter (ELT); the unit had remained intact, and it radiated the distress signal after impact.

1.16. Tests and Research

1.16.1. To be discussed in the final report.

1.17. Organisational and Management Information

1.17.1. This was an aerial application flight operated under the provisions of Part 137 (agricultural operations) of the CAR 2011, as amended.

1.17.2. The aircraft maintenance organisation (AMO) which conducted the last maintenance of the aircraft had an AMO Certificate that was issued by the Regulator on 3 October 2025 with an expiry date of 30 September 2026.

1.17.3. The operator had an Operating Certificate that was issued by the Regulator on 6 November 2025 with an expiry date of 31 October 2026. The ZS-XAP aircraft was listed on the operator's operations specifications.

1.18. Additional Information

1.18.1. Spins (Source: Federal Aviation Administration (FAA) Handbook- FAA-H-8083-3A)

A spin may be defined as an aggravated stall that results in what is termed "autorotation" wherein the airplane follows a downward corkscrew path. As the airplane rotates around a vertical axis, the rising wing is less stalled than the descending wing creating a rolling, yawing, and pitching motion. The airplane is basically being forced downward by gravity, rolling, yawing, and pitching in a spiral path (Figure 7).

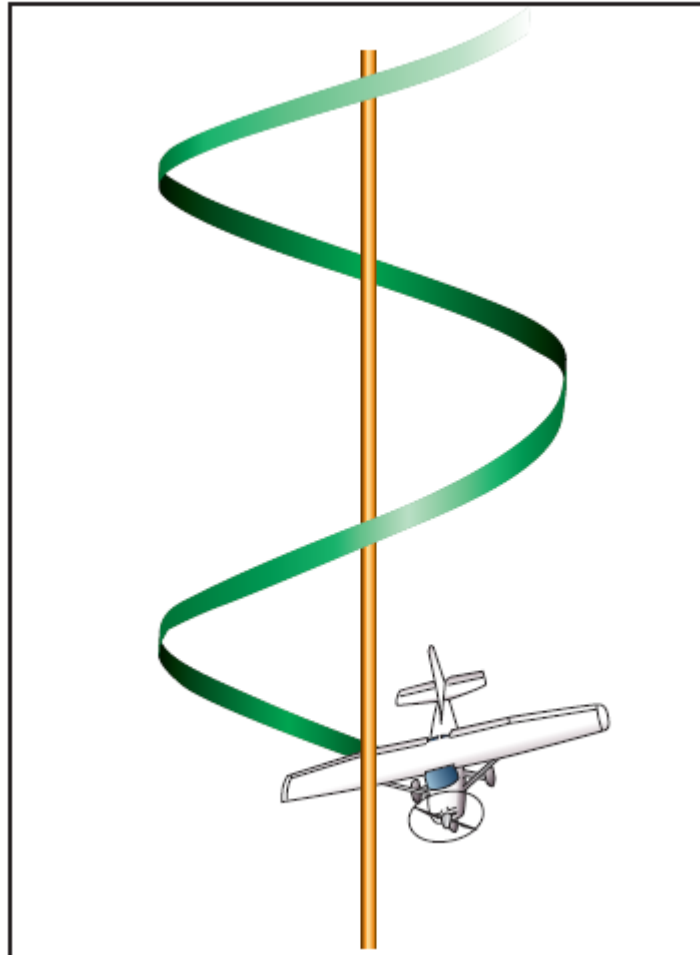


Figure 7: Illustration of a spin.

The autorotation results from an unequal angle-of-attack on the airplane's wings. The rising wing has a decreasing angle of attack, where the relative lift increases and the drag decreases. In effect, this wing is less stalled. Meanwhile, the descending wing has increasing angle of attack, past the wing's critical angle of attack (stall) where the relative lift decreases and drag increases. A spin is caused when the airplane's wing exceeds its critical angle-of-attack (stall) with a sideslip or yaw acting on the airplane at, or beyond, the actual stall. During this uncoordinated manoeuvre, a pilot may not be aware that a critical angle-of-attack has been exceeded until the airplane yaws out of control toward the lowering wing. If stall recovery is not initiated immediately, the airplane may enter a spin.

If this stall occurs while the airplane is in a slipping or skidding turn, this can result in a spin entry and rotation in the direction that the rudder is being applied, regardless of which wing tip is raised.

Many airplanes have to be forced to spin and require considerable judgment and technique to get the spin started. These same airplanes that have to be forced to spin, may be accidentally put into a spin by mishandling the controls in turns, stalls, and flight at minimum controllable

airspeeds. This fact is additional evidence of the necessity for the practice of stalls until the ability to recognise and recover from them is developed.

Often a wing will drop at the beginning of a stall. When this happens, the nose will attempt to move (yaw) in the direction of the low wing. This is where use of the rudder is important during a stall. The correct amount of opposite rudder must be applied to keep the nose from yawing toward the low wing. By maintaining directional control and not allowing the nose to yaw toward the low wing, before stall recovery is initiated, a spin will be averted. If the nose is allowed to yaw during the stall, the airplane will begin to slip in the direction of the lowered wing and will enter a spin. An airplane must be stalled in order to enter a spin; therefore, continued practice in stalls will help the pilot develop a more instinctive and prompt reaction in recognising an approaching spin. It is essential to learn to apply immediate corrective action any time it is apparent that the airplane is nearing spin conditions. If it is impossible to avoid a spin, the pilot should immediately execute spin recovery procedures.

1.19. Useful or Effective Investigation Techniques

1.19.1. None.

2. FINDINGS

2.1. General

From the available evidence, the following preliminary findings were made with respect to this accident. These shall not be read as apportioning blame or liability to any organisation or individual.

To serve the objective of this investigation, the following sections are included in the conclusions heading:

- **Findings** — are statements of all significant conditions, events, or circumstances in this accident. The findings are significant steps in this accident sequence, but they are not always causal or indicate deficiencies.

2.2. Findings

Pilot

2.2.1. The pilot had an Airline Transport Pilot Licence (ATPL) that was initially issued by the Regulator on 4 February 2019. The licence was renewed on 5 May 2025 with an expiry date of 30 April 2026.

- 2.2.2. The pilot had a total of 6 228.4 flying hours. The pilot's total hours on the aircraft type are not known.
- 2.2.3. The pilot had a Class 1 aviation medical certificate that was issued on 3 November 2025 with an expiry date of 30 November 2026. The pilot had no medical restrictions.

Aircraft

- 2.2.4. The last mandatory periodic inspection (MPI) of the aircraft was conducted and certified on 2 February 2026 at 95.8 total airframe hours after which a Certificate of Release to Service (CRS) was issued with an expiry date of 1 February 2027 or at 195.8 hours, whichever comes first.
- 2.2.5. The aircraft had a Certificate of Airworthiness (C of A) that was initially issued by the Regulator on 25 October 2025, with an expiry date of 31 October 2026.
- 2.2.6. The Certificate of Registration (C of R) was issued to the present owner on 4 October 2022.
- 2.2.7. The aircraft maintenance organisation (AMO) which conducted the last maintenance of the aircraft had an AMO Certificate that was issued by the Regulator on 3 October 2025 with an expiry date of 30 September 2026.
- 2.2.8. The operator had an operations certificate that was issued by the Regulator on 6 November 2025 with an expiry date of 31 October 2026. The ZS-XAP aircraft was listed on the operator's operations specification.

3. ON-GOING INVESTIGATION

- 3.1 The AIID investigation is on-going, and the investigators will investigate other aspects of this accident which may or may not have safety implications.

4. SAFETY RECOMMENDATIONS

4.1 General

The safety recommendations listed in this report are proposed according to paragraph

6.8 of Annex 13 to the Convention on International Civil Aviation and are based on the conclusions listed in heading 3 of this report. The AIID expects that all safety issues identified by the investigation are addressed by the receiving States and organisations.

4.2 Safety Recommendation/s

4.2.1 None.

5. APPENDICES

5.1 None.

This report is issued by:

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