

Section/division

Occurrence Investigation

Form Number: CA 12-12a

AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/2/3/8974	
Aircraft Registration	ZS-SRX	Date of Accident	15 October 2011		Time of Accident	0530Z
Type of Aircraft	AT- 401B (Air Tractor)		Type of Operation		Agricultural	
Pilot-in-command Licence Type		Commercial	Age	33	Licence Valid	Yes
Pilot-in-command Flying Experience		Total Flying Hours	3236		Hours on Type	1200
Last point of departure		Private field in the Riversdale area in the Western Cape				
Next point of intended landing		Private field in the Riversdale area in the Western Cape				
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)						
In a wheat field in the Riversdale area at GPS position S34 07.96 E21 09.633						
Meteorological Information		Surface Wind: South-Easterly at 5 kt; Visibility: 10 km; Temperature: 16°C				
Number of people on board	1 + 0	No. of people injured	0	No. of people killed	0	
Synopsis						
<p>The pilot was conducting a crop spraying detail in some wheat fields in the Riversdale area in the Western Cape when the accident occurred. The crop spraying detail took place in visual meteorological conditions in an easterly to westerly direction over the field.</p> <p>The pilot reported that during the crop spray detail, the aircraft collided with some power lines perpendicular to the aircraft's flight path and crashed.</p> <p>The pilot was not injured in the accident.</p> <p>The aircraft sustained substantial damage.</p>						
Probable Cause						
<p>The pilot lost directional control of the aircraft after colliding with electrical conductors.</p> <p><u>Contributory Factor:</u></p> <p>Poor situational awareness.</p>						
IARC Date				Release Date		

AIRCRAFT ACCIDENT REPORT

Name of Owner/Operator : Saamstaan Lugdiens
Manufacturer : Air Tractor, INC
Model : AT-401B
Nationality : South African
Registration Marks : ZS-SRX
Place : Riversdale area
Date : 15 October 2011
Time : 0737Z

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 of the Investigation :

*In terms of Regulation 12.03.1 of the Civil Aviation Regulations (1997) 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 establish legal liability.***

Disclaimer:

This report is given without prejudice to the rights of the CAA, which are reserved.

1. FACTUAL INFORMATION

1.1 History of Flight

- 1.1.1 The pilot was conducting a crop spraying detail in some wheat fields in the Riversdale area in the Western Cape when the accident occurred. The crop spraying detail was done in visual meteorological conditions at a height of approximately 15-20 ft above ground level, in an easterly to westerly direction over the field.
- 1.1.2 The pilot reported that during the crop spraying detail, he decided to change the direction of the spray in order to get longer spray runs in. As he changed direction, he decided to start the spray next to a power line that was observed on the side of the left wing of the aircraft. The pilot confirmed that he kept a close watch over the power line as he continued spraying in a southerly direction.
- 1.1.3 As the aircraft continued spraying in a southerly direction, the pilot stated that power lines were observed far to the east, away from the aircraft. However, the aircraft collided with some power lines (approximately 20 ft AGL high) of which the pilot was not aware, in the easterly to westerly direction of the aircraft's flight path. After collision with the wires, the pilot lost directional control of the aircraft and crashed.

1.2 Injuries to Persons

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

1.3 Damage to Aircraft

1.3.1 The aircraft sustained substantial damage.



Figure1, shows the damage caused to the aircraft.

1.4 Other Damage

1.4.1 The power lines were damaged.

1.5 Personnel Information

Nationality	South African	Gender	Male	Age	33
Licence Number	0270427586	Licence Type	Commercial		
Licence valid	Yes	Type Endorsed	Yes		
Ratings	Night rating, Multi and Single Engine Tests				
Medical Expiry Date	21 June 2019				
Restrictions	None				
Previous Accidents	None				

Note: The pilot did not have a valid agricultural pilot rating for this operation.

Flying Experience :

Total Hours	3236.0
Total Past 90 Days	200.0
Total on Type Past 90 Days	200.0
Total on Type	1200.0

1.6 Aircraft Information

Airframe :

Type	AT-401B	
Serial Number	401B-0986	
Manufacturer	Air Tractor, INC	
Date of Manufacture	1995	
Total Airframe Hours (At time of Accident)	4469.0	
Last MPI (Hours & Date)	4447.0	05/09/2011
Hours since Last MPI	22.0	
C of A (Expiry Date)	20 May 2012	
C of R (Issue Date) (Present owner)	07 August 2008	
Operating Categories	Standard (Part 137)	

Engine :

Type	Pratt and Whitney R1340-AN1
Serial Number	12572
Hours since New	7350.7
Hours since Overhaul	222.8

Propeller :

Type	Hamilton STD 23D40
Serial Number	N221574
Hours since New	Unknown
Hours since Overhaul	222.8

Note: Midlife inspection done on the 4th of June 2010.

1.7 Meteorological Information

1.7.1 The weather information below was obtained from the pilot in a questionnaire.

Wind direction	South Easterly	Wind speed	5 kts	Visibility	10 km
Temperature	16°C	Cloud cover	None	Cloud base	unknown
Dew point	unknown				

1.8 Aids to Navigation

1.8.1 The aircraft was fitted with standard navigation equipment which was approved for the type. The pilot reported that all the navigation equipment had been serviceable.

1.9 Communications

1.9.1 The aircraft was operated in uncontrolled airspace.

1.10 Aerodrome Information

1.10.1 The accident occurred on a private farm in the Riversdale area in the Western Cape; the location of the farm was at a GPS position S 34 07.966 E 21 09.633 at an elevation of 500 ft.

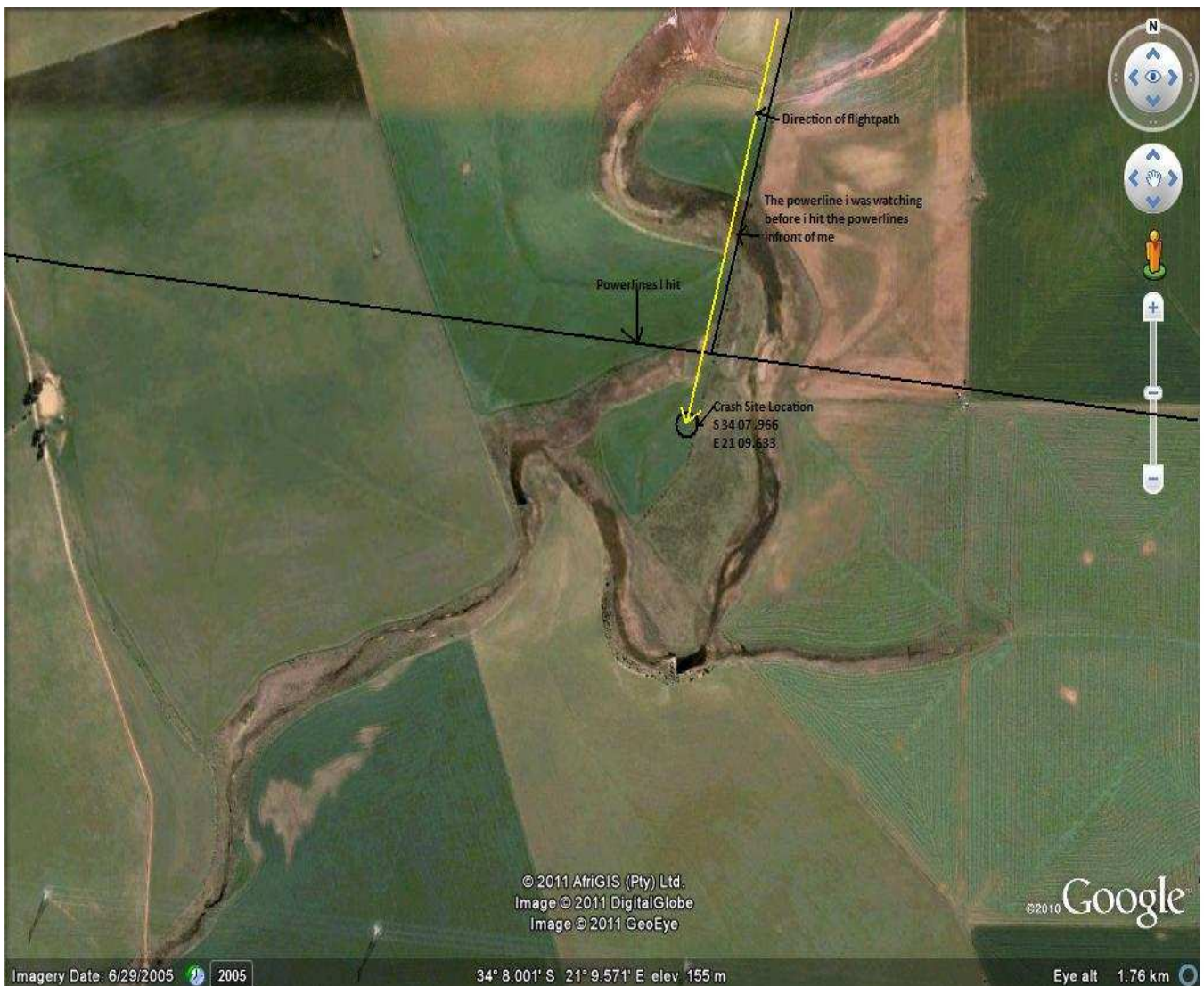


Figure 2, shows a satellite image of the accident site.

1.11 Flight Recorders

1.11.1 The aircraft was not fitted with a flight data recorder (FDR) or cockpit voice recorder (CVR), and neither was required by regulations.

1.12 Wreckage and Impact Information

1.12.1 After collision with the power lines, the aircraft's nose abruptly pitched down and struck the ground approximately 20 m from the power lines and the left undercarriage broke off. The aircraft's left wing struck the ground, swung around at least 180 degrees and then came to rest approximately 100 m from the power lines.



Figure 3, shows the point of rest of the aircraft after impact.

1.13 Medical and Pathological Information

1.13.1 None.

1.14 Fire

1.14.1 There was no evidence of a pre- or post-impact fire.

1.15 Survival Aspects

1.15.1 The pilot was properly secured with safety belts and there was no damage to the seat belts.

1.15.2 The cabin area was still intact after the accident.

1.16 Tests and Research

1.16.1 (Information extracted from a research report by the ATSB called Wire Strike Accident in General Aviation: Data Analysis 1994 to 2004)

i. Wire strike hazards

Wire strikes generally occur when an aircraft is operating in close proximity to the ground, including the landing and take-off phases of flight. However, on occasion, wire strikes have occurred over water where a wire is strung between two high points.

Low flying is hazardous because of the aircraft's close proximity to obstructions such as trees, power lines, buildings and radio towers. Colliding with obstructions such as these can cause significant damage to an aircraft, resulting in loss of control and subsequent impact with the ground or water. Impact forces will likely involve further aircraft damage and possibly injury or death to aircraft occupants.

In addition to obstructions, there are several other factors that may elevate the risk of low-level flying. Of significance is the relatively short distance between the aircraft and the ground, which reduces and in some cases removes the options for a pilot to manoeuvre to avoid a collision or recover from a loss of control.

ii. Pilot Distraction

According to the Aerial Application Pilots' Manual, it is easy for a pilot to forget about the wire, without some positive reminder of its presence. This is especially true if a distraction occurs at the critical moment when the pilot should be thinking about initiating the pull-up.

There are a number of factors that cause pilot distraction. These include deteriorating weather conditions, personal stress, objects on the ground, radio calls, equipment malfunctions and passengers. A recent aviation research investigation report published by the ATSB suggests that pilot distractions can be broadly classified into four different groups, including:

- **Visual distraction** – looking at the spraying area, or particularly eye-catching scenery.
- **Auditory distraction** – radio or mobile phone.
- **Biomechanical (physical) distraction** – manipulating a control.
- **Cognitive distraction** – being 'lost in thought' or engrossed in the task.

Each of these types of distraction, either singularly or in combination, can take a pilot's attention away from the task of flying.

1.17 Organisational and Management Information

1.17.1 This was a commercial agricultural operation.

1.17.2 The operator was in possession of a licence issued in terms of the Air Services Licensing Act.

1.17.2 The operator under which the crop spraying detail was conducted was in possession of a valid operating certificate.

1.17.3 According to the available records, the aircraft maintenance organisation (AMO) that had certified the last MPI on the aircraft prior to the accident was in possession of a valid AMO approval.

1.18 Additional Information

1.18.1 According to the Civil Aviation Regulation Part 137:

Requirement for ratings

137.01.2 *The pilot of an aircraft engaged in an agricultural operation, shall hold –*

- (a) a valid agricultural pilot rating issued in terms of subpart 48 of [Part 61](#) for the category of aircraft used; and*
- (b) a 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](#)).*

1.19 Useful or Effective Investigation Techniques

1.19.1 None

2. ANALYSIS

2.1 The available information revealed that CAVOK weather conditions prevailed at the time of the flight. The weather was not considered to have had a bearing on this accident.

2.2 The aircraft was reported to be in a serviceable condition and properly equipped prior to the flight. No defect or malfunction was recorded that could have contributed to the accident or have caused this accident.

- 2.4 Though the pilot was familiar with this kind of operation and knew about the existence of the power lines, it is possible that he might have been distracted by being engrossed in the task of crop spraying and as a result could not see the wires in time to avoid them.
- 2.5 After colliding with the power lines, the pilot lost control of the aircraft and was unable to recover due to low height/altitude. As a result, crashing to the ground was unavoidable.

3. CONCLUSION

3.1 Findings

- 3.1.1 The pilot was the holder of a valid commercial pilot's licence but did not hold a valid agricultural pilot's rating or a pest control operator's certificate.
- 3.1.2 The aircraft was properly certified, equipped and maintained in accordance with current SACAA regulations and no mechanical malfunction/defect could be found that could have contributed to, or caused the accident.
- 3.1.3 The AMO that had certified the last MPI on the aircraft prior to the accident had a valid AMO approval and had the authority to perform maintenance on the aircraft type.
- 3.1.4 Fine weather conditions prevailed at the time of the occurrence and the weather was therefore not considered to have been a factor in this accident.
- 3.1.5 The pilot lost directional control after collision with some power lines and crashed.

3.2 Probable Cause/s

- 3.2.1 The pilot lost directional control of the aircraft after colliding with electrical conductors.
- 3.2.2 Contributory Factor: Poor situational awareness.

4. SAFETY RECOMMENDATIONS

- 4.1 In the interests of aviation safety it is recommended that the operator concerned is audited by the SACAA to ensure that all the pilots used by the operator for commercial agricultural operations are properly licensed and rated in order to ensure safe agricultural operations.

5. APPENDICES

5.1 None.

Compiled by: Ms Boya

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For: Director of Civil Aviation

Date:

Investigator-in-charge:

Date:

Co-Investigator:

Date: