



AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

| | | | | | | |
|--|-------------------|--|--------------------------|-----------------------------|-------------------------|-------|
| | | | | Reference: | CA18/2/3/8664 | |
| Aircraft Registration | ZS-NIG | Date of Accident | 12/06/2009 | | Time of Accident | 0730Z |
| Type of Aircraft | American Champion | | Type of Operation | Private | | |
| Pilot-in-command Licence Type | | Private | Age | 62 | Licence Valid | Yes |
| Pilot-in-command Flying Experience | | Total Flying Hours | 3 000 | | Hours on Type | 1 500 |
| Last point of departure | | Swellendam Aerodrome (FASX) Western Cape | | | | |
| Next point of intended landing | | Swellendam Aerodrome (FASX) Western Cape | | | | |
| Location of the accident site with reference to easily defined geographical points (GPS readings if possible) | | | | | | |
| Parallel to runway 24 at Swellendam aerodrome (GPS co-ordinates: S 34°03'00.0" E 020° 29'00.0") | | | | | | |
| Meteorological Information | | Wind 150° at 03 kts, temperature 15°, dew point 15°; no significant clouds | | | | |
| Number of people on board | 1 | No. of people injured | 1 | No. of people killed | 0 | |
| Synopsis | | | | | | |
| <p>On the 12 June 2009, the pilot took off from runway 15 at Swellendam Aerodrome to fly the aircraft before he went on vacation. After take-off, the pilot encountered dense fog, which caused him to lose visual reference and became spatially disorientated. The pilot lost control of the aircraft while attempting to turn back and land the aircraft. The aircraft impacted the ground.</p> <p>The aircraft sustained major damage in the accident.</p> | | | | | | |
| Probable Cause | | | | | | |
| <ol style="list-style-type: none"> 1. The pilot lost control of the aircraft when he became spatially disorientated in dense fog during an attempt to turn back to the airport. 2. The pilot did not obtain a weather report before the flight. | | | | | | |
| IARC Date | | | | Release Date | | |



AIRCRAFT ACCIDENT REPORT

Name of Owner/Operator : Reinecke S J
Manufacturer : American Champion Aircraft
Model : 7KCAB
Nationality : South African
Registration Marks : ZS-NIG
Place : Swellendam Aerodrome
Date : 12 June 2009
Time : 0730Z

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 two 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 On the 12 June 2009, the pilot took off from runway 15 at Swellendam Aerodrome to fly the aircraft before he went on vacation. The pilot stated that he took off in clear weather, but there was as a sudden formation of fog that rolled in unexpectedly into the vicinity of the aerodrome. The pilot entered the fog and the visibility was reduced. He tried to turn back to base as he was not instrument rated. He stated that he was disorientated and lost control of the aircraft, and he subsequently impacted the ground parallel to the runway.

1.1.2 The pilot was seriously injured and hospitalised. The police were at the accident site and took a statement from the pilot after the accident.

1.2 Injuries to Persons

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

1.3 Damage to Aircraft

1.3.1 The aircraft sustained major damage during the accident sequence.



Figure 1: Damage to the aircraft

1.4 Other Damage

1.4.1 None.

1.5 Personnel Information

| | | | | | |
|---------------------|------------|---------------|---------------|-----|----|
| Nationality | British | Gender | Male | Age | 62 |
| Validation Number | ***** | Licence Type | Private pilot | | |
| Licence Valid | Yes | Type Endorsed | Yes | | |
| Ratings | None | | | | |
| Medical Expiry Date | 05/09/2009 | | | | |
| Restrictions | None | | | | |
| Previous Accidents | Unknown | | | | |

1.5.1 The pilot had a South African validation, which was valid from the 10 June 2008 until 09 June 2013. The validation was without an instrument rating.

1.5.2 Flying experience:

| | |
|----------------------------|---------------------|
| Total Hours | Approximately 3 000 |
| Total Past 90 Days | Approximately 50 |
| Total on Type Past 90 Days | Approximately 8 |
| Total on Type | Approximately 1 500 |

1.6 Aircraft Information

1.6.1 Airframe:

| | | |
|--|----------------------------|-------|
| Type | 7KCAB | |
| Serial Number | 333-72 | |
| Manufacturer | American champion aircraft | |
| Date of Manufacture | 1972 | |
| Total Airframe Hours (At Time of Accident) | 4 818 | |
| Last MPI (Date & Hours) | 15 May 2009 | 4 809 |
| Hours Since Last MPI | 9 | |
| C of A (Issue Date) | 09 September 1993 | |
| C of R (Issue Date) (Present Owner) | 29/04/2009 | |
| Operating Categories | Standard | |

1.6.2 Engine:

| | |
|----------------------|---------------------|
| Type | Lycoming IO-320-EZA |
| Serial Number | L-12441-39A |
| Hours Since New | 5 847 |
| Hours Since Overhaul | 1 876 |

Note: The aircraft was imported from the United Kingdom in 1993 and registered in South African

1.6.3 Propeller:

| | |
|----------------------|------------------|
| Type | SENENICH M 74.DM |
| Serial Number | K13343 |
| Hours Since New | Unknown |
| Hours Since Overhaul | 584 |

Note: There were no records of propeller hours when the aircraft was imported to South Africa in 1993.

1.7 Meteorological Information

1.17.1 The official weather report obtained from the South African Weather Services reported the following weather conditions at 0730Z on the day of the accident:

| | | | | | |
|----------------|------|-------------|-----|------------|---------|
| Wind Direction | 150° | Wind Speed | 03 | Visibility | 6 000 m |
| Temperature | 15° | Cloud Cover | NSC | Cloud Base | N/a |
| Dew Point | 15° | | | | |

1.17.2 Satellite image (07:30Z 12 June 2009):

Low clouds with a possibility of mist or fog are found over the southern parts of the Western Cape, extending from the east of Cape Town to around the Plettenberg Bay area.

1.7.2 The pilot did not obtain a weather report before the flight.

1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard navigational equipment as per the Minimum Equipment List approved by the regulator. There were no recorded defects to navigational equipment prior to the flight.

1.9 Communications

1.9.1 The aircraft was equipped with standard communication equipment as per the Minimum Equipment List approved by the regulator. There were no recorded defects to communication equipment prior to the flight.

1.9.2 There was no communication with air traffic control services, as the aircraft was operated outside of controlled airspace.

1.10 Aerodrome Information

| | | |
|------------------------|------------------------------|--------------|
| Aerodrome Location | Swellendam Aerodrome (FASX) | |
| Aerodrome Co-ordinates | S 34°03'00.0" E 020°29'00.0" | |
| Aerodrome Elevation | 407 ft | |
| Runway Designations | 15/33 | 06/24 |
| Runway Dimensions | 1 003 m x 12 m | 548 m x 45 m |
| Runway Used | 15 | |
| Runway Surface | Tar | |
| Approach Facilities | None | |

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 the regulator.

1.12 Wreckage and Impact Information

1.12.1 The pilot took off in a southerly direction and suddenly encountered dense fog. He then turned left into a northerly direction to return to land the aircraft on the runway. The aircraft approached in a left-hand wing low attitude and subsequently the left-hand main gear touched the ground and collapsed. The wings then levelled off, but the aircraft was still in a nose-down attitude. There was a ditch directly in front of the aircraft, and the nose gear impacted the ditch. The propeller struck and dug into the ground. The aircraft bounced and impacted the ground with its nose, before it nosed over, coming to rest in an inverted attitude on the grass area parallel to the runway.

1.12.2 The propeller was recovered 4 m from the main wreckage. The damages to the propeller indicate that the propeller was rotating at the time of the accident.

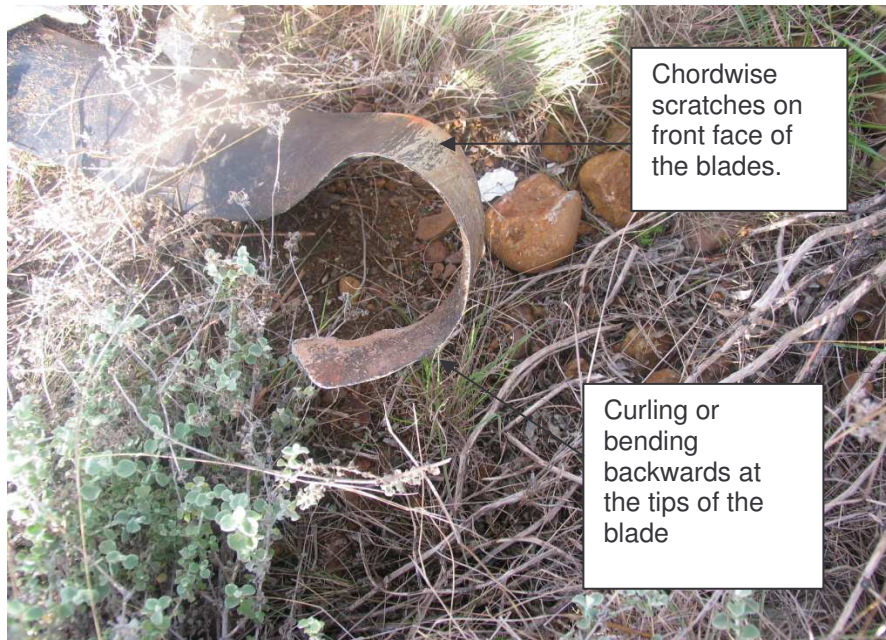


Figure 2: Damage to the propeller

1.13 Medical and Pathological Information

1.13.1 There was no evidence that physiological factors or incapacitation affected the performance of the pilot.

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 accident was considered survivable because there was no major damage to the cabin area. The pilot used the aircraft's safety restraint harnesses and survived.

1.15.2 The pilot was assisted by the emergency service and taken to the hospital.

1.16 Tests and Research

1.16.2 Onsite investigations on the continuity of the controls to the ailerons, rudder and elevators showed that there was no disconnection in any of the three primary flying controls prior to the impact.

1.16.3 The following information was obtained from the website [http.en.wikipedia.org](http://en.wikipedia.org), and explains fog, spatial disorientation and their relationship:

***Fog** is a cloud that is in contact with the ground. A cloud may be considered partly fog, for example, the part of a cloud that is suspended in the air above the ground is not considered fog, whereas the part of the cloud that comes into contact with higher ground is considered fog. Fog is distinguished from mist only by its density, as expressed in the resulting decrease in visibility. Fog reduces visibility to less than 1 km, whereas mist reduces visibility to no less than 2 km. Fog can form suddenly, and can dissipate just as rapidly, depending on what side of the dew point the temperature is on. This phenomenon is known as flash fog.*

***Spatial disorientation** is a condition in which an aircraft pilot's perception of direction (proprioception) does not agree with reality. While it can be brought on by disturbances or disease within the vestibular system, it is more typically a temporary condition resulting from flight into poor weather conditions with low or no visibility. Under these conditions, the pilot may be deprived of an external visual horizon, which is critical to maintaining a correct sense of up and down while flying. A pilot who enters such conditions will quickly lose spatial orientation if he has no training in flying with reference to instruments.*

1.17 Organisational and Management Information

1.17.1 This was a private flight.

1.17.2 The pilot had a valid licence (validation).

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

1.18 Additional Information

1.18.1 None.

1.19 Useful or Effective Investigation Techniques

1.19.1 None.

2. ANALYSIS

2.1 Man

2.1.1 The pilot took off from runway 15 and encountered fog just after take-off. The pilot was not instrument rated and when he lost visual reference due to fog, he got disorientated. He tried to turn back to the airport to land the aircraft, but lost control and the aircraft impacted the ground.

2.2 Machine

2.2.1 The aircraft was maintained on the 15 May 2009 and the weight and balance of the aircraft was done on the same day. The onsite investigations revealed no abnormalities on the airframe and that the propeller was rotating at the time of the accident.

2.3 Environment

2.3.1 The pilot wanted to fly the aircraft before he departed for England on the day of the accident. He didn't request any weather forecast before the flight; the forecast indicated that there is a possibility of fog or mist in Western Cape areas at the time of the accident. The pilot encountered fog on take-off and tried to return to base as he was not instrument rated. The pilot became disorientated and lost control of the aircraft.

3. CONCLUSION

3.1 Findings

3.1.1 The pilot had a South African validation, which was valid until 09 June 2013.

3.1.2 The pilot's medical certificate was valid until the 05 September 2009.

3.1.3 The aircraft had a valid Certificate of Registration and valid Certificate of Airworthiness.

3.1.4 The maintenance records indicated that the aircraft was maintained in accordance with existing Civil Aviation Regulations.

3.1.5 The weather conditions were found to have been a factor in this accident.

3.1.6 The pilot did not obtain the weather report before the flight.

3.2 Probable Cause/s

Controlled flight into terrain.

3.2.1 Contributory factor

1. The pilot lost control of the aircraft when he became spatially disorientated in dense fog after take-off during an attempt to return back to the airport.
2. The pilot did not obtain a weather report before the flight.

4. SAFETY RECOMMENDATIONS

4.1 None.

5. APPENDICES

5.1 None.

Report reviewed and amended by Advisory Safety Panel: 29 September 2009.

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