

AIRCRAFT INCIDENT REPORT AND EXECUTIVE SUMMARY

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|--|----------------|--|--------------------------|-----------------------------|-------------------------------|
| | | | | Reference: CA18/3/2/0781 | |
| Aircraft Registration | ZS-KHW | Date of Incident | 10 May 2010 | | Time of Incident 1425Z |
| Type of Aircraft | Piper PA28-181 | | Type of Operation | | Private |
| Pilot-in-command Licence Type | | Private | Age | 28 | Licence Valid Yes |
| Pilot-in-command Flying Experience | | Total Flying Hours | 154,1 | | Hours on Type 71,1 |
| Last point of departure | | Rand Airport (FAGM), Germiston, Gauteng Province | | | |
| Next point of intended landing | | Mafikeng Airport (FAMM), North-West Province | | | |
| Location of the incident site with reference to easily defined geographical points (GPS readings if possible) | | | | | |
| Near Potchefstroom, North-West Province, at the coordinates S26° 37,562" E027° 02,881" | | | | | |
| Meteorological Information | | Fine weather conditions were reported by the pilot | | | |
| Number of people on board | 1 + 0 | No. of people injured | 0 | No. of people killed | 0 |
| Synopsis | | | | | |
| <p>The pilot was on a daytime cross-country flight between Potchefstroom and Mafikeng when the engine failed. Fine weather conditions prevailed at the time.</p> <p>After transmitting a Mayday call, he executed a forced landing on an open stretch of grass field.</p> <p>The pilot was not injured and the aircraft sustained damaged to the nose gear and propeller.</p> <p>According to available information, the pilot was correctly licensed to conduct the flight and was the holder of a valid medical certificate.</p> | | | | | |
| Probable Cause | | | | | |
| <p>Unsuccessful forced landing following an engine failure.</p> | | | | | |
| IARC Date | | | Release Date | | |

AIRCRAFT INCIDENT REPORT

Name of Owner/Operator : Air Safety Pilot Academy CC
Manufacturer : Piper Aircraft Corporation
Model : PA28-181
Nationality : South Africa
Registration Marks : ZS-KHW
Place : Near Potchefstroom
Date : 10 May 2010
Time : 1425Z

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 On 10 May 2010, the pilot took off on a daytime cross-country flight from Rand Airport to Mafikeng Airport.. Fine weather conditions prevailed at the time.
- 1.1.2 At approximately 1425Z, approximately 18 nm from Potchefstroom, the aircraft had an uncontained engine failure. The pilot transmitted a Mayday call and executed a forced landing on an open stretch of grass field.
- 1.1.3 The pilot was not injured and the aircraft sustained damage to the nose gear and propeller.

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 damage to the nose gear and propeller during the forced landing.



Figure 1. Damage was limited to the nose gear and propeller.

1.4 Other damage

1.4.1 None.

1.5 Personnel information

1.5.1 Licence details

| | | | | | |
|---------------------|-------------|---------------|---------|-----|----|
| Nationality | Nigerian | Gender | Male | Age | 28 |
| Licence Number | ***** | Licence Type | Private | | |
| Licence valid | Yes | Type Endorsed | Yes | | |
| Ratings | Nil | | | | |
| Medical Expiry Date | 31 May 2012 | | | | |
| Restrictions | Nil | | | | |
| Previous Accidents | Nil | | | | |

1.5.2 Flying Experience

| | |
|----------------------------|-------|
| Total Hours | 154,1 |
| Total Past 90 Days | 72,6 |
| Total on Type Past 90 Days | 65,6 |
| Total on Type | 71,1 |

1.6 Aircraft information

1.6.1 Airframe

| | | |
|--|---|-----------|
| Type | Piper PA28-181 | |
| Serial No. | 28-7990143 | |
| Manufacturer | Piper Aircraft Corporation | |
| Date of Manufacture | 1978 | |
| Total Airframe Hours (at time of accident) | 12 043,08 | |
| Last MPI (Mandatory Periodic Inspection) (Date & Time) | 5 March 2010 | 11 948,70 |
| Hours since Last MPI | 94,38 | |
| C of A (Issue Date & Expiry Date) | Issue date: 26 August 2009 Expiry date: 25 August 2010 | |
| C of R (Issue Date) (Present Owner) | 26 February 2001 | |
| Operating Categories | Standard | |

1.6.2 Engine

| | |
|----------------------|----------------|
| Type | Lycoming O-360 |
| Serial No. | L-25756-36A |
| Hours since New | 11 948,7 |
| Hours since Overhaul | 1 295,69 |

1.6.3 Propeller

| | |
|----------------------|-----------|
| Type | Sensenich |
| Serial number | 32735K |
| Hours since New | 3 983,1 |
| Hours since Overhaul | 1 983,1 |

1.7 Meteorological information

1.7.1 The following weather conditions prevailed at the time of the incident:

| | | | | | |
|----------------|---------|-------------|-----------|------------|---------|
| Wind direction | 330°TN | Wind speed | 15 kt G20 | Visibility | > 10 km |
| Temperature | 15 °C | Cloud cover | Nil | Cloud base | N/A |
| Dew point | Unknown | | | | |

1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard navigation equipment as per the equipment list approved by the Regulator for the aircraft type.

1.9 Communications

- 1.9.1 The aircraft was equipped with standard communication equipment as per the equipment list approved by the Regulator for the aircraft type.
- 1.9.2 The pilot transmitted a Mayday call on frequency 125.6 MHz before executing the forced landing.
- 1.9.3 After landing, the pilot called Potchefstroom ATC advising that he was unharmed and requesting the controller to ask a friend to fetch him.

1.10 Aerodrome Information

- 1.10.1 The incident did not occur near an aerodrome, but in an open area of veld at a GPS position of S26° 37,562" E027° 02,881" at an elevation of approximately 1 397m AMSL.

1.11 Flight Recorders

- 1.11.1 The aircraft was not fitted with a cockpit voice recorder or flight data recorder. Neither was required by regulations to be fitted to this type of aircraft.

1.12 Wreckage and impact information

- 1.12.1 The pilot reported that while he was en route from Potchefstroom to Mafikeng, the engine failed.
- 1.12.2 He immediately transmitted a Mayday call and initiated a forced landing on an open stretch of grass field.
- 1.12.3 During the landing, the nose gear collapsed and the propeller made contact with the terrain.

1.13 Medical and pathological information

- 1.13.1 Not applicable.

1.14 Fire

- 1.14.1 There was no evidence of fire in flight or after the impact.

1.15 Survival aspects

- 1.15.1 This was a survivable incident as the pilot was properly restrained and the cockpit area remained intact.

1.16 Tests and research

- 1.16.1 The engine was taken to an approved maintenance facility where it was dismantled

and inspected.

1.16.2 During the investigation, it was found that one of the connecting rod bolts from the number 4 connecting rod had failed.

1.16.2 This resulted in the connecting rod punching a hole in the crankcase as shown below.

1.16.3 The bolt, an approved part for the engine, was damaged to an extent that made it impossible to establish the reason for the failure.



Figure 2. Damage to engine crankcase after failure of conrod attachment bolt.

1.17 Organisational and management information

1.17.1 According to available information, the aircraft was maintained by an aircraft maintenance organisation (AMO) as per the requirements of manufacturer and Regulator

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1.18 Additional information

1.18.1 None.

1.19 Useful or effective investigation techniques

1.19.1 Not applicable.

2 ANALYSIS

- 2.1 The pilot was on a cross-country flight from Rand Airport to Potchefstroom, Mafikeng and back to Rand. On the Potchefstroom-Mafikeng leg, the aircraft experienced a catastrophic engine failure and the pilot executed a forced landing on a stretch of open grass field. Weather conditions at the time were fine.
- 2.2 The pilot was correctly licensed to conduct the flight and was not injured.
- 2.3 The aircraft sustained damage to the nose gear and propeller.
- 2.4 According to available documentation, the aircraft had been maintained as required by the manufacturer and was equipped with standard navigation and communication equipment as per the minimum equipment list approved by the Regulator for the aircraft type.
- 2.5 The aircraft was not fitted with a cockpit voice recorder or flight data recorder. Neither was required by regulations to be fitted to this type of aircraft.
- 2.6 There was no evidence of fire in flight or after the impact, and the incident was considered survivable.
- 2.7 Investigation revealed that a connecting rod bolt from the number 4 connecting rod broke, causing a catastrophic engine failure. The reason for the failure of the bolt was not established.

3. CONCLUSIONS

3.1 Findings

- 3.1.1 The pilot was on a daytime cross-country flight between Rand Airport and Mafikeng when the engine suffered a catastrophic connecting rod bolt failure on the number 4 cylinder.
- 3.1.2 After transmitting a Mayday call, the pilot executed a forced landing on an open stretch of grass field. Weather conditions at the time were fine.
- 3.1.3 The pilot escaped unharmed and the aircraft sustained damaged to the nose gear and propeller.
- 3.1.4 According to available information, the pilot was correctly licensed to conduct the flight and was the holder of a valid medical certificate.
- 3.1.5 According to available information, the aircraft was correctly maintained.

3.2 Causes

- 3.2.1 Unsuccessful forced landing following an engine failure.

4. SAFETY RECOMMENDATIONS

4.1 None.

5. APPENDICES

5.1 None.

Compiled by:

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Date:

For: Director of Civil Aviation

Investigator-in-charge:

Date:

Co-Investigator:

Date: