



AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/2/3/8459	
Aircraft Registration	ZS-MRV	Date of Accident	14 March 2008		Time of Accident	1345Z
Type of Aircraft	Piper PA34-200T Seneca II Aeroplane		Type of Operation	Private		
Pilot-in-command Licence Type	Private Pilot		Age	49	Licence Valid	Yes
Pilot-in-command Flying Experience	Total Flying Hours		1102.6		Hours on Type	344.9
Last point of departure	Port Elizabeth International Airport (FAPE) Eastern Cape					
Next point of intended landing	Aliwal North Aerodrome (FAAN) Eastern Cape					
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)						
Grass Runway 24 at Aliwal North in the Eastern Cape.						
Meteorological Information	Surface Wind: Calm; Temperature 25°C; Visibility: CAVOK					
Number of people on board	1 + 1	No. of people injured	0	No. of people killed	0	
Synopsis						
<p>The pilot, accompanied by a passenger, departed Port Elizabeth to Aliwal North. The flight was uneventful and prior to landing at Aliwal North, he lowered the undercarriage and obtained three green down and locked light indications. After landing, he taxied the aircraft on the remainder of the grass runway, when the nose landing gear suddenly collapsed.</p> <p>The aircraft sustained minor damage to the nose lower section and the nose landing gear.</p> <p>The pilot and passenger sustained no injuries.</p>						
Probable Cause						
The nose landing gear collapsed backwards after the actuator rod-end was bent during landing on the rough, tuft grass surface.						
IARC Date	Francois		Release Date			



AIRCRAFT ACCIDENT REPORT

Name of Owner/Operator : DMT Bodyworks (PTY) Ltd.
Manufacturer : Piper Aircraft Company
Model : Piper PA34-200T
Nationality : South African
Registration Marks : ZS-MRV
Place : Aliwal North Aerodrome
Date : 14 March 2008
Time : 1345Z

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, accompanied by a passenger, departed Port Elizabeth International Airport on 14 March 2008 at approximately 1200Z for a private flight to Aliwal North Aerodrome.
- 1.1.2 The pilot stated that upon arrival at Aliwal North Aerodrome at approximately 1320Z, after an uneventful flight of 1 hour and 12 minutes, he lowered the undercarriage and obtained three green down and locked light indications. After landing at an IAS (Indicated Air Speed) of approximately 90kt with 30° of flap, he taxied the aircraft on the remainder of the grass runway towards the hangar area, when the nose landing gear suddenly collapsed.
- 1.1.3 The pilot and passenger sustained no injuries during the accident. The aircraft sustained damage to the lower nose section and the nose wheel. The propeller blades were damaged due to the propeller strike with the ground surface.

1.2 Injuries to Persons

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

1.3 Damage to Aircraft

1.3.1 The aircraft sustained minor damage to the nose lower section and nose landing gear wheel, including nose landing gear actuator rod end, which was bent and the propeller strike.

1.4 Other Damage

1.4.1 There was no other damage caused during the accident.

1.5 Personnel Information

Nationality	South African	Gender	Male	Age	49
Licence valid	Yes	Type Endorsed	Yes		
Ratings	Night Rating				
Medical Expiry Date	13 February 2009				
Restrictions	None				
Previous Accidents	None				

Flying Experience:

Total Hours	1102.6
Total Past 90 Days	9.0
Total on Type Past 90 Days	9.0
Total on Type	344.9

1.6 Aircraft Information

Airframe:

Type	Piper PA34-200T	
Serial Number	34-3970187	
Manufacturer	Piper Aircraft Company	
Year of Manufacture	1979	
Aircraft Status	Type Certified Aircraft	
Total Airframe Hours (At time of Accident)	6170.0	
Last MPI Inspection (Hours & Date)	6150.0	12 August 2007
Hours since Last MPI Inspection	20.0	
Certificate of Airworthiness (Issue Date)	20 April 1990	
Certificate of Airworthiness (Expiry Date)	19 April 2008	
C of R (Issue Date) (Present owner)	17 August 2006	
Operating Categories	Standard	

No. 1 Engine (Left-hand):

Type	Continental TSIO-360-5B
Serial Number	265552R
Hours since New	6170.0
Hours since Overhaul	1360.0

No. 1 Propeller (Left-hand):

Type	McCauley 3AF34C-502
Serial Number	790620
Hours since New	6170.0
Hours since Overhaul	415.0

No. 2 Engine (Right-hand):

Type	Continental TSIO-360-5B
Serial Number	233945R
Hours since New	6170.0
Hours since Overhaul	1360.0

No. 2 Propeller (Right-hand):

Type	McCauley 3AF34C-502
Serial Number	789811
Hours since New	6170.0
Hours since Overhaul	415.0

1.7 Meteorological Information

1.7.1 Weather information obtained from the pilot's questionnaire as follows:

Wind direction	300°	Wind speed	5kt	Visibility	>10 Km
Temperature	20°C	Cloud cover	Sct	Cloud base	10000ft
Dew point	Unknown				

1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard navigation equipment. The navigation equipment was in compliance with its approved equipment list. The navigation equipment was in a serviceable condition and no defects were recorded prior to the accident.

1.9 Communications

1.9.1 The communication equipment that was installed in the aircraft was found to be in accordance with the approved equipment list. There were no defects with the communication equipment reported prior to the accident.

1.10 Aerodrome Information

Aerodrome Location	Aliwal North 1nm ENE of city	
Aerodrome Co-ordinates	S30°40',502" E026°43'.543"	
Aerodrome Elevation	4410ft	
Runway Designations	06/24	12/30
Runway Dimensions	1494m x 30m	1012 x 30m
Runway Used	24	
Runway type	Registered/ unmanned	
Runway Surface	Grass	
Approach Facilities	None	

1.10.1 The nose landing gear collapsed during taxiing after the aircraft landed onto Runway 24 at Aliwal North Aerodrome.

1.11 Flight Recorders

1.11.1 The aircraft was not fitted with a Cockpit Voice Recorder (CVR) or a Flight Data Recorder (FDR) and neither was required by regulations to be fitted to this type of aircraft.

1.12 Wreckage and Impact Information

1.12.1 The aircraft landed onto the grass covered Runway 24 at Aliwal North. During taxiing on the remainder of the runway to the hangar area, the nose landing gear suddenly collapsed.



PHOTO 1: A/C NOSE LANDING GEAR COLLAPSED DURING TAXI ON GRASS.

1.13 Medical and Pathological Information

1.13.1 The pilot and passenger sustained no injuries.

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, as the pilot and passenger were properly restrained and virtually no impact forces were involved.

1.16 Tests and Research

1.16.1 An Aircraft Assessor that inspected the aircraft after the accident had happened stated that the nose landing gear became unlocked during landing on the grass-covered runway, which can be classified as a rough strip, causing the nose landing gear to collapse backwards into the wheel well. He found that the nose landing gear actuator rod-end was slightly bent upon landing or during taxiing on the uneven tuft of grass runway, causing the nose landing gear to unlock. No other abnormalities on the nose landing gear were found.



PHOTO 2: AIRCRAFT BEING RECOVERED FROM UNEVEN TUFT OF GRASS STRIP.

1.17 Organisational and Management Information

1.17.1 This was a private flight.

1.17.3 The aircraft was maintained by an approved Aircraft Maintenance Organisation, AMO 898, which was in possession of a valid AMO approval certificate at the time of the accident.

1.18 Additional Information

1.18.1 An Audit/Inspection by the SACAA Airport Section was carried out at Aliwal North Aerodrome on 01 December 2008. Although holes were observed on the surface of the runway which had been covered by sand by the Maletswai Municipality at Aliwal North, the runway and taxi, grass/ground surface appears to be rough and not very suitable for landing.

1.19 Useful or Effective Investigation Techniques

1.19.1 None.

2. ANALYSIS

2.1 The aircraft was serviceable prior to the accident and no record of any malfunction or defect was recorded that could have contributed to the cause of the accident. The last Mandatory Periodic Inspection (MPI) was certified on 12 October 2007 at 6150.0 airframe hours. The aircraft had flown a further 20.0 hours since the last MPI was certified.

2.2 The pilot was correctly licensed and rated on the aircraft type.

2.3 The accident occurred in daylight conditions. The weather conditions were fine and did not contribute to the cause of the accident.

2.4 According to the pilot, he lowered the undercarriage prior to landing and obtained three green down and locked lights. After landing on the grass runway, whilst taxiing on the remainder of the runway, the nose landing gear collapsed.

2.5 An aircraft assessor who inspected the aircraft after the nose wheel had collapsed, stated that due to the rough grass surface during the landing and whilst taxiing, the nose landing gear was subjected to abnormal forces and forced out of the down and locked position and subsequently collapsed. A view of the grass surface can be seen on photos taken at the site.

2.6 Although holes were found on the runway by the SACAA Airport Department during an audit inspection at Aliwal North and covered with sand by the Maletswai Municipality, the Investigator is of the opinion that the runway is still very rough with tufts of grass that could result in the nose landing gear unlocking out of the down and locked position whilst taxiing.

2.7 There were no defects found on the nose gear system that could have caused the nose landing gear to collapse.

3. CONCLUSION

3.1 Findings

3.1.1 The pilot was the holder of a valid private pilot's licence with the aircraft type endorsed on his licence.

3.1.2 The pilot was the holder of a valid aviation medical certificate.

3.1.3 The aircraft was serviceable and maintained by an approved aircraft maintenance organisation (AMO). No reported defects were recorded in the available documentation to indicate that the aircraft was not airworthy at the time of the accident.

3.1.4 The accident occurred in daylight conditions.

3.1.5 Weather conditions were reported to be fine at the time and had no bearing on the cause of the accident.

3.1.6 This was a private flight.

3.1.7 According to available information from the aircraft assessor that inspected the aircraft at the site, the grass runway at Aliwal North is quite rough and the undercarriage was subjected to external forces during landing and whilst taxiing. The nose landing gear actuator rod-end was found slightly bent during landing or taxiing on the grass surface, resulting in the nose landing gear unlocking and collapsing.

3.1.8 Aliwal North Aerodrome was audited by the SACAA Airports Department on 1 December 2008 and holes were observed on the runway surface. The holes were covered by the Maletswai Municipality.

3.2 Probable Cause/s

3.2.1 After landing on the rough grass surface, the actuator rod-end was bent and the nose landing gear collapsed backwards.

4. SAFETY RECOMMENDATIONS

4.1 It is recommended that the SACAA Airport Section submit a letter to the Authority (owner or aerodrome operator) at Aliwal North, supervising the aerodrome, regarding the unsafe condition of the grass of the runway and taxiways. The Municipality should improve and smoothen the surface conditions of the runway in order to prevent such an event happening again.

5. APPENDICES

5.1 None.

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Report reviewed and amended by the Advisory Safety Panel
26 May 2009