



AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA 18/2/3/8504	
Aircraft Registration	ZS-DTK	Date of Accident	29 May 2008		Time of Accident	0950Z
Type of Aircraft	Piper PA23-250 Aztec		Type of Operation	Ferry Flight		
Pilot-in-command Licence Type		Private	Age	70	Licence Valid	Yes
Pilot-in-command Flying Experience		Total Flying Hours	612.4		Hours on Type	Not known
Last point of departure		FAWB (Wonderboom Aerodrome) Gauteng				
Next point of intended landing		FASI (Springs Aerodrome) Gauteng				
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)						
FAWB (Wonderboom) on the right hand side of Runway 29						
Meteorological Information	Wind 110°/05kts. Visibility >10km. Temp. 19°C Cloud cover - Nil					
Number of people on board	1 + 0	No. of people injured	1	No. of people killed	0	
Synopsis						
<p>The pilot was on a ferry flight from Wonderboom Aerodrome to Springs Aerodrome when the accident happened. On take-off (just after getting airborne) the aircraft veered to the right, crashing to the right-hand side of runway 29. According to the pilot, the right-hand engine lost power as the aircraft lifted off the runway. The pilot further stated that he applied left rudder to counter the resulting right-hand yaw, and when this could not bring the aircraft under control he cut power off the left-hand engine. At this time the aircraft impacted with the ground with the right wing. The aircraft was substantially damaged and the pilot suffered minor injuries.</p> <p>On-site investigation revealed that the fuel selectors had been selected to the outboard tanks; which were found empty. There was no evidence of fuel leaking as a result of the accident. The pilot was not type-rated on the Piper PA23-250 aircraft. There are no maintenance records for the aircraft between 28 March 2002 and 29 May 2008. The aircraft did not have a valid certificate of airworthiness.</p> <p>Both engines were dismantled and examined. There was no evidence of engine failure with either.</p>						
Probable Cause						
Loss of power to both engines, due to fuel starvation.						
IARC Date				Release Date		



AIRCRAFT ACCIDENT REPORT

Name of Owner/Operator : Telford Construction (Pty) Ltd
Manufacturer : Piper Aircraft Corporation
Model : PA23-250
Nationality : South African
Registration Marks : ZS-DTK
Place : FAWB (Wonderboom)
Date : 29 May 2008
Time : 0950Z

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 This was a private ferry flight from Wonderboom Aerodrome (FAWB) to Springs Aerodrome (FASI). The pilot stated that both engines ran normally when he started, and before requesting taxi clearance for the flight. The pilot was given clearance to taxi to the holding point of runway 29. At the holding point the pilot did engine run-ups, after which he informed air traffic control (ATC) that he was ready for take-off. The ATC gave the pilot a left turn-out climb to 6000 feet along the ridge and told him to report east of Mamelodi.
- 1.1.2 After reading back the clearance, the pilot was cleared for immediate take-off. According to the pilot he lined up onto runway 29, and immediately commenced the take-off run at full throttle. He further stated that when he rotated, the right engine lost power and when he tried to apply left rudder to counter the resulting yaw he failed to maintain directional control, with the aircraft losing height and impacting with the ground with the right wing first.
- 1.1.3 During the impact sequence the right wingtip tank, right aileron and nose dome all detached before the main wreckage came to rest. This accident happened in daylight VFR conditions at Wonderboom (FAWB) Aerodrome, which is at an elevation of 4095 feet above mean sea level.

1.2 Injuries to Persons

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

1.3 Damage to Aircraft

1.3.1 The aircraft was substantially damaged.

1.3.2 The nose of the aircraft and the right wing were destroyed, while the left wing broke off at the attachment point on the fuselage. The front windscreen was also broken.

1.4 Other Damage

There was no other damage.

1.5 Personnel Information

Nationality	South African	Gender	Male	Age	70
Licence Number	*****	Licence Type	Private		
Licence valid	Yes	Type Endorsed	No		
Ratings	None				
Medical Expiry Date	31 July 2008				
Restrictions	To wear corrective lenses				
Previous Accidents	None				

Flying Experience:

Total Hours	612.4
Total Past 90 Days	10
Total on Type Past 90 Days	Not known
Total on Type	Not known

1.5.1 The information available in the pilot's file and logbook shows that the pilot was not rated on this aircraft type, nor did he have a multi-engine rating on his licence. There is also no information to show that the pilot had ever flown this type of aircraft.

1.6 Aircraft Information

Airframe:

Type	PIPER PA-23-250	
Serial Number	27-2457	
Manufacturer	PIPER AIRCRAFT CORPORATION	
Date of Manufacture	1955	
Total Airframe Hours (At time of Accident)	5663	
Last MPI (Date & Hours)	28 March 2002	3699.86
Hours since Last MPI	1963.14	
C of A (Issue Date)	09 October 1999	
C of R (Issue Date) (Present owner)	28 June 1996	
Operating Categories	Standard	

Engine 1:

Type	Lycoming O-540-AIO5
Serial Number	L11110-40
Hours since New	5663
Hours since Overhaul	1967.02

Engine 2:

Type	Lycoming O-540-AIO5
Serial Number	L9573-40
Hours since New	5663
Hours since Overhaul	2014.47

Propeller 1:

Type	Hartzell HC-A2YH-2
Serial Number	7-1-674
Hours since New	5663
Hours since Overhaul	188.39

Propeller 2:

Type	Hartzell HC-A2YH-2
Serial Number	H2593
Hours since New	5663
Hours since Overhaul	188.39

1.6.1 The last recorded MPI on this aircraft was on 28 March 2002 at a total of 5662.57 airframe hours. The left engine had 1805.97 hours since overhaul and the right engine also had 1805.97 hours since overhaul.

- 1.6.2 According to available records (SACAA aircraft file), the Certificate of Airworthiness of this aircraft had been cancelled due to a lack of maintenance records for the aircraft. This was also done due to non-payment of fees owed to SACAA by the owner of the aircraft. The actual date of cancellation is not reflected.
- 1.6.3 An application for a special flight permit was completed on 4 April 2003, requesting that the aircraft be flown from Krugersdorp (FAKR) to Wonderboom (FAWB) in order to carry out an MPI. The SACAA issued the special flight permit Number J15/DTK on 4 April 2003 with an expiry date of 16 April 2003.
- 1.6.4 There is no record of such flight taking place and there also is no record of the MPI. In the engine log books there is a record of the overhauling of two carburettors (serial numbers R-6B-2217 and R-9-5509) from the accident aircraft, and this is dated 27 March 2008.

1.7 Meteorological Information

Wind direction	110°	Wind speed	5kts	Visibility	>10km
Temperature	19°	Cloud cover	Nil	Cloud base	Nil
Dew point	N/A				

1.8 Aids to Navigation

- 1.8.1 This was to be a VFR flight from Wonderboom Aerodrome to Springs Aerodrome by day and the weather conditions were conducive to such a flight.
- 1.8.2 The aircraft was fitted with two VOR receivers, one ADF receiver and a transponder which were all serviceable at the time of accident.

1.9 Communications

The pilot communicated with Wonderboom ATC on frequency 120.6 MHz.

1.10 Aerodrome Information

Aerodrome Location	8nm. North of Pretoria	
Aerodrome Co-ordinates	S25°39'00.0"	E028°13'00.0"
Aerodrome Elevation	4095 Feet AMSL	
Runway Designations	11/29	06/24
Runway Dimensions	1828mx30m	1280x22m
Runway Used	29	
Runway Surface	Tar	
Approach Facilities	NDB.s WR 230.0 WB 257.5	

1.11 Flight Recorders

The aircraft was not fitted with any flight recorders, as it is not required by the Civil Aviation Regulations (for the type) to be equipped as such.

1.12 Wreckage and Impact Information

1.12.1 The aircraft veered to the right of runway 29, entered into an uncontrollable spiral dive and impacted with the ground with the right wing followed by the nose dome. This caused the right wingtip and nose dome to break off, followed by the right aileron as the aircraft spun around sliding backwards with the left wing detaching at the main attachment point on the fuselage.

1.12.2 The aircraft travelled for 30.3 metres from the point of initial contact with the ground to the final point of coming to rest.

1.12.3 The way that the propellers were bent is consistent with a situation where both propellers were turning slowly or wind-milling. Both propellers were severely bent backwards. The propeller blades that made contact with the ground first were the ones which were bent backwards the most. These blades were bent rather than curled.



Photo 1: Main wreckage.

1.13 Medical and Pathological Information

The pilot, who was the sole occupant in the aircraft, sustained minor injuries and was taken to hospital for treatment. The pilot was kept in hospital for one night and released the following day.

1.14 Fire

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

1.15 Survival Aspects

The accident occurred within the airport perimeter and the emergency services (both from the Aerodrome and outside) responded promptly. The accident site being within the airport perimeter, also made it easy for the emergency personnel to access. The accident was considered survivable due to the cabin area of the aircraft sustaining no damage during the impact.

1.16 Tests and Research

- 1.16.1 When the wreckage was examined at the time of the accident, it was noted that both fuel selectors were selected to the outboard main fuel tanks. The outboard main were empty as evidenced by the fact that there was no fuel in both carburettor bowls. The abovementioned factors point to both engines losing power at about the same time, due to fuel exhaustion.
- 1.16.2 On-site investigation revealed that the flaps had been selected down (landing position). The flaps on this aircraft have two position settings, i.e. either in the up or in the down position and according to the owner's handbook, the flaps should not be used on take-off, thus should be selected to an up position. Page 30 last paragraph 'Take-Off' in the Owner's Handbook.
- 1.16.3 Both engines were dismantled and the components inspected and bench-tested, and nothing was found to be wrong with both engines. The components that were inspected and tested included: 1) Both carburettors checked were flow-tested and found operational. 2) 4 magnetos were checked and bench-tested (found operational). 3) Both constant speed units (CSU) were checked and bench-tested (found operational). 4) Both engine-driven fuel pumps were checked and found operational. 5) Both electrical fuel pumps were checked and found operational. 6) Both vacuum pumps were checked and found operational. 7) All spark plugs were bench-tested and found operational. 8) All hoses were inspected and found satisfactory.

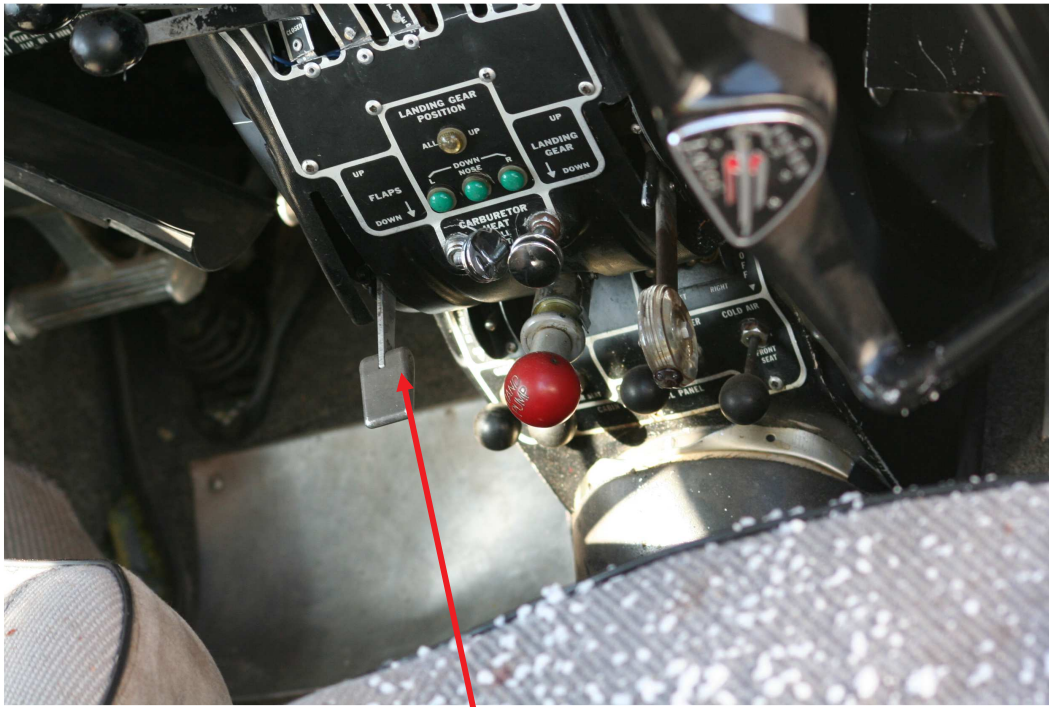


Photo 2: Flap lever in the down position.

1.17 Organisational and Management Information

- 1.17.1 The aircraft was operated in the private category and not used for commercial purposes.
- 1.17.2 The aircraft had last been maintained by AMO approval number 216 who carried out an MPI on 28 March 2002.
- 1.17.3 Wonderboom Aerodrome has a control tower with air traffic controllers who were on duty at the time of the accident.

1.18 Additional Information

- 1.18.1 The pilot told the investigators that he had just purchased the aircraft from the registered owner, even though the change of ownership had not been done at the time of the accident.
- 1.18.2 The pilot, who also owns a maintenance and overhaul facility, was ferrying the aircraft to his workshop at Springs Aerodrome for overhauling.
- 1.18.3 There is no evidence of an application for the ferry flight being submitted to SACAA, nor was there permission granted to carry out such a flight. The pilot also stated that he did not obtain a ferry flight permit from the SACAA.

1.19 Useful or Effective Investigation Techniques

None

2. ANALYSIS

- 2.1 The pilot, was not rated on the type, nor was he trained on a twin engine This was a ferry flight, even though there is no evidence of an application for such. The aircraft had neither valid Certificate of Airworthiness nor permission for a ferry flight as required by Aeronautical Information Circular 63.3 'Application for the issue of a special Flight Permit'.
- 2.2 The aircraft lost power just as it became airborne.
- 2.3 Both engines showed signs of having lost power at about the same time.
- 2.4 The aircraft had not been maintained as per South African Civil Aviation Regulations and the maintenance records were not up to date.
- 2.5 According to the pilot, the right engine failed but tests revealed nothing wrong with both engines.
- 2.6 The fuel selectors were found selected to the outer main tanks of which the left was found to be empty at the site of the accident. The fuel in the right wing could not be determined as that wing was destroyed. There was also no visual sign of fuel spillage at the accident site and there was also no smell of fuel.
- 2.7 The pilot may have selected flaps-down prior to taking off, thereby increasing the amount of drag acting on the aircraft and therefore could not gain sufficient speed and the required lift to safely take off.

3. CONCLUSION

3.1 Findings

- 3.1.1 The pilot was not type-rated on the Piper PA 23 aircraft that he was flying.
- 3.1.2 There are no maintenance records on the aircraft for the period the aircraft was operated between 28 March 2002 and 29 May 2008.
- 3.1.3 The aircraft did not have a valid certificate of airworthiness.
- 3.1.4 There was no evidence of engine failure (as a result of mechanical damage) when the engines were dismantled and the components examined and tested.
- 3.1.5 There was no evidence of fuel in the selected fuel tanks and carburettor bowls.
- 3.1.6 There was no fuel in the carburettor bowls.
- 3.1.7 Both engines failed within seconds of each other.
- 3.1.8 The aircraft took off with flaps extended, even though this is discouraged by the Pilot's Operating Handbook.

3.2 Probable Cause/s

Both engines lost power, due to fuel starvation.

3.3 Contributory Factors

The pilot was not rated on this aircraft, nor is there any evidence of him ever having flown the type before the accident. The pilot therefore did not understand the fuel system, hence the wrong selection of the fuel tanks.

4. SAFETY RECOMMENDATIONS

4.1 None

5. APPENDICES

5.1 None

Submitted through the office of the SM.