



## AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/2/3/8710	
<b>Aircraft Registration</b>	<b>ZS-IPA</b>	<b>Date of Accident</b>	24 November 2009	<b>Time of Accident</b>	1200Z	
<b>Type of Aircraft</b>	Piper Colt PA 22-108		<b>Type of Operation</b>	Private		
<b>Pilot-in-command Licence Type</b>		Airline Transport	<b>Age</b>	31	<b>Licence Valid</b>	Yes
<b>Pilot-in-command Flying Experience</b>		Total Flying Hours	5 358		Hours on Type	28
<b>Last point of departure</b>		Fly Inn private aerodrome (Gauteng province)				
<b>Next point of intended landing</b>		Springs aerodrome (FASI) (Gauteng province)				
<b>Location of the accident site with reference to easily defined geographical points (GPS readings if possible)</b>						
Open maize field near Springs at GPS coordinates S26°11.056' E028°23. 698', and elevation of 5 247 ft AGL.						
<b>Meteorological Information</b>		Temperature 27°C; CAVOK.				
<b>Number of people on board</b>	1 + 0	<b>No. of people injured</b>	0	<b>No. of people killed</b>	0	
<b>Synopsis</b>						
<p>The pilot, the sole occupant on board, took off from Fly Inn private aerodrome on a repositioning flight under Visual Flight Rules (VFR) to Springs aerodrome. Takeoff was uneventful. Approximately 20 minutes into the flight, at 5 500 ft above ground level (AGL), the pilot experienced a loss of power and the aircraft could not maintain altitude.</p> <p>The pilot suspected that the power loss was due to fuel starvation. so he changed the fuel selector from the left tank to the right. The engine RPM continued to drop, however, and he initiated an emergency landing in a maize field. During the landing roll, the left main gear collapsed, and the aeroplane came to a halt approximately 85 m from the initial touchdown point. The pilot was unharmed.</p>						
<b>Probable Cause</b>						
Unsuccessful forced landing following an engine power loss in flight						
<b>Contributory factor,</b>						
Failure by AMO to replace oil pipe line as required in the maintenance schedule.						
IARC Date				Release Date		



## AIRCRAFT ACCIDENT REPORT

**Name of Owner/Operator** : S. Siebert  
**Manufacturer** : Piper Aircraft Corporation  
**Model** : Piper PA 22-108  
**Nationality** : South African  
**Registration Marks** : ZS-IPA  
**Place** : Springs, Gauteng  
**Date** : 24 November 2009  
**Time** : 1200Z

*All times given in this report is 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, the sole occupant on board, took off from Fly Inn aerodrome on a private repositioning flight under Visual Flight Rules (VFR) to Springs aerodrome. Takeoff was uneventful. Approximately 20 minutes into the flight, at 5 500 ft above ground level (AGL), the pilot experienced a loss of power and the aircraft could not maintain altitude.
- 1.1.2 The pilot suspected that the engine was not getting fuel and changed the fuel selector from the left tank to the right. The RPM continued to drop, however, and he therefore initiated an emergency landing in a maize field. During the landing roll, the left main gear collapsed and the aircraft came to a halt approximately 85 m from the initial touchdown point.
- 1.1.3 The pilot immediately closed the fuel selector, switched off the master switch and disembarked without any injury. He then telephoned the Aircraft Maintenance Organisation (AMO) as this was the first flight after a 100-hour inspection. The AMO in turn informed the police and paramedics, who were quickly on the scene to render assistance and secure the area. The accident occurred during daylight at GPS coordinates S26°11.056' E028°23.698' and at an elevation of 5 247 ft above ground level (AGL).

### 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.



Figure 1. The aircraft in the maize field.

### 1.4 Other Damage

1.4 This was limited to the maize in the field.

### 1.5 Personnel Information

#### Pilot in command

Nationality	South African	Gender	Male	Age	31
Licence Number	*****	Licence Type	Airline Transport		
Licence valid	Yes	Type Endorsed	Yes		
Ratings	Instructor Grade 3 Rating, Instrument Rating and Night Rating				
Medical Expiry Date	12 February 2010				
Restrictions	Nil				
Previous Accidents	None				

## Flying Experience

Total Hours	5 358
Total Past 90 Days	163
Total on Type Past 90 Days	1
Total on Type	28

## 1.6 Aircraft Information

A Piper Colt is a two-seater, single-engined, high-wing monoplane, constructed of welded steel tubing covered with Grade "A" fabric and finished with fire-resistant butyrate dope.

### Airframe

Type	Piper Cherokee PA 22-108	
Serial Number	22-8277	
Manufacturer	Piper Aircraft Corporation	
Date of Manufacture	1961	
Total Airframe Hours (at time of accident)	7 782.44	
Last MPI (Date & Hours)	4 November 2009	7 782.44
Hours since Last MPI	Nil (20 minutes' flight time)	
C of A (Issue Date)	20 June 1972	
C of A (Expiry Date)	19 June 2010	
C of R (Issue Date) (Present Owner)	9 October 2006	
Operating Categories	Standard	

### Engine

Type	Lycoming 0.235C1B
Serial Number	L.8769.15
Hours since New	Unknown
Hours since Overhaul	1 553.47

### Propeller

Type	Sensenich M76AM2
Serial Number	35223
Hours since New	Unknown
Hours since Overhaul	531.47

### Inspection report

See Appendix A.

## 1.7 Meteorological Information

The following weather information was provided in the pilot's questionnaire:

Wind direction	South	Wind speed	10 kts	Visibility	10 km
Temperature	27°C	Cloud cover	Clear	Cloud base	None
Dew point	07°C				

## **1.8 Aids to Navigation**

1.8.1 The aircraft was fitted with standard navigation equipment for this aircraft type as approved at the time of certification.

## **1.9 Communications**

1.8.1 There was no communication with an air traffic controller as the aircraft was operated outside of controlled airspace.

## **1.10 Aerodrome Information**

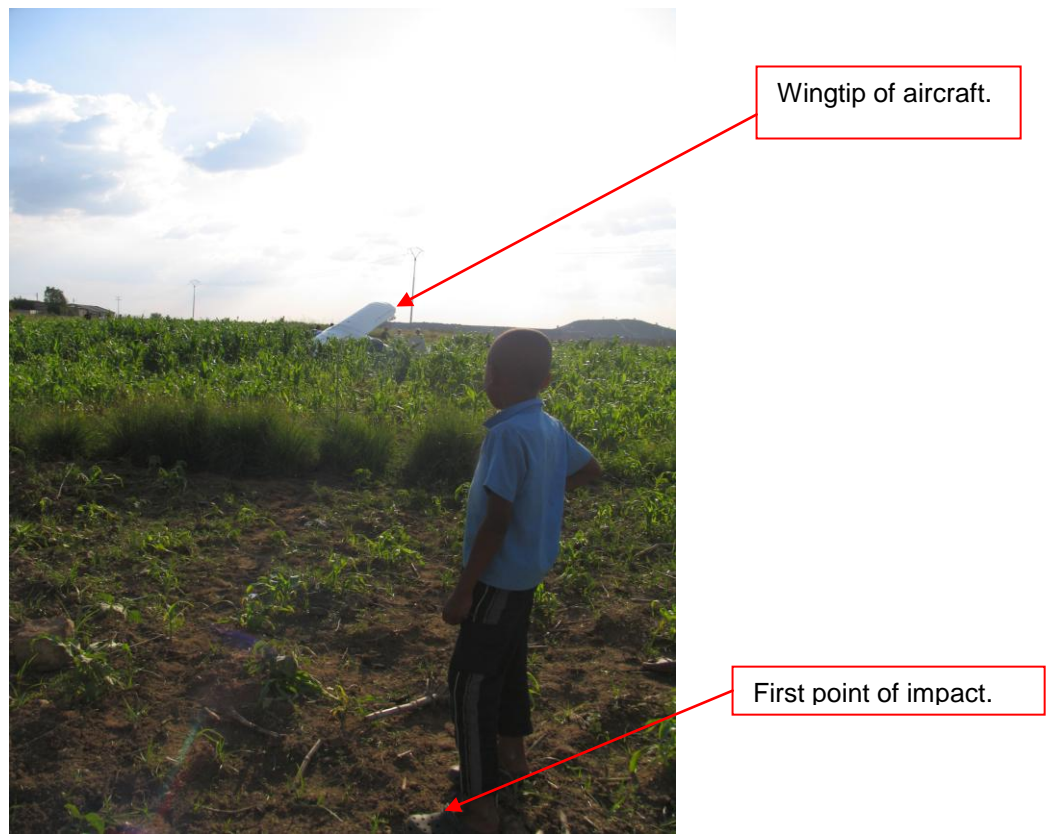
1.10.1 The accident occurred outside the terminal control area (TMA) of the nearest aerodrome, on an open maize field at GPS coordinates S26° 11.056' E028°23.698' and at an elevation of 5 247 ft AGL.

## **1.11 Flight Recorders**

1.11.1 The aircraft was not fitted with a flight data recorder (FDR) or a cockpit voice recorder (CVR). Neither was required in terms of SACAA regulations.

## **1.12 Wreckage and Impact Information**

1.12.1 The accident occurred on an open maize field. The aircraft's left main gear broke off, the left wing was damaged and the nose gear strut was substantially damaged. Both tanks were still intact and contained a total of approximately 62 litres of fuel. The aeroplane came to rest about 85 m from the initial touchdown point. It remained in an upright position.



**Figure 2.** First point of impact and final position of the aircraft.



**Figure 3.** The damaged left main gear.

### **1.13 Medical and Pathological Information**

1.13.1 The pilot sustained no injuries.

1.13.2 He was a holder of a valid aviation medical certificate with no restrictions.

## 1.14 Fire

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

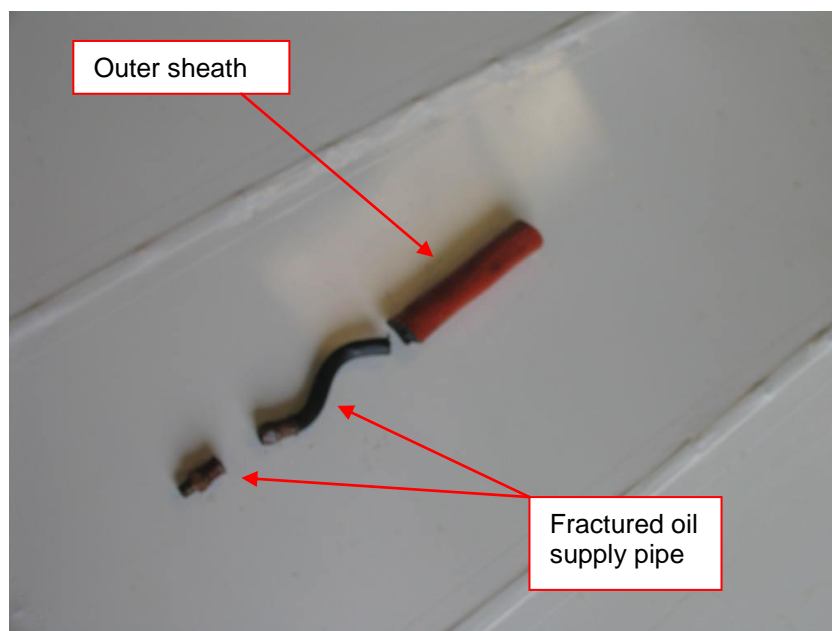
## 1.15 Survival Aspects

1.15.1 The accident was considered survivable as there was no damage to the cockpit area and the pilot had been properly restrained.

## 1.16 Tests and Research

1.16.1 During the on-site investigation, fuel (AVGAS LL 100) was found in both tanks. Samples were taken and analysed, and no abnormalities were found. The propeller was rotated with difficulty by the investigators, indicating that the engine might have seized. The engine oil level was checked using a dipstick and no evidence of engine oil could be detected. The aircraft was recovered to a CAA-approved AMO at Fly Inn aerodrome for further investigation in the presence of the investigators.

1.16.2 During the engine inspection, it was discovered that the flexible oil supply line pipe, which is covered with a sheath, had fractured, most probably due to extended operation and cracks. According to the manufacturer, this flexible oil pipe (part no. 71061-00) must not exceed 1 000 hours of service and must be inspected during maintenance intervals. This oil pipe had exceeded 1 000 hours and the inspection had just been carried out prior to the accident flight (see the signed inspection sheet on page 10 of the report with the engineer's initials).



**Figure 4.** The failed supply oil pipe and the outer sheath.

1.16.3 A complete engine teardown inspection was not conducted. According to available aircraft documentation, no reported defects were recorded or reported.

## **1.17 Organisational and Management Information**

1.17.1 This was a private flight, with the pilot being the owner of the aircraft.

1.17.2 The last MPI carried out on the aircraft prior to the accident was certified on 4 November 2009 by a CAA-approved AMO at 7 782.44 airframe hours. The person that certified the task held a valid CAA-approved AME (Aircraft Maintenance Engineer's) licence, with the aircraft type endorsed in his licence.

## **1.18 Additional information**

1.18.1 The engineer who certified the inspection had 40 years' experience in aviation. He qualified as an aircraft maintenance engineer in the South African Air Force in 1971. During his career, he worked on various types of aircraft – engines and airframes – and had ratings on Piper Aircraft, Group 3 and 4 Series.

## **1.19 Useful or Effective Investigation Techniques**

1.19.1 None

## **2. ANALYSIS**

2.1 Available information indicated that fine weather had prevailed in the area at the time. The weather conditions did not therefore have any bearing on the accident.

2.2 While en route to Springs aerodrome on a repositioning flight, the pilot suddenly realised that the engine was losing power and the aircraft could not maintain altitude. He spotted an open maize field and executed an emergency landing. The aeroplane was substantially damaged during the landing roll..

2.3 The pilot was properly licensed, had a total of 5 358 flying hours and had flown 28 hours on the aircraft type. After the recovery of the aeroplane, the logbooks were inspected. It was noted that the aircraft had been subjected to an MPI – performed by a CAA-approved AMO – on 4 November 2009 and that this was its first flight thereafter. The aircraft was recovered to Fly Inn private aerodrome for further investigation where it was discovered that the oil supply line pipe had fractured and the engine had lost oil and seized.

2.4 The AMO who performed the previous inspection on the aircraft do not have a record of when last this oil pipe was replaced. The aircraft had been maintained by this AMO since 2006. The last maintenance inspection conducted prior to the accident was a 100-hour Mandatory Periodic Inspection (MPI) certified on 4 November 2009. According to the maintenance inspection requirement in the Piper Colt, Model PA 22-108 service manual, all oil lines and fittings should be inspected during all inspection intervals and at pre- and post-flight inspections. A specific page applicable to the requirement was found, with the required signature, date, aircraft serial number and AMO stamp as required.



### **3. CONCLUSION**

#### **3.1 Findings**

- 3.1.1 The pilot was a holder of an airline pilot's licence with the aircraft type endorsed in his logbook.
- 3.1.2 His medical was valid until 12 February 2010.
- 3.1.3 This was a private flight.
- 3.1.4 Although the aircraft was maintained in accordance with the approved maintenance schedule, the oil pipe was not replaced as required at the last MPI resulting in its failure.
- 3.1.5 The aircraft Certificate of Airworthiness was valid until 19 June 2010.
- 3.1.6 The AMO was last audited by the CAA on 30 September 2009.
- 3.1.7 The flight was conducted with good weather condition prevailing.
- 3.1.8 The flight was found to be in accordance with the VFR requirements as stipulated in Part 91.06.21. of the CARs.
- 3.1.9 The accident was considered survivable.
- 3.1.10 The engineer who certified the inspection had ratings on this aircraft type.

#### **3.2 Probable Cause/s**

- 3.2.1 Unsuccessful forced landing following an engine power loss in flight.
- 3.2.2 **Contributory factor,**  
Failure by AMO to replace oil pipe line as required in the maintenance schedule.

### **4. SAFETY RECOMMENDATIONS**

- 4.1 None.

### **5. APPENDICES**

- 5.1 Appendix A: Inspection Report submitted as part of MPI on 4 November 2009.

Report reviewed and amended by the Advisory Safety Panel on 20 April 2010.

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