SOUTH AFRICAN CIVIL AVIATION AUTHORITY

Section/division **Occurrence Investigation**

Form Number: CA 12-12a

AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/2/3/8416		
Aircraft Registration	**ZS-ELT**	**Date of Accident**	1 January 2008		**Time of Accident**	0940Z	
Type of Aircraft	Piper PA28-180 Aeroplane		**Type of Operation**		Private		
Pilot-in-command Licence Type		Private Pilot	**Age**	51	**Licence Valid**	Yes	
Pilot-in-command Flying Experience		Total Flying Hours as on 7 October 2006	268		Total Hours on Type as on 16 August 2005	40.1	
Last point of departure	Mosselbay Aerodrome (FAMO)						
Next point of intended landing	Beaufort West Aerodrome (FABW)						
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)							
On the Swartberg mountains next to the Swartberg pass at the geographical position determined as S 33°21 31 E022°3 07.							
Meteorological Information	Wind: 100°TN at 10 Knots; Temperature: 18°C; Visibility: 50 metres or less in cloud.						
Number of people on board	1 + 3	**No. of people injured**	0	**No. of people killed**	1 + 3		

Synopsis

On 1 January 2008 at 0900Z the pilot, accompanied by 3 passengers, took off from Mosselbay Aerodrome in the Western Cape on a private flight to Beaufort West Aerodrome. At 0940 Z the aircraft impacted with the side of the Swartberg Mountain in cloudy/misty conditions, at a height of 4985 feet, fatally injuring all four occupants on board the aircraft.

Probable Cause

The aircraft impacted with terrain in poor visibility conditions.

IARC Date		Release Date	

AIRCRAFT ACCIDENT REPORT

Name of Owner/Operator : Medocar CC
Manufacturer : Piper Aircraft Corporation
Model : PA 28- 180
Nationality : South African
Registration Marks : ZS-ELT
Place : Swartberg Mountains in the Western Cape
Date : 1 January 2008
Time : 0900Z

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 On 1 January 2008 the pilot, accompanied by 3 passengers, took off from Mosselbay Aerodrome in the Western Cape on a private flight to Beaufort West Aerodrome.

1.1.2 It was stated by the family members who took them to Mosselbay Aerodrome that the aircraft took off at approximately 0900Z. According to them, sunny weather conditions prevailed in Mosselbay at the time of their departure.

1.1.3 The air traffic control in Cape Town reported that the pilot was in contact with them at 0930Z on VHF frequency 126.5 MHz and he reported that he was at a height of 5000 feet.

1.1.4 The air traffic control in George stated that the pilot was not in contact with them at any stage.

1.1.5 At approximately 0955 people who were driving on the Swartberg mountain pass found the wreckage, which was surrounded with fog. They immediately notified the air traffic control in George of the accident.

1.2 Injuries to Persons

Injuries	Pilot	Crew	Pass.	Other
Fatal	1	-	3	-
Serious	-	-	-	-
Minor	-	-	-	-
None	-	-	-	-

1.3 Damage to Aircraft

1.3.1 The aircraft was destroyed on impact with the terrain.

Image 1: Indicating the damage that the aircraft sustained.

Image 2: Indicating the weather conditions a few hours after impact.

1.4 Other Damage

1.4.1 No other damage was caused.

1.5 Personnel Information

Nationality	South African	Gender	Male	Age	51
Licence Number	##########	Licence Type	Private Pilot		
Licence valid	Yes	Type Endorsed	Yes		
Ratings	None				
Medical Expiry Date	24 April 2008				
Restrictions	Medical Restriction to wear corrective lenses				
Previous Accidents	None				

Flying Experience:

Total Hours as on 7 October 2006 (As per CAA Records)	268
Total Past 90 Days	Unknown
Total on Type Past 90 Days	Unknown
Total on Type as on 16 August 2005	40.1

Note: It was found during the investigation that the last recorded flying hours in the pilot's logbook were indicated as 16 August 2005.

1.6 Aircraft Information

Airframe:

Type	Piper PA28-180	
Serial Number	28-2917	
Manufacturer	Piper Aircraft Corporation	
Year of Manufacture	1965	
Total Airframe Hours (At time of Accident)	4466.5	
Last MPI (Hours & Date)	4415.6	11 December 2007
Hours since Last MPI	50.9	
C of A (Issue Date)	21 January 1980	
C of A (Expiry Date)	20 January 2009	
C of R (Issue Date) (Present owner)	24 April 2007	
Operating Categories	Standard	

Engine:

Type	Lycoming O-360-A3A
Serial Number	RL-17159-36A
Hours since New	4415.6
Hours since Overhaul	595.6

Propeller:

Type	Sensinich 76EM8514-O-60
Serial Number	37673
Hours since New	596.6
Hours since Overhaul	TBO not yet reached

1.7 Meteorological Information

1.7.1 According to the official weather report obtained from the South African Weather Services, the following weather conditions prevailed on the day of the accident:

Surface Analysis

A cold front was passing south of the country while a trough of low pressure was present over the southern Cape and central interior.

Upper Air

At 500 hPa north westerly winds were blowing over the Swartberg.

Satellite image

The satellite image for 09h00Z shows cloudy conditions over the Swartberg.

Weather conditions in the vicinity of the accident:

With the cold front passing south of the country, there was an on-shore flow

of moist air onto the southern Cape and this caused cloudy conditions (Orographic cloud) over the mountains of the southern Cape. The most likely weather at the place of the accident is as follows:

Temperature:	18°C
Dew Point:	17°C
Wind Direction:	100°TN 10 Knots
Cloud cover :	OVC cloud on the ground.
Visibility:	50 metres or less in the clouds.
Weather:	cloudy and misty.

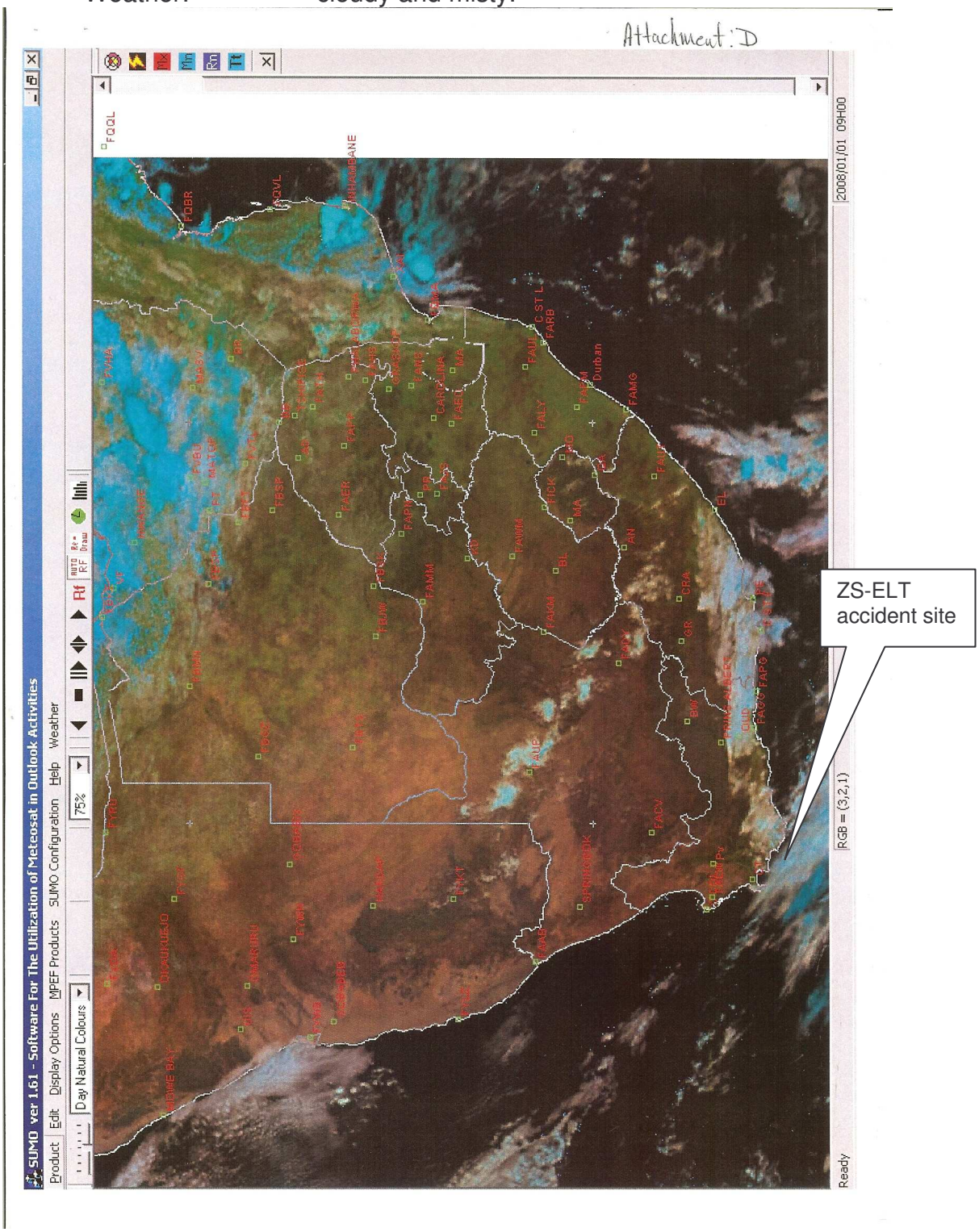

Image 3: Satellite image of the weather.

1.8 Aids to Navigation

1.8.1 As per the Minimum Equipment list, the aircraft was equipped with an Airpath compass and a Garmin 100 GPS. There were no recorded defects found with the navigation equipment.

1.8.2 A Garmin 296 GPS was found on board the aircraft. Information was downloaded from the GPS. (See images under wreckage and impact information.)

1.9 Communications

1.9.1 As per the Minimum Equipment list, the communication equipment that was installed in the aircraft was a Bendix King KX 175B VHF Comm. / Nav. There were no recorded defects found with the communication equipment.

1.10 Aerodrome Information

1.10.1 The accident did not happen at or in close proximity of an aerodrome.

1.10.2 The accident occurred on the Swartberg Mountain close to Oudtshoorn at the geographical position determined as: S 33° 21 31 E022° 3 07 and an elevation of 4985 feet.

1.11 Flight Recorders

1.11.1 The aircraft was not fitted with a flight data recorder and a cockpit voice recorder as these were not required in terms of the Civil Aviation Regulations.

1.12 Wreckage and Impact Information

1.12.1 The relative impact angle of the aircraft with terrain was at approximately 5° nose-up attitude with the right-hand wing low, because the aircraft was in a turn when it impacted with the Swartberg Mountain.

1.12.2 The direction of impact was determined as 049° magnetic. The aircraft impacted with the mountain at the geographical position determined as S 33° 21.31 E 022° 3.07 and at an elevation of 4985 feet.

1.12.3 The aircraft impacted with the side of the mountain approximately 36 metres above the road in the Swartberg pass.

Image 4: Indicating the flight path of the aircraft.

Image 5: Indicating the first recorded position at Mosselbay Aerodrome.

Image 6: Indicating the last recorded position on impact with the mountain.

Image 7: Indicating the impact angle of the wreckage.

1.13 Medical and Pathological Information

1.13.1 Post-mortem examinations were performed on the deceased pilot and passengers after the accident.

1.13.2 The results of the post-mortem reports and toxicology tests were not available at the time when the report was compiled. Should any of the results be positive, an attachment will be added to this report to include the results.

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 to be not survivable, due to the high impact forces which were associated with this type of accident. The cabin area was found destroyed. The aircraft was fitted with safety belts and harnesses, which did not fail.

1.16 Tests and Research

1.16.1 The engine was examined after the accident at an approved maintenance facility.

The examination of the engine revealed that there was no evidence of any defect or malfunction that could have contributed to the accident.

The propeller also exhibited chord-wise scratching and torsional damage, indicative of the engine producing power at impact.

1.17 Organisational and Management Information

1.17.1 This was a private flight.

1.17.2 The pilot was not the owner of the aircraft. The pilot had hired the aircraft from an Approved Aviation Training Organisation. No abnormalities were found with the Hire and Fly contract.

1.17.3 According to available records, the Aircraft Maintenance Organisation (AMO) that had certified the last MPI on the aircraft prior to the accident was in possession of a valid AMO approval with an expiry date of 30 November 2008.

1.18 Additional Information

1.18.1 Proof was found that the pilot had uplifted 53 litres of fuel at Mosselbay Aerodrome on 31 December 2007.

1.18.2 One of the family members stated that after receiving the personal belongings of the deceased from the police, they noticed that one of the watches had stopped at 0940Z.

1.18.3 Calculations on the EasyPlan program from Aviation Direct cc. indicated that in order for the pilot to have cleared the mountain, he would have had to fly at a height of 7500 feet.

1.18.4 On-site investigation

- Inspection of the wreckage after the accident revealed that both wings had sustained damage and the fuel tanks had ruptured on impact.
- It was found that the engine had separated on impact and was found approximately 36 metres below the main wreckage in the road on the Swartberg Mountain pass. The propeller was found separated from the engine and approximately 23 metres to the right of the main wreckage.
- The cabin of the aircraft was found disintegrated as a result of the impact and the contents of the aircraft as well as the occupants where found lying over an area of approximately 23 metres in front of the wreckage.

1.18.5 The baggage that was on board the aircraft was weighed on a calibrated scale. The baggage weighed was 47.5 kilograms.

Image 8: Indicated the certificate of the calibrated scale.

1.19 Useful or Effective Investigation Techniques

1.19.1 None.

2. ANALYSIS

2.1 On 1 January 2008 at 0900Z, aircraft ZS-ELT took off from Mosselbay Aerodrome on a private flight to Beaufort West Aerodrome. At approximately 0955Z the aircraft was found by people driving on the Swartberg mountain pass, where the aircraft had impacted with the mountain. A watch found from one of the deceased showed that the aircraft had probably impacted with the mountain at 0940Z.

2.2 The weather information obtained shows that cloudy and misty conditions with a visibility of approximately 50 metres or less were present at the time when the accident occurred. The weather was therefore considered to have contributed to the accident.

2.3 It was found that the aircraft had a valid Certificate of Airworthiness and that the aircraft had been maintained in compliance with the Civil Aviation Regulations. The damages to the engine and propeller were indicative of the engine producing power at impact and it therefore did not contribute to the accident. Furthermore the aircraft had uplifted 53 litres of fuel the day before the accident.

2.3 The pilot held a valid medical certificate and was in possession of a valid pilot's licence with an expiry date of 12 October 2008. The aircraft type was endorsed on the pilot's licence at the time of the accident. However, the pilot did not hold a night or instrument rating. It was found during the investigation, although it did not contribute to the accident, that the last recorded entries in the pilot's logbook were done on 18 August 2005. The pilot therefore had flown for approximately two years and four months without recording his flying hours.

2.4 The pilot probably, tried to maintain a visual flight and stayed below the clouds because he was not instrument rated. Evidence obtained from the GPS found in the wreckage as well as the position of the wreckage, shows that the pilot tried to turn the aircraft back into the direction from which they where coming and in the process impacted with the side of the mountain. The pilot probably saw an opening in the clouds above the Swartberg Mountain and might have lost visual reference with the mountain at the last minute. As a result he took the decision to turn the aircraft away from the mountain, but in the process entered some mist and impacted with the side of the mountain whilst in a turn.

2.5 Calculations performed showed that in order for the pilot to have cleared the mountain, he would have had to fly at a height of 7500 feet.

3. CONCLUSION

3.1 Findings

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

3.1.2 This was a private flight.

3.1.3 The aircraft held a valid Certificate of Airworthiness.

3.1.4 The aircraft was destroyed on impact.

3.1.5 The AMO that certified the last Mandatory Periodic Inspection prior to the accident was in possession of a valid AMO Approval Certificate from the CAA.

3.1.6 Weather conditions at the time of the accident were considered to have contributed to the accident.

3.1.7 The aircraft impacted with the side of the Swartberg Mountain at an elevation of 4985 feet.

3.1.8 The pilot was not the holder of an instrument rating.

3.2 Probable Cause/s

3.2.1 The aircraft impacted with terrain in poor visibility conditions.

4. SAFETY RECOMMENDATIONS

4.1 None.

5. APPENDICES

5.1 None.

Report reviewed and amended by Advisory Safety Panel: 28 July 2009.

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