



AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/2/3/8821	
Aircraft Registration	ZS-NFU	Date of Accident	17 August 2010		Time of Accident	0700Z
Type of Aircraft	Piper PA-28-140		Type of Operation	Private		
Pilot-in-command Licence Type		Private Pilot	Age	19	Licence Valid	Yes
Pilot-in-command Flying Experience		Total Flying Hours	158,6		Hours on Type	17,4
Last point of departure		Beaufort West aerodrome (FABW), Western Cape				
Next point of intended landing		George aerodrome (FAGG), Western Cape				
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)						
Between pole 37 and pole 38 on the DRO F2 (Droërvier Farmers 2) power line (GPS position S32°1853' E022°3748')						
Meteorological Information		Temperature: 14°C; Dew point - 6°C; Surface wind: 170°TN/3 kt				
Number of people on board	1 + 0	No. of people injured	1	No. of people killed	0	
Synopsis						
<p>The pilot stated that after takeoff from Beaufort West aerodrome and at a height of 450 feet above ground level, he turned left at a banking angle of approximately 45 degrees. While rolling out from the turn, he reached for his camera to photograph the runway. He was about to switch the camera on when he saw a bird on the left side of the aircraft.</p> <p>He increased his bank to avoid a bird-strike, but failed to increase power at the same time. This caused the aircraft to end up in an unusual attitude. He momentarily lost control and the aeroplane descended rapidly. He regained control at about 30 ft AGL. As he levelled off, however, he collided with power lines.</p> <p>The pilot once again managed to regain control and returned to the aerodrome for an uneventful landing.</p> <p>The aircraft was substantially damaged and the pilot sustained cuts to his face.</p> <p>One power line was severed and another was damaged.</p>						
Probable Cause						
<p>During recovery from an unusual manoeuvre, the pilot failed to observe power cables and the aircraft collided with them.</p> <p>Contributing factors: Poor airmanship Lack of situational awareness Distraction whilst flying the aircraft</p>						
IARC Date				Release Date		



AIRCRAFT ACCIDENT REPORT

Name of Owner/Operator : Mid-East Partnership
Manufacturer : Piper Aircraft Corporation
Model : PA-28-140
Nationality : South African
Registration Marks : ZS-NFU
Place : Beaufort West
Date : 17 August 2010
Time : 0700Z

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 produced without prejudice to the rights of the CAA, which are reserved.

1. FACTUAL INFORMATION

1.1 History of Flight

- 1.1.1 The pilot took off from Beaufort West aerodrome on a private hire-and-fly flight to George. The aircraft was operated by a flying school and the flight was conducted under visual meteorological conditions (VMC).
- 1.1.2 The pilot took off from runway 08 with no flaps selected, and rotated earlier than usual as the aircraft was light. After rotation, he kept the aeroplane within ground effect to gain speed, where after he climbed to approximately 450 ft above ground level (AGL), levelled off and completed his after-departure checks.
- 1.1.3 He then initiated a steep turn to the left with a bank angle of 45 degrees. On a heading of approximately 290° magnetic, he began to roll the aircraft out of the turn. As he was doing so, he reached for his camera in order to photograph the runway. He was about to switch it on when he saw a bird on the left side of the aircraft.
- 1.1.4 In an attempt to avoid a bird-strike he increased the bank angle. He had already powered back (to 2 200 rpm) to slow down the aircraft for the photograph, was holding the camera in his right hand, and failed to increase power at the same time as banking. This resulted in the aeroplane entering a wing-over type of manoeuvre.
- 1.1.5 The pilot lost control of the aircraft and it descended rapidly. He recovered to a straight and level attitude but only regained full control at about 30 ft AGL. At that moment, however, he collided with power cables spanning a road.

1.1.6 The impact shattered the windscreen, shards of which cut the pilot on his forehead and made it difficult for him to see ahead. He contemplated making an emergency landing on the road. However, once he managed to clear the blood from his eyes, he realised this would be impossible due to the heavy traffic. He opted instead to return to Beaufort West aerodrome where he executed an uneventful landing.

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 sustained substantial damage from its collision with the power lines.



Figure 1. Damage to the wing.



Figure 2. The shattered windscreen.

1.4 Other Damage

1.4.1 One power cable was severed and a second was damaged.



Figure 3. The severed power cable.

1.5 Personnel Information

Nationality	South African	Gender	Male	Age	19
Licence Number	*****	Licence Type	Private Pilot		
Licence valid	Yes	Type Endorsed	Yes		
Ratings	Night rating				
Medical Expiry Date	22 October 2011				
Restrictions	None				
Previous Accidents	None				

Flying Experience

Total Hours	158,6
Total Past 90 Days	15,5
Total on Type Past 90 Days	15,5
Total on Type	17,4

1.6 Aircraft Information

Airframe

Type	Piper PA-28-140	
Serial Number	28-23833	
Manufacturer	Piper Aircraft Corporation	
Year of Manufacture	1967	
Total Airframe Hours (at time of accident)	8 580,7	
Last MPI (Hours & Date)	8 524,8	13 May 2010
Hours since Last MPI	55,9	
C of A (Issue Date)	10 August 2010	
C of R (Issue Date) (Present Owner)	26 October 1992	
Operating Categories	Standard	

- 1.6.1 A weight and balance calculation was performed on the day of the accident flight. This indicated that the aircraft's weight and balance were within limits (see Appendix A).

Engine

Type	Lycoming -320-E2A
Serial Number	L-19817-27A
Hours since New	8 580,7
Hours since Overhaul	156,0

Propeller

Type	Sensenich DM6-0-58
Serial Number	A55756
Hours since New	6 110,8
Hours since Overhaul	156,0

1.7 Meteorological Information

1.7.1 This was obtained from the South African Weather Service. The most likely weather conditions at the time and place of the accident are tabled below.

Wind direction	170° TN	Wind speed	3 kt	Visibility	> 10 km
Temperature	14°C	Cloud cover	Nil	Cloud base	Nil
Dew point	- 6°C				

1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard navigational equipment as per the minimum equipment list approved by the Regulator. There were no recorded defects to this equipment prior to the flight.

1.9 Communications

1.9.1 The aircraft was equipped with standard communication equipment as per the minimum equipment list approved by the Regulator. There were no recorded defects to this equipment prior to the flight.

1.10 Aerodrome Information

1.10.1 The accident did not occur at an 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 After the impact with the power lines, the pilot flew the aircraft back to Beaufort West aerodrome.

1.13 Medical and Pathological Information

1.12.1 The pilot sustained cuts to his forehead during the accident sequence.

1.14 Fire

1.14.1 There was no pre- or post-impact fire.

1.15 Survival Aspects

1.15.1 The accident was regarded as survivable due to the low impact forces on the cockpit during the collision with the wires.

1.16 Tests and Research

1.16.1 None

1.17 Organisational and Management Information

1.17.1 Operator

The aircraft was operated by an SACAA-approved aviation training organisation (ATO) which was in possession of a valid ATO certificate with an expiry date of 8 June 2011. The pilot hired the aircraft for a private flight.

1.17.2 Maintenance organisation

The aircraft was maintained by an SACAA-approved aircraft maintenance organisation (AMO) which was in possession of a valid AMO certificate with an expiry date of 31 January 2011.

1.18 Additional Information

1.18.2 During the investigation, when pieces of the broken windshield (left side) were reconstructed, markings were observed on the perspex which correlated with markings on the unbroken right windshield. These indicated the impact from the power cable.



Figure 4. Marks on the broken (left) windshield similar to marks on the right windshield.

1.19 Useful or Effective Investigation Techniques

1.19.1 None

2. ANALYSIS

- 2.1 Verification of the pilot's personal file confirms that he was in possession of a valid private pilot's licence. The pilot had a total of 158,6 flying hours of which 17,4 were on the Piper PA-28-140. At the time of the accident, the pilot was in possession of a valid medical certificate that imposed no restrictions.
- 2.2 Weather conditions at the time of the accident were clear skies with a light wind.
- 2.3 The accident aircraft was equipped, and maintained in accordance with prescribed regulations. The recovered components showed no evidence of any pre-existing system, structural or powerplant failure.
- 2.4 The aircraft's mass and balance were calculated by the pilot and all evidence indicated these were within prescribed limitations at the time of the accident.
- 2.5 The pilot followed the incorrect technique when he took evasive action to prevent a collision with a bird by not applying power during the increased bank angle.
- 2.6 After the pilot lost control of the aircraft, he made full recovery at only 30 ft AGL, where after he collided with electrical power lines.
- 2.7 During the steep turn, the pilot allowed his attention to be divided between flying the aircraft and operating his camera.

3. CONCLUSION

3.1 Findings

- 3.1 The pilot was properly certified and qualified according to current regulations.
- 3.2 The aircraft was equipped and maintained in accordance with current regulations.
- 3.3 The aircraft was within the mass and balance limitation as prescribed by the manufacturer at the time of the accident.
- 3.4 The pilot followed the incorrect technique when trying to prevent a bird-strike.
- 3.5 Deviation of the pilot's attention led to a lack of situational awareness.
- 3.6 The weather did not contribute to the accident.

3.2 Probable Cause/s

3.2.1 During recovery from an unusual manoeuvre, the pilot failed to observe electrical power lines and the aircraft collided with them.

3.3 Contributing factors

3.3.1 Poor airmanship

3.3.2 Lack of situational awareness

3.3.3 Distraction from flying the aircraft

4. SAFETY RECOMMENDATIONS

4.1 None

5. APPENDICES

5.1 Appendix A Load sheet.

Report reviewed and amended by the Advisory Safety Panel 19 October 2010.

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LOAD SHEET

REG: ZS NFU TYPE: P28A DATE: 17/02/2016
 Route:

	MASS lbs	ARM in	MOMENT lbs/in/1000
EMPTY MASS	1374	85.74	117335.0
CREW	139		12000.0
CREW BAGGAGE			
OPERATING EMPTY MASS	1513		131525.0
SEAT ROW 1 C. 040-646-7	56.03		6003.0
SEAT ROW 2			
SEAT ROW 3			
SEAT ROW 4			
BAGGAGE FRONT			
BAGGAGE CENTRE/WING			
BAGGAGE REAR			
ZERO FUEL MASS (max 1513 lbs)	1513	87.95	133535.0
FUEL MAIN	510 US gal		
FUEL AUX	US gal		
FUEL TIP	US gal		
RAMP MASS (max 2180 lbs)	1513	87.95	133535.0
TAXI FUEL	0.8 US gal		
TAKE-OFF MASS (max 2180 lbs)	1513	87.95	133535.0
FLIGHT FUEL	3.56 US gal		
LANDING MASS (max 2180 lbs)	1517.04	87.97	134186

I hereby certify that the load distribution to be in accordance with the Aircraft manual and the certified mass has not been exceeded

Signature of PIC: *Boyle* Date: 17/02/2016

TAKE OFF AND LANDING DATA	
Take off Data	
Date: 17/02/2016	Type: P28A A/C Reg: ZS-NFU
Airport: FAJW	
Elevation: 2429	
Press. Alt: 3574	QNH: 1026
Temp: 12	Dens. Alt: 3523
W/V: CALM	T/O Wt: 1577.3
Runway Length/Surface: 1646 M C-GRAS	
T/O Run: 590 FT	T/O Dist: 2200 FT
Climb Rate: 556 FPM	
Landing Data	
Airport: FAJW	
Elevation: 2429	QNH: 1026
Press. Alt: 3574	Dens. Alt: 3523
Temp: 12	Landing Wt: 1577.04
W/V: CALM	
Runway Length/Surface: 1646 M C-GRAS	
Lnd Run: 556 FT	Lnd Dist: 1200 FT



Weight and Balance calculation.