



AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/2/3/9260	
Aircraft Registration	ZS-MTY	Date of Accident	23/12/2013		Time of Accident	1430Z
Type of Aircraft	Piper 34-200T (Aeroplane)		Type of Operation	Training		
Pilot-in-command Licence Type	Airline Pilot Licence		Age	60	Licence Valid	Yes
Pilot-in-command Flying Experience	Total Flying Hours		2550		Hours on type	102
Pilot-completing conversion Licence Type	Private Pilot Licence		Age	52	Licence Valid	Yes
Pilot-completing conversion Flying Experience	Total Flying Hours		345.2		Hours on Type	29.2
Last point of departure	Lanseria International Airport (FALA), Gauteng Province					
Next point of intended landing	Lanseria International Airport (FALA), Gauteng Province					
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)						
Right of runway 07 at FALA (GPS position: 25°56'31.84" South 027°55'36.01" East)						
Meteorological Information	Temperature: 28°C, Wind: 330°7kts, Visibility: CAV OK, Dew point: 12°C					
Number of people on board	2+0	No. of people injured	0	No. of people killed	0	
Synopsis	<p>The instructor was accompanied by a private pilot and the intention was to complete a type conversion onto the aircraft. During a touch and go landing on runway 07, the private pilot applied too much back pressure on the control column which resulted in the aircraft ballooning.</p> <p>The aircraft's airspeed had decayed significantly which resulted in the aircraft stalling. The aircraft began to yaw to the right of runway 07. The instructor immediately assumed control of the aircraft in an attempt to recover the aircraft but was unable to maintain directional control of the aircraft.</p> <p>The instructor reduced the power on both engines to idle and the aircraft crash landed to the right of runway 07, before coming to rest 90 meters from the initial impact point. The pilots evacuated the aircraft without any injury. The aircraft sustained substantial damage during the accident sequence.</p>					
Probable Cause						
The aircraft's airspeed was allowed to decay during a balloon landing recovery, which resulted in a stall and subsequent loss of directional control.						
Contributory Factor						
Poor technique						
IARC Date			Release Date			

AIRCRAFT ACCIDENT REPORT

Name of Owner : Neumeier HC
Name of Operator : Aeronav Academy
Manufacturer : Piper Aircraft Corporation
Model : PA34-200T
Nationality : South African
Registration Marks : ZS-MTY
Place : Lanseria International Airport
Date : 23 December 2013
Time : 1430Z

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 A flight instructor and private pilot departed from Lanseria International Airport (FALA) with the intention to complete a conversion onto type flight. The pilots completed three uneventful circuits for runway 07. During the fourth circuit, the private pilot configured the aircraft for the touch and go landing with full flap and undercarriage extended. The private pilot attempted to flare the aircraft at approximately 20ft above ground level for landing. However, the aircraft ballooned due to excessive back pressure applied to the control column.

1.1.2 The private pilot did not relax the back pressure applied to the control column to correct for the balloon landing but instead, he increased power on both the engines. The aircraft's airspeed decayed and the aircraft began to yaw to the right. The flight instructor took control of the aircraft and tried to regain directional control and to

recover from the stall. The instructor could not regain directional control of the aircraft so he reduced power to both engines, to idle, and the aircraft crash landed to the right of runway 07. The aircraft skidded for approximately 90 meters before coming to rest.

- 1.1.3 The air traffic controller (ATC) on duty activated the crash alarm and aerodrome rescue and fire-fighting (ARFF) were dispatched to the crash site. The pilots evacuated the aircraft unassisted and without injury. The aircraft sustained substantial damage.
- 1.1.4 The accident occurred during daylight conditions at 1430Z at a geographical position that was determined to be 25° 56' 31.84" South 27° 55' 36.01" East at an elevation of 4465 feet above mean sea level (AMSL).
- 1.1.5 Video footage of the accident sequence leading up to impact was obtained from Apron management at Lanseria Airport. The footage was used to verify the sequence of events following impact.

1.2 Injuries to Persons

Injuries	Pilot	Crew	Pass.	Other
Fatal	-	-	-	-
Serious	-	-	-	-
Minor	-	-	-	-
None	2	-	-	-

1.3 Damage to Aircraft

- 1.3.1 The aircraft sustained substantial damage to the fuselage, undercarriage, wings, engines and propellers.

1.4 Other Damage

- 1.4.1 None.

1.5 Personnel Information

Pilot 1 (Instructor)

Nationality	South African	Gender	Male	Age	60
Licence Number	0270272404	Licence Type	Airline Transport Pilot Licence		
Licence valid	Yes	Type Endorsed	Yes		
Ratings	Grade 2 instructor and Instrument rating				
Medical Expiry Date	30 June 2014				
Restrictions	Corrective Lenses				
Previous Accidents	None				

Flying Experience:

Total Hours	2550
Total Past 90 Days	110
Total on Type Past 90 Days	20
Total on Type	102

Pilot 2 (Pilot undergoing conversion)

Nationality	South African	Gender	Male	Age	52
Licence Number	0270292667	Licence Type	Private Pilot Licence		
Licence valid	Yes	Type Endorsed	No		
Ratings	Night rating				
Medical Expiry Date	31 January 2015				
Restrictions	Corrective Lenses				
Previous Accidents	None				

Flying Experience:

Total Hours	345.2
Total Past 90 Days	4.0
Total on Type Past 90 Days	0.8
Total on Type	29.2

Note: The pilot had flown the aircraft type previously under dual instruction but had not completed the type conversion.

1.6 Aircraft Information

Airframe:

Type	PA34-200T	
Serial Number	347570126	
Manufacturer	Piper Aircraft Corporation	
Year of Manufacture	1975	
Total Airframe Hours (At time of Accident)	6238	
Last MPI (Date & Hours)	22 February 2013	6189.22
Hours since Last MPI	48.8	
C of A (Issue Date)	4 February 2011	
C of R (Issue Date) (Present owner)	22 February 2013	
Operating Categories	Part 135	

Engine 1 (Right):

Type	Continental LTSIO-360KB
Serial Number	307772
Hours since New	3895.88
Hours since Overhaul	263.88

Engine 2 (Left):

Type	Continental LTSIO-360KB
Serial Number	314288
Hours since New	3895.88
Hours since Overhaul	459.08

Propeller 1:

Type	Hartzell BHC-C2YF-2CKUF
Serial Number	AN8162
Hours since New	6238
Hours since Overhaul	114.32

Propeller 2:

Type	Hartzell BHC-C2YF-2CKUF
Serial Number	AN3986
Hours since New	6238
Hours since Overhaul	459.08

Weight and Balance

Basic Empty Weight	3017
Pilot and Passenger	410
Fuel on board	490
Take-off weight	3917lbs

Note: The maximum take-off weight for this aircraft is 4570lbs. The aircraft was within the take-off weight limitation.

- 1.6.1 The aircraft had 310 litres of AVGAS on board prior to departure.
- 1.6.2 Following the accident the aircraft's right engine Continental LTSIO-360-KB serial number 307772 was removed from the wreckage and transported to an approved engine maintenance facility where it was subjected to a teardown inspection on 22 April 2014. The purpose of this inspection was to eliminate the possibility that a failure of that right engine had occurred, which could have caused the aircraft to yaw to the right: asymmetric flight. However, the engine and all components were found to be free from any pre-impact malfunction or mechanical anomaly.

1.7 Meteorological Information

- 1.7.1 The pilots obtained a weather forecast from the South African Weather Service website prior to departure. The following information was obtained from the pilot's questionnaire:

Wind direction	330°	Wind speed	07kts	Visibility	10km
Temperature	28°C	Cloud cover	Few	Cloud base	4000ft
Dew point	12°C				

- 1.7.2 Density altitude on the day was 7045ft.

1.8 Aids to Navigation

- 1.8.1 The aircraft was equipped with the minimum Visual Flight Rules (VFR) navigation equipment required by the regulations. There were no recorded defects on the navigation equipment prior to the flight.

1.9 Communications.

- 1.9.1 The aircraft was equipped with standard communication equipment as required by the regulator. There were no recorded defects on that equipment prior to the flight.
- 1.9.2 The pilots communicated with Lanseria tower ATC on frequency 124.00 MHz whilst completing touch and go landings on runway 07.

1.10 Aerodrome Information

Aerodrome Location	Lanseria International Aerodrome	
Aerodrome Co-ordinates	25°56'22.89" S 027°55'32.07" E	
Aerodrome Elevation	4521ft	
Runway Designations	07/25	-
Runway Dimensions	2996x45m	
Runway Used	07	
Runway Surface	Asphalt	
Approach Facilities	VOR\DME	

1.11 Flight Recorders

- 1.11.1 The aircraft was not fitted with either 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 made contact with the ground and came to rest approximately 90 meters from the initial impact point in a southerly direction.
- 1.12.2 The aircraft sustained substantial damage to the propeller, undercarriage, wings and fuselage.
- 1.12.3 The main undercarriage separated from the aircraft on impact.
- 1.12.4 The damage to the propellers indicated a low power setting at impact and neither of the propellers were feathered.
- 1.12.5 Following the accident the pilots indicated that the mixture setting was fully rich for the flight exercise.



Figure 1: Aircraft as it came to rest

1.13 Medical and Pathological Information

1.13.1 None

1.14 Fire

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

1.15 Survival Aspects

1.15.1 The accident was considered survivable due the energy that was dissipated during the accident sequence. The right wing and undercarriage impacted the ground first, allowing energy to be dissipated before the aircraft came to rest.

1.15.2 The pilots were properly restrained by the aircraft-equipped safety harness.

1.16 Tests and Research

1.16.1 The following information has been extracted from the Pilot's Operating Handbook:
Stall speed with flap extended: 61kts.

1.16.2 Stall recovery

- To recover from stall reduce the angle of attack by moving the control column centrally forward until the buffet or stall warning stops.
- Once the wings are unstalled buffeting ceases, the airspeed increases and the aeroplane can be eased out of the slight dive back into normal flight.

- The height loss will be of the order of 200 feet.
- Power can be added to regain or maintain height otherwise flying speed should be maintained in a glide.
- Height loss during stall can be minimised with power.
- Adding power is not required to recover from the stall, however height loss will be minimised if full power is applied as back pressure is released and the nose is lowered.
- Recovery can be achieved with a height loss of less than 50 feet.

1.17 Organizational and Management Information

1.17.1 This was a conversion onto type flight.

1.17.2 The flight school was in possession of a valid Aircraft Training Organisation (ATO) certificate. The flight was conducted under the auspices of an aviation training organisation (ATO).

1.17.3 The Aircraft Maintenance Organisation (AMO) was in possession of a valid approval certificate.

1.18 Additional Information

1.18.1 The information below was extracted from the Air Pilot's Manual, Volume 1:

The balloon

A balloon can be caused by:

- *Too much back pressure on the control column; and/or*
- *too high an airspeed; and/or*
- *a gust of wind.*

To correct for a small balloon:

- *Relax some of the back pressure on the control column.*
- *Allow the aeroplane to commence settling (sinking) again.*
- *When approaching the hold off height, continue the backward movement of the control column; and*
- *complete the landing normally.*

Stalling occurs when the critical angle of attack of an aircraft is exceeded. A speed is used as a reference because light aircraft do not have critical angle of attack indicators.

Warnings of an impending stall include:

- a reducing airspeed;
- operation of a pre-stall warning (warning horn, buzzer or light);
- the onset of buffet (a vibration felt on the control stick); and/or
- high nose attitude.

1.19 Useful or Effective Investigation Techniques

1.19.1 None.

2. ANALYSIS

2.1 The pilots were licensed in accordance with regulations. The private pilot undergoing the conversion, who was flying the aircraft at the time, had completed three uneventful circuits. During the fourth touch and go landing on runway 07 the pilot applied excessive back pressure on the control column in an attempt to flare the aircraft for the landing.

The aircraft ballooned but instead of relaxing the back pressure on the control column, the private pilot increased the power of both engines. Without the correct action, the airspeed decayed further, resulting in a stall. The aircraft began to yaw to the right of runway 07. At this point the instructor assumed control of the aircraft and attempted to recover the aircraft. However, because of the landing configuration (full flap, landing gear extended) of the aircraft and the low airspeed, the instructor was unable to maintain directional control of the aircraft.

The aircraft's right engine and turbo charger were subjected to a teardown inspection following the accident to eliminate the possibility that an engine failure of the right engine had occurred, resulting in an asymmetric scenario. No abnormalities were found and this duly eliminated the possibility of any asymmetric scenario.

3. CONCLUSION

3.1 Findings

- 3.1.1 Both pilots were licensed and qualified for the flight in accordance with existing regulations.
- 3.1.2 The aircraft's right-hand engine was subjected to an engine teardown inspection following the incident but no pre-impact malfunction was found.
- 3.1.3 The private pilot allowed the aircraft to balloon prior during the landing phase.

3.1.4 The aircraft's airspeed was allowed to decay which resulted in a stall and subsequent loss of directional control.

3.2 Probable Cause/s

3.2.1 The aircraft's airspeed was allowed to decay during a balloon landing recovery which resulted in a stall and subsequent loss of directional control.

3.3 Contributory factor

3.3.1 Poor technique.

4. SAFETY RECOMMENDATIONS

4.1 None.

5. APPENDICES

5.1 None.