AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/2/3/9607		
Aircraft Registration	**ZS-MYS**	**Date of Accident**	21 March 2017		**Time of Accident**	1345Z	
Type of Aircraft	Cessna 172N		**Type of Operation**		Training (Part 141)		
Pilot-in-command Licence Type	Student		**Age**	19	**Licence Valid**	Yes	
Pilot-in-command Flying Experience	Total Flying Hours		40.2		Hours on Type	40.2	
Last point of departure	Lanseria Aerodrome (FALA)						
Next point of intended landing	Lanseria Aerodrome (FALA)						
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)							
Near Hekpoort at Oostermoed farm at GPS: S29° 49' 34.9" E027° 37' 08.1" Elevation 1323m.							
Meteorological Information	Surface Wind: 090° at 08 knots. Visibility >1okm						
Number of people on board	1 + 0	**No. of people injured**	1	**No. of people killed**	0		

Synopsis

On the 21 March 2017, the student pilot took off from FALA for a training flight to the general flying area. Prior to departure the aircraft had 23 gallons of fuel on board and the pre-flight inspection had been completed. The purpose of the flight was to practice steep turns and a simulated forced landing. According to the student pilot, at approximately 6500 feet (AMSL), he executed a simulated forced landing, by applying carburetor heat in the "ON" position, reducing power and trimming the aircraft to 65 knots. At approximately 400 to 500 feet above ground level, he applied carburetor heat in the "OFF" position, then added power. He noticed he was too low to initiate a climb. He therefore chose to fly straight and level overhead the open field in order to regain airspeed. However, the airspeed decayed. He saw another open field, which was suitable for landing. He then continued with the forced landing. As he had already initiated forced landing, the right-hand wing tip inadvertently clipped a tree before the aircraft impacted the ground. The student pilot sustained minor injuries and the aircraft was destroyed by post-impact fire. The investigation revealed that the pilot couldn't recover from the simulated engine failure, which led to the right-wing tip impacting the tree before the aircraft impacted the ground.

Probable Cause

Unsuccessful forced landing following a simulated engine failure, which led to the right-wing tip clipping the tree before the aircraft impacted the ground.

Contributory: poor technique

SRP Date	14 November 2017	Release Date	20 February 2018

AIRCRAFT ACCIDENT REPORT

Name of Owner	**:** Papa Charlie Partnership
Name of Operator	**:** Skyhawk
Manufacturer	**:** Cessna Aircraft Company
Model	**:** 172N
Nationality	**:** RSA
Registration Marks	**:** ZS-MYS
Place	**:** Oostermoed farm
Date	**:** 21 March 2017
Time	**:** 1345Z

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 (2011) 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 blame or liability****.*

Disclaimer:

1. FACTUAL INFORMATION

1.1 History of Flight

1.1.1 The student pilot took off from Lanseria Aerodrome (FALA) at 13:00Z for a solo training flight to the general flying area. No flight plan had been filed. The student took off with 23 gallons of fuel on board, prior to the accident. According to the pilot, he had executed three steep turns to the right and two steep turns to the left, followed by practising three stall exercises. At approximately 6500 feet (AMSL), he executed a simulated force landing, by applying carburettor heat in the “ON” position, reducing power and trimming the aircraft for 65 knots.

1.1.2 At approximately 400 to 500 feet above ground level, he applied carburettor heat in the “OFF” position, then added power, and retracted the flaps to 10°. He noticed that the power and airspeed were too low to initiate a climb. He therefore chose to fly straight and level overhead the open field in order to regain airspeed. The power, airspeed and the altitude decreased. There was not enough space to land the aircraft. He saw another open field, which was suitable for landing. He then continued with the forced landing. As he was continuing with the forced landing, the right-hand wing tip inadvertently clipped a tree before the aircraft impacted the ground. He managed to evacuate the aircraft shortly before the aircraft caught fire, whereupon the rescuers came to offer assistance. The rescuers tried in vain to extinguish the fire. The police were informed and the pilot was taken to hospital for assessment.

1.1.3 The accident occurred Near Hekpoort at Oostermoed farm, during daylight conditions at a geographical position determined to be GPS: S29° 49’ 34.9” E027° 37’ 08.1” elevation 1323m.

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 destroyed by post impact fire.

Figure 1: Wreckage of the aircraft

1.4 Other Damage

1.4.1 None

1.5 Personnel Information

Nationality	Indian	Gender	Male	Age	19
Licence Number	0275000368	Licence Type	Student		
Licence valid	Yes	Type Endorsed	Yes		
Ratings	Nil				
Medical Expiry Date	30 November 2018				
Restrictions	Nil				
Previous Accidents	Nil				

Flying Experience:

Total Hours	40.2
Total Past 90 Days	17.5
Total on Type Past 90 Days	17.5
Total on Type	40.2

1.6 Aircraft Information

1.6.1 The Cessna 172N is a high-wing monoplane of all-metal semi-monocoque construction. The aircraft is equipped with fixed tubular spring steel main landing gear struts and a steerable nose landing gear. It is powered by a Lycoming carburetted engine, model No IO-320-E2D. It comprises a direct drive air-cooled horizontally opposed four-cylinder carburettor piston engine, with 150 horsepower at 2700 RPM. The aircraft flight control system consists of conventional aileron, rudder and elevator control surfaces. The control surfaces are manually operated through mechanical linkage, using a control wheel for ailerons and elevator, and rudder/brake pedals for the rudder. The aircraft is fitted with a two-bladed fixed pitch McCauley 1C160/DTM 753 propeller.

Airframe:

Type	Cessna 172N	
Serial Number	172-72250	
Manufacturer	Cessna Aircraft Company	
Year of Manufacture	1979	
Total Airframe Hours (At time of Accident)	9636.2	
Last MPI (Date & Hours)	10 March 2017	9604
Hours since Last MPI	32.2	
C of A (Issue Date)	23 June 2016	
C of R (Issue Date) (Present owner)	12 September 2014	
Operating Categories	Part 141	

NOTE* According to available maintenance records, the aircraft was properly maintained. The last annual Inspection was conducted as per regulations. No defect or malfunction was reported that could have contributed to or caused the accident.

Engine:

Type	Lycoming I0-320-E2D
Serial Number	L-28271-27A
Hours since New	1325
Hours since Overhaul	TBO not yet reached

Propeller:

Type	McCauley 1C160/DTM 7553
Serial Number	ABA44506A
Hours since New	4754
Hours since Overhaul	359

1.7 Meteorological Information

1.7.1 The following weather information was obtained from the pilot's questionnaire:

Wind direction	090°	Wind speed	08 knots	Visibility	> 10km
Temperature	27°C	Cloud cover	Nil	Cloud base	Nil
Dew point	10°C				

1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard navigation equipment as approved by the regulator for the aircraft type and there were no recorded defects prior to or during the flight.

1.9 Communications

1.9.1 The aircraft was equipped with standard communication equipment as approved by the regulator for the aircraft type and there were no recorded defects prior to or during the flight.

1.10 Aerodrome Information

1.10.1 The accident ocurred Near Hekpoort at Oostermoed farm, during daylight conditions at a geographical position determined to be GPS: S29° 49' 34.9" E027° 37' 08.1" elevation 1323m.

1.11 Flight Recorders

1.11.1 The aircraft was not equipped with a flight data recorder (FDR) or cockpit voice recorder (CVR), nor were these required by the regulations to be fitted to this aircraft type.

1.12 Wreckage and Impact Information

1.12.1 During the simulated forced landing, the aircraft was heading in a northerly direction. It lost height and the right-hand wing tip made contact with the tree before the aircraft impacted the ground. The aircraft skidded for approximately 700m before it came to rest, facing in a southerly direction, and caught fire.

Figure 2: Google map showing the distance between impacted tree and the wreckage

Figure 3: Showing the marking of the broken tree branch

1.13 Medical and Pathological Information

1.13.1 The student pilot was taken to hospital for assessment and released the same day.

1.14 Fire

1.14.1 The aircraft was destroyed by post-impact fire.

1.15 Survival Aspects

1.15.1 Although the aircraft caught fire, the accident was considered survivable as the pilot managed to evacuate the aircraft timeously.

1.16 Tests and Research

1.16.1 Examination of the aircraft revealed no structural or airframe failure. When turning the propeller prior to the recovery there was no indication of engine seizure. The engine was dismantled and inspected and there was no abnormalities found. The magnetos were bench tested and found to be satisfactory.

1.17 Organizational and Management Information

1.17.1 The Aircraft Maintenance Organisation (AMO) who performed the last maintenance on the aircraft prior to the accident was in possession of a valid AMO approval certificate No. 0622 issued by the regulator.

1.17.2 The Aviation Training Organisation (ATO) had a valid training certificate.

1.18 Additional Information

1.18.1 None.

1.19 Useful or Effective Investigation Techniques

1.19.1 None.

2. ANALYSIS

2.1 On 21 March 2017 the student pilot took off from FALA for a training flight to the general flying area. Prior to departure the aircraft had 23 gallons of fuel on board and the pre-flight inspection had been completed. The purpose of the flight was to practice steep turns and a simulated forced landing. According to the student pilot, at approximately 6500 feet (AMSL), he executed a simulated forced landing, by applying carburetor heat in the “ON” position, reducing power and trimming the aircraft to 65 knots. At approximately 400 to 500 feet above ground level (AGL), he applied carburetor heat in the “OFF” position, and added power.

2.2 The pilot reported that he noticed that the aircraft was too low to initiate a climb. He therefore chose to fly straight and level overhead the open field in order to regain airspeed. However the airspeed did not increase. He saw another open field, which was suitable for landing. He then continued with the forced landing. As he was continuing with the forced landing, the right-hand wing tip inadvertently clipped a tree before the aircraft impacted the ground. The pilot had a valid student pilot license and was medically fit to conduct the flight.

2.3 According to available maintenance records, the aircraft was properly maintained. The last annual inspection was conducted as per regulations. No defect or malfunction was reported that could have contributed to or caused the accident. The accident ocurred Near Hekpoort at Oostermoed farm, during daylight

conditions at a geographical position determined to be GPS: S29° 49' 34.9" E027° 37' 08.1" elevation 1323m.

2.4 The available information revealed that fine weather conditions prevailed at the time of the accident. Therefore, it is concluded that weather was not a contributory factor.

3. CONCLUSION

3.1 Findings

3.1 The student pilot had a valid student pilot licence and was properly rated on the aircraft type.

3.2 The student pilot had a valid medical certificate, which would expire on the 30 November 2018.

3.3 The aircraft had a valid certificate of airworthiness at the time of the accident, which was issued on the 23 June 2016.

3.4 The AMO was in a possession of a valid AMO approval certificate No. 0622 issued by the regulator.

3.5 The aircraft took off with 23 gallons of fuel on board prior to the accident.

3.6 The flight was operated VMC conditions

3.7 Fine weather conditions prevailed at the time of the accident.

3.2 Probable Cause/s

3.2.1 Unsuccessful forced landing following a simulated engine failure, which led to the right-wing tip clipping the tree before the aircraft impacted the ground.

Contributory: poor technique

4. SAFETY RECOMMENDATIONS

4.1 None.

5. APPENDICES

5.1 None