SOUTH AFRICAN CIVIL AVIATION AUTHORITY

Section/division Accident and Incident Investigations Division Form Number: CA 12-57

LIMITED ACCIDENT INVESTIGATION REPORT

Reference Number	CA18/3/2/10043						
Classification	Accident	**Date**	21 September 2021	**Time**	1105Z		
Type of Operation	Training Flight (Part 141)						
Location							
Place of Departure	Lanseria International Airport (FALA)		Place of Intended Landing		Lanseria International Airport (FALA)		
Place of Accident	At FALA on Runway 07						
GPS Co-ordinates	Latitude	25°56'23.0" S	Longitude	027°55'28.8" E	Elevation	4517 ft	
Aircraft Information							
Registration	ZS-OHK						
Make/Model	Cessna 172N						
Damage to Aircraft	Substantial		Total Aircraft Hours		11306.7		
Pilot-in-command							
Licence Valid	Yes		Gender	Male	Age: 24		
Licence Type	Student Pilot Licence (SPL)						
Total Hours on Type	50.2		Total Flying Hours		50.2		
People On-board	1 + 0	Injuries	0	Fatalities	0	Other (On Ground)	0

What Happened

On Tuesday, 21 September 2021, a student pilot on-board a Cessna 172N aircraft with registration ZS-OHK took off on a training flight from Lanseria International Airport (FALA) Runway 07 to the general flying area with the intention to return to FALA. The total flight time was approximately 2.4 hours. An eyewitness who was at holding point of Runway 07 stated that the aircraft came in for landing with one notch of flaps and, as a result, the aircraft ballooned and lost height rapidly. This resulted in a hard landing with the nose gear first; the propeller struck the runway surface as the aircraft skidded (on the runway) with the bottom part of the engine cowling before coming to a stop on the left edge of Runway 07. The Airport Rescue and Fire-Fighting (ARFF) personnel were dispatched to the accident scene to assist the student pilot. The aircraft was substantially damaged during the accident sequence and the student pilot was not injured.

The aircraft was later recovered to the Aviation Training Organisation's (ATO's) hangar for further investigation. Examination of the engine showed nothing abnormal. The nose gear broke off during the accident sequence. The damage on the propeller blades indicated that the engine was producing a substantial amount of power at the time of impact. The flight control surfaces moved freely when examined and there was nothing suggesting that the student pilot experienced control

difficulty during the landing phase. The weather was favourable at the time of landing with the wind direction of 150° at 5 knots. Therefore, the weather was eliminated as a possible course of the accident. Examination of the aircraft's flight folio showed no defects prior to the flight.

Figure 1: The aircraft's curled propeller blades. (Source: ATO)

The pilot had a Student Pilot Licence issued on 2 June 2021 with an expiry date of 1 June 2022. The pilot had a Class 2 aviation medical certificate which was issued on 17 March 2021 with an expiry date of 31 March 2022. The pilot had flown a total of 50.2 hours, of which 38.8 hours were flown in the last 90 days prior to the accident date. The last mandatory periodic inspection (MPI) carried out on the aircraft was on 15 September 2021 at 11293.2 airframe hours, and the aircraft had flown a further 13.5 since the last MPI.

Figure 2: The Cessna 172N ZS-OHK in the hangar post-accident. (Source: ATO)

The table below is an extract from the Pilot's Operating Handbook which indicates the speed limitation and landing procedure for a Cessna 172.

	SPEED	KCAS	KIAS	REMARKS
V_{NE}	Never Exceed Speed	158	160	Do not exceed this speed in any operation.
V_{NO}	Maximum Structural Cruising Speed	126	128	Do not exceed this speed except in smooth air, and then only with caution.
V_A	Maneuvering Speed: 2300 Pounds 1950 Pounds 1600 Pounds	 96 88 80	 97 89 80	Do not make full or abrupt control movements above this speed.
V_{FE}	Maximum Flap Extended Speed	86	85	Do not exceed this speed with flaps down.
	Maximum Window Open Speed	158	160	Do not exceed this speed with windows open.

NORMAL LANDING

1. Airspeed -- 60-70 KIAS (flaps UP).
2. Wing Flaps -- AS DESIRED (below 85 KIAS).
3. Airspeed -- 55-65 KIAS (flaps DOWN).
4. Touchdown -- MAIN WHEELS FIRST.
5. Landing Roll -- LOWER NOSE WHEEL GENTLY.
6. Braking -- MINIMUM REQUIRED.

Probable cause:

The aircraft approached at a high speed and it ballooned before landing hard with its nose gear touching down first. This caused failure of the nose gear, and thus, the aircraft skidded and came to a halt on the left edge of the runway.

Safety Action

None.

Safety Message

To avoid injury or damage to property, pilots are advised to ensure that they keep to the landing limits indicated in the Pilot's Operating Handbook.

Purpose of the Investigation

In terms of Part 12.03.1 of the Civil Aviation Regulations (CAR) 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 apportion blame or liability****.*

About this Report

Decisions regarding whether to investigate, and the scope of an investigation are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, no investigation has been conducted, and the Accident and Incident Investigations Division (AIID) has relied on the information submitted by the affected person/s and organisation/s to compile this brief report. The report has been compiled using information supplied in the initial notification, as well as follow-up information to bring awareness of potential safety issues to the industry in respect of this occurrence, as well as possible safety action/s that the industry might want to consider in preventing a recurrence of a similar accident.

This report provides an opportunity to share safety message/s in the absence of an investigation.

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.

Disclaimer	
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This report is issued by:
Accident and Incident Investigations Division
South African Civil Aviation Authority
Republic of South Africa