SOUTH AFRICAN CIVIL AVIATION AUTHORITY

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

LIMITED SERIOUS INCIDENT INVESTIGATION REPORT

Reference Number	CA18/3/2/1375										
Classification	Serious Incident		**Date**	5 October 2021			**Time**	1745Z			
Type of Operation	Training (Part 141)										
Location											
Place of Departure	Karoo Gateway (Beaufort West) Aerodrome (FABW), Western Cape Province			Place of Intended Landing			Karoo Gateway (Beaufort West) Aerodrome (FABW), Western Cape Province				
Place of Accident	Runway 08, Karoo Gateway (Beaufort West) Aerodrome (FABW), Western Cape Province										
GPS Co-ordinates	Latitude	32˚18'16.3" South		Longitude	022˚39'42.0" East		Elevation	2 929 feet			
Aircraft Information											
Registration	ZS-SWP										
Model/Make	Piper Seminole 44-180										
Damage to Aircraft	Substantial			Total Aircraft Hours			3 398.6 hours				
Pilot-in-command											
Licence Type	Airline Transport Pilot Licence (ATPL) (Aeroplane)			Gender		Male		Age	29		
Licence Valid	Yes										
Total Hours on Type	647.3			Total Flying Hours		2 426.3					
People On-board	1 + 1	Injuries	0	Fatalities	0	Other (on ground)	0				
What Happened											

On Tuesday evening, 5 October 2021 at about 1745Z, a student pilot accompanied by an instructor on-board a Piper Seminole 44-180 aircraft with registration mark ZS-SWP were engaged in a training flight at Karoo Gateway (Beaufort West) Aerodrome (FABW), Western Cape province. The flight was conducted under the provisions of Part 141 of the Civil Aviation Regulations (CAR) 2011 as amended. Clear weather conditions prevailed at the time leading to the incident.

According to available information, the student pilot, who had a Commercial Pilot License (CPL), was conducting visual flight rules (VFR) night flying circuit-and-landing exercises on Runway 08 (RWY 08) at FABW. The purpose of the training was for the student pilot to accumulate hours towards his multi-engine rating. The student pilot was the pilot flying at the time.

The instructor stated that the first touch-and-go exercise was a normal approach; downwind checks were completed and, during the base leg turn, they confirmed three green lights (indicating that the landing gear was down). The landing was uneventful, and the aircraft was set up for the second circuit exercise. While turning for finals, the aircraft was configured for touch-and-go landing (second stage flaps selected and power of 16" manifold pressure [MP]). The student pilot was cleared for touch-and-go and was told to report on left downwind RWY 08 by air traffic control (ATC) on frequency 125.6-Megahertz (MHz).

The aircraft was landed on the centreline under the control of the student pilot. According to the instructor, the flaps were set to zero (0) and they both scanned outside in preparation for the third touch-and-go circuit exercise. The student pilot applied full throttle maximum power of 26" MP. The instructor stated that the student pilot verbalised rotation speed (speed Vr) at 75 knots indicated air speed (KIAS) and initiated rotation by deflecting the controls column aft. When the nose gear was off the ground and the mainwheels still on the ground, the student pilot and the instructor noticed an antelope (duiker) crossing the runway (from the left- to the right-side of the runway). The instructor then took control of the aircraft and raised the aircraft's nose higher to lift the aircraft off the ground so as to avoid colliding with the antelope (duiker). However, the aircraft hit the antelope (duiker) with the nose wheel at a speed of approximately 75-80 knots (kt). After assessing the situation, the instructor continued with take-off and confirmed to the student that the aircraft was operating within limits (temperatures and pressures in the green), the landing gear remained in the down position throughout the circuit. A neutral circuit was maintained for approximately 20 minutes and, thereafter, the instructor notified ATC of the incident.

A duty officer in a response vehicle 1 (RV1), heard by the student pilot and the instructor over the radio, attended to the hit antelope (duiker). The antelope was found dead on the runway and was removed by the duty officer, assisted by two fuel bay personnel. After the runway was cleared, the instructor did a low-level fly past over the tower (ATC) and the RV1 (duty officer) for them to visually confirm if the nose gear was down and locked. The tower and the RV1 were not able to make visual confirmation due to low visibility as it was night time. The instructor then asked the student pilot to shine the light on the left window to the mirror situated on the left engine; thereafter, the student pilot was able to confirm that the nose gear was down. The instructor landed the aircraft. After touchdown and during the landing roll, the instructor raised and held the flare while reducing the throttles to idle and pulling the mixture to idle cut-off (in case the nose gear collapses during touchdown). After the aircraft had come to a stop and the shutdown procedure was completed, both occupants disembarked the aircraft unassisted. The aircraft was substantially damaged during the incident; however, no injuries were sustained by the occupants. The aircraft was pushed by hand via taxiway Charlie (C) to the apron during the recovery phase.

What was found:

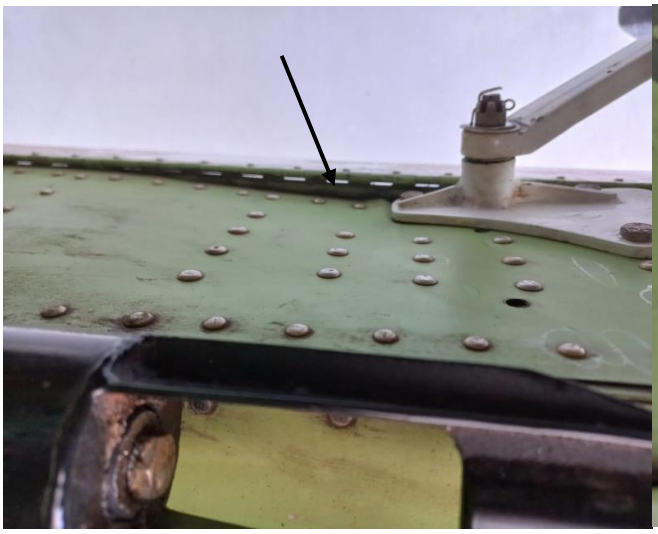
- The instructor and the student pilot were properly licensed. The student pilot had a Student Pilot Licence Integrated Course (SPLIC) and had completed a Commercial Pilot Licence (CPL) test on 29 September 2021, according to the logbook copy.
- The instructor had an Airline Transport Pilot Licence (ATPL) issued on 5 July 2021 with an expiry date of 30 July 2022. The instructor had a Grade 3 Instructor Licence issued on 7 November 2018 with an expiry date of 30 November 2021.
- The Certificate of Airworthiness and the Certificate of Release to Service for the aircraft were valid with an expiry date of 15 April 2022 at 1621.8 hours and 29 July 2022, respectively.
- The aircraft sustained substantial damage in the nose section area with aluminium extrusions along the lower spars, sheared bolt that attaches to the drag link, nose spar box structure that had flexed upwards and cracked lengthwise, bent ribs on the nose support, sheared rivets that attaches the spar box to the bottom skin, 'wrinkles'/buckles along the left- and right-side of the fuselage skin, cracked and flaking drag link assembly and cracked bushes that attaches the drag link to the arm assembly.
- Both the left- and the right-side engines along with the associated propeller were not damaged. The carbon fibre nose cone was also not damaged.
- The aircraft was issued a special flight permit with an expiry date of 9 November 2021 for repositioning for maintenance repairs at an aircraft maintenance organisation (AMO) facility in Nelspruit, Mpumalanga province.
- The airport is registered as a Category 1 and was issued licence number 62 on 1 May 2021 with an expiry date of 30 April 2022. According to Regulation 139.02.19, holders of licence Category 3 and higher are required to have an environmental wildlife programme - *Establishment of aerodrome environment management programme.*

139.02.19 *(1) Subject to the provisions of the National Environmental Management Act, 1998 (Act 107 of 1998), a holder of an aerodrome licence with a Category higher than 3, shall, in the area within its authority, establish an aerodrome environment management programme—*

(a) where any foreign object debris, oil and fuel spillage, bird and wildlife presents or is likely to present a hazard to aircraft operating to or from an aerodrome; or

(b) where any aviation operation which is likely to impact on the environment is conducted.

- According to the airport manager, the airport is fenced. It is likely that the antelope might have crawled under the fence as there were no visible damages found on the fence during inspection.



Figures 1 and 2: The arrows show a bend/dent on the nose spar box structure where a drag link assembly attach. (Source: AMO)

Figure 3: Wrinkles/buckles on the fuselage skin. (Source: AMO)

Figure 4: Sheared rivets that attach the skin to the nose spar box structure near the nose gear door. (Source: AMO)

Probable cause

The aircraft's nose landing gear impacted an antelope during take-off rotation.

Safety Action/s

None.

Safety Message

The aerodrome management undertake weekly perimeter fence inspections to fill/cover the holes dug by animals, as well as undertake regular runway inspections, especially during night flying hours, to scare off wildlife from the runway.

Purpose of the Investigation

In terms of Regulation 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

This report is issued by:

Accident and Incident Investigations Division
South African Civil Aviation Authority
Republic of South Africa