SOUTH AFRICAN CIVIL AVIATION AUTHORITY

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

LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/2/3/10444								
Classification	Accident		**Date**	21 April 2024		**Time**	1030Z		
Type of Operation	Charter Commercial Flight (Part 135)								
Location									
Place of Departure	Lanseria International Airport (FALA), Gauteng Province		Place of Intended Landing		Kalahari Lion Safari Airfield, North West Province				
Place of Occurrence	RWY 35 at Kalahari Lion Safaris Airfield in North West Province								
GPS Co-ordinates	Latitude	S25°43'21.5"	Longitude	E023°28'08.7"	Elevation	3 637 feet			
Aircraft Information									
Registration	ZS-NVE								
Make; Model; S/N	Cessna Aircraft Company; C402C (Serial Number: 402C-0033)								
Damage to Aircraft	Substantial			Total Aircraft Hours	12 068				
Pilot-in-command									
Licence Type	Airline Transport Pilot Licence (ATPL) Aeroplane		Gender	Male	Age	35			
Licence Valid	Yes	Total Hours	2 598.3	Total Hours on Type	192				
Total Hours 90 Days	73.7		Total Flying on Type Past 90 Days	71.9					
People On-board	1 + 4	**Injuries**	0	**Fatalities**	0	**Other (on ground)**	0		

What Happened

On Sunday morning, 21 April 2024, a pilot and four passengers on-board a Cessna 402C aircraft with registration ZS-NVE were on a charter commercial flight from Lanseria International Airport (FALA) in Gauteng province to Kalahari Lions Safari in the North West province. The flight was conducted under instrument flight rules (IFR) by day and under the provisions of Part 135 of the Civil Aviation Regulations (CAR) 2011 as amended.

The pilot stated that he departed FALA at approximately 0904Z. The flight segment to Kalahari Lions Safari Airfield was uneventful. Upon arrival at the airfield, the pilot assessed the wind condition which favoured Runway 35 (asphalt). The approach for landing was uneventful, and the aircraft landed safely. Thereafter, he taxied the aircraft to the opposite end of the runway to execute a 180-degree (°) turn (U-turn). Upon reaching the end of the runway, the pilot manoeuvred the aircraft beyond the asphalt surface of the runway to the right of the dirt-covered area. During the turn, the pilot advanced the throttle to full power to roll the aircraft back onto the asphalt surface (runway). However, during this process, the right-side main wheel got stuck in the dirt (soft sand). The pilot then reduced the throttle power to stop the aircraft from turning further, thus, preventing the possibility of damaging the main landing gear struts. Consequently, the nose landing gear strut collapsed, and the propeller blades impacted the ground. The aircraft was substantially damaged; the pilot and the passengers were not injured.

Figure 1: The front view of the aircraft after the accident. (Source: Pilot)

Figure 2: The aircraft on the right side of the asphalt runway. (Source: Pilot)

Post-accident inspection revealed that the left-side nose gear trunnion pin broke off due to overload which led to the collapse of the nose gear. Consequently, both the left- and right-side propeller blades impacted the ground.

Figure 3: The broken left-side nose gear trunnion pin.

Findings

1. The pilot was initially issued an Airline Transport Pilot Licence (ATPL) on 5 January 2023. The licence was renewed on 16 November 2023 with an expiry date of 30 November 2024. The pilot had Instrument and Grade II Instructor ratings endorsed on his licence. The pilot also had a Class 1 aviation medical certificate that was issued on 20 October 2023 with an expiry date of 31 October 2024 with no restrictions. The pilot was medically fit to conduct the flight.

2. The flight, which was for commercial purposes, was authorised and operated under the Air Operating Certificate (AOC) that was issued on 26 October 2023 with an expiry date of 30 September 2024.

3. The last mandatory periodic inspection (MPI) conducted on the aircraft was certified on 28 March 2024 at 12 067 airframe hours. The aircraft was issued a Certificate of Release to Service (CRS) on 28 March 2024 with an expiry date of 27 March 2025 or at 12 167 airframe hours, whichever occurs first. The aircraft accrued 1 hour after the last MPI.

4. The aircraft had a valid Certificate of Airworthiness (C of A) which was initially issued on 27 November 1977. The latest C of A was reissued on 27 February 2024 with an expiry date of 28 February 2025. The aircraft's Certificate of Registration (C of R) was issued to the current owner on 4 May 2016.

5. The aircraft maintenance organisation (AMO) which certified the last MPI had a valid AMO Certificate that was re-issued on 1 February 2024 with an expiry date of 28 February 2025.

6. The left-side nose gear trunnion pin broke off whilst the aircraft taxied on dirt surface (soft sand); this led to the collapse of the nose gear, and both the left- and right-side propeller blades impacted the ground.

Probable Cause(s)

The left-side nose gear trunnion pin broke off due to overload whilst taxiing on dirt surface (soft sand), subsequently, the nose gear collapsed, and the propeller blades impacted the ground.

Contributing Factor(s)

The pilot applied excessive power to free the aircraft (left wheel) from the dirt surface (soft sand), as a result, the left-side nose gear strut trunnion broke.

Safety Action(s)

None.

Safety Message and/or Safety Recommendation/s

None.

About this Report

The decision to conduct a limited investigation is based on factors including whether the cause is known and the evidence supporting the cause is clear, the level of safety benefit likely to be obtained from an investigation and that will determine the scope of an investigation. For this occurrence, a limited 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 limited report. The report has been compiled using information supplied in the initial notification, as well as from follow-up desk top enquiries 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 occurrence.

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

In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011 and ICAO Annex 13, 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.

Disclaimer

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