LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number	CA18/3/2/1501					
Classification	Serious Incident	**Date**	29 August 2025	**Time**	1520Z	
Type of Operation	Training (Part 141)					
Location						
Place of Departure	Springs Aerodrome (FASI), Gauteng Province	Place of Intended Landing	Springs Aerodrome (FASI), Gauteng Province			
Place of Occurrence	Springs Aerodrome (FASI)					
GPS Co-ordinates	Latitude	26°14'52.97" S	Longitude	028°23'57.32" E	Elevation	5 336 feet
Aircraft Information						
Registration	ZS-MLD					
Make; Model; S/N	Piper; PA-34-200T (Serial Number 34-7670210)					
Damage to Aircraft	Substantial	Total Aircraft Hours	5 635.6			
Pilot-in-command						
Licence Type	Airline Transport Pilot Licence	Gender	Male	Age	43	
Licence Valid	Yes	Total Hours	9 000.0	Total Hours on Type	1 000.0	
Total Hours 30 Days	30.0	Total Flying on Type Past 90 Days	100.0			
People On-board	2 + 0	**Injuries**	0	**Fatalities**	0	**Other (on ground)**	0

What Happened

On Friday afternoon, 29 August 2025, a flight instructor (FI) and a student pilot (SP) on-board a Piper PA-34-200T aircraft with registration ZS-MLD were taxiing in preparation for a training flight from Springs Aerodrome (FASI), Gauteng province, to the Vaal Dam in Free State province with the intention to return to FASI when the serious incident occurred. Visual meteorological conditions (VMC) by day prevailed at the time of the flight which was conducted under the provisions of Part 141 of the Civil Aviation Regulations (CAR) 2011 as amended.

The FI reported that the crew completed a pre-flight inspection of the aircraft with no anomalies observed. The two aircraft engines started normally, and all the cockpit indications were within the normal operating range. After completing the power and pre-take-off checks, the handling pilot was taxiing the aircraft at a slow ground speed from the grass surface where it was parked to the asphalt taxiway when the nose gear leg collapsed. Subsequently, the nose and the propeller blades impacted on the asphalt surface (see Figure 3). No person was injured.

The serious incident occurred during the day at Global Positioning System (GPS) co-ordinates determined to be 26°14'52.97" South 028°23'57.32" East, at an elevation of 5 336 feet (ft) above mean sea level (AMSL).

Figure 1: The yellow pin indicates the position of the aircraft at FASI after the serious incident. (Source: Google Earth)

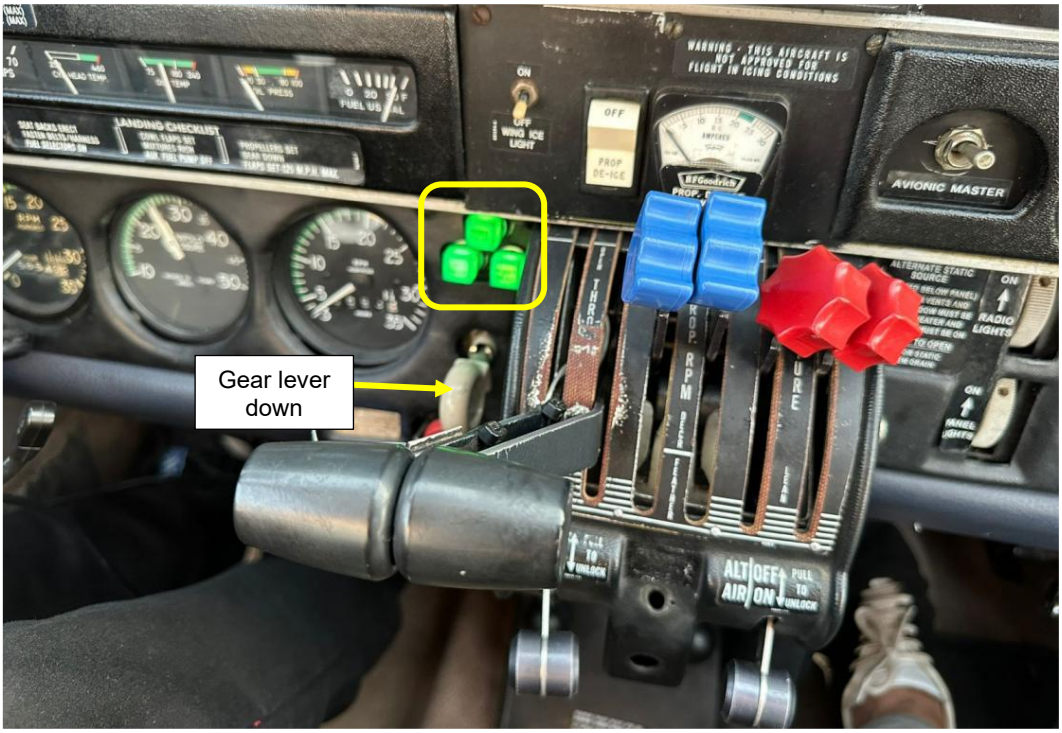

Figure 2: The cockpit instrument panel showing the gear lever down with three green indicators. (Source: Pilot)

Figure 3: The aircraft as it came to rest after the nose gear had collapsed. (Source: Pilot)

(a) (b)

Figure 4: The damage caused by the propeller blades on the (a) right side and (b) left side of the asphalt-covered runway.

Nose Landing Gear Mechanism

The nose landing gear of the Piper PA-34-200 series is of the forward retracting type, which, when extended, has the wheel axle forward of the oleo pivot. When the gear is retracted, it is held up by hydraulic pressure in the actuator, and when extended, it is held in the down position by a geometric down lock mechanism. There are no locking hooks for either position. When the nose landing gear is extended and under load, the primary brace against collapse is the drag link assembly. When the landing gear is fully extended, the drag link centre pivot should be offset below the line between its

two end pivots. In this position, the fixed stops of the drag link centre joint, which limit the over-centre travel of these links, should be in abutment (see Figure 5).

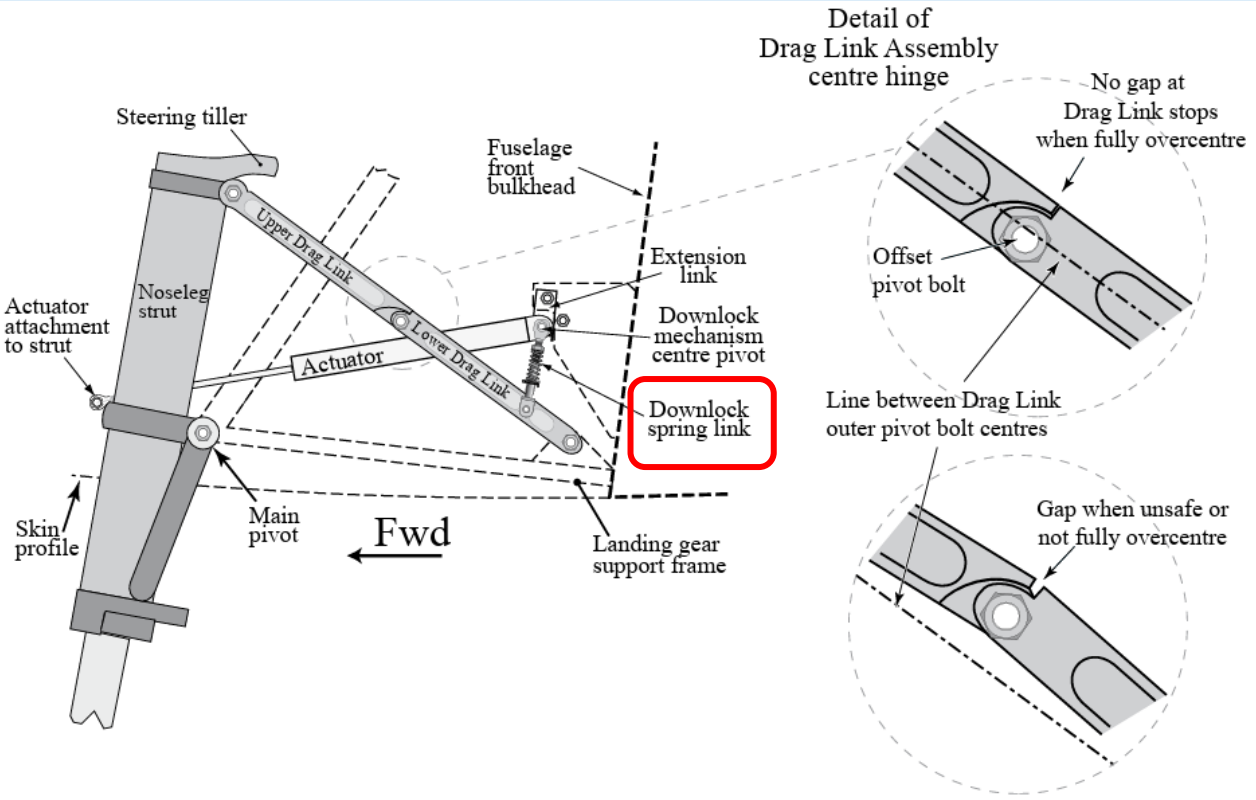

Diagram 1: A Piper PA-34 drawing showing a side view of the nose landing gear main components in extended position.

The overall geometry of the landing gear is such that aircraft weight on the nose wheel applies a compressive load to the drag link assembly, which tends to drive it more firmly into the safe over-centre condition when the gear is properly extended. Conversely, it will tend to cause the drag link to fold, and the gear to retract, if the load is applied when the drag link assembly is in an under-centre condition. The down lock spring link helps to maintain the over-centre down lock position by applying a force on the lower drag link. It has a spring and a plunger to permit a small change in its length as it is moved in and out of lock (see Diagram 2).

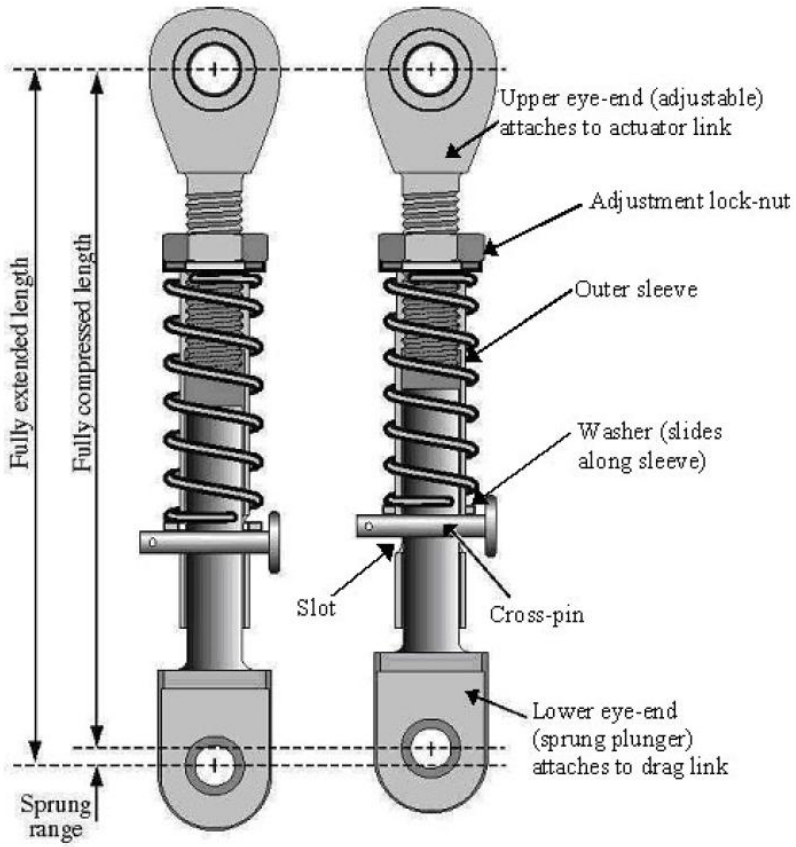

Diagram 2: Down lock spring link in compressed and extended position.

The difference between the compressed and uncompressed length should be approximately 0.08 inches. The travel of the plunger is limited by a cross-pin, which abuts against a washer that presses against the spring when the link is compressed. The length of the down lock spring link is adjustable and should be rigged such that it is fully compressed when the drag link assembly is driven to the fully over-centre position. If the down lock link is adjusted too short, the drag link will not be driven to the over-centre position, which could result in the nose gear collapsing.

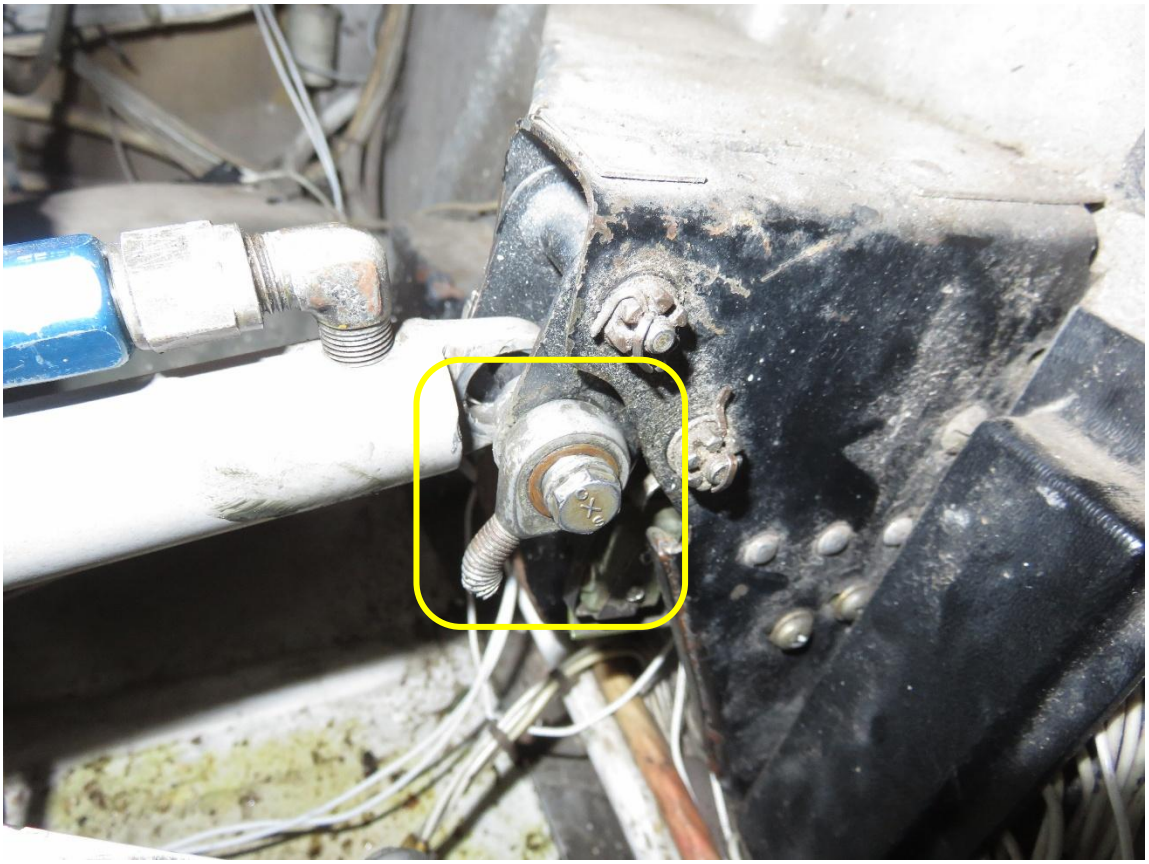

Figure 5: View of the upper end of the actuator attachment to the structure, showing the bent down lock spring link eye end.

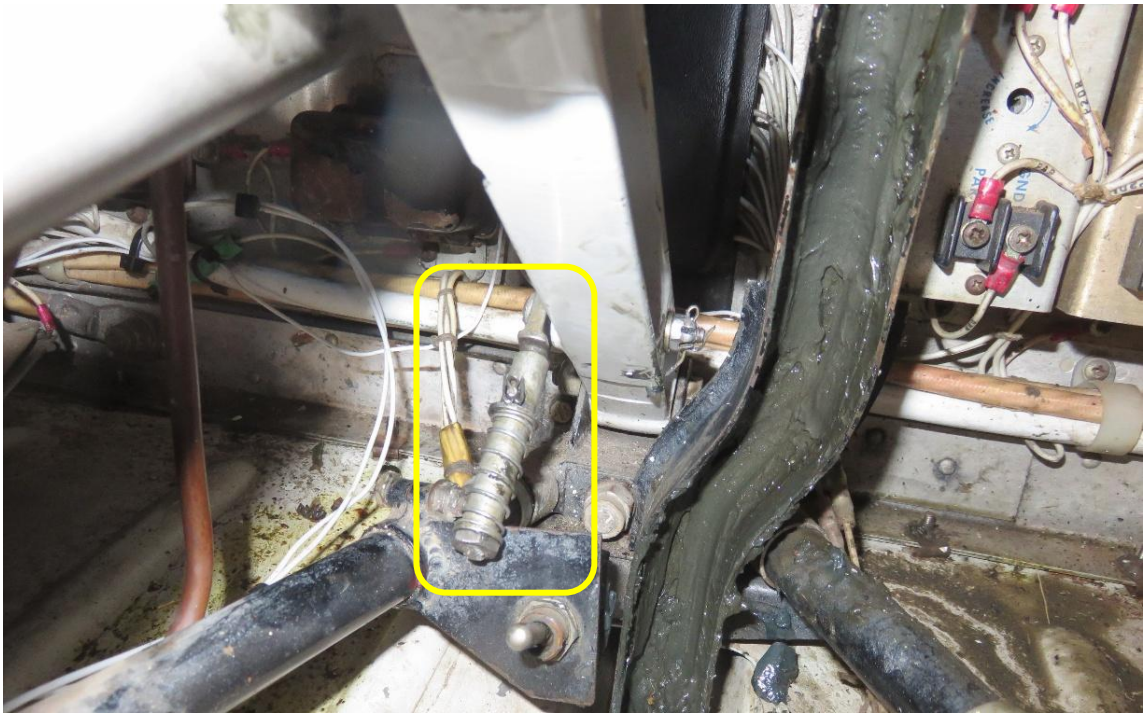

Figure 6: The lower part of the down lock spring link that failed.

Findings

1. Personnel

1.1 The pilot-in-command (PIC) had an Airline Transport Pilot Licence (ATPL) that was initially issued by the Regulator (SACAA) on 30 March 2009.

1.2 The PIC had an Instrument rating and a Grade 1 Instructor rating. He was also a Designated Flight Examiner (DFE 1 A).

1.3 The PIC had a Class 1 aviation medical certificate that was issued on 14 January 2025 with an expiry date of 31 January 2026.

1.4 The serious incident occurred during the PIC's third flight of the day on the aircraft.

2. Aircraft

2.1 The last maintenance inspection of the aircraft was conducted and certified on 12 August 2025 at 5 588.6 airframe hours. The aircraft had accrued 47.0 hours since the said inspection.

2.2 A Certificate of Registration (C of R) was issued to the present owner on 19 May 2021.

2.3 The aircraft Certificate of Airworthiness (C of A) was issued by the Regulator on 26 October 2015. The latest C of A had an expiry date of 31 October 2025.

2.4 An aircraft maintenance organisation (AMO) that maintained the aircraft had issued a Certificate of Release to Service (CRS) on 12 August 2025 with an expiry date of 11 August 2026 or at 5 688.6 airframe hours, whichever comes first.

2.5 The AMO had an AMO Certificate that was issued by the Regulator on 27 February 2025 with an expiry date of 28 February 2026.

2.6 The aircraft was involved in an incident on 21 July 2005 when the right main gear collapsed. The engine was subjected to a shock load inspection, and the propeller was repaired.

2.7 The aircraft was also involved in an accident on 8 December 2014 at Stellenbosch Aerodrome when the nose gear collapsed during landing and the aircraft veered off the

runway. At the time of the accident, the aircraft had logged 4 016.3 airframe hours. (AIID Ref No. CA18/2/3/9380.)

2.8 The aircraft had accrued an additional 1 619.3 hours since the accident on 8 December 2014.

2.9 The aircraft was manufactured in 1976.

2.10 The Piper PA-34-200 series has a long history of nose landing gear collapses, with a number being investigated by authorities around the world.

3. Approved Training Organisation (ATO)

3.1 The ATO was issued an ATO Certificate by the Regulator on 10 June 2024 with an expiry date of 30 June 2029.

3.2 The flight was accordingly authorised. Both crew members completed the authorisation sheet.

4. Aerodrome

4.1 FASI is an unmanned licensed aerodrome with a single asphalt runway orientated 03/21.

Probable Cause

The nose gear down lock spring link failed whilst the crew was taxiing the aircraft to the taxiway; subsequently, the nose gear collapsed and both propellers struck the asphalt surface.

Contributing Factor

The possibility of damage arising from an earlier heavy landing could not be discounted.

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.
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This report is issued by:

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