



LIMITED SERIOUS INCIDENT INVESTIGATION REPORT
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Reference Number	CA18/3/2/1379						
Classification	Serious Incident	Date	13 October 2021	Time	1144Z		
Type of Operation	Training (Part 141)						
Location							
Place of Departure	Virginia Aerodrome (FAVG), KwaZulu-Natal Province	Place of Intended Landing	Virginia Aerodrome (FAVG), KwaZulu-Natal Province				
Place on Incident	Durban South, Old Durban International Aerodrome						
GPS Co-ordinates	Latitude	S 29°57'52.6"	Longitude	E 030°57'12.6"	Elevation	33 feet (ft)	
Aircraft Information							
Registration	ZS-PUR						
Model/Make	C152, Cessna Aircraft Company						
Damage to Aircraft	Minor	Total Aircraft Hours	5810.9				
Pilot-in-command							
Licence Type	Commercial Pilot Licence (CPL)	Gender	Male	Age	28		
Licence Valid	Yes						
Total Hours on Type	397.6		Total Flying Hours	896.9			
People On-board	1 + 1	Injuries	0	Fatalities	0	Other (on ground)	0
What Happened							
<p>On 13 October 2021, a flight instructor and a student pilot on-board a Cessna 152 aircraft with registration mark ZS-PUR were on a training flight from Virginia Aerodrome (FAVG) to Durban general flying area (GFA) to practice forced landing exercises. The flight was conducted under the provisions of Part 141 of the Civil Aviation Regulations (CAR) 2011 as amended.</p> <p>According to the instructor, the cruise at 3000 feet (ft) above ground level (AGL) to the GFA was uneventful. Upon reaching the GFA, the instructor first demonstrated a simulated engine failure and, while recovering and on a climb passing through 1500ft AGL, the engine started running rough and vibrated violently, followed by partial loss of power. The instructor levelled off the aircraft and started scanning all instruments. He found that the engine temperature and oil pressure were within limits. He switched the carb heat on, and then off. The engine seemed to run smoother at full throttle. As a precaution, the instructor decided to cut short the lesson and advised FAVG tower that they were returning due to a rough running engine.</p>							

While en route back to FAVG abeam Galleria Mall, the instructor noticed that the oil pressure was dropping, and that it was close to a minimum safe operating level. Shortly thereafter, the engine stopped. The instructor then decided to execute a forced landing at the Old Durban International Aerodrome. Before landing, the instructor had advised FAVG tower of their decision to divert. The aircraft landed without damage and both occupants were not injured during the serious incident.



Figure 1: The airframe covered in leaked oil. (Source Pilot)

The investigation:

- The aircraft was released to service following a 100-hour mandatory periodic inspection (MPI) on 5 October 2021 at 5792.2 Tachometer hours and had completed 18.8 hours before the incident.
- According to the aircraft maintenance organisation (AMO), a crankshaft seal was damaged, which led to oil leakage, oil pressure drop and engine seizure. The crankshaft seal was fitted during engine overhaul on 5 February 2018 at 4798.7 airframe hours.
- The crankshaft seal comes in a kit and is fitted according to service instruction (SI) 1324C of 26 May 2009 and it is replaced on condition.
- There were no oil pressure or oil quantity snags entered in the last five pages of the flight folio prior to the incident flight; the only entry that was in the flight folio was the release to service after the MPI.

Probable cause:

Engine stoppage in-flight due to oil leakage which resulted in a drop in oil pressure because of a damaged crankshaft seal, causing the pilot to execute a successful forced landing; engine failure.

Safety Action/s

None.

Safety Message and/or Safety Recommendation/s

None.

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

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This report is issued by:

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