SOUTH AFRICAN CIVIL AVIATION AUTHORITY

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

LIMITED OCCURRENCE INVESTIGATION REPORT

Reference Number	CA18/3/2/1473								
Classification	Serious Incident		**Date**	29 March 2025			**Time**	0910Z	
Type of Operation	Private (Part 91)								
Location									
Place of Departure	Virginia Aerodrome (FAVG), KwaZulu-Natal Province		Place of Intended Landing				Virginia Aerodrome (FAVG), KwaZulu-Natal Province		
Place of Occurrence	On the beach shoreline near Beachwood Mangroves Nature Reserve								
GPS Co-ordinates	Latitude	29°48'00.00" S	Longitude	031°02'00.00" E			Elevation	20 ft	
Aircraft Information									
Registration	ZS-SBC								
Make; Model; S/N	Cessna 152 (Serial Number: 15280336)								
Damage to Aircraft	None			Total Aircraft Hours			9915.4		
Pilot-in-command									
Licence Type	Private Pilot Licence (PPL)			Gender	Male		Age	19	
Licence Valid	Yes	Total Hours	77.0		Total Hours on Type		77.0		
Total Hours 30 Days	14.3		Total Flying on Type Past 90 Days		32.6				
People On-board	1+1	**Injuries**	0	**Fatalities**	0		**Other (on ground)**	0	

What Happened

On Saturday morning, 29 March 2025, a pilot and a passenger on-board a Cessna 152 aircraft with registration ZS-SBC took off on an hour building flight from Virginia Aerodrome (FAVG) in Durban, KwaZulu-Natal province, with the intention to fly to Harding and Pietermaritzburg Airport before returning to FAVG. The flight plan was filed for this flight which was conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 91 of the Civil Aviation Regulations (CAR) 2011 as amended.

The pilot stated that he conducted a pre-flight inspection of the aircraft; however, he did not visually confirm the fuel that was on-board the aircraft before take-off. The flight plan was filed for a 02:25 hours flight. The pilot had planned to take off from FAVG to Harding, which is situated approximately 80 nautical miles (nm) south-west of FAVG; then to Pietermaritzburg Airport (FAPM), which is 138nm north of Harding; and back to FAVG, which is 46nm from FAPM. At approximately 0653Z, the aircraft took off and headed south-west along the coast, cruising at a speed of 107 knots (kts). The aircraft flew to Harding and then to FAPM where the pilot executed a successful touch-and-go landing on Runway 16. Thereafter, he headed back to FAVG. At approximately 10nm south of FAVG, the aircraft's engine ran rough. This was followed by a complete engine power loss. The pilot, with the assistance of the passenger who had a PPL, troubleshot the anomaly, but they were unsuccessful.

Therefore, the passenger contacted FAVG control tower on very high frequency (VHF) 120.60-Megahertz (MHZ) to informed them of their situation. As the aircraft was rapidly losing height, the pilot selected the flaps to 30 degrees and executed a successful forced landing on the beach shoreline near Beachwood Mangroves Nature Reserve. After the aircraft had stopped, the pilot switched off the master switch and turned off the fuel selector valve. Both occupants vacated the aircraft. No person was injured; the aircraft was also not damaged.

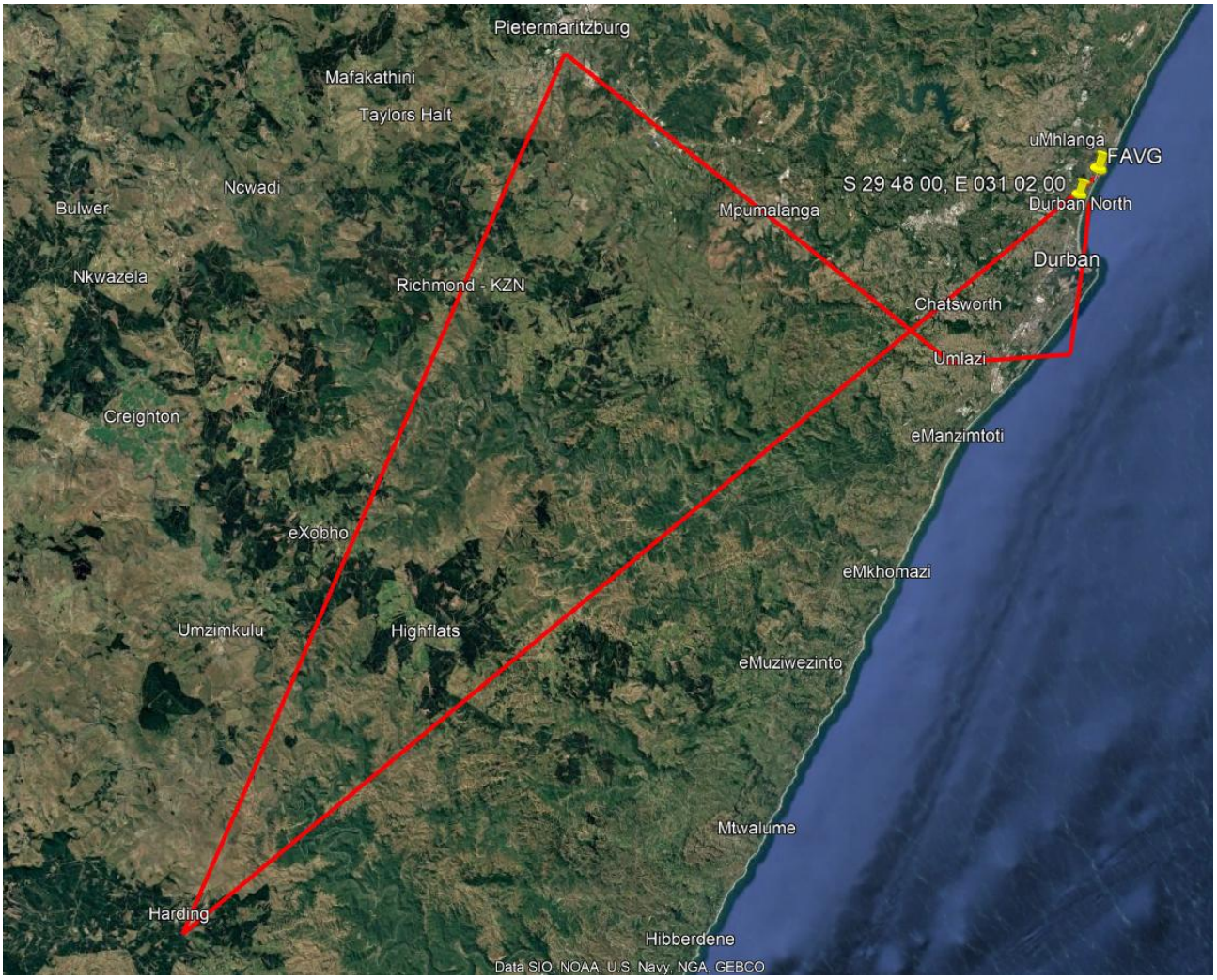

Figure 1: The flight route and the incident site. (Source: Google Earth)

Figure 2: The aircraft after it had stopped. (Source: Safety Officer)

Figure 3: The amount of fuel drained from both aircraft tanks after the incident.

The aircraft was intact with no evidence of a fuel leak or contamination.

After the serious incident, the engine was inspected and later started by an approved aircraft maintenance organisation (AMO). The engine was found to be serviceable, and it operated within the normal engine parameters.

Fuel System (Source: Pilot's Operating Handbook)

The airplane may be equipped with either a standard fuel system or long-range system. Both systems consist of two vented fuel tanks (one in each wing), a fuel shutoff valve, fuel strainer, manual primer and carburettor.

The ZS-SBC is equipped with standard fuel tanks with a total capacity of 26 US Gallons (98.4 litres) of which 24.5 (92.7 litres) is usable. Each fuel tank has a capacity of 13 US Gallons (49.2 litres).

Fuel Calculations

The intended flight was 02:25 minutes, which required 13.3 USG (US Gallons) of fuel (Aviation Gasoline). This equated to 50.3 litres.

According to the flight folio, on 25 March 2025, 27 litres (7.4 USG) of fuel was uplifted. The operator stated that the aircraft was filled to capacity after the uplift and was flown for 2.7 hours (02:42 hours).

No record of further fuel uplift was documented in the flight folio for the two flights which were conducted on 27 March 2025 and totalling 1 hour 53 minutes.

The aircraft had 04:30 endurance of usable fuel during the flight that took place on 27 March 2025. Therefore, the aircraft had already been flying on reserve fuel.

Calculation: 04:30 - 02:42 = 01:48 (25 March 2025)

01:48 - 00:53 = 00:55 (25 March 2025)

00:55 - 01:00 = (-) 00:05 (27 March 2025)

On 28 March 2025, the aircraft was uplifted with 33 litres (8.7 US Gallons) of fuel which was recorded in the flight folio. At the time of departure on 29 March 2025, the aircraft had insufficient fuel on-board to complete the full duration of the planned navigational flight.

Findings

1. Pilot

1.1. The pilot had a Private Pilot Licence (PPL) that was initially issued by the Regulator on 21 February 2025 with an expiry date of 31 January 2026. The pilot's Class 2 aviation medical certificate was issued on 6 September 2024 with an expiry date of 30 September 2029.

1.2. The pilot had a total of 77 flying hours which were accumulated on the aircraft type.

2. Aircraft

2.1. The latest mandatory periodic inspection (MPI) of the aircraft was conducted and certified on 12 February 2025 at 8924.61 hours after which a Certificate of Release to Service (CRS) was issued with an expiry date of 11 February 2026 or at 9024.61 hours, whichever comes first. The aircraft had a total of 8989.8 hours at the time of the serious incident. It had accumulated a total of 65.19 hours since the last MPI.

2.2. The aircraft had a valid Certificate of Airworthiness (C of A) that was issued by the Regulator on 6 November 2018 with an expiry date of 30 November 2025. The aircraft's Certificate of Registration (C of R) was issued to the current owner on 10 April 2018.

2.3. The aircraft maintenance organisation (AMO) which conducted the MPI of the aircraft had an AMO Certificate that was issued on 31 August 2024 with an expiry date of 31 August 2025. The aircraft type was endorsed on the AMO's operational specifications.

3. Environment

3.1. Clear weather conditions prevailed at the time of the flight; the weather was not an attribute to this serious incident.

4. Mission

4.1. The aircraft took off on a navigational flight on 29 March 2025 with insufficient fuel on-board for the planned route.

Probable Cause(s)

Engine failure due to fuel exhaustion.

Contributing Factor(s)

None.

Safety Action(s)

The operator should ensure adherence to fuel policy when leasing aircraft to pilots. Pilots who lease aircraft to build hours are likely to upload the minimum required fuel for their trip to contain costs associated with flying.

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
This report is produced without prejudice to the rights of the AIID, which are reserved.

This report is issued by:

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