AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:		CA18/2/3/10636	
Aircraft Registration	**ZS-PWN**	**Date of Accident**	14 February 2026			**Time of Accident**	0838Z
Type of Aircraft	Cessna U206F			**Type of Operation**		Air Transport Operations (Part 135)	
Pilot-in-command Licence Type	Commercial Pilot Licence (CPL)			**Age**	35	Licence Valid	Yes
Pilot-in-Command Flying Experience		**Total Flying Hours**		884.5		**Hours on Type**	400.2
Last Point of Departure	Nelspruit Aerodrome (FANS), Mpumalanga Province						
Next Point of Intended Landing	Singita Sabie Sand Aerodrome (FASP), Mpumalanga Province						
Damage to Aircraft	Substantial						
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)							
Litchi orchard at Matafeni near Mbombela (GPS position: 25°29'03.83" South 030°55'24.15" East)							
Meteorological Information	Surface wind: 240°/10kts; temperature: 28°C; visibility: 10km						
Number of People On-board	1 + 0	**Number of People Injured**	1	**Number of People Killed**	0	**Other (On Ground)**	0

Synopsis

On Saturday morning, 14 February 2026, a pilot on-board a Cessna U206F aircraft with registration ZS-PWN took off on a non-scheduled passenger flight from Nelspruit Aerodrome (FANS) to Singita Sabie Sand Aerodrome (FASP), both located in Mpumalanga province. The flight was conducted under visual meteorological conditions (VMC) and under the provisions of Part 135 of the Civil Aviation Regulations (CAR) 2011, as amended.

Several minutes after take-off, the engine stopped operating. The pilot restarted the engine, but it could not reach its maximum power. He then opted to return to FANS. However, the engine stopped again; the pilot restarted it for the second time and, yet again, it stopped. Due to loss of height, the pilot opted to conduct a forced landing on an abandoned litchi orchard during which the aircraft impacted a large tree. The accident occurred 0.84 nautical miles (nm) north of FANS at a ground elevation of 2 610 feet (ft). A distress signal was transmitted by the Emergency Locator Transmitter (ELT) that was installed in the aircraft, and the Aeronautical Rescue Coordination Centre (ARCC) was alerted. The pilot sustained minor injuries and was taken to a hospital for a medical check-up. The probable cause of engine stoppage was fuel vapour related, a known issue that was addressed by Cessna SIL SE79-25 and FAA AD 79-15-01. During restart attempts, an overly rich mixture likely caused heavy spark plug fouling, preventing normal combustion. With insufficient engine power, the pilot opted to execute a forced landing.

Probable Cause/ Contributing Factor:

Unsuccessful forced landing after an engine stoppage likely resulting from fuel starvation caused by fuel vapour formation (vapour lock). Although the pilot successfully restarted the engine twice, normal engine power could not be restored, and hence, the forced landing on an abandoned litchi orchard.

- During the engine restart procedure, excessive fuel input likely resulted in an overly rich mixture, leading to heavy spark plug fouling, impaired ignition, and failure to restore normal engine operation.

SRP date	11 August 2026	Publication date	12 August 2026

Occurrence Details

Reference Number	**:** CA18/3/2/10636
Occurrence Category	**:** Accident (Category 2)
Type of Operation	**:** Air Transport Operations (Part 135) – Carriage of less than 20 passengers
Aircraft Registration	**:** ZS-PWN
Aircraft Make and Model	**:** Cessna U206F
Nationality	**:** South African
Place	**:** Matafeni near Mbombela, Mpumalanga Province
Date and Time	**:** 14 February 2026 at 0838Z
Injuries	**:** Minor
Damage	**:** Substantial

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.

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.

Investigation Process

The Accident and Incident Investigations Division (AIID) was notified of the accident which occurred on 14 February 2026 at 0838Z. The occurrence was classified as an accident according to the CAR 2011 Part 12 and the International Civil Aviation Organisation STD Annex 13 definitions. An investigator was dispatched to the accident site.

Notes:

1. *Whenever the following words are mentioned in this report, they shall mean the following:*
   Accident — this investigated accident
   Aircraft — the Cessna U206F involved in this accident
   Investigation — the investigation into the circumstances of this accident
   Pilot — the pilot involved in this accident
   Report — this accident report

2. *Photos and figures used in this report were taken from different sources and may have been adjusted from the original for the sole purpose of improving clarity of the report. Modifications to images used in this report were limited to cropping, magnification, file compression, or enhancement of colour, brightness, contrast, or addition of text boxes, arrows, or lines.*

Disclaimer

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Abbreviation	Description
°	Degrees
°C	Degrees Celsius
AD	Airworthiness Directives
AIID	Accident and Incident Investigations Division
AMO	Aircraft Maintenance Organisation
AOC	Air Operator Certificate
ARCC	Aeronautical Rescue Co-ordination Centre
ATC	Air Traffic Control
C of A	Certificate of Airworthiness
C of R	Certificate of Registration
CAR	Civil Aviation Regulations
CPL	Commercial Pilot Licence
CRS	Certificate of Release to Service
CVR	Cockpit Voice Recorder
ELT	Emergency Locator Transmitter
FAA	Federal Aviation Administration
FAKN	Kruger Mpumulanga International Aerodrome
FANS	Nelspruit Aerodrome
FASP	Singita Sabie Sand Aerodrome
FDR	Flight Data Recorder
ft	Feet
IPC	Illustrated Parts Catalogue
hPa	Hectopascal
kt	Knots
m	Metres
METAR	Meteorological Aerodrome Report
MHz	Megahertz
MM	Maintenance Manual
MP	Manifold Pressure
mph	Miles Per Hour
MTOW	Maximum Take-off Weight
nm	Nautical Miles
PAPI	Precision Approach Path Indicator
PIC	Pilot-in-Command
POH	Pilot’s Operating Handbook
QNH	Barometric Pressure adjusted to Sea Level
RPM	Revolutions per Minute
SACAA	South African Civil Aviation Authority
SAWS	South African Weather Service
SIL	Service Information Letter
UTC	Universal Co-ordinated Time
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
Z	Zulu (Term for Universal Co-ordinated Time - Zero Hours Greenwich)

1. FACTUAL INFORMATION

1.1 History of Flight

1.1.1. On Saturday morning, 14 February 2026, a pilot on-board a Cessna U206F aircraft with registration ZS-PWN took off on a non-scheduled passenger flight from Nelspruit Aerodrome (FANS) to Singita Sabie Sand Aerodrome (FASP), both located in Mpumalanga province. The flight was conducted under visual meteorological conditions (VMC) and under the provisions of Part 135 of the Civil Aviation Regulations (CAR) 2011, as amended.

1.1.2. According to available information, two Cessna 206 aircraft registered ZS-PWN and ZS-PNF took off from FANS; ZS-PWN was routing to FASP whilst ZS-PNF was routing to another aerodrome in the Sabie Sand area to pick up passengers for a charter flight to Kruger Mpumalanga International Aerodrome (FAKN), with the intention to return to FANS. During the outbound flights, each aircraft had only a pilot on-board.

1.1.3. The pilot of ZS-PWN stated that he used a dipstick to check fuel content in each of the wing tanks during the pre-flight inspection; he measured 90 litres of fuel in the left tank and 80 litres in the right tank. He also drained fuel from both tanks to check for water or contamination; none was found. He also checked the engine oil level using the dipstick and found it was between 10 and 11 quarts.

1.1.4. After the pre-flight checks, the pilot started the aircraft at 0825Z with fuel feed selected to the right tank. All engine parameters were normal after start and taxi. Upon reaching the threshold of Runway 04, he changed the fuel selector feed to the left tank and, thereafter, conducted the run-up checks with all indications within the normal range. He took off at 0833Z. The climb power in the engine was set at 2 550 revolutions per minute (rpm) with a manifold pressure of 25 inches and a fuel flow of 19 US gallons per hour.

1.1.5. After reaching 4 000 feet (ft), he levelled off and set cruise power with engine rpm at 2 450, manifold pressure at 24 inches, and fuel flow at 16 US gallons per hour. However, a few seconds later, the engine stopped. The pilot immediately changed the fuel selector from the left to the right tank with the booster pump ON and full rich mixture. These interventions had no response; he then turned the fuel pump OFF and leaned the mixture, with still no response. He then set the mixture at approximately three-quarters (¾) whereafter the engine restarted but only regained partial power.

1.1.6. He then switched the fuel pump to LOW to gauge if he could get more power, but this had no effect. He then switched the fuel pump OFF and made the decision to return to FANS. During this sequence of events, he was in radio contact with the ZS-PNF pilot; he informed him that his aircraft's engine had stopped and requested that he inform air traffic control (ATC) at Kruger Mpumalanga International Aerodrome (FAKN). It is, however, unclear if the ZS-PNF pilot heard the request. The ZS-PNF pilot informed the operations manager and

senior pilot from the ZS-PWN operator company. The operations manager informed ATC at FAKN who then informed the Aeronautical Rescue Co-ordination Centre (ARCC).

1.1.7. Whilst the aircraft was on long final approach for FAKN Runway 22, the engine stopped for the second time. The pilot then turned the fuel booster pump ON again and set the mixture to full rich, turned the fuel pump OFF and leaned the mixture, which had no effect. After advancing the mixture to the ¾ setting, and closing and opening the throttle, the engine restarted, but limited power was delivered again. On final approach for Runway 22, the engine stopped for the third time. Due to substantial loss in altitude and not enough time to restart the engine, the pilot decided to execute a forced landing.

1.1.8. The pilot elected a relatively open area (abandoned litchi orchard) straight ahead of his flight path and selected full down (40°) wing flaps; thereafter, maintained the airspeed just above stall speed. Before the aircraft touched down, both wings impacted litchi trees on either side. It then touched down hard on a grass surface and struck a tree, rotated approximately 180° before it rested. The pilot turned off the master switch, magnetos and fuel selector before he disembarked from the aircraft. He then called the senior pilot on the phone as well as sent him a pin of his location. The senior pilot rushed to the scene and took the pilot to a medical facility to have him assessed. He sustained minor cuts to his legs as well as bruised parts of his body due to the safety harness. The aircraft was substantially damaged.

1.1.9. A fellow aviator who was at a motorcycle training facility saw the aircraft when it was flying overhead the facility and realised it was having engine trouble. He took a video with his cellular phone; however, the aircraft was some distance away by that time. It disappeared from his view before the pilot executed the forced landing. In the video footage, the person filming was having a conversation with another person during which it was mentioned that the engine was off.

1.1.10. The accident occurred during daylight at Global Positioning System (GPS) co-ordinates determined to be 25°29’03.83” South 030°55’24.15” East, at an elevation of 2 610ft.

Figure 1: The aircraft was forced landed 0.84 nautical miles from FANS's Runway 22 threshold. (Source: Google Earth)

1.2 Injuries to Persons

Injuries	Pilot	Crew	Pass.	Total On-board	Other
Fatal	-	-	-	-	-
Serious	-	-	-	-	-
Minor	1	-	-	1	-
None	-	-	-	-	-
Total	**1**	**-**	**-**	**1**	**-**

Note: Other means people on the ground.

1.3 Damage to Aircraft

1.3.1 The damage to aircraft was substantial during forced landing.

Figure 2: The aircraft after impacting a tree following a forced landing.

1.4 Other Damage

1.4.1 None.

1.5 Personnel Information

1.5.1 Pilot-in-command (PIC)

Nationality	South African	Gender	Male	Age	35
Licence Type	Commercial Pilot Licence (CPL)				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Instrument				
Medical Expiry Date	30 April 2026 (Class 1)				
Restrictions	None				
Previous Accidents	None				

Note: Previous accidents refer to past accidents the pilot was involved in, when relevant to this accident.

Flying Experience:

Total Hours	884.5
Total Past 90 Days	99.4
Total on Type Past 90 Days	30.6
Total on Type	400.2

On 25 October 2025, the pilot revalidated his pilot licence which included a proficiency check flight with a flight instructor, as required by the operator. The flight was conducted in a Cessna 402C (ZS-KIZ), and the duration of the flight was 2 hours and 48 minutes (2.8 hours).

From 1 January 2026 until the day of the accident, the pilot had conducted nine flights with a Cessna 206-type aircraft as pilot-in-command (PIC) which accounted for 12.1 flight hours. Six of these flights were flown with ZS-PWN, and the combined flight time was 7.1 hours.

1.6 Aircraft Information

1.6.1. Cessna U206F (Source: Pilot's Operating Handbook)

The Cessna U206F is a versatile, high-wing, single-engine piston aircraft. It is a six-seat, fixed-gear aircraft commonly used for charter operations (especially bush flying), cargo transport, aerial photography and skydiving.

Figure 3: The ZS-PWN aircraft with the cargo pod installed. (Source: Operator)

Airframe:

Manufacturer/Model	Cessna Aircraft Company / U206F	
Serial Number	U206-02581	
Year of Manufacture	1975	
Total Airframe Hours (at time of accident)	10 872.3	
Last Inspection (Hours & Date)	10 802.6	17 October 2025
Airframe Hours Since Last Inspection	69.7	

CRS Issue Date	17 October 2025	
C of A (Issue Date & Expiry Date)	7 December 2011	31 December 2026
C of R (Issue Date) (Present Owner)	6 October 2014	
Operating Category	Part 135	
Type of Fuel Used	Avgas	
MTOW	1 633 kg (3 600 lbs)	
Previous Accidents and Incidents	The aircraft was involved in an accident on 17 February 2008 following an aborted take-off from a game lodge, resulting in a runway excursion. The left wing struck the ground, and the nose landing gear broke off; subsequently, the propeller impacted the ground. AIID reference number CA18/2/3/8440. The aircraft was involved in an incident on 18 August 2022 whilst on a flight from Buffelshoek Aerodrome (FABG) to Nelspruit Aerodrome (FANS). The engine spluttered and, shortly thereafter, stopped. The pilot attempted to restart the engine three times without success and, thus, opted to execute a forced landing on a road. It should be noted that the aircraft was fitted with a different engine at the time of this incident.	

Note: Previous accidents and incidents refer to past accidents and incidents in which the aircraft was involved in, when relevant to this accident.

Engine:

Manufacturer/Model	Teledyne Continental IO-520L-CF
Serial Number	294912-R
Hours Since New	Unknown, according to the engine logbook
Hours Since Overhaul	302.8

The engine is a horizontally opposed, fuel-injected, direct-drive, air-cooled, 6-cylinder engine. The engine was sourced from an approved engine maintenance facility and was received by the aircraft maintenance organisation (AMO) that was maintaining the aircraft since August 2013; the AMO installed the engine on the aircraft on 17 October 2024.

Pilots who were flying the aircraft noted that the cylinder head temperature had started running high, and this was brought to the attention of the AMO. On 6 October 2025, the cylinders were found to be glazed and, thus, six cylinders were removed and honed. The pistons were cleaned, and new ring sets were fitted. All the valves were subjected to a fuel-leak check and were found to be within limits.

Propeller:

Manufacturer/Model	Hartzell PHC-C3YF-1RF
Serial Number	EE-6176B
Hours Since New	3 446.7
Hours Since Overhaul	473.3

1.6.2. Weight and Balance

The maximum certified take-off weight (MTOW) for the aircraft is 1 633kg (3600 pounds), according to the Pilot's Operating Handbook (POH) Section 1, Pg. 1-4. The pilot was the only occupant on-board the aircraft. Before take-off, there was approximately 170 litres (122kg) of fuel (Avgas) aboard. The aircraft was flown within its allowable weight limitations.

1.7 Meteorological Information

1.7.1 The weather information below was obtained from the pilot via the pilot questionnaire form.

Wind Direction	Light and variable	Wind Speed	Light	Visibility	9999m
Temperature	25°C	Cloud Cover	5-7 oktas	Cloud Base	3 000 ft
Dew Point	20°C	QNH	1013hPa		

1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard navigational equipment as approved by the Regulator (SACAA). There were no records indicating that the navigational equipment was unserviceable before the flight.

1.9 Communication

1.9.1 The aircraft was equipped with a standard communication system as approved by the Regulator. There were no recorded defects with the communication system before the flight.

1.9.2 The ZS-PWN pilot was in radio communication with the ZS-PNF pilot on very high frequency (VHF) 130.35-MHz (FAKN Special Rules). The ZS-PWN pilot informed the ZS-PNF pilot that he had an engine failure and was going to return to FANS. He also informed him that he was not going to make it back to FANS and that he was going to perform a forced landing. The ZS-PNF pilot relayed the information to the ZS-PWN operator's operations manager and senior pilot. The operation's manager informed ATC at FAKN.

1.10 Aerodrome Information

Aerodrome Location	Nelspruit Aerodrome (FANS)
Aerodrome Status	Licensed
Aerodrome GPS coordinates	25°30’08.17” South, 030°54’42.52” East
Aerodrome Elevation	2 901 ft
Runway Headings	04/22
Dimensions of Runway Used	1 042m x 18m
Runway Used	04
Approach Facilities	Landing lights, PAPI for Runway 22
Radio Frequency	125.20 MHz

1.11 Flight Recorders

1.11.1 The aircraft was neither equipped with a flight data recorder (FDR) or a cockpit voice recorder (CVR), nor was it required by regulation to be fitted to the aircraft type.

1.11.2 The aircraft was fitted with a panel-mounted Garmin GNS430 GPS. The unit, however, did not have non-volatile memory that could be downloaded, and there were no other associated devices on-board.

1.12 Wreckage and Impact Information

1.12.1 The pilot executed a forced landing on an abandoned litchi orchard whilst returning to FANS’s Runway 22. He stated that he selected the wing flaps to full down (40°) and kept the aircraft just above stall speed. Shortly before touching down, he noticed a power line which was approximately 30ft above ground, and he opted to fly under it. However, the left-wing and the right-wing tips struck the litchi trees. The aircraft touched down approximately 8 metres (m) after impacting the trees on overgrown grass in a high nose-up attitude. Shortly thereafter, the aircraft impacted a litchi tree which rendered substantial damage to the front section of the aircraft and the right side of the engine. The aircraft ground-looped anticlockwise, and the nose gear and the right main wheel assembly broke off before the aircraft came to rest in a right-wing low attitude. The aircraft came to rest 0.84nm (1.55 kilometres) north-east of the threshold of Runway 22. After the accident, one of the propeller blade tips was bent likely during ground impact when the nose landing gear broke off. The other two propeller blades were intact.

Figure 4: The power lines cleared by the aircraft and the two trees impacted by the aircraft wings.

Figure 5: The aircraft in its resting position facing the direction from which it had come.

Figure 6: The aircraft in a right-wing low attitude.

1.13 Medical and Pathological Information

1.13.1 None.

1.14 Fire

1.14.1 There was no pre- or post-impact fire.

1.15 Survival Aspects

1.15.1 The accident was survivable. The PIC was the sole occupant on-board and seated in the left-front seat. He was properly secured by a safety harness with a shoulder strap. The cockpit remained intact during the impact sequence. The pilot also unlatched his door before the aircraft touched down as recommended in the emergency procedures during a forced landing. The safety harness inflicted serious bruising on the pilot during the accident.

1.15.2 The aircraft was fitted with an Artex (406 MHz) ELT, which was installed in the aircraft on 11 September 2013. The unit was installed in the aft section of the fuselage.

Artex ELT (Source: https://www.acrartex.com/products/elt-345-transmitter).

The ELT can be activated manually (via the cockpit remote switch) or automatically (when the G-switch senses a 2.3G or greater impact) and transmit a unique digital signal on the 406 MHz distress frequency, alerting the closest Search and Rescue agency response. The 406 MHz signal, containing the GPS co-ordinates, activates a signal that is detected by the Cospas-Sarsat satellite system. This triggers an immediate response from the ARCC, which is routed to the nearest Search and Rescue agency. The beacon's registration will tell first responders who you are, and the beacon itself lets them know where you are within 100m.

1.16 Tests and Research

1.16.1 Fuel Inspection

During the recovery of the aircraft, approximately 115 litres of Avgas was drained from both fuel tanks. An undetermined amount of fuel leaked from the right fuel filler cap after the accident, with the aircraft coming to rest in a right-wing low attitude as reported by the pilot. No evidence of contamination was found in the fuel drained from the tanks. Fuel samples were also taken from the two header tanks (post-recovery), with no fuel contamination found. *It should be noted that when an aircraft is fitted with a cargo pod, as was the case with ZS-PWN, the pilot needs to take fuel samples from the two header tanks via the cargo pod access door on the left side.* During the impact sequence, the cargo pod separated from the lower fuselage (see Figure 5).

Figure 7: Fuel samples taken from the left and right header tanks.

1.16.2 Engine Teardown

The engine, a Teledyne Continental IO-520L-CF with serial number 294912-R, was removed from the airframe for further investigation. The engine has been in service for 302.8 hours after it was overhauled. A teardown inspection was conducted at an engine overhaul facility on Monday, 2 March 2026 during which the engine was found to have sustained damage on its right side with all three tappet covers fractured.

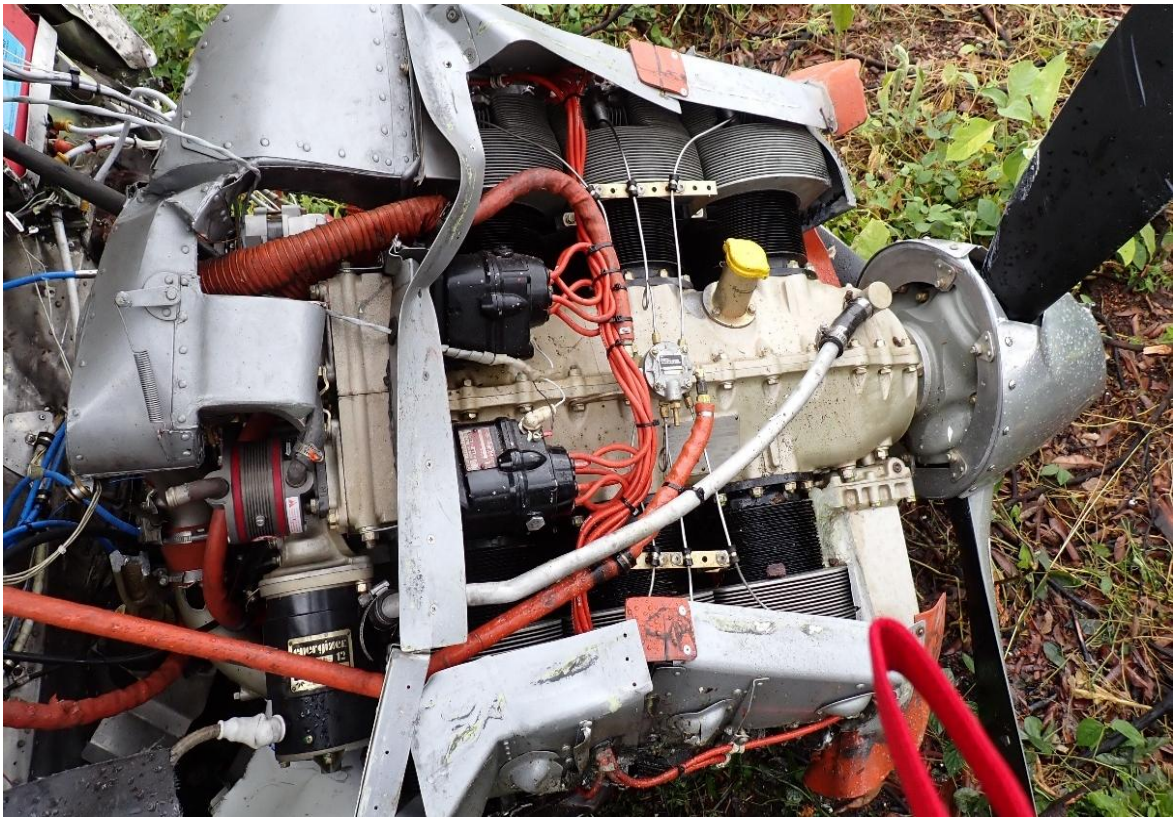

Figure 8: The engine, before it was recovered.

The following fuel and ignition system components were removed, inspected and, where applicable, bench tested:

- The engine-driven fuel pump was inspected, and it showed no evidence of wear or malfunction. It rotated freely by hand.
- The fuel control unit (FCU) filter was clean, and the FCU passed the bench test.
- All six fuel injectors were inspected and found free of defects that could have restricted fuel flow to the cylinders.
- Both magnetos were bench-tested and produced normal firing intensity.
- The fuel divider (fuel manifold valve) was disassembled and inspected. The diaphragm was intact, the filter screen was clean, and no fuel leaks were identified in the associated feed lines.
- The exhaust system and all 12 spark plugs exhibited heavy carbon fouling, indicating prolonged operation with an excessively rich fuel/air mixture. Two spark plugs also showed evidence of oil fouling.

Fouling occurs when the spark plug's firing tip becomes coated with substances such as carbon (soot), oil or unburnt fuel. These deposits create a conductive path, allowing the electrical spark to leak across the insulator to the metal shell instead of bypassing the electrode gap to ignite the air-fuel mixture.

Figure 9: The heavily fouled 12 spark plugs.

Engine General

(i) Apart from the impact damage on the right side of the engine, no other damage was noted.

(ii) The air filter condition was assessed, and it did not display evidence that would have prevented air from passing through it.

(iii) The engine still had a substantial amount of oil in it, and the camshaft and crankshaft were in good condition. No bending was noted on the crankshaft following a runout test.

(iv) All the cylinders displayed evidence that they were honed as per the logbook entry dated 6 October 2025 when the cylinders were found to be glazed following high cylinder head temperatures.

(v) The engine casing was split, and the bearings were inspected and found in good overall condition. The accessory gears were also in good condition.

(vi) No anomalies were observed with the valves, pistons and conrods.

Conclusion: No mechanical failure was observed that could have contributed to or caused an engine stoppage during operation.

1.16.3 Airframe Fuel Strainer

Cessna Service Manual for Model 206 and T206 series, page 68 of 708, requires that the following inspection be carried out on the fuel strainer at every 100-hour inspection.

"Fuel Strainer, Drain Valve, and Controls - Check freedom of movement, security, and proper operation. Disassemble, flush, and clean the screen bowl."

The airframe fuel strainer is designed to remove water, sediment and other contaminants before fuel reaches the engine, thereby, reducing the risk of rough engine operation, fuel starvation and corrosion.

The fuel strainer was removed and inspected; the bowl contained fuel and a small amount of sediment. The filter assembly gasket was found misaligned (see Figures 11 and 12), partially restricting fuel passage to the engine-driven fuel pump.

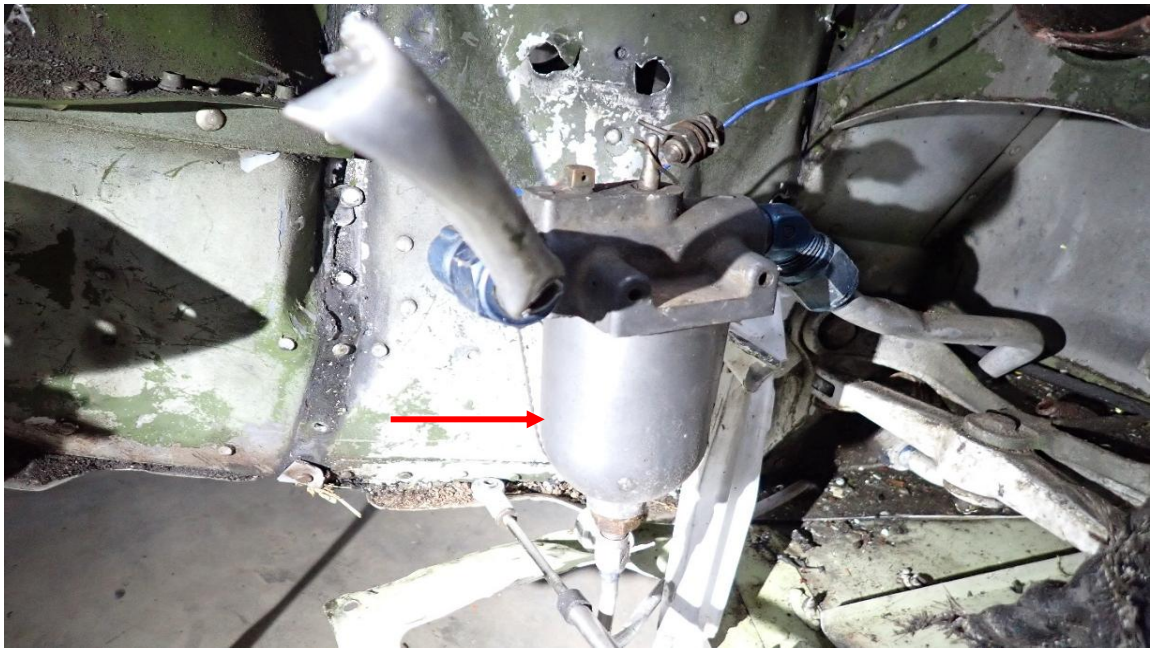

Figure 10: The fuel strainer secured to the airframe (inside the nose gear wheel well).

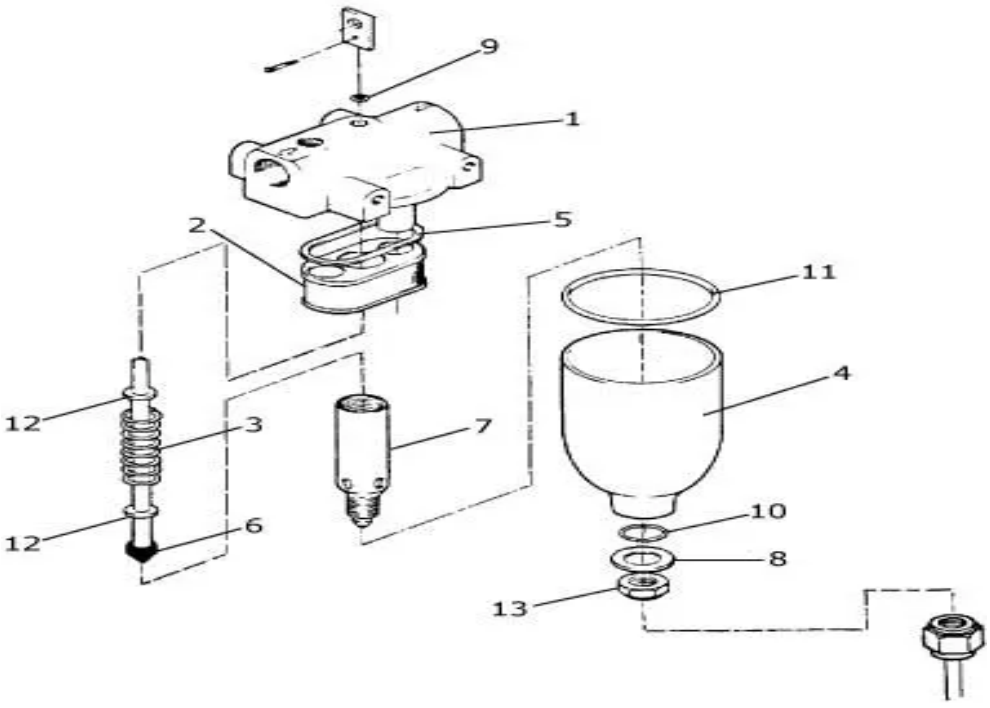

Diagram 1: Fuel strainer and associated components.

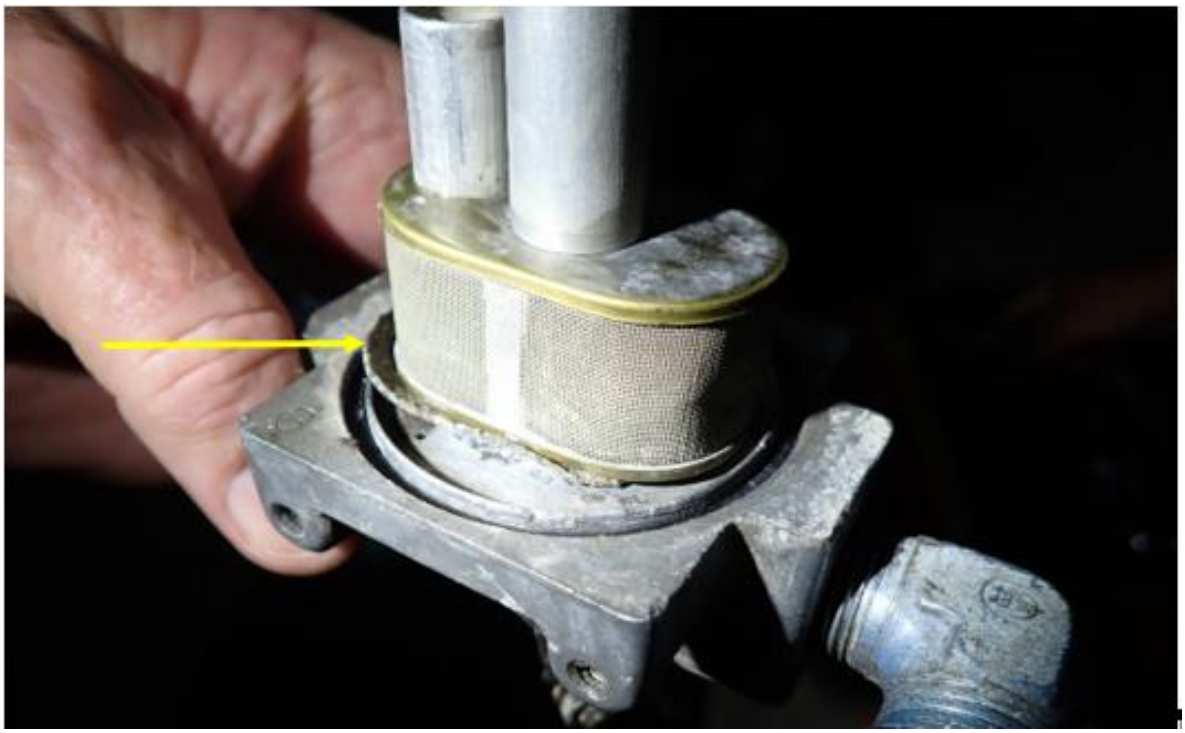

Figure 11: The fuel filter assembly fitted inside the strainer, seated on a gasket (yellow arrow). NOTE: *The unit is upside-down for illustration purposes.*

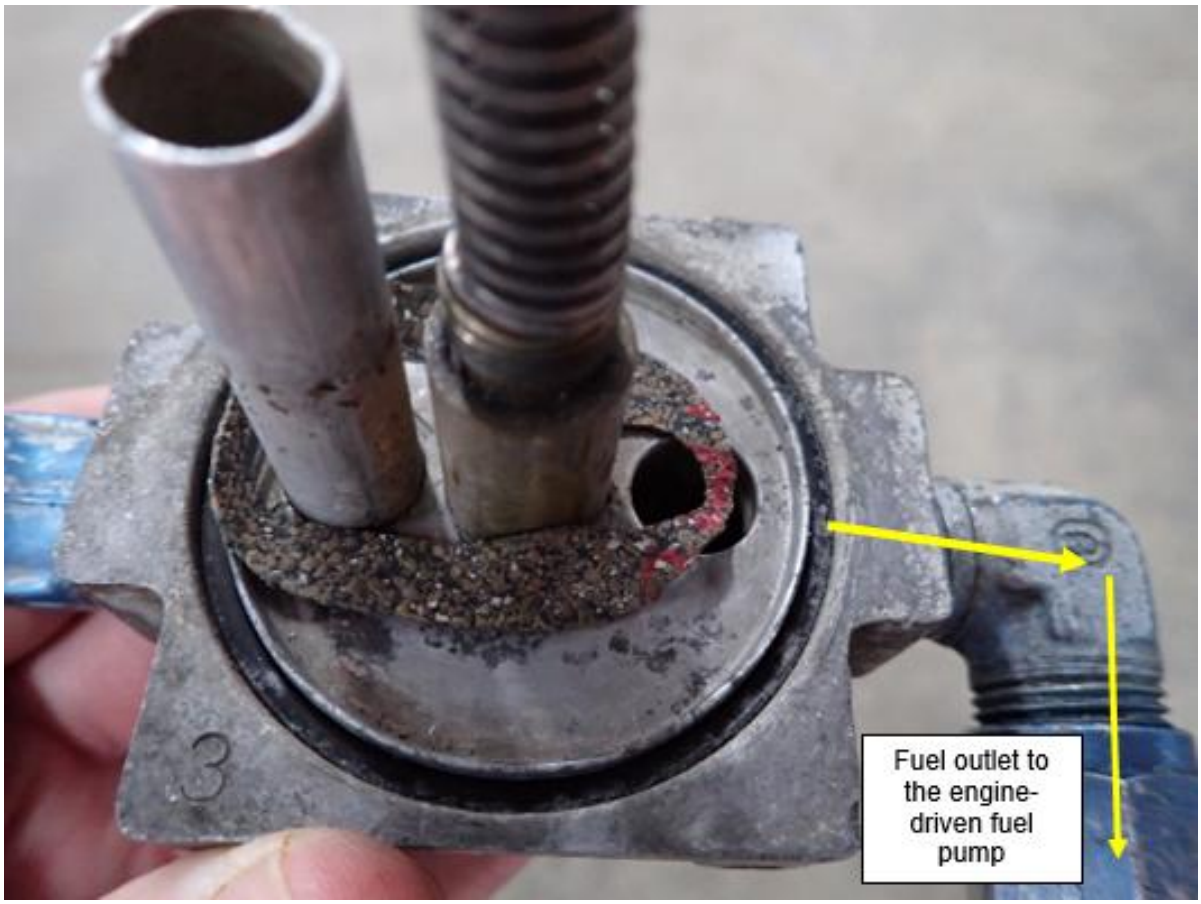

Figure 12: Removed fuel filter assembly shows the gasket restriction to the hole that feeds fuel to the engine-driven fuel pump. NOTE: *The unit is upside-down for illustration purposes.*

1.17 Organisational and Management Information

1.17.1 The operator was issued an Air Operating Certificate (AOC) by the Regulator on 2 July 2025 with an expiry date of 30 June 2026. The operator was also approved to operate under Part 135 of the CAR 2011, as amended. The aircraft was listed in the operator's operations specifications.

1.17.2 The AMO which has been maintaining the aircraft since August 2013 had an AMO Certificate that was issued by the Regulator on 28 October 2025 with an expiry date of 30 November 2026.

1.18 Additional Information

1.18.1 Pilot's Operating Handbook (POH), Emergency Procedures, Section 3

Engine Failure During Flight

While gliding towards a suitable landing area, an effort should be made to identify the cause of the failure. If time permits and an engine restart is feasible, proceed as follows:

1.	*Airspeed*	*85 mph*
2.	*Fuel Selector Valve and Quantity*	*CHECK*
3.	*Mixture*	*RICH*
4.	*Auxiliary Fuel Pump*	*ON 3 to 5 seconds with throttle ½ open; then OFF.*
5.	*Ignition Switch*	*BOTH (or start if propeller has stopped)*
6.	*Throttle*	*ADVANCE SLOWLY*

If the engine cannot be restarted, a forced landing without power must be executed.

Emergency Landing Without Engine Power

If all attempts to restart the engine fail and a forced landing is imminent, select a suitable field and prepare for the landing as follows:

1.	*Airspeed*	-	*90 mph (flaps UP), 80 mph (flaps DOWN)*
2.	*Mixture*	-	*IDLE CUT-OFF*
3.	*Fuel Selector Valve*	-	*OFF*
4.	*Ignition Switch*	-	*OFF*
5.	*Wing Flaps*	-	*AS REQUIRED (40° recommended)*
6.	*Master Switch*	-	*OFF*
7.	*Doors*	-	*UNLATCH PRIOR TO TOUCHDOWN*

8.	*Touchdown*	-	*SLIGHTLY TAIL LOW*
9.	*Brakes*	-	*APPLY HEAVILY*

1.18.2 Fuel System Description (Source: Cessna U206F Owner's Manual, Section 2)

The aircraft has a high-wing gravity-fed system with two vented fuel tanks (one in each wing), each containing 144 litres (38 US gallons) of fuel. Two fuel reservoir tanks (also referred to as header tanks), a fuel selector valve, an auxiliary fuel pump, a fuel strainer, an engine-driven fuel pump, a fuel/air control unit, a fuel manifold, and fuel injection nozzles. Quick-drain valves are located on the wing tanks (underneath the wings), the two fuel reservoir (header) tanks, and the fuel strainer.

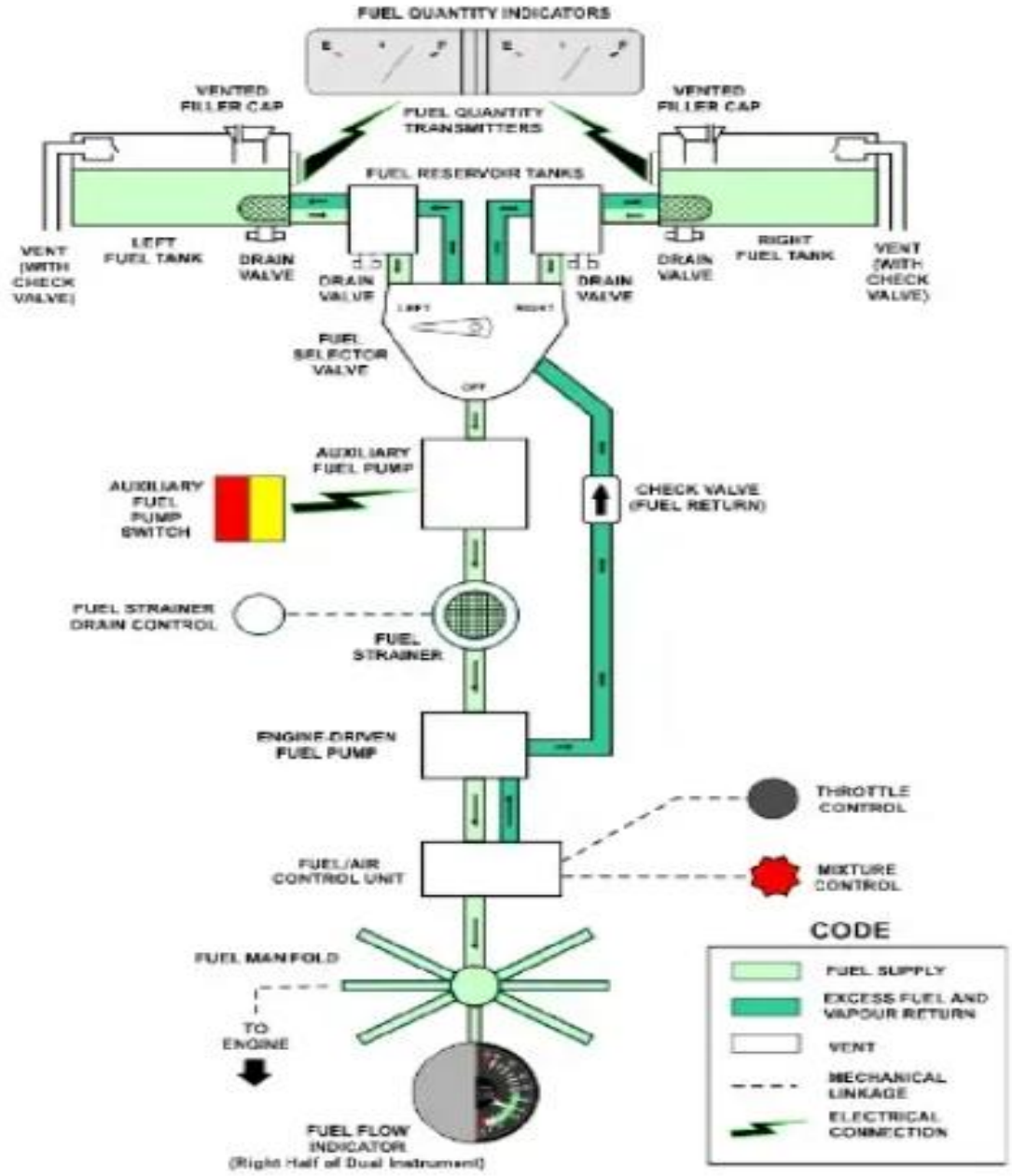

Diagram 2: The basic layout of the Cessna 206 series fuel system when fitted with a fuel-injected engine, as was the case with ZS-PWN.

Fuel flows by gravity from the wing tanks to two reservoir (header) tanks, to a three-position selector valve (LEFT, OFF, RIGHT), through a bypass in the auxiliary fuel pump (when it is not in operation), and through a strainer to an engine-driven fuel pump. The engine-driven pump delivers the fuel to the fuel/air control unit, where it is metered and directed to the manifold, which distributes the metered fuel/air mixture to each cylinder.

In the cockpit are two fuel gauges, one for each wing tank, a fuel flow gauge, and two switches, one for the engine-driven fuel pump and one for the auxiliary (boost) pump for vapor suppression and emergency use.

Items 15 and 16 indicate the right and left fuel reservoir tanks (header tanks). These tanks are gravity-fed with fuel from the main wing tanks. Each wing tank has two pickup points: one at the front and one at the rear, as indicated by the four yellow squares. The fuel strainer is located in the nose wheel well of the aircraft and is readily accessible with the nose gear doors open (see Item 3).

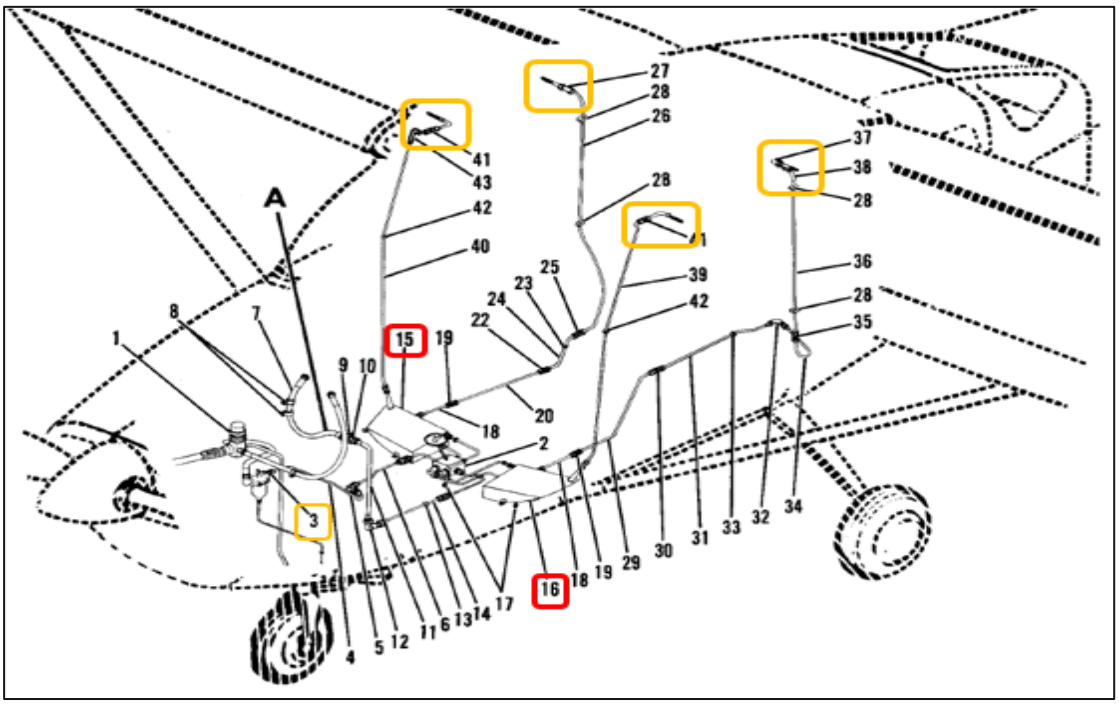

Diagram 3: Fuel system. (Source: Illustrated Parts Catalogue)

1.18.3 Auxiliary Fuel Pump (Source: Owner's Manual, Section 2, Pg. 2-3 and 2-5)

Figure 13: The auxiliary fuel pump switch in the cockpit of ZS-PWN.

The right half of the auxiliary fuel pump switch labelled “LO” is used for starting. With the switch in the “LO” position and the ignition-starter switch turned to “START,” the auxiliary fuel pump will operate at a low flow rate (providing proper fuel mixture for starting) as the engine is being turned over with the starter.

NOTE: The auxiliary fuel pump will not operate in the “LO” position until the ignition switch is turned to “START.”

The left half of the switch, labelled "HI, " is used for engine operation if the engine-driven pump should fail. When the switch is in this position, the pump operates at one of two flow rates depending upon the setting of the throttle. With the throttle at a cruise setting, the pump is operating at maximum capacity, supplying sufficient fuel flow to maintain flight. When the throttle is moved toward the closed position (as during let-down, landing, and taxiing), the auxiliary fuel pump flow rate is automatically reduced, preventing an excessively rich mixture during these periods of reduced engine speed.

Operation with the auxiliary fuel pump switch in the "HI" position is also used for fuel vapor control during hot engine starting and high altitude turned climbs in warm temperatures. When the auxiliary fuel pump switches on "HI" during a climb, the fuel flow will increase, and the mixture should be manually leaned to obtain the desired fuel flow.

NOTE: If the auxiliary fuel pump switch is accidentally turned on "HI" (with the master switch on) with the engine stopped, the intake manifolds will be flooded.

To ensure a prompt engine restart in flight after running a fuel tank dry, switch to the tank containing fuel and place the auxiliary fuel pump switch in the "HI" position momentarily (3 to 5 seconds) with the throttle at least ½ open. Excessive use of the "HI" position of the auxiliary pump can cause flooding of the engine as indicated by a short (1 to 2 second) period of power followed by a loss of power. This can later be detected by a fuel flow indication accompanied by a lack of power. If flooding does occur, turn off the auxiliary fuel pump switch, and normal propeller windmilling should start the engine in 1 to 2 seconds.

If the propeller should stop (possibly at very low airspeeds) before the tank containing fuel is selected, place the auxiliary fuel pump switch in the "HI" position and advance the throttle promptly until the fuel flow indicator registers approximately ½ way into the green arc for 1 to 2 seconds duration. Then retard the throttle, turn off the auxiliary fuel pump, and use the starter to turn the engine over until a start is obtained.

1.18.4. The Cessna Service Information Letter (SIL) SE79-25 (Supplement #1) has made fixed placards and instructions available to eliminate excessive vapour from the aircraft fuel system. In the event of in-flight power interruptions, the engine restart procedure on the

instrument panel (of ZS-PWN) addresses this problem which involves turning on the auxiliary fuel pump, adjusting the mixture and selecting the opposite fuel tank.

The Federal Aviation Administration (FAA) issued an Airworthiness Directive (AD) 79-15-01, effective 26 July 1979, that mandated the installation of an instrument panel placard and an expanded instruction card detailing emergency procedures for fuel vapour recognition, elimination and engine restart on specific Cessna aircraft models, including the Cessna 206 series. Although the placard was on the instrument panel detailing the specific steps, the heading refers to Major Fuel Flow Fluctuations and Power Surges. This is not in line with what is discussed in the Cessna SIL and the FAA AD 79-15-01 (attached to this report as Appendix A).

Figure 14: The fixed placard that was on the instrument panel of ZS-PWN as required by the Cessna SIL and the FAA AD 79-15-01.

Although the pilot followed the procedure as indicated on the placard, engine restart could be achieved, but normal engine operation could not be restored. What was required was a new supply of 'cool' fuel which could only be achieved by switching tanks. If the tanks are not switched, the hot fuel gets recirculated, which will continue to contribute to the problem.

1.19 Useful or Effective Investigation Techniques

1.19.1 None.

2. ANALYSIS

2.1 General

From the available evidence, the following analysis was made with respect to this accident. This shall not be read as apportioning blame or liability to any organisation or individual.

2.2 Analysis

2.2.1 Pilot

The pilot had a valid licence and medical certificate; he was also qualified to conduct the flight. The pilot was familiar with both the route and the aircraft, having last flown ZS-PWN three days before the accident flight after which the aircraft was parked in the operator's hangar.

Before the accident flight, the pilot estimated that approximately 170 litres of fuel was on-board, which he considered sufficient for the planned flight. The pre-flight inspection and engine start were reported as normal.

After the loss of engine power in-flight, the pilot successfully restarted the engine twice. However, the engine did not produce sufficient power to sustain the flight, resulting in continued loss of altitude. Unable to reach the runway at FANS, the pilot conducted a forced landing in an unsuitable terrain during which the aircraft impacted a large litchi tree, causing substantial damage to the aircraft.

2.2.2 Aircraft

The engine teardown inspection did not find mechanical defects that could have caused or contributed to the in-flight engine stoppage. Although the pilot successfully restarted the engine twice, it failed to produce sufficient power to sustain the flight. The examination identified heavy carbon fouling on all spark plugs and in the exhaust system, indicating prolonged operation with an excessively rich fuel/air mixture. Two spark plugs were also oil-fouled, suggesting possible piston ring wear. Such fouling reduces ignition efficiency, making restarts difficult and limiting power output. Excessive priming or prolonged use of the auxiliary fuel pump during the restart procedure could also have flooded the engine, while an incorrect throttle setting may have further reduced the likelihood of restoring full power.

The investigation considered several possible causes for engine stoppage, including fuel supply, fuel management, ignition failure, vapour lock, induction leaks, mechanical failure, lubrication, contaminated fuel and engine instrumentation. However, no evidence was found to support contaminated fuel, lubrication failure, restricted airflow, or internal mechanical

failure. Although a displaced fuel strainer gasket was considered a possible contributing factor, the aircraft had accumulated 69.7 hours since its last maintenance inspection without any reported fuel flow, fuel pressure or engine start abnormalities. The extensive carbon deposits also indicated that the engine had been operating with an abundant fuel rather than experiencing sustained fuel starvation.

The investigation also considered fuel vapour formation in the fuel system. Cessna Service Information Letter (SIL) SE79-25 and FAA Airworthiness Directive (AD) 79-15-01 recognised this condition and prescribed specific restart procedures, including selecting the opposite fuel tank to introduce cooler fuel and eliminate vapour. Although the pilot followed the cockpit restart procedure and restarted the engine twice, there was no evidence that the fuel tank was changed. Continued recirculation of heated fuel could, therefore, have allowed vapour to persist, preventing restoration of normal engine power despite successful engine restarts.

2.2.3 Environment

The environmental assessment considered both the meteorological conditions and the physical characteristics of the forced-landing area. The video footage and the weather information indicated that the flight was conducted in daylight under visual meteorological conditions. Cloud was present over the Mbombela area, visibility was adequate, temperatures were in the mid to high twenties degrees Celsius, and the wind was reported as light and variable. These conditions would not have prevented the pilot from maintaining visual reference or from identifying a forced-landing area. Therefore, the meteorological conditions could not have contributed to the engine stoppage or to the pilot's decision to conduct a forced landing.

The forced-landing site was an abandoned litchi orchard which provided limited open space because of mature trees. The pilot also had to manage a power line hazard in the approach path which he was able to clear by flying under the power lines. However, the remaining landing area was constrained by trees and uneven vegetation. During the final stage of the forced landing, both wings contacted trees before the aircraft touched down several metres beyond the initial tree contact, struck a larger tree and ground looped. The selected area was, therefore, suitable only as an emergency option under the circumstances, but its obstacles increased the likelihood of aircraft damage during touch down and rollout. The physical environment did not initiate the accident sequence; however, the orchard layout, trees and power lines influenced the final flight path and the severity of the impact sequence.

2.2.4 Conclusion

The pilot was experienced on the Cessna 206 type and had flown ZS-PWN several times in the past without reported engine-related defects. The investigation found no evidence of

mechanical failure in the engine, and bench-tested components operated within normal limits. The most probable cause of the engine stoppage was likely related to fuel vapour, a known issue addressed by Cessna SIL SE79-25 and FAA AD 79-15-01. During the restart attempts, an overly rich mixture likely caused heavy spark plug fouling, preventing normal combustion. With insufficient power in the engine, the pilot executed a forced landing.

3. CONCLUSION

3.1 General

From the available evidence, the following findings, causes, and contributing factors were made with respect to this accident. These shall not be read as apportioning blame or liability to any organisation or individual.

To serve the objective of this investigation, the following sections are included in the conclusion heading:

- **Findings —** are statements of all significant conditions, events, or circumstances in this accident. The findings are significant steps in this accident sequence, but they are not always causal or indicate deficiencies.
- **Causes —** are actions, omissions, events, conditions, or a combination thereof that led to this accident.
- **Contributing factors —** are actions, omissions, events, conditions, or a combination thereof, which, if eliminated, avoided, or absent, would have reduced the probability of the accident occurring, or would have mitigated the severity of the consequences of the accident. The identification of contributing factors does not imply the assignment of fault or the determination of administrative, civil, or criminal liability.

3.2 Findings

Pilot

3.2.1 The pilot had a valid Commercial Pilot Licence (CPL), was current on the aircraft type, and had significant experience on the Cessna 206 aircraft. Based on the available evidence, the pilot's licensing, recency and experience were not considered to have contributed to the accident.

3.2.2 The pilot had a Class 1 aviation medical certificate that was issued on 24 April 2025 with an expiry date of 30 April 2026.

3.2.3 The pilot flew the same aircraft three days before the accident flight and did not report any anomalies.

3.2.4 The pilot restarted the engine twice after it had stopped in-flight but could not get it to deliver maximum power. He then made the decision to return to FANS; however, he could not reach the aerodrome, and he executed a forced landing 0.84nm (1.55km) from the threshold of Runway 22.

Aircraft

3.2.5 The aircraft was maintained by the same aircraft maintenance organisation (AMO) since August 2013. The last maintenance inspection before the accident flight was certified on 17 October 2025 at 10 802.6 airframe hours. The aircraft had accrued 69.7 hours since the last inspection.

3.2.6 The aircraft was issued a Certificate of Airworthiness (C of A) on 7 December 2011 with an expiry date of 31 December 2026.

3.2.7 The aircraft's Certificate of Registration (C of R) was issued to the present owner on 6 October 2014.

3.2.8 The aircraft was issued a Certificate of Release to Service (CRS) on 17 October 2025 at 10 802.6 airframe hours, valid until 10 902.6 airframe hours or on 16 October 2026, whichever occurs first.

3.2.9 The overhauled engine was installed on the aircraft on 17 October 2024; it had accumulated 302.8 hours at the time of the accident.

3.2.10 The aircraft was operated within the prescribed weight and balance limitations, with the pilot being the sole occupant on-board.

3.2.11. Sufficient fuel was available on-board the aircraft with approximately 115 litres drained on site before wreckage recovery. The fuel was of the correct grade, and no significant contamination was found.

3.2.12 Fuel drained from both header tanks was free of contaminants. However, a small amount of sediment, including sand particles, was found in the fuel strainer. An unknown quantity of fuel was also reported by the pilot to have leaked from the right-wing tank fuel cap.

3.2.13 The investigation found that the fuel strainer gasket was incorrectly installed, which may have restricted fuel flow. No mechanical defects capable of causing engine stoppage were identified.

3.2.14. All spark plugs were heavily fouled, indicating that the engine had been operating with an excessively rich fuel/air mixture.

3.2.15 The Cessna SIL SE79-25 (Supplement #1) and FAA AD 79-15-01 mandated a placard installation in the cockpit outlining the procedure to follow should a fuel vapour occur, which was complied with.

Operator

3.2.16 The operator had a valid Air Service Licence and Air Operator Certificate (AOC) to conduct the flight.

3.2.17 The accident occurred whilst the pilot was en route to collect passengers at Singita Sabie Sand Aerodrome.

3.2.18 The pilot was subjected to a proficiency check flight by a flight instructor on 25 October 2025, which was an operational requirement.

Environment

3.2.19 The meteorological conditions prevailed with overcast conditions at the time of the flight, and with temperatures in the mid to high twenties degrees Celsius. The weather conditions were not a contributing factor to this accident.

3.3 Probable Cause

3.3.1 Unsuccessful forced landing after an engine stoppage likely resulting from fuel starvation caused by fuel vapour formation (vapour lock). Although the pilot successfully restarted the engine twice, normal engine power could not be restored, and hence, the forced landing on an abandoned litchi orchard.

3.4. Contributory Factor

3.4.1 During the engine restart procedure, excessive fuel input likely resulted in an overly rich mixture, leading to heavy spark plug fouling, impaired ignition and failure to restore normal engine operation.

4. SAFETY RECOMMENDATIONS

4.1 General

The safety recommendations listed in this report are proposed according to paragraph 6.8 of Annex 13 to the Convention on International Civil Aviation and are based on the conclusions listed in heading 3 of this report. The AIID expects that all safety issues identified by the investigation are addressed by the receiving States and organisations.

4.2 Safety Message

4.2.1 The pilot and the operator should consider regular recurrency training on the aircraft type (Cessna 206 series) to ensure critical skills are kept up to date regarding in-flight emergencies as was experienced by the pilot in this accident.

5. APPENDICES

5.1 Appendix A (FAA AD 79-15-01)

This report is issued by:

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

Appendix A

AIRWORTHINESS DIRECTIVES FINAL RULES: 79-15-01

CITATION: This information is not available.

PAGE NUMBER:

DOCKET NUMBER: Unknown

AMENDMENT: 39-3517

AD NUMBER: 79-15-01

SUBJECT HEADING: Airworthiness Directives; CESSNA Models 205 (210-5), 206, U206/TU206, P206/PT206, 207/T207, T210, 210/T210, and P210 Series Airplanes

ACTION:

SUMMARY:

DATES: Effective July 26, 1979.

ADDRESSES:

FOR FURTHER INFORMATION CONTACT:

SUPPLEMENTARY INFORMATION:

REGULATORY TEXT:
79-15-01 CESSNA: Amendment 39-3517. Applies to:

Model 205 (210-5) Series (Serial Numbers 641, 205-0001 through 205-0577) airplanes;

Model 206 (Serial Numbers 206-0001 through 206-0275) airplanes;

Model U206/TU206 Series (Serial Numbers U206-0276 through U206-1444, U20601445 through U20604287, U20604289, U20604290, U20604292 through U20604335, U20604337 through U20604389, U20604391 through U20604787, U20604789 through U20604894, U20604896 through U20604906, U20604908 through U20604911, U20604913 through U20604958, U20604960 through U20604963, U20604965 through U20604973, U20604975 through U20604977, U20604980 through U20604985, U20604987 through U20604990, U20604992, U20604993, U20604995 through U20604998, U20605000 through U20605018, U20605020 through U20605058, U20605060, U20605061, U20605063, U20605066, U20605069, U20605071 through U20605073, U20605075, U20605077, U20605078, U20605083, U20605085, U20605086, U20605088, U20605095, U20605097, U20605100, U20605102, U20605105, U20605107 and U20605110) airplanes;

Model P206/TP206 Series (Serial Numbers P206-0001 through P206-0603, P20600604 through P20600647) airplanes;

Model 207/T207 Series (Serial Numbers 20700001 through 20700530) airplanes;

Model T210 Series (Serial Numbers T210-0001 through T210-0454) airplanes;

Model 210/T210 Series (Serial Numbers 21057841 through 21063013, 21063015 through 21063086, 21063088 through 21063228, 21063230 through 21063287, 21063289 through 21063298, 21063300 through 21063324,

21063326 through 21063389, 21063391 through 21063393, 21063396 through 21063399, 21063401, 21063403 through 21063407, 21063412, 21063413, 21063419, 21063424 and 21063426) airplanes;

Model P210 Series (Serial Numbers P21000001 through P21000255, P21000257 through P21000273, P21000275 through P21000279, P21000281 through P21000283, P21000287, P21000290 and P21000292) airplanes.

COMPLIANCE: Required as indicated unless already accomplished.

To provide instructions for recognition of fuel system vapor blockage and operating procedures to restore normal fuel flow, within the next 25 hours time-in-service after the effective date of this AD, accomplish the following:

A) On Model 205 (210-5) series (Serial Numbers 641, 205-0001 through 205-0555); Model 206 (Serial Numbers 206-0001 through 206-0137); Model 210 (Serial Numbers 21057841 through 21058351) airplanes, examine the airplane and its maintenance record to determine whether Cessna Service Kit SK 205-5 or SK 206-2 has been installed. If neither of these kits is installed, make an entry in the maintenance records indicating this AD is not applicable to the airplane and no further action is required. If Cessna Service Kit SK 205-5 or SK 206-2 has been installed, accomplish Paragraphs B) 1 and 2 of this AD.

B) On affected (see Applicability Statement) Model 205 (210-5) series airplanes having serial numbers between 205-0556 through 205-0577 inclusive, Model 206 series airplanes having serial numbers between 206-0138 through 206-0275 inclusive, Model U206/TU206 series airplanes having serial numbers between U206-0276 through U206-1444 inclusive and U20601445 through U20604649 inclusive, Model P206/TP206 series airplanes having serial numbers between P206-0001 through P206-0603 inclusive and P20600604 through P20600647 inclusive, Model 207/T207 series airplanes having serial numbers between 20700001 through 20700482 inclusive, Model 210/T210 series airplanes having serial numbers between 21058352 through 21062954 inclusive, Model T210 series airplanes having serial numbers between T210-0001 through T210-0454 inclusive and Model P210 series airplanes having serial numbers between P21000001 through P21000150 inclusive;

1. Install Cessna P/N 1205252-2 placard next to the fuel flow indicator which reads as follows:

"MAJOR FUEL FLOW FLUCTUATIONS/POWER SURGES

1. AUX FUEL PUMP - ON, ADJUST MIXTURE.

2. SELECT OPPOSITE TANK.

3. WHEN FUEL FLOW STEADY, RESUME NORMAL OPERATIONS.
SEE PROCEDURE CARD D1189-13 FOR EXPANDED INSTRUCTIONS."

2. Place Cessna special procedure card P/N D1189-13 in the airplane at a location accessible to the pilot at all times when he is in the pilot's seat and revise the aircraft Equipment List by adding this card as a required item of equipment.

C) On affected (See Applicability Statement) Model U206/TU206 series airplanes having serial numbers between U20604650 and U20605110 inclusive, Model 207/T207 series airplanes having Serial Numbers between 20700483 through 20700530 inclusive, Model 210/T210 series airplanes having Serial Numbers between 21062955 through 21063426 inclusive and Model P210 series airplanes having Serial Numbers between P21000151 through P21000292 inclusive;

1. Install Cessna P/N 1205252-1 placard next to the fuel flow indicator which reads as follows:

"MAJOR FUEL FLOW FLUCTUATIONS/POWER SURGES

1. AUX FUEL PUMP - ON, ADJUST MIXTURE.

2. SELECT OPPOSITE TANK.

3. WHEN FUEL FLOW STEADY, RESUME NORMAL OPERATIONS.
SEE P.O.H. FOR EXPANDED INSTRUCTIONS."

2. Revise the Pilot's Operating Handbook for the following airplanes by inserting the revision specified below:

Airplane Model	Revision	Cessna Part Number
U206G	Rev 1 22 May 1979	D1147R1-13PH
TU206G	Rev 2 22 May 1979	D1148R2-13PH
207A	Rev 1 22 May 1979	D1149R1-13PH
T207A	Rev 2 22 May 1979	D1150R2-13PH
210N	Rev 3 22 May 1979	D1151R3-13PH
T210N	Rev 3 22 May 1979	D1152R3-13PH
P210N	Rev 3 22 May 1979	D1153R3-13PH

D) The modification required by this AD may be accomplished by owner/operator authorized to perform preventative maintenance under FAR 43. An entry should be made in the aircraft maintenance record indicating compliance; i.e., "AD 79-15-01 complied with by installing placard P/N 1205252-2 and Special Procedure Card P/N D1189-13 this date _____" or "AD 79-15-01 complied with by installing placard P/N 1205252-1 and Pilot's Operating Handbook Rev _____ dated _____, Cessna P/N _____ this date _____."

E) Airplanes may be flown in accordance with FAR 21.197 to a location where this AD may be accomplished.

F) Any equivalent method of compliance with this Airworthiness Directive must be approved by the Chief, Engineering and Manufacturing Branch, Federal Aviation Administration, Central Region, 601 E. 12th Street, Kansas City, Missouri 64106.

Cessna Service Letter SE 79-25, dated April 30, 1979, and Supplement No. 1 thereto dated June 4, 1979, pertains to the subject matter of this Airworthiness Directive. Cessna Aircraft Company has mailed copies to all owners of record. Additional copies may be obtained from: Cessna Aircraft Co., Marketing Division, Attn: Customer Service Department, Wichita, Kansas 67201; Telephone (316) 689-9111.

This Amendment becomes effective July 26, 1979.

FOOTER: