

AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:		CA18/2/3/10637	
Aircraft Registration	ZU-VHB	Date of Accident	19 February 2026		Time of Accident	0545Z	
Type of Aircraft	Jabiru J400			Type of Operation	Private (Part 94)		
Pilot-in-command Licence Type	Private Pilot Licence (PPL)		Age	68	Licence Valid	Yes	
Pilot-in-command Flying Experience	Total Flying Hours			3325.6	Hours on Type	733.6	
Last Point of Departure	Hippo Pools Resort Private Airstrip (FAHD), Limpopo Province						
Next Point of Intended Landing	Phalaborwa Aerodrome (FAPH), Limpopo Province						
Damage to Aircraft	Substantial						
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)							
On R530 public road, approximately 1 141 metres north-west of Hippo Pools Resort Private Airstrip (FAHD) at the following co-ordinates: 24°11'38.73"South 30°48'26.73"East							
Meteorological Information	Surface wind: 210°; Temperature: 20°C; Dewpoint: 15°C; Ceiling and Visibility: CAVOK; QNH: 1020hPa						
Number of People On-board	1+0	Number of People Injured	1	Number of People Killed	0	Other (On Ground)	0

Synopsis

On Thursday morning, 19 February 2026, a pilot on-board a Jabiru J400 aircraft with registration ZU-VHB took off on a private flight from Hippo Pools Resort Airstrip (FAHD) to Phalaborwa Aerodrome (FAPH), both located in Limpopo province. The flight was conducted under visual meteorological conditions (VMC) and under the provisions of Part 94 of the Civil Aviation Regulations (CAR) 2011, as amended.

The take-off was from FAHD Runway (RWY) 01. Whilst the aircraft was at an approximate height of 500 feet (ft) above ground level (AGL), the engine stopped. After unsuccessful attempts to restart the engine, the pilot elected to execute a forced landing on R530 public road. He made a left turn to line up with the road; however, the aircraft's left-wing tip clipped the Mopane treetops before the aircraft touched down; it skidded sideways (towards the right) on the road before it stopped. The pilot sustained minor injuries.

The inspection of the engine after the accident revealed six sheared flywheel screws from the crankshaft. Consequently, the accessory drive was disconnected, which led to power loss, damage to the alternator and ignition coils, and engine stoppage.

Probable Cause/s and/or Contributory Factors

Failure of the flywheel screws after take-off led to engine stoppage; as a result, an unsuccessful forced landing was conducted on a private road.

SRP Date	8 September 2026	Publication Date	10 September 2026
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Occurrence Details

Reference Number : CA18/2/3/10637
Occurrence Category : Accident (Category 2)
Type of Operation : Private (Part 94)
Name of Operator : Van der Walt, W J V
Aircraft Registration : ZU-VHB
Aircraft Make and Model : Jabiru J400
Nationality : South African
Place : On R530 road, near Hippo Pools Resort in Limpopo province
Date and Time : 19 February 2026 at 0545Z
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 occurrence on 19 February 2026. The occurrence was classified as an accident according to the CAR 2011 Part 12 and the International Civil Aviation Organisation (ICAO) STD Annex 13 definitions. A notification was sent to the State of Registry, Operator, and Design and Manufacturer in accordance with the CAR 2011 Part 12 and the ICAO Annex 13 Chapter 4. An investigator was dispatched to the accident site.

Notes:

- Whenever the following words are mentioned in this report, they shall mean the following:*
Accident — this investigated accident
Aircraft — the Jabiru J400 involved in this accident
Investigation — the investigation into the circumstances of this accident
Pilot — the pilot involved in this accident
Report — this accident report
- Photos and figures used in this report were taken from various 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.*

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Abbreviation	Description
°	Degrees
°C	Degrees Celsius
AIID	Accident and Incident Investigations Division
AMO	Aircraft Maintenance Organisation
ATF	Authority-to-Fly
CAR	Civil Aviation Regulations
C of A	Certificate of Airworthiness
C of R	Certificate of Registration
CRS	Certificate of Release to Service
FAGG	George Airport
FAHD	Hippo Pools Resort Private Airstrip
FAHS	Hoedspruit Civil Airfield
FAPH	Phalaborwa Aerodrome
ft	Feet
FDR	Flight Data Recorder
hPa	Hectopascals
l	Litres
JEM	Jabiru Engine Maintenance
JSB	Jabiru Service Bulletin
MLG	Main Landing Gear
MPI	Mandatory Periodic Inspection
nm	Nautical Miles
OEM	Original Equipment Manufacturer
PIC	Pilot-in-Command
POH	Pilot's Operating Handbook
PPL	Private Pilot Licence
QNH	Barometric Pressure Adjusted to Sea Level
SACAA	South African Civil Aviation Authority
SAR	Search and Rescue
SAWS	South African Weather Service
TAF	Terminal Aerodrome Forecast
TBO	Time Between Overhaul
TML	Limited period of validity of the medical certificate
UTC	Universal Co-ordinated Time
VDL	Valid only with correction for defective distant vision
VHF	Very High Frequency
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 Thursday morning, 19 February 2026, a pilot on-board a Jabiru J400 aircraft with registration ZU-VHB took off on a private flight from Hippo Pools Resort Airstrip (FAHD) to Phalaborwa Aerodrome (FAPH), both in Limpopo province. The flight was conducted under visual meteorological conditions (VMC) and under the provisions of Part 94 of the Civil Aviation Regulations (CAR) 2011, as amended.
- 1.1.2. The pilot stated that he conducted a pre-flight inspection of the aircraft with no anomalies noted. The aircraft had 90 litres (L) of Unleaded 95 octane fuel in the tanks (a full tank carries 120L). After take-off from Runway (RWY) 01 and at an approximate height of 500 feet (ft) above ground level (AGL), the engine stopped. After the pilot's unsuccessful attempts to restart the engine, he elected to execute a forced landing on R530 public road. He made a left turn to line up with the road; however, the aircraft's left-wing tip clipped the Mopane treetops before the aircraft touched down. It skidded sideways (right side) before it stopped on a grassy terrain.

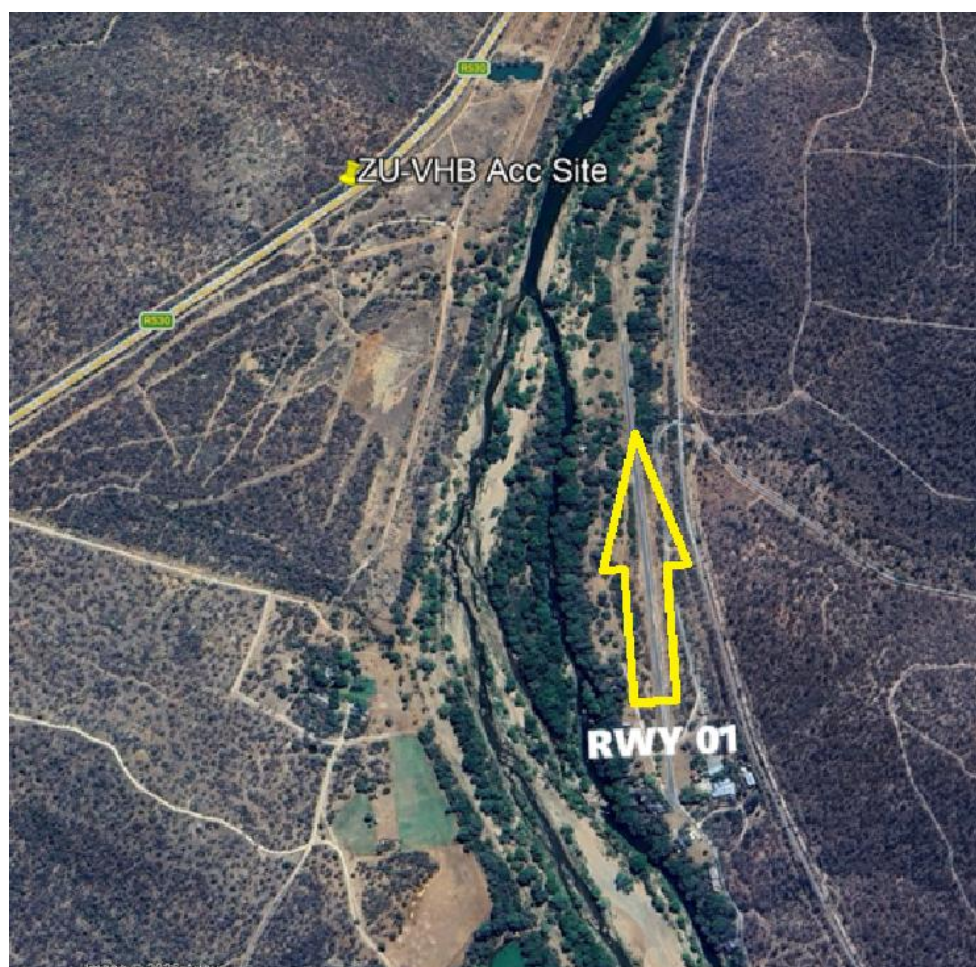


Figure 1: An aerial view of FAHD and the location of the accident site. (Source: Google Earth)

- 1.1.3. The accident occurred on R530 public road, approximately 1 141 metres north-west of Hippo Pools at Global Positioning System (GPS) co-ordinates determined to be 24°11'38.8" S 030°48'26.8" E, at an elevation of 1 283ft.

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.

- 1.2.1. The pilot sustained minor injuries and was taken to a hospital in Hoedspruit.

1.3. Damage to Aircraft

- 1.3.1. The aircraft sustained damage to the wings, landing gear and propeller blades.



Figure 2: The ZU-VHB facing south on R530 embarkment. (Source: Owner)

1.4. Other Damage

1.4.1. None.

1.5. Personnel Information

Nationality	South African	Gender	Male	Age	68
Licence Type	Private Pilot Licence (PPL)				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	None				
Medical Expiry Date	31 October 2026				
Restrictions	TML; VDL				
Previous Accidents	None				

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

Flying Experience:

Total Hours	3 325
Total Past 7 Days	0.1
Total Past 90 Days	2.6
Total on Type Past 90 Days	2.6
Total on Type	733.6

1.5.1. The pilot had a Private Pilot Licence (PPL) that was initially issued on 31 March 2017. The renewed licence was issued on 12 July 2025 with an expiry date of 11 July 2027.

1.5.2. The pilot had a Class 4 aviation medical certificate that was issued on 15 August 2025 with an expiry date of 31 August 2026 with restrictions.

1.6. Aircraft Information

1.6.1. Aircraft Description (Source: Jabiru J400 Owner's Manual)

The Jabiru J400 is a 4-seat high wing monoplane, powered by a 120-horsepower air-cooled 6-cylinder engine and fixed pitch propeller. Because the J400 model is an experimental amateur built kit plane, the characteristics, performance, limitations and other information may vary between individual aircraft. As part of the test flight program, the owner must verify the characteristics, performance limitations and other information relevant to their aircraft.

- 1.6.2. The aircraft was assembled in 2003 with engine serial number (SN) 33A399. On 3 May 2019 when it changed ownership at 722 airframe hours, the engine was replaced with SN 33A2041. Jabiru confirmed that the engine SN 33A2041 was initially installed in a Rand Robinson KR-2 aircraft during which it accumulated 19.5 engine hours before it was installed in ZU-VHB.

Airframe:

Manufacturer/Model	Jabiru/J400	
Serial Number	52	
Year of Manufacture	2003	
Total Airframe Hours (At Time of Accident)	1081.5	
Last Inspection (Date & Hours)	22 May 2025	1 000 hours
Airframe Hours Since Last Inspection	81.5	
CRS Issue Date	22 May 2025	
ATF (Issue Date & Expiry Date)	20 June 2025	31 May 2026
C of R (Issue Date) (Present Owner)	12 August 2019	
Operating Category	Part 94	
Type of Fuel Used	Unleaded 95 octane	
Previous Accidents	Nil	

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

Engine:

Manufacturer/Model	Jabiru/3300A
Serial Number	33A2041
Hours Since New	393.5
Hours Since Overhaul	Specified Time Between Overhaul (TBO) is 1 000 hours – TBO not reached

Propeller:

Manufacturer/Model	Sensenich/Wooden Prop
Serial Number	AH6852
Hours Since New	308.1
Hours Since Overhaul	(TBO) is 1 000 hours – TBO not reached

- 1.6.3. On the day of the accident, the pilot reported that the aircraft had approximately 90 litres (L) of Unleaded 95 octane fuel, which provided an estimated endurance of 4.5 hours. The recovery team drained 38L from the aircraft before it was relocated. The remaining fuel was

likely lost through leakage during the accident sequence. The pilot did not record fuel uplift in the flight folio as per the CAR Part 91.03.6 which states:

(1) The owner of operator shall maintain fuel records to enable the Director to ascertain that, for each flight under his or her control, the requirements of regulation 91.07.12 are complied with.

(2) The PIC of the aircraft shall enter the fuel and oil records referred to in sub regulation (1) in the flight folio.

1.6.4. According to the pilot, on 7 October 2025, a new coil was fitted to the engine. On 3 February 2026, the pilot recorded a magneto drop during run-up checks in the flight folio; however, he did not specify if it was the left or right magneto. The aircraft completed a 1-hour flight on the same day. The last recorded flight before the accident was 1 hour and 5 minutes on 12 February 2026, which was uneventful.

1.7. Meteorological Information

1.7.1. The weather information below was obtained from the Meteorological Aerodrome Report (METAR) that was issued by the South African Weather Service (SAWS), recorded at Polokwane International Airport on 19 February 2026 at 0545Z. Polokwane International Airport is located approximately 75.6 nautical miles (nm) from the accident site. The closest station, Hoedspruit Airport (FAHS), did not record weather conditions on the day of the accident. The pilot stated that the temperature was 23°C in the pilot's questionnaire form.

Wind Direction	210°	Wind Speed	02kts	Visibility	9999m
Temperature	20°C	Cloud Cover	nil	Cloud Base	nil
Dew Point	15°C	QNH	1020hPa		

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 prior to 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 prior to the flight.

1.10. Aerodrome Information

1.10.1. The accident occurred on R530 public road, approximately 1 141 metres north-west of FAHD.

Aerodrome Location	Hippo Pools Resort Airstrip (FAHD), Limpopo Province
Aerodrome Status	Unlicensed
Aerodrome GPS co-ordinates	24°11'56.22" South, 30°48'44.81" East
Aerodrome Elevation	1 239 feet
Runway Headings	01/19
Dimensions of Runway Used	800m X 12m
Heading of Runway Used	010
Surface of Runway Used	Tarred
Approach Facilities	None
Radio Frequency	124.8-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.

1.12. Wreckage and Impact Information

1.12.1. The aircraft sustained damage to one of the wooden propeller blades during the accident. The main landing gear (MLG) frame was twisted, and the left main landing gear wheel was found a few metres behind the main wreckage after separating from the MLG frame. The left-wing tip was damaged during contact with the treetops during the forced landing.



Figures 3 and 4: The damaged propeller (left) and left-wing tip (right).



Figure 5: About 38L of fuel that was drained from the aircraft. (Source: Owner)

1.13. Medical and Pathological Information

1.13.1. The pilot sustained minor injuries during the accident and was taken to a hospital for treatment.

1.14. Fire

1.14.1. There was no post-impact fire.

1.15. Survival Aspects

1.15.1. The accident was considered survivable as the cabin area had remained intact during the accident sequence.

1.16. Tests and Research

1.16.1. After the accident, the aircraft was recovered to the hangar of an aircraft maintenance organisation (AMO) at FAHT. After thorough inspection, it was discovered that the engine's flywheel was loose with its screws sheared. Thereafter, the engine was transported to the Jabiru Distribution Agent, the sole distributor of Jabiru aircraft in South Africa, situated at George Airport (FAGG), Western Cape province. The crate which contained the engine was opened in the presence of the investigator on 23 April 2026.

1.16.2. Notes recorded by a Jabiru agent:

[The] engine was shipped incomplete without coils, alternator mounting plate and alternator. Also not included was the carburettor and ram air cooling ducts. On visual inspection of the engine, there was no notable or visible extensive damage to the exterior of the engine. It is noted that the engine could be turned freely by hand, but the flywheel was not turning with the crankshaft. The flywheel was removed from the engine by hand, and it was noted that all 6 screws were sheared. No further investigation was carried out on the engine.

1.16.3. Notes detailing the engine and propeller: *"It must be noted that the engine 33A2041 was installed on ZU-VHB at 19.5 hours on 3 May 2019. Also, there was no record of propeller installation in the aircraft CA21-27A logbook under Class 1 Product removal and installation record at the time of engine installation, so one must conclude that the propeller installed is the original Jabiru propeller JJ6285LC 60x53.*

1.16.4. Also noted in the Airframe logbook, the propeller was replaced between May 2022 and May 2023 as a new propeller serial number and hours are shown in the scheduled inspection records to propeller serial number AH6852, and the first hours are recorded as 179.6 on 23 May 2023. There is also no record of the propeller being changed over this period. It is noted this would be the third propeller fitted / installed to this engine.

1.16.5. In all airworthiness directive AD, and service bulletin (SB) pages of the airframe logbook, very few are recorded. The aircraft was built in 2003, some 23 years ago (see Figure 6).

AIRWORTHINESS DIRECTIVE COMPLIANCE RECORD ONE TIME ACTION				
AD No	Date	Method of compliance	Signature *	AME/AMO Number
ALL ADS	03-05-19	All up to date as of		11 AMO Approved Person n/a
	Total time	03/05/2019		
	722.5 Hrs			
All ADS	30/5/22 - 30/5/22	Nil to date		
	Total time			
	965 Hrs			
	Date	Method of compliance	Signature *	AME/AMO Number

Figure 6: The ZU-VHB airframe logbook showing applicable ADs and SBs that were complied with.
(Source: Jabiru Agent)

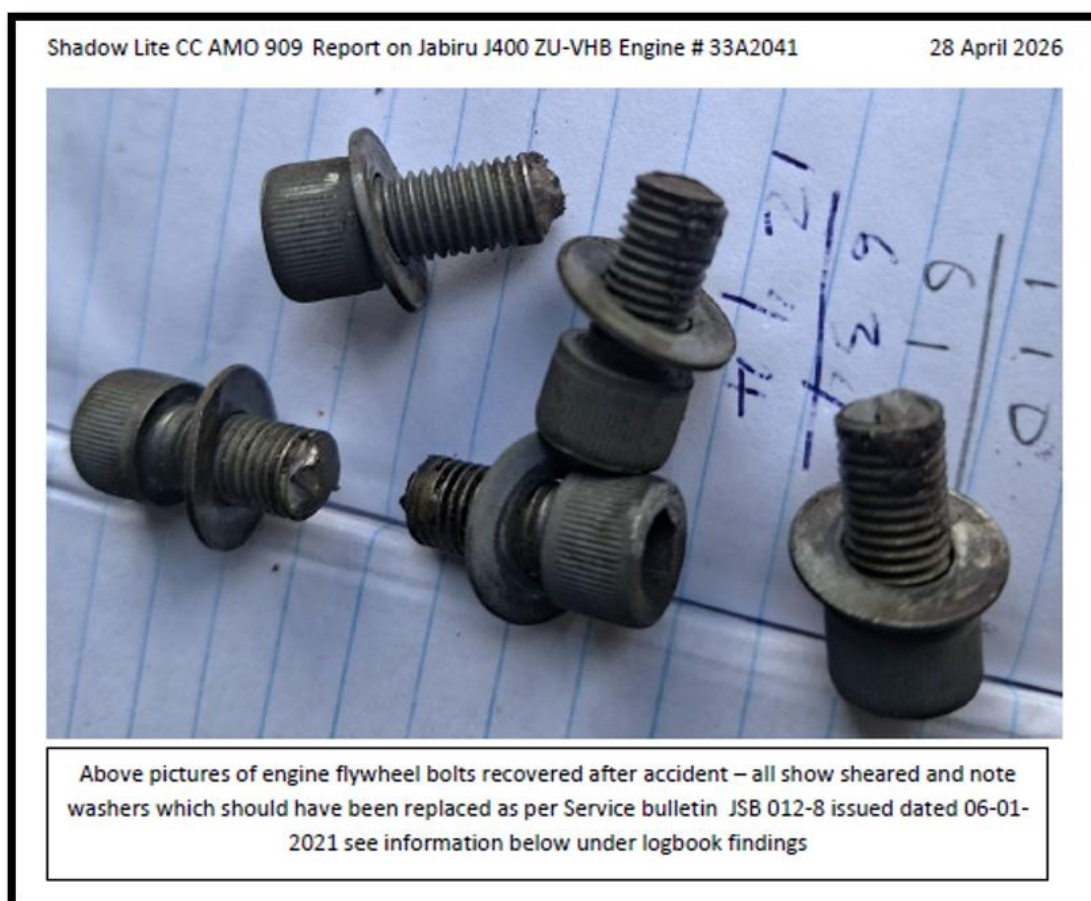


Figure 7: The sheared flywheel screws that were removed; the sixth screw was stuck to the engine.
(Source: Jabiru Agent)

1.16.6. The Jabiru Safety Bulletin (Appendix B): Jabiru engine flywheel attachment JSB 012-9 (latest) was issued on 30 November 2022 and states:

- At the next major overhaul change flywheel screws to use Nordloc washers in accordance with the procedure in Section 5.4.

- Check the flywheel screws as detailed in Section 5.3. If any loose or broken screws are found, replace all the screws in accordance with the procedure given in Section 5.4.
- Maintain the engine in accordance with the instructions detailing flywheel connection maintenance from the latest issue of the Engine maintenance manual JEM0002

1.	Engine Pre-Inspection Test Run			*	*	*	*
2.	Engine Cowlings			*	*	*	*
3.	Inspection of Engine & Compartment – Pre Cleaning			*	*	*	*
4.	Clean Engine & Compartment				*	*	*
5.	Inspection of Engine Compartment – Clean. (Includes Torque-Seal check on through-bolts)				*	*	*
6.	Perform Basic Visual Inspection of Flywheel Screws			*	*	*	*
7.	Perform Detailed Inspection of Flywheel Screws				*	*	*
8.	Replace flywheel screws at 500hrs	*					

JEM0002-12 Jab 2200 &

This document is controlled while it remains on the Jabiru server. Once this no longer applies the document becomes uncontrolled.

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Figure 8: Guidance to replace flywheel screws. (Source: JEM0002-12)



Figure 9: Picture of the engine without the flywheel. (Source: Jabiru Agent)

Conclusion:

1.16.7. “If the flywheel screws fail, the flywheel will separate from the crankshaft. This will result in loss of power and damage to the alternator and ignition coils, and will result in stoppage of the engine,” states the report.

1.16.8. In the Engine Maintenance Manual JEM0002-12 dated 29 August 2024 on the first page it states: “It is the owner’s responsibility to regularly check the Jabiru website at www.jabiru.net.au for applicable Service Bulletins and have them implemented as soon as possible. This is what every AMO/ approved person (AP) should be using when engine maintenance and inspections are carried out including annual inspections. In Section 8, there is a list of all engine inspections and intervals, and in Section 9.22, there are clear details on flywheel screw inspections and related torques.”

1.17. Organisational and Management Information

1.17.1. The last annual inspection conducted on 23 May 2025 was carried out by an AP who has been maintaining the aircraft from 2023 and who had the appropriate ratings. The AP’s licence was renewed on 18 March 2025 with an expiry date of 17 March 2027.

1.18. Additional Information

1.18.1. CAR Record of Maintenance Part 43.03.1

(1) Any person who carries out maintenance on an aircraft or aircraft component shall record, on completion of the maintenance—

(a) details of the maintenance including, where applicable, the type of inspection and any approved data used;

(b) for a mandatory periodic, progressive or scheduled inspection, whether a detailed inspection or routine inspection of the particular components or areas of the aircraft was carried out;

(c) the serial numbers, if any, of components removed or fitted;

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

Crew:

- 2.2.1. The pilot had a Private Pilot Licence (PPL) that was initially issued on 31 March 2017; the latest renewed PPL was issued on 12 July 2025 with an expiry date of 11 July 2027.
- 2.2.2. The pilot had a Class 4 medical certificate that was issued on 15 August 2025 with an expiry date of 31 August 2026 with restrictions.
- 2.2.3. The weather was fair with visibility of 10 kilometres (km), and with light wind and moderate temperature at 20°C.

Mission

- 2.2.4. The pilot stated that the aircraft took off from RWY 01 and at approximately 500ft AGL, the engine stopped. After unsuccessful restart attempts, he opted to execute a forced landing on R530 public road as it provided a suitable option. During the forced landing, the aircraft skidded on the left edge of the road before it stopped. The pilot sustained minor injuries, and the aircraft was substantially damaged. The pilot's actions were consistent with the circumstances of a low-altitude engine failure.

Machine

- 2.2.5. After recovery, it was determined that the engine flywheel had loosened from the crankshaft, this was followed by an engine stoppage. Separation of the flywheel from the crankshaft would interrupt the normal operation of the ignition and engine rotation system, thus, making engine operation impossible. The engine was shipped to the Jabiru agent in George Airport in Western Cape province after the accident.
- 2.2.6. The 50-hour oil change was not recorded as per the regulation in both the flight folio and the airframe logbook. Fuel that was uplifted on the day of the flight (90 litres) was also not

recorded in the flight folio. Removal and installation of propellers was not recorded in the aircraft flight folio. Although these omissions did not directly cause the engine stoppage, they prevented the investigation from fully verifying compliance with maintenance requirements and the aircraft's maintenance history.

2.2.7. Section 8 of the Engine Maintenance Manual JEM00012-2 (Appendix A) states that the flywheel screws must be replaced at 500 hours. All flywheel screws (in Figure 8) that were sheared during the engine failure had Loctite residue and did not have any indication of fatigue or fracture propagation. Their condition indicated a sudden overload failure rather than deterioration over time.

2.2.8. The agent found that all six flywheel screws in the engine likely sheared during the initial climb which resulted in a loss of engine power and the subsequent engine stoppage. The engine was the second replacement to this aircraft and had completed 393.5 hours since installation; it had not yet reached the 500-hour screws replacement. The failure occurred before the scheduled screws replacement interval, and the investigation could not determine the exact reason for the simultaneous screws' failure. However, evidence indicated that a sudden mechanical failure initiated the accident sequence.

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, which 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

- 3.2.1. The pilot was qualified and medically fit to conduct the flight. He had a valid Private Pilot Licence (PPL) with an expiry date of 11 July 2027 and a Class 4 medical certificate with an expiry date of 31 August 2026.
- 3.2.2. The pilot made an unsuccessful forced landing on a private road; the aircraft sustained damage to the left wing, landing gear and propeller blades.
- 3.2.3. The pilot stated that he refuelled the aircraft with 90 litres (L) of Unleaded 95 octane fuel; however, 38L was drained from the fuel tanks. It is likely that the difference in litres leaked after the accident.
- 3.2.4. The owner did not record fuel and oil uplift in the flight folio as per the Civil Aviation Regulations (CAR) Part 91.03.6 which states:

(1) The owner of operator shall maintain fuel records to enable the Director to ascertain that, for each flight under his or her control, the requirements of regulation 91.07.12 are complied with.

(2) The PIC of the aircraft shall enter the fuel and oil records referred to in sub regulation (1) in the flight folio.

Engine Inspection Findings

- 3.2.5. The first engine serial number (SN) 33A399 was installed in 2003 and was removed when the aircraft changed ownership at 722 airframe hours. The current engine SN 33A2041 was installed on 3 May 2019 at 19.5 hours.
- 3.2.6. The propeller was changed between May 2022 and May 2023 as a new propeller serial number and hours are shown in the scheduled inspection records to propeller serial number AH6852, and the first hours on 23 May 2023 are recorded as 179.6.
- 3.2.7. The owner did not keep a proper record of maintenance as per the CAR Part 43.03.1, which states that:

(1) Any person who carries out maintenance on an aircraft or aircraft component shall record, on completion of the maintenance—

(a) details of the maintenance including, where applicable, the type of inspection and any approved data used;

- (b) for a mandatory periodic, progressive or scheduled inspection, whether a detailed inspection or routine inspection of the particular components or areas of the aircraft was carried out;*
- (c) the serial numbers, if any, of components removed or fitted.*

3.2.8. The airframe logbook stated that all ADs and SBs had been satisfied. No proof was given.

Conclusion:

3.2.9. *The flywheel will partially or separate completely from the crankshaft. This will result in a loss of power, damage to the alternator and ignition coils and will result in engine stoppage.*

3.2.10. This was the second engine in this aircraft, and it had completed 393.5 hours since installation (it had 19.5 hours on 23 May 2019) and had not yet reached the 500-hour screws replacement stipulated in the Jabiru Maintenance Manual.

3.3. Probable Cause/s

3.3.1 Failure of the flywheel screws after take-off led to engine stoppage; as a result, an unsuccessful forced landing was conducted on a private road.

3.4. Contributory Factor/s

3.4.1. None.

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 Recommendation/s

4.2.1. None.

5. APPENDICES

5.1. Appendix A – Section 8: Engine Maintenance Manual JEM00012-12

5.2. Appendix B - Jabiru Service Bulletin: JSB 012-9

This report is issued by:

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

Engine Maintenance Manual	Jabiru Aircraft Pty Ltd 
JEM0002-12	Jabiru 2200 & 3300 Aircraft Engines

8 MAINTENANCE

8.1 Service Interval Tolerance

- A tolerance of plus or minus 3 hours is allowable on all service intervals set within this manual
- Engine life is measured via direct tachometer hour meters or "Hobbs" meters. Air switches or scaled hour readings based on cumulative power output are not to be used to determine when overhauls or services are due.

8.2 Basic Inspection Procedure

- Test run engine: record anomalies.
- Remove the engine cowlings and inspect the engine bay in "dirty" condition.
- Clean the engine bay & propeller
- Carry out the inspections listed in Table 13.
- Test and re-assemble the aircraft. Test fly if required.

8.3 Work Sheets

- Work sheets designed to suit the inspections below are included in Section 11. These sheets are designed to be fast to fill out and to give all required detail from a particular inspection when affixed in the log book.
- The use of these worksheets by maintainers is strongly recommended.

8.4 Mandatory Inspections & Lived Items.

- Engine life is as noted in Section 9.26.
- Lived components of the engine are detailed in the Engine Overhaul Manual.
- Mandatory inspections are detailed in Table 13.

8.4.1 Flexible Hoses

- All flexible hoses in the engine compartment should be replaced at engine overhaul or every 2 years whichever comes first. Hoses which show visible deterioration (cracking, excessive hardening) should be replaced immediately, irrespective of age.

Note: If oil cooler hoses are installed with oil on the hose fittings or, with oil on the inside of the hose in the vicinity of the fittings, hose security may be adversely affected.

8.4.2 Carburettor rubber mount

- The rubber connector attaching the carburettor to the plenum chamber must be replaced at overhaul or every 5 years whichever comes first. Connectors which show deterioration (cracking, splitting etc) must be replaced irrespective of age.

8.5 Engine Inspection Chart

- The chart below shows the recommended intervals at which items are to be inspected.
- Additional detail of the maintenance required for each point is given in the sections below the inspection chart.
- As shown in the chart, there are items to be inspected each 25 hours, 50 hours, 100 hours, each 200 hours and Annually. There are also special inspection items that require inspection or servicing at intervals other than those in the normal inspection chart.
- At 50 hour inspections all items marked under Each 25 Hours are inspected, serviced or otherwise completed in addition to the items marked under Each 50 Hours.

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- When conducting an inspection at 100 hours, all items marked under Each 25 Hours & Each 50 Hours are inspected, serviced or otherwise completed in addition to the items marked under Each 100 Hours.
- At each 200 hours inspection the 25 Hour, 50 Hour & 100 hour items are completed in addition to the items marked under Each 200 Hours.
- An inspection conducted Annually would likewise include the 25, 50, 100 and 200 hour items in addition to the items marked under Annual Inspection.
- A complete aircraft inspection includes all 25, 50, 100, 200 hour and Annual items together with those shown in the Aircraft Technical Manual and Propeller Manual.

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WARNING

Before starting work on the engine it is recommended that the engine starter be disabled (via disconnecting the starter solenoid or similar) to reduce the risk of injury from inadvertent engine start.

Table 13 – Engine Inspection Chart

		Annual Inspection							
		Each 200 Hours							
		Each 100 Hours							
		Each 50 Hours							
		Each 25 Hours							
PROPELLER									
1.	Spinner		*	*	*	*			
2.	Spinner Mount Plates		*	*	*	*			
3.	Spinner Screws		*	*	*	*			
4.	Propeller		*	*	*	*			
5.	Prop Tracking		*	*	*	*			
6.	Propeller bolts/nuts – Tension		*	*	*	*			
7.	Spinner Tracking		*	*	*	*			
ENGINE & ENGINE COMPARTMENT									
Check for oil, fuel exhaust & Induction leaks then clean entire engine & compartment before inspection.									
1.	Engine Pre-Inspection Test Run		*	*	*	*			
2.	Engine Cowlings		*	*	*	*			
3.	Inspection of Engine & Compartment – Pre Cleaning		*	*	*	*			
4.	Clean Engine & Compartment			*	*	*			
5.	Inspection of Engine Compartment – Clean. (Includes Torque-Seal check on through-bolts)			*	*	*			
6.	Perform Basic Visual Inspection of Flywheel Screws		*	*	*	*			
7.	Perform Detailed Inspection of Flywheel Screws			*	*	*			
8.	Replace flywheel screws at 500hrs	*							
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Jabiru Service Bulletin: Jabiru Engine Flywheel Attachment	
JSB 012-9	30 th November 2022

- b) Maintain the engine in accordance with the latest issue of JEM0002 (Gen 3) and JEM0005 (Gen 4).
- c) At major overhaul (2000-hr TTIS) upgrade the engine as detailed in Section 4.3.

4.18 Engines with Gen4 "X" & "Y" drive plate flywheel, 3/8" Screws and Dowels

- d) Refer to Jabiru Service Bulletin JSB 014 and treat the propeller installation as detailed.
- e) Maintain the engine in accordance with the latest issue of JEM0002 (Gen 3) and JEM0005 (Gen 4).

5 Procedures

5.1 Nordloc washers

This service bulletin also acts to inform maintainers and operators of a design change to the flywheel connection which **must** be implemented on existing engines whenever flywheel bolts are replaced (i.e. at the intervals specified in JEM0002 or at overhaul).

Flywheel screws must now be installed using Nordloc washers (replacing the previous installation which used either plain or Belleville washers). Jabiru engines of any and all flywheel configurations (as defined in Table 1) should now use Nordloc washers. These washers are easily identified via visual inspection as shown below in Figure 2.

Refer to the Legacy Jabiru Engine overhaul manual JEM0001 and the Gen 4 Jabiru Engine overhaul manual JEM0002 (always check for the latest revision) for the installation procedure of flywheel capscrews using Nordloc washers. The major difference in installation is that bolts installed with Nordloc washers **must not be installed with Loctite**. The torque setting is also different for capscrews installed with these washers.

When Nordloc washers are used on an aluminium surface a steel plate must be used to protect the aluminium surface. These are available from Jabiru.



Figure 2 - Plain washers compared to Nordloc washers (flywheel with steel centre).

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