AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

			Reference:	CA18/2/3/10124	
Aircraft Registration	**ZS-EUC**	**Date of Accident**	24 February 2022	**Time of Accident**	0730Z
Type of Aircraft	Mooney M20F		**Type of Operation**	Private (Part 91)	
Pilot-in-command Licence Type	Airline Transport Pilot Licence (ATPL)		**Age**	63	**Licence Valid**	Yes
Pilot-in-command Flying Experience		**Total Flying Hours**	28102.59	**Hours on Type**	146.37
Last Point of Departure	Lake Naverone Airfield, Kwa-Zulu Natal Province				
Next Point of Intended Landing	Hoedspruit Airfield (FAHT), Limpopo province				
Damage to Aircraft	Substantial				

Location of the accident site with reference to easily defined geographical points (GPS readings if possible)

At the Global Positioning System (GPS) co-ordinates: 29°44'31.0'' South 029°16'05.0'' East
at an elevation 5400 feet (ft)

Meteorological Information	Surface wind: 0kt; Temperature: 19.8°C; Dew point temperature: 14.2°C; No Clouds						
Number of People On-board	1 + 1	**Number of People Injured**	0	**Number of People Killed**	0	**Other (On Ground)**	0

Synopsis

On 24 February 2022, a pilot and a passenger on-board a Mooney M20F aircraft with registration ZS-EUC took off on a private flight from Runway (RWY) 09 at Lake Naverone Airfield in KwaZulu-Natal province, with the intention to land at Hoedspruit Airfield (FAHT) in Limpopo province. Visual meteorological conditions (VMC) by day prevailed at the time of the flight.

The pilot stated that a runway inspection was carried out the previous day (23 February 2022) and it was found that the beginning of the slightly curved grass runway was waterlogged. The following day, on 24 February 2022, the pilot reported that he backtracked the aircraft on RWY 09 at Lake Naverone Airfield and, at the end of the runway, executed a 180-degree turn. He then completed a pre-flight checklist which included performing a power check with the fuel mixture leaned to attain the required parameters. Thereafter, he taxied the aircraft approximately 120 metres down the runway before take-off as the runway was still waterlogged.

According to the pilot, he commenced the rotation at 66 knots and the acceleration was slower than normal, the aircraft's stall warning was audible but intermittent. Immediately after the nose of the aircraft lifted off the ground, a small bump on the runway caused the aircraft to become airborne prematurely. As a result, the aircraft had an abrupt reduction in airspeed. At this point, the nose of the aircraft was significantly higher than normal and, the pilot concentrated on lowering the nose and getting the aircraft's wings straight and level, the aircraft veered off to the left of the runway and collided with a barbed wire fence. The aircraft came to a halt in a wings-level attitude. The right main landing gear collapsed, and the right-wing got entangled with the barbed wire during the accident sequence. Both propeller blades, the left-wing leading edge and the nose section of the aircraft were damaged. The pilot and the passenger evacuated the aircraft without assistance and with no injuries.

Probable Cause

It is likely that the pilot lost directional control of the aircraft which drifted off to the left-side of the runway where it eventually collided with the barbed wire fence.

Contributing factor:
The pilot did not compensate for the nose-high attitude, which caused the aircraft to prematurely get airborne and stall.

SRP Date	13 December 2022	Publication Date	19 December 2022

Occurrence Details

Reference Number	**:** CA18/2/3/10124
Occurrence Category	**:** Category 2
Type of Operation	**:** Part 91
Name of Owner	**:** DH-Tyger-Moth-1cc
Aircraft Registration	**:** ZS-EUC
Aircraft Make and Model	**:** Mooney Aircraft Corp, M20F
Nationality	**:** South African
Registration	**:** ZS-EUC
Place	**:** Lake Naverone Airfield in KwaZulu-Natal
Date and Time	**:** 24 February 2022, 0730Z
Injuries	**:** None
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) of the South African Civil Aviation Authority (SACAA) was notified of the occurrence on 24 February 2022 at 0730Z. The occurrence was classified as an accident according to the CAR 2011 Part 12 and ICAO STD Annex 13 definitions. Notifications were sent to the State of Registry, Operator, Design and Manufacturer in accordance with CAR 2011 Part 12 and ICAO Annex 13 Chapter 4. The State of manufacturer and design did not appoint an accredited representatives and/or advisors. The investigator did not dispatch to the accident site for this occurrence.

Notes:

1. *Whenever the following words are mentioned in this report, they shall mean the following:*
   Accident — this investigated accident
   Aircraft — the Mooney M20F 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

Table of Contents

Abbreviation	Description
°	Degrees
°C	Degrees Celsius
AIID	Accident and Incident Investigations Division
ATPL	Airline Transport Pilot Licence
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
Ft	Feet
hPa	Hectopascal
IAS	Indicated Air Speed
Kt	Knots
M	Metres
Mph	Miles Per Hour
METAR	Meteorological Routine Aerodrome Report
POH	Pilot's Operating Handbook
RPM	Revolution Per Minute
RWY	Runway
SACAA	South African Civil Aviation Authority
SAWS	South African Weather Service
QNH	Barometric Pressure at Sea Level
Z	Zulu (Term for Universal Co-ordinated Time - Zero Hours Greenwich)

1. FACTUAL INFORMATION

1.1. History of Flight

1.1.1 On 24 February 2022, a pilot and a passenger on-board a Mooney M20F aircraft with registration ZS-EUC took off on a private flight from Runway (RWY) 09 at Lake Naverone Airfield, KwaZulu-Natal province, with the intention to land at Hoedspruit Airfield (FAHT) in Limpopo province. Visual meteorological conditions (VMC) by day prevailed at the time of the flight. The flight was conducted under the provisions of Part 91 of the Civil Aviation Regulations (CAR) 2011 as amended.

1.1.2 The pilot reported that he completed the pre-take-off checks, and all the instruments were within the required parameters. During the take-off run, the pilot noticed that the manifold pressure was 25 inches at 2700 revolutions per minute (rpm).

1.1.3 The pilot further reported that acceleration was slower than normal. He stated that he commenced with rotation at 66 knots and, immediately after the nose of the aircraft lifted off the ground, a small bump on the runway caused the aircraft to become airborne prematurely; the pitch attitude was higher than normal. Before the pilot could lower the nose to compensate for the high-pitch attitude, he lost directional control of the aircraft and, as a result, it veered off to the left-side of the runway. The aircraft's left main landing wheel rolled over a drainage furrow, and the right main landing gear collapsed whilst the right wing got entangled in the barbed wire (fence). The aircraft came to a stop against a thorn bush in a wings-level attitude, alongside a 1.5 metre-deep ditch. The pilot evacuated the aircraft after he had shut down the engine.

1.1.4 Both propeller blades, left wing leading edge and the nose section of the aircraft were substantially damaged. The pilot and the passenger were not injured during the accident sequence; they evacuated the aircraft without assistance.

1.1.5 Post-accident, the pilot stated that at take-off, the aircraft had a total of 155 litres of AVGAS LL100 fuel and the oil level was at 6 quarts. He further stated that there was no fault or mechanical failure with the aircraft, and there was no evidence of flight control cables being disconnected or restricted. All damage was the resultant of the accident.

1.1.6 The accident occurred during the day at Lake Naverone Airfield at Global Positioning System (GPS) co-ordinates determined to be S29°44'31.0" E029°16'05.0", at an elevation of 5 400 feet (ft).

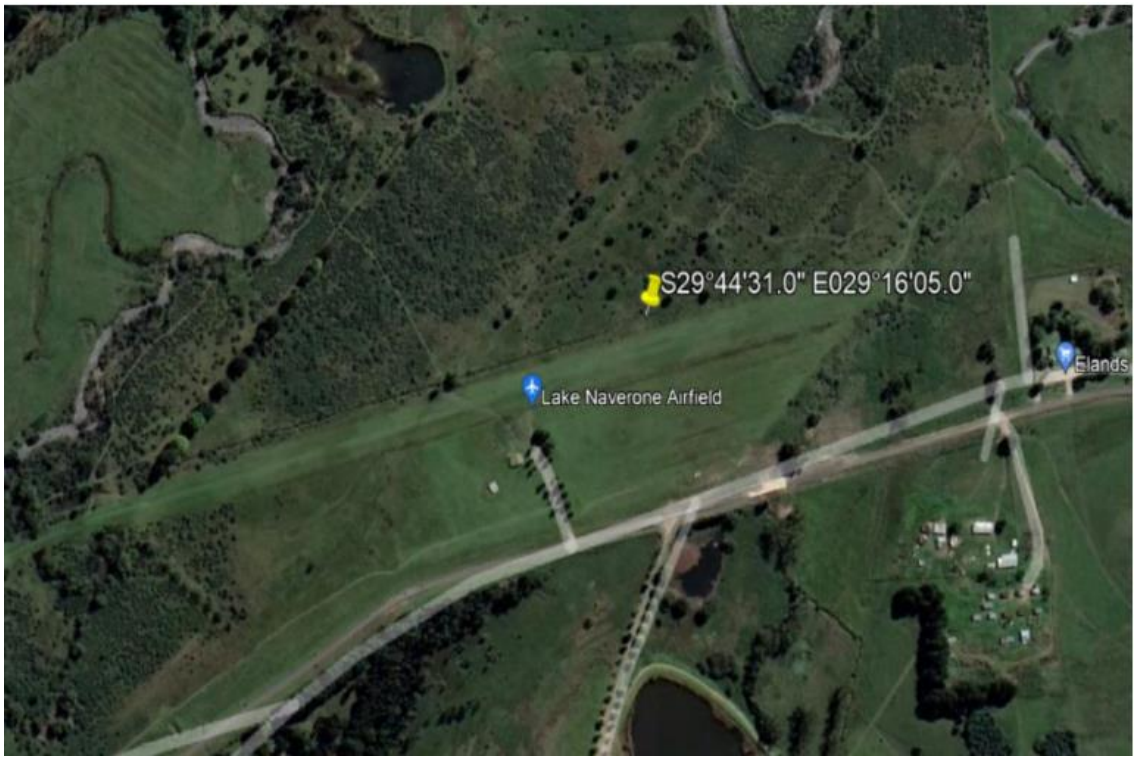

Figure 1: The aerial view of Lake Naverone Airfield. (Source: Google Map)

1.2. Injuries to Persons

Injuries	Pilot	Crew	Pass.	Total On-board	Other
Fatal	-	-	-	-	-
Serious	-	-	-	-	-
Minor	-	-	-	-	-
None	1	-	1	2	-
Total	**1**	**-**	**1**	**2**	**-**

Note: Other means people on the ground.

1.3. Damage to Aircraft

1.3.1 The aircraft sustained substantial damage to both propellers, the left wing leading edge and the nose section.

Figure 2: The aircraft as it came to rest. (Source: Pilot)

Figure 3: The aircraft against the thorn bush. (Source: Pilot)

1.4. Other Damage

1.4.1. None.

1.5. Personnel Information

Nationality	South African	Gender	Male	Age	63
Licence Type	Airline Transport Pilot Licence (ATPL)				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Instrument, Flight instructor				
Medical Expiry Date	31 July 2022				
Restrictions	Corrective lens				
Previous Accidents	None				

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

Flying Experience:

Total Hours	28102.59
Total Past 24 Hours	2.33
Total Past 7 Days	4.2
Total Past 90 Days	64.07
Total on Type Past 90 Days	20.39
Total on Type	146.37

1.5.1. The pilot was initially issued an Airline Transport Pilot Licence (ATPL) on 1 June 1988. His licence revalidation was issued on 13 July 2021 with an expiry date of 31 July 2022. The pilot had flown a total of 28 102.59 hours of which 146.37 were on the aircraft type.

1.5.2 The pilot was issued a Class 1 aviation medical certificate on 13 July 2021 with an expiry date of 31 July 2022. He had a medical waiver to wear corrective lenses.

1.6. Aircraft Information

1.6.1 The following information is an extract from the Mooney M20F (Executive 21) Pilot's Operating Handbook (POH).

The Mooney M20F (Executive 21) is a single engine four-place low-wing retractable tricycle landing gear airplane. The design and operation of this aircraft is conventional with few exceptions. The Mooney M20F (Executive 21) uses an aluminium alloy constant speed propeller of 74-inch in diameter. The pitch of the blades is controlled by engine oil pressure which acts to increase blades angle-of-attack and, thereby, control engine speed. The propeller control in the cabin operates the propeller governor which controls the oil pressure provided to the propeller hub. The governor setting function is to maintain the engine at a constant speed by actuating blade angle-of-attack. In essence, the function of the propeller control in the cabin is to regulate and maintain the rotational speed of the engine at a desired setting. The Mooney M20F (Executive 21) is powered by the Lycoming 200 hp IO-360-A1A four-cylinder engine. This engine uses 100/100LL octane fuel. Four rubber bushings on the

aft side of the engine provide mounting and vibration isolation. Engine manifold pressure is regulated by the push-pull throttle control on the panel.

Airframe:

Manufacturer/Model	Mooney/M20F	
Serial Number	67-0330	
Year of Manufacture	2 June 1996	
Total Airframe Hours (At Time of Accident)	2 970	
Last MPI Inspection (Hours & Date)	2 943.8	11 October 2021
Airframe Hours Since Last Annual Inspection	26.2	
CRS Issue Date	12 October 2021	
C of A / ATF (Issue Date & Expiry Date)	21 February 2012	31 January 2023
C of R (Issue Date) (Present Owner)	16 March 2021	
Operating Category	Part 91	
Type of Fuel Used	Avgas 100LL	
Previous Accidents	None	

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

Engine:

Manufacturer/Model	Lycoming / IO-360-A1A
Serial Number	L-21747-51A
Hours Since New	8 965.3
Hours Since Overhaul	1204.3

1.6.2 According to the manufacturer, the engine had a time before overhaul (TBO) of 2 000 hours and the propeller had a TBO of 2 400 hours. At the time of the accident, both the engine and the propeller had not yet reached their TBOs.

Propeller:

Manufacturer/Model	Hartzell
Serial Number	Dy4411A
Hours Since New	1 070.7
Hours Since Overhaul	67.8

Item	**Weight in LBS**
Empty Weight	1792
Baggage	132
Pilot	180
Passenger	136
Fuel	246
Total	2486
Maximum take-off weight	2740

Table 1: Calculated mass and balance at take-off.

1.6.3 According to Table 1, the mass and balance were within the limit: 2740-2486 = 254 pounds (lbs). The runway was adequate for the aircraft to take-off with the total weight of 2 486 lbs, which was within the maximum permissible take-off weight of 2 740 lbs.

1.6.4 The aircraft's last mandatory periodic inspection (MPI) was carried out on 11 October 2021 at 2 943.8 airframe hours. The aircraft was issued a Certificate of Release to Service (CRS) on 12 October 2021. The aircraft had operated 26.2 hours since the said MPI.

1.6.5 This aircraft type uses AVGAS 100LL fuel. At the time of take-off, the aircraft had 155 litres of fuel and 6 quarts of oil.

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 Lake Naverone weather station on 24 February 2022 at 0730Z.

Wind Direction	Nil	Wind Speed	0kt	Visibility	9999m
Temperature	19.8°C	Cloud Cover	Clear sky	Cloud Base	Nil
Dew Point	14.2°C	QNH	Unknown		

1.7.2. The weather information in the table below was obtained from the pilot questionnaire, which he acquired from the internet on 22 February 2022 at 0730Z.

Wind Direction	Nil	Wind Speed	Calm	Visibility	>10km
Temperature	24°C	Cloud Cover	Nil	Cloud Base	Nil
Dew Point	15°C	QNH	TBA		

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 navigation system was unserviceable prior to the accident.

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 accident flight.

1.10. Aerodrome Information

1.10.1 The accident occurred at GPS co-ordinates determined to be S29°44'31.0" E029°16'05.0", at an elevation of 5700ft. The runway at Lake Naverone is curved and covered with grass.

Aerodrome Location	KwaZulu-Natal
Aerodrome Status	Unlicensed
Aerodrome GPS coordinates	S29°44'31.0" E029°16'05.0"
Aerodrome Elevation	5700 feet
Runway Headings	09
Dimensions of Runway Used	850m
Heading of Runway Used	09
Surface of Runway Used	Grass
Approach Facilities	Nil
Radio Frequency	Unknown

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 took off on a private flight from Runway 09 at Lake Naverone Airfield to Hoedspruit Aerodrome (FAHT). During the take-off roll and after rotating at 66 knots, the pilot lost control of the aircraft, which veered off to the left-side of the runway and skidded for approximately 119m before it came to a stop against a thorn bush. Whilst the aircraft skidded, the right wing collided with the barbed wire boundary fence, damaging the propeller blades, the left wing leading edge and the nose section. The distance from take-off to the accident site was approximately 530m.

Figure 4: The point where the pilot took off. (Source: Insurance assessor)

Figure 5: The point where the pilot lost control of the aircraft. The aircraft veered off to the left-side of the runway, leaving the wheel marks on the ground. (Source: Insurance assessor)

Figure 6: The aircraft's final position after the accident. (Source: Pilot)

1.13. Medical and Pathological Information

1.13.1. None.

1.14. Fire

1.14.1. There was no evidence of a pre- or post-impact fire.

1.15. Survival Aspects

1.15.1. The accident was considered survivable as there was no damage to the cockpit and cabin area. The pilot and the passenger were properly restrained by the aircraft's safety harnesses.

1.16. Tests and Research

1.16.1 Not applicable.

1.17. Organisational and Management Information

1.17.1. This was a private flight, conducted in accordance with the provisions of Part 91 of the Civil Aviation Regulations (CAR) 2011 as amended.

1.17.2 The aircraft maintenance organisation (AMO) which carried out the last inspection prior to the accident flight was in possession of an approved AMO certificate that was issued by the Regulator on 18 February 2021 with an expiry date of 31 October 2022.

1.18. Additional Information

1.18.1 The weight and balance at take-off were within the maximum permissible take-off mass of 2740 lbs. The runway length at Lake Naverone Airfield is 850m long.

1.18.2 The following information is an extract from the Pilot's Operating Handbook

Take-off and climb:
When applying power for take-off, move the throttle to the full open position slowly to avoid picking up loose stones, etc., with the propeller. Apply back pressure to the control wheel at about 65-75 mph airspeed. When the aircraft breaks ground, it will tend to "rock" into a nose high attitude. To compensate for this tendency, relax some of the elevator back pressure as the nose-wheel leaves the ground. For best results and a smoother take-off, do not allow the nose of the aircraft to lift above the horizon during take-off. After some practise, you will find that you can make your smoothest take offs by applying elevator back pressure as flying speed is approached and then slowly reduce the back pressure as you feel the nose wheel lifting from the ground. This will allow the aircraft to fly smoothly from the runway without any abrupt change in pitch attitude.

As soon as the airplane is airborne and under good control, perform the following procedures:

1. *Apply brakes to stop wheel rotation.*
2. *Retract the gear.*
3. *Reduce the propeller rpm to 2550-2600.*
4. *Retract the flaps.*
5. *Establish climb-out attitude.*
6. *Turn electric fuel pump to the "off" position.*
   (Note fuel pressure indication to verify that the engine-driven fuel pump will provide fuel pressure.)

An en route climb speed of 115-120 MPH IAS is recommended for improved cooling and good visibility. The speed for maximum rate of climb is a straight-line variation from 113 MPH IAS at sea level (decreasing approximately one MPH IAS per 1000 ft) to 102 MPH IAS at 1000 ft. The speed for maximum angle of climb (obstacle clearance) at Full Power, Gear and Flaps UP, is about 94 MPH IAS. Recommended power setting for normal climb is 2600 RPM and 26 inches.

Starting Check

1. *Master Switch—ON*
2. *Fuel Quantity Indicators—CHECK for conformity to observed quantity*
3. *Annunciator Lights—PRESS to TEST*
4. *Landing GEAR DN Light—GREEN*
5. *Electric Fuel Pump—ON*
6. *Throttle—OPEN ¼ Travel*
7. *Mixture Control—OPEN to FULL RICH and return to IDLE CUTOFF*
8. *Ignition Starter Switch—turn to "START" and PUSH forward. When engine starts, release to "BOTH"*
9. *Mixture Control—Move mixture control slowly and smoothly to FULL RICH.*

		TAKEOFF WEIGHT OF 2300 LBS.			TAKEOFF WEIGHT OF 2740 LBS.		
STANDARD ALTITUDE FEET	TEMP. °F	TAKEOFF RUN FEET	AIR DISTANCE FEET	TOTAL DISTANCE FEET	TAKEOFF RUN FEET	AIR DISTANCE FEET	TOTAL DISTANCE FEET
SEA LEVEL	100	665	535	1200	1000	640	1640
	59	597	425	1022	834	550	1384
	20	521	386	907	766	460	1226
2500	90	854	577	1431	1163	780	1943
	50	711	502	1213	1000	655	1665
	10	615	441	1056	895	549	1444
5000	80	1057	702	1759	1430	960	2390
	41	899	615	1514	1260	795	2055
	0	720	520	1240	1060	678	1738
7500	70	1295	842	2137	1906	1000	2906
	32	1108	743	1851	1631	883	2514
	-10	900	635	1535	1344	753	2097

TAKEOFF CONDITIONS:

WING FLAPS -- TAKEOFF POSITION — HARD SURFACE RUNWAY

COWL FLAPS -- OPEN — ZERO WIND

POWER -- 2700 RPM, MAX MANIFOLD PRESSURE, RAM AIR OFF

Table 2: The take-off conditions of the aircraft.

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

Man

2.2.1 The pilot was initially issued an Airline Transport Pilot Licence (ATPL) on 1 June 1988. His licence revalidation was issued on 13 July 2021 with an expiry date of 31 July 2022. The pilot was issued a Class 2 aviation medical certificate on 13 July 2021 with an expiry date of 31 July 2022. The pilot had flown a total of 28 102.59 hours of which 146.37 were on the aircraft type.

Machine

2.2.2 The last mandatory periodic inspection (MPI) was carried out on 11 October 2021 at 2 943.8 airframe hours. The aircraft had accumulated an additional 26.2 airframe hours in operation since the said inspection. The aircraft had no mechanical defects that would have contributed to or that might have caused the accident.

Environment

2.2.3 Fine weather conditions prevailed at the time of the flight; however, the runway was waterlogged, which resulted in the slow acceleration of the aircraft. The weather had no bearing to this accident.

Conclusion

2.2.4 The pilot reported that the acceleration was slower than normal and that he rotated the aircraft at 66 knots. During rotation, a small bump on the runway surface caused the aircraft to become airborne sooner than expected. The pilot then elected to land back onto the runway, however, the aircraft veered off to the left (of the runway), during which the left wing collided with the boundary fence. The aircraft came to a stop in a dense bushy area. The landing gear wheel markings on the grass next to RWY 09 were an indication that the pilot lost directional control.

2.2.5 *The POH requires that when applying power for a take-off, [the pilot should] slowly move the throttle to the full open position to avoid picking up loose stones, etc., with the propeller; apply back pressure to the control wheel at about 65-75 mph airspeed. When the aircraft breaks ground, it tends to "rock" into a nose-high attitude. To compensate for this tendency, relax some of the elevator back pressure as the nose-wheel leaves the ground. For best results and a smoother take-off, do not allow the nose of the aircraft to lift above the horizon during take-off. After some practise, you will find that you can make your smoothest take-offs by applying elevator back pressure as flying speed is approached and then slowly reducing the back pressure as you feel the nose wheel lifting from the ground. This will allow the aircraft to fly smoothly from the runway without any abrupt change in pitch attitude*.
It is likely that the pilot did not adequately compensate for the 'tendency of the aircraft to rock into a nose-high attitude. This resulted in the nose-wheel leaving the ground abruptly and causing the nose of the aircraft to lift above the horizon during take-off. As a result, the pilot lost directional control and the aircraft veered off to the left-side of the runway (measuring from the centre part of the runway).

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 initially issued an Airline Transport Pilot Licence (ATPL) on 1 June 1988. His licence revalidation was issued on 13 July 2021 with an expiry date of 31 July 2022. The pilot was issued a Class I aviation medical certificate on 2 February 2022 with an expiry date of 31 August 2022.

3.2.2 The aircraft was initially issued a Certificate of Airworthiness (C of A) on 21 February 2012. The latest C of A had an expiry date of 31 January 2023. The aircraft was issued a Certificate of Registration (C of R) on 16 March 2021.

3.2.3 The AMO which certified the last maintenance inspection prior to the accident flight had an approved AMO certificate that was issued by the Regulator on 18 October 2021 with an expiry date of 31 October 2022.

3.2.4 The last MPI was carried out on 12 October 2021 at 2 943.8 airframe hours. The aircraft had accumulated an additional 26.2 airframe hours in operation since the last inspection.

3.2.5 The flight was conducted under the provisions of Part 91 of the Civil Aviation Regulations (CAR) 2011 as amended.

3.2.6 Fine weather conditions prevailed at the time of the flight. The weather had no bearing to this accident.

3.2.7 The aircraft was issued a Certificate of Release to Service (CRS) on 12 October 2021.

3.2.8 The runway length at Lake Naverone Airfield is 850 metres long. There was adequate room for the aircraft to take-off with the total weight of 2 486 lbs. The aircraft was within its maximum permissible take-off weight of 2 740 lbs. The mass and balance were within the limit: 2740-2486 = 254 lbs.

3.2.9 It is likely that the pilot did not adequately compensate for the nose-high attitude of the aircraft during take-off, which resulted in the aircraft getting airborne prematurely. This caused the pilot to lose directional control, and the aircraft drifted off to the left-side of the runway. The aircraft stalled in the bushy area next to the runway before it stopped.

3.3. Probable Cause/s

3.3.1 It is likely that the pilot lost directional control of the aircraft which drifted off to the left-side of the runway and, eventually, collided with the barbed wire fence.

3.4. Contributory Factor/s

3.4.1 The pilot did not compensate for the nose-high attitude which caused the aircraft to prematurely get airborne and stall.

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/Safety Message

4.2.1 None.

5. APPENDICES

5.1. None.

This report is issued by:
Accident and Incident Investigations Division
South African Civil Aviation Authority
Republic of South Africa