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| LIMITED ACCIDENT INVESTIGATION REPORT |
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| Reference Number | CA18/2/3/10016 | | | | | |
| Classification | Accident | Date | 20 June 2021 | Time | 0645Z | |
| Type of Operation | Private (Part 91) | | | | | |
| Location | | | | | | |
| Place of Departure | Lombard Pan Private Strip | | Place of Intended Landing | Beaufort West (FABW) | | |
| Place of Accident | Britstown, Northern Cape | | | | | |
| GPS Co-ordinates | Latitude | S 30°32'58.82" | Longitude | E 23 43' 13.73" | Elevation | 3910 ft |
| Aircraft Information | | | | | | |
| Registration | ZS-NFI | | | | | |
| Model/Make | Beech 36 (Bonanza), Beech Aircraft (Serial Number: E 2712) | | | | | |
| Damage to Aircraft | Substantial | | Total Aircraft Hours | 2059 | | |
| Pilot-in-command | | | | | | |
| Licence Valid | Yes | Gender | Male | | Age | 60 |
| Licence Type | Air Transport Pilot Licence (ATPL) | | | | | |
| Total Hours on Type | 75.2 | | Total Flying Hours | 4195 | | |
| People On-board | 1+4 | Injuries | 0 | Fatalities | 0 | Other (on ground) 0 |
| What Happened | | | | | | |
| <p>On 16 June 2021, a pilot and three passengers on-board a Beech 36 (Bonanza) aircraft with registration ZS-NFI took off on a private flight from Stellenbosch Aerodrome (FASH) to Lombard Pan Airstrip, a private farm in Britstown. The flight was conducted under visual flight rules (VFR) by day. The owner of the farm suggested that they use Lombard Pan Airstrip, (Figure 2) as a landing strip as other visiting aircraft use it for take-off and landing. The landing was uneventful, and the pilot and the three passengers stayed at the farm until 20 June 2021. On departure day, 20 June 2021, the pilot had a fourth passenger on-board. According to the weight and balance submitted by the pilot, their total all-up weight was 3835lb while the aircraft maximum take-off weight (MTOW) is 4000lb. The pilot decided to use 120° as a take-off direction. According to his calculations, he only needed 550 metres (m) of runway; he had 850m in the chosen direction.</p> | | | | | | |

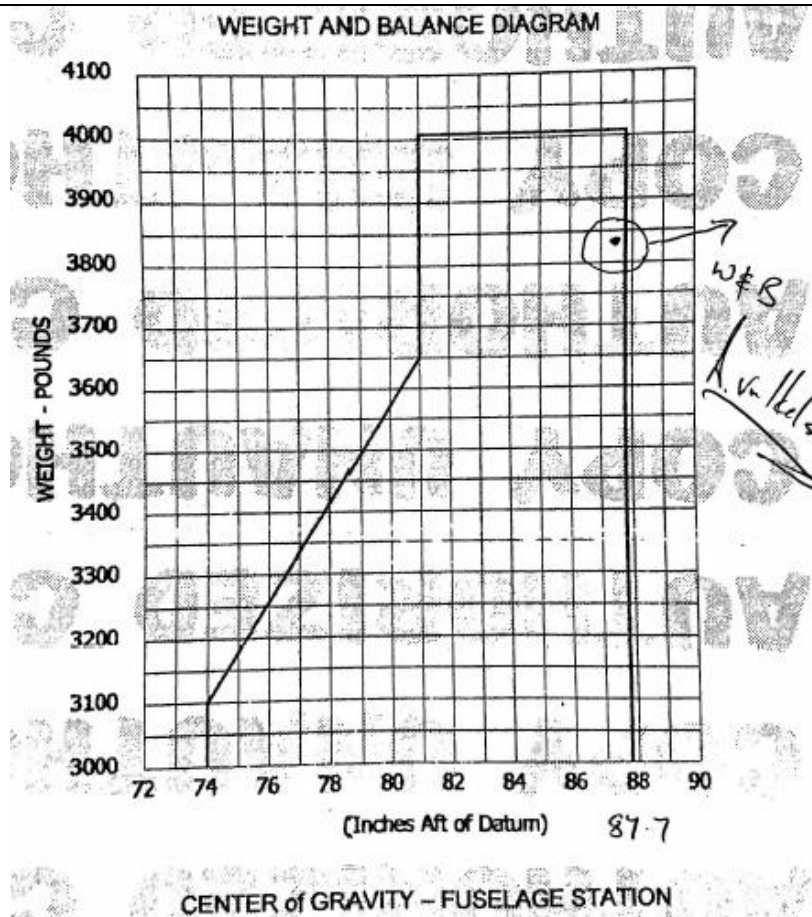


Figure 1: The centre of gravity (CoG) is close to the aft limit. (Source: Pilot)

After pre-flight inspection and run-up checks, the aircraft lined up for take-off in the south-easterly direction (120°). Visibility was greater than 10km and the wind was calm. At approximately 0645Z, take-off roll was started, and the pilot indicated that the aircraft was not accelerating as expected, but it managed to reach 80 miles per hour (mph) (70kts). The pilot rotated the aircraft, but it was not climbing fast enough. At between 30ft (9m) and 50ft (15m) in the air, the aircraft started to lose lift and the pilot decided to land back on the pan to avoid stalling, but the aircraft had reached the end of the pan and it could not stop in time. The aircraft impacted a tree and the aircraft ground looped 180° before coming to a stop facing the direction of take-off. The aircraft sustained substantial damage to the airframe and undercarriage, but none of the occupants was injured.

Probable cause

The aircraft's left wing impacted a tree due to failure to climb since the centre of gravity (CoG) was too close to the aft limit. This resulted in the aircraft ground-looping 180° before coming to a stop facing the direction of take-off.

Contributing factor

The pilot did not consider the resistance caused by gravel surface of the pan during his flight planning.



Figure 2: The Lombard pan used as a runway. (Source: Pilot)

Safety Action/s

None.

Safety Message

Pilots are encouraged to consider the risks associated with a rearward CoG and the aerodynamic consequences of the initial climb as this has a potential of changing the correct aircraft climb pitch.

Purpose of the Investigation

*In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011, this report was compiled in the interest of the promotion of aviation safety and the reduction of the risk of aviation accidents or incidents and **not to apportion blame or liability.***

About this Report

Decisions regarding whether to investigate, and the scope of an investigation are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, no investigation has been conducted, and the Accident and Incident Investigations Division (AIID) has relied on the information submitted by the affected person/s and organisation/s to compile this brief report. The report has been compiled using information supplied in the initial notification, as well as follow-up information to bring awareness of potential safety issues to the industry in respect of this occurrence, as well as possible safety action/s that the industry might want to consider in preventing a recurrence of a similar accident.

This report provides an opportunity to share safety message/s in the absence of an investigation.

*All times given in this report are Co-ordinated Universal Time (UTC) and will be denoted by (Z).
South African Standard Time is UTC plus 2 hours.*

Disclaimer

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This report is issued by:

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