



LIMITED ACCIDENT INVESTIGATION REPORT
--

Reference Number	CA18/2/3/10089						
Classification	Accident	Date	8 December 2021	Time	0720Z		
Type of Operation	Private (Part 94)						
Location							
Place of Departure	Broodkraal Farm Private Airstrip, Piketberg, Western Cape			Place of Intended Landing	Broodkraal Farm Private Airstrip, Piketberg, Western Cape		
Place Accident	Piketberg, Western Cape						
GPS Co-ordinates	Latitude	S32° 57'47.5"	Longitude	E18°39'55.3"	Elevation	4547'	
Aircraft Information							
Registration	ZU-DUY						
Model/Make	RAF 2000 GTX/Rotary Air force SA (Serial Number: M2-04-15-628)						
Damage to Aircraft	Destroyed	Total Aircraft Hours			756.3		
Pilot-in-command							
Licence Type	NPL	Gender	Male	Age	59		
Licence Valid	Yes						
Total Hours on Type	1222.6			Total Flying Hours	2112.5		
People On-board	1+0	Injuries	1	Fatalities	0	Other (on Ground)	0
What Happened							
<p>On Wednesday, 8 December 2021, the pilot on-board a RAF 2000 GTX Gyrocopter with registration ZU-DUY was conducting a proficiency flight for crop-spraying as recommended by his company's operational manual (OM). The pilot intended to take-off from Broodkraal farm private airstrip in Piketberg, Western Cape Province, and land at the same take-off airstrip. The flight was conducted under visual flight rules (VFR) by day. The pilot was being assessed by an assessor (employee) who also worked for the same company.</p> <p>The pilot was only supposed to complete one circuit in which the assessor was to evaluate him on how he completes the circuit, turns, sprays at the correct height, as well as his landing procedures. Thereafter the pilot was going to continue crop-spraying as usual.</p> <p>According to the assessor, the start-up and pre-rotor sequence were normal. The take-off roll was normal but seemed to take longer. When full power was applied, the gyrocopter rolled to the left and gained lift abruptly to a height of 10-15 metres (m) in a high nose-up angle. After a few moments, the attitude changed to a nose-dive and the gyrocopter impacted the ground with its right-side first whilst at full power.</p>							

SKETCH:



Illustration 1: The take-off run and accident illustration. (Source: Assessor)

After impact, there was black smoke followed by fire. The assessor rushed to pull out the pilot from the burning wreckage. The pilot suffered multiple injuries and was airlifted to hospital. The assessor also suffered burn wounds on both hands; the gyrocopter was destroyed during the accident sequence.

What was found:

- The pilot was properly qualified with an agricultural rating and had a valid medical certificate. He had a total of 2112.5 hours and 1222.6 hours on type. He had more than 500 hours with the present company on crop-spraying (the pilot was still sedated in hospital at the time of publishing this report).
- The wind was 8km/h, temperature 17°C, dew point 13.5°C, CAVOK, and QNH 1016.
- The gyrocopter's maximum take-off weight was 680kg and the total weight at the time of accident was 624.8kg, therefore, the gyrocopter was within take-off weight limit.
- The gyrocopter had 756.3 airframe hours and the last annual inspection was performed at 752.0 airframe hours.
- The operator had a valid Air Operating Certificate (AoC), CAA/G822D, which was issued on 29 March 2021 with an expiry date of 31 March 2022. The gyrocopter was one of the aircraft approved for Part 96 operation.



12.25 Speeds for Normal Operation

Take-Off

- | | |
|-------------------------|-----------------------------|
| 1. Normal climb out | 55 – 70 mph |
| 2. Short field take-off | 35 – 40 mph single occupant |
| 3. En-route Climb | |
| 4. Normal | 55 – 65 mph |
| 5. Best rate of climb | 55 – 65 mph |
| 6. Airspeed | 55 – 65 mph |
| 7. Power | Full |

Figure 1: RAF 2000 take-off speed. (Source: Operator)



Figure 2: Burnt wreckage of ZU-DUY.

Probable cause:

Loss of control during the take-off roll, after the pilot attempted to rotate prior to achieving rotation speed of 55 miles per hour (mph).

Safety Action/s

None.

Safety Message and/or Safety Recommendation/s	
Safety message: Pilots are reminded to adhere to the manufacturers' limits for the aircraft so as to avoid damage to property and/or injury to persons.	
Purpose of the Investigation	
<i>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.</i>	
About this Report	
<i>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.</i>	
<i>This report provides an opportunity to share safety message/s in the absence of an investigation.</i>	
<i>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.</i>	
Disclaimer	
<i>This report is produced without prejudice to the rights of the AIID, which are reserved.</i>	

This report is issued by:

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