



AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA 18/2/3/8588	
Aircraft Registration	ZU-ETR	Date of Accident	30/11/2008	Time of Accident	0749Z	
Type of Aircraft	AUTOGYRO MT 03		Type of Operation	Private		
Pilot-in-command Licence Type	Gyroplane	Age	59	Licence Valid	Yes	
Pilot-in-command Flying Experience	Total Flying Hours	52.6		Hours on Type	52.6	
Last point of departure	Vryheid Aerodrome (KZN)					
Next point of intended landing	Vryheid Aerodrome (KZN)					
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)						
Between pylon 208 and pylon 209 on the Normandie/Umfulozi electrical power line at coordinates S27° 47.850 E030°57.035 on the farm Sterkstroom in the Vryheid district.						
Meteorological Information	Temperature:28°C, Visibility: >10 km, Dew point: 16°C, Surface wind 270/03KT					
Number of people on board	1+0	No. of people injured	0	No. of people killed	1	
Synopsis						
<p>On 30 November 2008 at approximately 0749Z, an Autogyro MT 03 was engaged on a private VFR flight by day in the Vryheid area when it collided with high tension power lines.</p> <p>After the collision with the high tension power lines, the pilot lost control and the aircraft impacted the ground.</p> <p>A cable inspection team from ESKOM, which was sent to repair the fault on the high tension line, arrived on the scene at approximately 1200Z and found the wreckage of the Gyrocopter. They found that the pilot was still strapped to his seat and was fatally injured.</p> <p>The Gyrocopter was destroyed during the accident sequence and one of the high tension power line cables was severed and another extensively damaged.</p>						
Probable Cause						
<p>The aircraft collided with high tension electrical wires, where after the pilot lost control and the aircraft collided with the ground.</p>						
IARC Date			Release Date			



AIRCRAFT ACCIDENT REPORT

Name of Owner/Operator : Albryl Trading CC
Manufacturer : Autogyro GMBH
Model : MT 03
Nationality : South African
Registration Marks : ZU-ETR
Place : Vryheid (KZN)
Date : 30/11/2008
Time : 0749Z

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.

Purpose of the Investigation:

*In terms of Regulation 12.03.1 of the Civil Aviation Regulations (1997) 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 establish legal liability**.*

Disclaimer:

This report is given without prejudice to the rights of the CAA, which are reserved.

1. FACTUAL INFORMATION

1.1 History of Flight

- 1.1.1 On 30 November 2008, the pilot, who was the sole occupant on board the Gyroplane, departed from Vryheid Aerodrome on a private flight.
- 1.1.2 As the pilot's family were in Cape Town at the time of the accident, nobody knew about this flight. Neither the time of the flight nor the route he was to follow was known.
- 1.1.3 At approximately 0749Z on the day of the accident, the aircraft collided with the Normandie/Umfulozi high tension power lines at a GPS position of S27°47.850 E030°57.035, on the farm Sterkstroom in the Vryheid district. The direction of impact is not known.
- 1.1.4 The aircraft's rotor head and rotor blades contacted the power line, causing the rotor blades to separate from the rotor head, rendering the aircraft uncontrollable after impact with the power lines. The aircraft impacted with the ground approximately 75 m east of the power line.
- 1.1.5 The pilot was fatally injured and the aircraft was destroyed.

1.2 Injuries to Persons

Injuries	Pilot	Crew	Pass.	Other
Fatal	1	-	-	-
Serious	-	-	-	-
Minor	-	-	-	-
None	-	-	-	-

1.3 Damage to Aircraft

1.3.1 The aircraft was destroyed during the sequence of the accident. (See Photo 1)



Photo 1 Destroyed Autogyro.

1.4 Other Damage

1.4.1 One of the 38 millimetre high tension power lines was severed and a second high tension wire was extensively damaged.

1.5 Personnel Information

Nationality	South African	Gender	Male	Age	59
Licence Number	*****	Licence Type	Gyrocopter		
Licence valid	Yes	Type Endorsed	Yes		
Ratings	No rating				
Medical Expiry Date	30/11/2010				
Restrictions	Must wear corrective lenses				
Previous Accidents	No				

- 1.5.1 Broken corrective lenses found on the scene of the accident indicated that the pilot was wearing corrective lenses during this flight.

Flying Experience:

Total Hours	52.6
Total Past 90 Days	3.4
Total on Type Past 90 Days	3.4
Total on Type	52.6

1.6 Aircraft Information

Airframe :

Type	Autogyro MT03	
Serial Number	17 ZA 2007	
Manufacturer	Autogyro GMBH	
Year of Manufacture	2007	
Total Airframe Hours (At time of Accident)	210.1	
Last Annual Inspection (Date & Hours)	15/11/2008	206.1
Hours since Last Annual Inspection	4	
C of A (Issue Date)	N/A	
C of R (Issue Date) (Present owner)	29/11/2007	
Operating Categories	Non Type Certified	

Engine :

Type	Rotax 914
Serial Number	4419894
Hours since New	210.1
Hours since Overhaul	TBO not reached

Propeller :

Type	Auto Gyro Europe
Serial Number	438
Hours since New	210.1
Hours since Overhaul	TBO not reached

1.7 Meteorological Information

- 1.7.1 A trough of low pressure was present just east of the centre of the country with a coastal low on the KwaZulu-Natal coast. A high pressure was present over the western part of the country. Cloudy conditions with very low clouds were present along the low lying and coastal areas of the Eastern Cape and KwaZulu-Natal.
- 1.7.2 No official observations are available with regard to the time and place of the incident. Low cloud was present along the coastal areas of KwaZulu-Natal as well as the low-lying areas. There was also some middle cloud present. The most likely weather conditions at the place of the accident are as follows:

Wind direction	270° M	Wind speed	03 KTS	Visibility	10000m
Temperature	28°C	Cloud cover	SCT	Cloud base	2000ft
Dew point	16°C				

1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard navigational equipment as per Minimum Equipment List approved by the Regulator. There were no recorded defects to navigational equipment prior to the flight.

1.9 Communications

1.9.1 The aircraft was equipped with one (1) VHF (Very High Frequency) radio which was approved within the Minimum Equipment List by the Regulator. There were no recorded defects to navigational equipment prior to the flight.

1.10 Aerodrome Information

1.10.1 The accident did not occur at or near an aerodrome; therefore this information is not relevant. The accident occurred at a GPS position of S27°47.850 E030°57.035

1.11 Flight Recorders

1.11.1 The aircraft was not equipped with a Flight Data Recorder (FDR) or Cockpit Voice Recorder (CVR) and neither was it required by regulations to be fitted to this type of aircraft.

1.12 Wreckage and Impact Information

1.12.1 The accident site

The aircraft was destroyed during the impact sequence. The aircraft impacted with high tension electrical wires, whereafter it impacted with the ground approximately 75 metres further on, beyond the high tension wires. The accident site was in an open field with an elevation of 3746 feet above mean sea level (AMSL). The severed high tension wire was found on the ground below the power line. **(See photo 2)**



Photo 2 One end of the broken electrical cable on the ground.

1.12.2 Fuselage and Engine

The fuselage of the Gyroplane was destroyed during the impact sequence. The engine was separated from the fuselage and was found approximately 14 metres from the main wreckage. The tail section of the Autogyro was also severed from the mountings and was found approximately 12 metres away from the main wreckage. One of the fuel tanks was separated from the main wreckage and was found approximately 3 metres from the main wreckage. The propeller was destroyed and pieces were scattered as far as 43.2 metres on either side of the aircraft's original flight path. **(See Photo 3)** An inspection of the airframe and controls indicated that all damage was caused by the sequence of the accident. No evidence was found of any pre-impact defects that might have affected the flight.

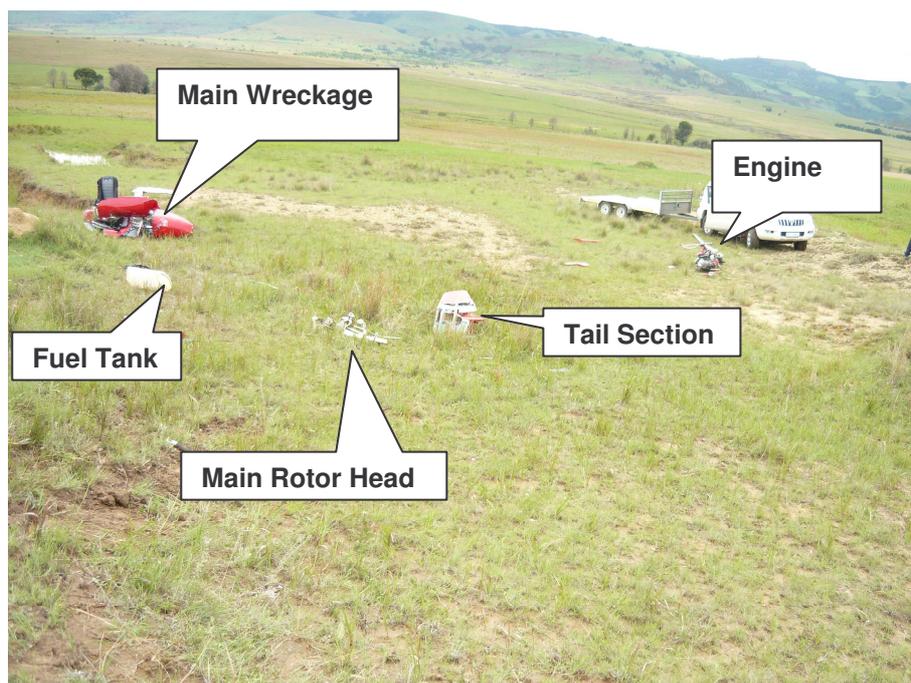


Photo 3 Wreckage distribution.

1.12.3 Main rotor head and blades

The rotor head had separated from the engine and main rotor blades. The rotor head was found approximately 11 metres from the main wreckage. One of the rotor blades was intact and found approximately 13 metres before the impact point with the high tension wire. The other rotor blade was destroyed and was found approximately 14 metres after the impact point with the high tension wire. (See **Photo 4.**)



Photo 4 Main rotor blades.

Clear evidence of damage caused by a cable scuffing against the head just below the rotor blades and above the rotor gear was visible. The rotor gear was also damaged by the cable. (See **Photo 5.**)

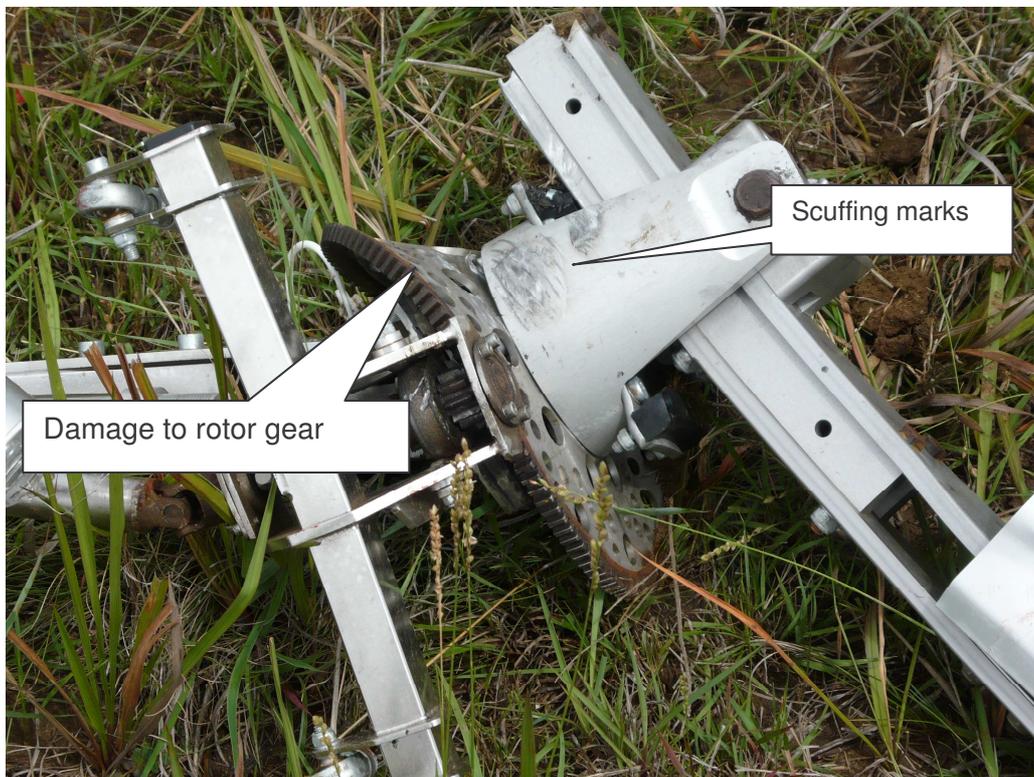


Photo 5 Damage to the rotor head and rotor gear.

1.13 Medical and Pathological Information

- 1.13.1 A post-mortem examination was performed on the deceased pilot on 04 December 2008 at 0700Z. According to the forensic pathologist's report, death resulted from multiple injuries sustained during the sequence of the accident.
- 1.13.2 The results of the toxicology tests were not available at the time when this report was compiled. Should any of the results be positive, thus indicating new evidence, then the report may be reviewed.
- 1.13.3 According to the pilot's medical certificate he has to wear corrective lenses or glasses when exercising the privileges of his licence. Damaged corrective lenses were found on the scene.

1.14 Fire

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

1.15 Survival Aspects

- 1.15.1 Although the pilot was wearing his shoulder harness, this accident was considered not survivable due to the high vertical and longitudinal impact loads on the cockpit of the Autogyro.
- 1.15.2 Information available indicates that the time of the accident was at 0749Z. The first persons on the scene were the cable inspection team of ESKOM which arrived at the scene at 1200Z. They found the pilot strapped to his seat, but fatally injured. This team informed the South African Police at Vryheid who in turn informed the emergency services. The Police and emergency services arrived on the scene at 1300Z.

1.16 Tests and Research

- 1.16.1 None

1.17 Organisational and Management Information

- 1.17.1 The last annual inspection prior to the accident was certified on 15 November 2008 at 206.1 hours by Approved Person 139. No defects were recorded before the accident flight.

1.18 Additional Information

- 1.18.1 ESKOM has a computer system in place to monitor the power supply to all power lines. When a fault exists on a specific line, the system automatically removes power from the specific line. After three seconds, the system automatically resets to restore power supply to the line. Power on this line (Normandi/Umfulozi) was

removed at 0749Z and would not reset.

- 1.18.2 On this day, the monitoring system indicates a problem between pylon number 208 and pylon number 209.
- 1.18.3 A cable inspection team was sent to pylon 208, where they found a broken electrical line between pylon 208 and 209 and the wreckage of the Gyrocopter approximately 75 metres east of the power line.
- 1.18.4 The pilot's routine on the day and evening before the accident was not known, as his wife was in Cape Town at the time.
- 1.18.5 The pilot was a veterinary surgeon. His partner informed the investigator that he (the pilot) was aware of a wart-hog sow with nine piglets in the vicinity of the area where the accident took place and it is possible that he could have been searching for them while flying in the area.
- 1.18.6 On 18 October 2008, a Robinson R44 II helicopter was on a return flight from the farm Lepeng to Rand Aerodrome when it also collided with a high tension earth cable spanned across the Spekboom River Valley; Accident Reference number CA 18/2/3/8562.

The following recommendations were made for consideration as a result of this accident:

- a) The issue of a SACAA safety recommendation which seeks to minimize the unnecessary exposure of aircraft and crews to low-level hazards, including power lines, in an attempt to reduce risk of wire strikes.
- b) The issue of a SACAA safety recommendation in an attempt to make low-level operational guidance material available for use by pilots.
- c) Consideration of the feasibility of the establishment of a national database of information on the location of known power lines and tall structures for access by pilots.

1.19 Useful or Effective Investigation Techniques

1.19.1 None

2. ANALYSIS

- 2.1 Verification of the pilot-in-command's personal file confirms that he was in possession of a Gyrocopter licence. The pilot had a total of 52.6 hours' experience on the Autogyro MT 03. At the time of the accident, the pilot was in possession of a valid medical certificate, with the restriction to wear corrective lenses as he did.
- 2.2 The aircraft's logbooks were verified and all records indicated that the airframe and engine were properly maintained and all work carried out was properly certified.
- 2.3 Inspection of the Gyrocopter's rotor head revealed marks associated with the scuffing of a metal cable. Evidence of a broken electrical power line was found on the scene.

The investigator is of the opinion that these scuffing marks were caused by the high tension electrical cable.

- 2.4 The investigator is of the opinion that the engine operation was normal at the time of the accident, as the damaged propeller blades were scattered as far as 43.2 metres away from the flight path, which is an indication of the high centrifugal force produced by the engine. The aircraft made contact with the ground 75 metres past the power lines, which indicated that the aircraft was flying at a relatively high forward speed, which would not have been possible, should the engine not have operated at normal power.
- 2.5 The most likely weather conditions at the time and place of the accident as obtained from the South African Weather Services indicate scattered clouds at 2000 ft and 8000 ft with a 270° TN, 03 knots wind, temperature 28°C. The precise weather at the time of the accident was not known, as the first persons at the scene only arrived at the scene four hours after the accident.
- 2.5 No information regarding the accident flight was available, as the pilot did not communicate any intentions regarding the flight. The time of the accident was established by the information gathered from ESCOM, indicating a problem with the cable at the point of the accident at 0749Z.
- 2.6 Although the pilot was wearing a restraint harness, the accident was not survivable as the pilot was subjected to impact forces exceeding the limits of human tolerance.

3. CONCLUSION

3.1 Findings

- 3.1.1 The pilot was properly certified and qualified according to current regulations.
- 3.1.2 The accident aircraft was properly certified, equipped and maintained in accordance with current regulations. Recovered components showed no evidence of structural, engine or system failure.
- 3.1.3 The pilot was flying at a low level and probably failed to observe the high tension power lines and collided with the power lines.
- 3.1.4 The aircraft departed from controlled flight after colliding with the high tension power lines and impacted with the ground.
- 3.1.5 The accident was not survivable, due to the magnitude of the impact forces.

3.2 Probable Cause/s

- 3.2.1 The aircraft collided with high tension electrical wires, whereafter the pilot lost control and collided with the ground.

4. SAFETY RECOMMENDATIONS

- 4.1.1 The issue of a SACAA safety recommendation in an attempt to make low-level operational guidance material available which will seek to minimize the unnecessary exposure of aircraft and crews to low-level hazards, including power lines, in an attempt to reduce the risk of wire strikes.
- 4.1.2 Consideration of the feasibility of the establishment of a national database of information on the location of known power lines and tall structures for access by pilots.
- 4.1.3 The issue of a SACAA safety recommendation in an attempt to make low-level operational guidance material available for use by pilots.

5. APPENDICES

- 5.1.1 None

Submitted through the office of the SM.