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Date:03 June 2015

To : **Honorable Minister: Works and Transport**

From : **Director: Aircraft Accident Investigation**

RE: AIRCRAFT INCIDENT REPORT

Please find attached the final report on the above subject incident. In accordance with the International Civil Aviation Organization Annex 13 – Aircraft Accident and Incident Investigation – Standard 6.13, final reports shall be published as soon as possible in the interest of accident prevention.

It is recommended that copies of these final reports be made available to the public and other interested parties upon request. Your approval is therefore sought to release the said reports.


Ericksson M. Nengola

11/06/2015

DIRECTOR: AIRCRAFT ACCIDENT INVESTIGATION

"Effective and Efficient Delivery of Service"

All official correspondence must be addressed to the Permanent Secretary

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FOREWORD

This Report presents the factual information, data analysis, conclusions, and safety recommendations reached during the investigation. The purpose of the investigation was to establish the circumstances surrounding this accident.

In accordance with the provisions of Annex 13 to the Convention on International Civil Aviation Organization, the accident's analysis, conclusions, and safety recommendations contained therein are intended neither to apportion blame nor to single out any individual or group of individuals. The main objective was to identify the systematic deficiencies and draw lessons, from this occurrence, which might help to prevent accidents and/or incidents in the future. To this end, many a time, the reader may be interested in whether or not an issue was a direct cause of the accident (that has already taken place), whereas the investigator is mainly concerned with the prevention of future accidents/incidents.

As a result, usage of this report for any purpose other than (the letter and spirit of Annex 13 and other relevant statutes) prevention of similar occurrences in the future might lead to erroneous interpretations and applications.

ABBREVIATION

CPL	-	Commercial Pilot License Helicopter
UTC	-	Universal Time Co-ordinate
MPI	-	Mandatory Periodic Inspection
NAMCARS	-	Namibia Civil Aviation Regulations
FDR	-	Flight Data Recorder
CVR	-	Cockpit Voice Recorder
ICAO	-	International Civil Aviation Organization
C of A	-	Certificate of Airworthiness
C of R	-	Certificate of registration
MHZ	-	Megahertz
AMO	-	Aircraft Maintenance Organization


**DIRECTORATE OF AIRCRAFT ACCIDENT INVESTIGATIONS
ACCIDENT REPORT – EXECUTIVE SUMMARY**

Aircraft Registration	V5-HJB	Date of Accident	24 June 2014		Time of Accident	11:50 UTC
Type of Aircraft	ROBINSON R22 BETA 2	Type of Operation		Game capture		
Pilot-In-Command License Type	CPL (Helicopter)	Age	40	License Valid	Yes	
Pilot-In-Command Flying Experience	Total Flying Hours	4000.0 hrs		Hours on Type	3300.0 hrs	
Last point of departure	Farm Immenhof					
Next point of intended landing	Farm Immenhof					
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)						
Farm Immenhof S 21° 06' 55" E 015° 35' 36"						
Meteorological Information	Wind: Northerly, Wind speed:6.4 knots, Temperature: 25°C CAVOK , Dew point: Not known					
Number of people on board	1 + 0	No. of people injured	1	No. of people killed	0	

Synopsis

On the 24th June 2014, at around 11:20 UTC a Robinson R22 Beta 2 helicopter took off at Farm Immenhof in the Omaruru area in Erongo Region for kudu (*Tragelaphus streosiceros*) capturing exercise which were to be captured from farm Immenhof and transported to Mooiplaas Farm for breeding purpose. The helicopter took off with the pilot as the sole occupant on board. This accident was reported to the Directorate of Aircraft Accident Investigation by telephone by an Inspector from the Regulatory Authority who was doing inspection on another aircraft owned by the farm at the time of the accident. The investigation was organized and conducted by the Directorate of Aircraft Accident Investigation in the Ministry of Works and Transport. No foreign authorities were notified nor were they required to be part of the investigation and no accredited representatives were required. An Investigator from the Directorate of Aircraft Accident Investigation carried out the investigation. The Minister of Works and Transport was responsible for the release of the official final accident report.

The mission was to capture kudus that were bought from Farm Immenhof for breeding purposes at Farm Mooiplaas. After two capturing exercises were completed, the pilot spotted other kudus to be captured and while chasing after them, two kudus broke off from the herd in a different direction. When the two kudus broke off from the herd the pilot flew chasing after them so that he can bring them back to the herd and in the process forgot about the single phase cable that run from the north to the south direction. The aircraft was flying chasing kudus from the west to the eastern direction and flew into the single phase electrical cable, hooked the cable with the landing skids the aircraft flipped over and the pilot lost control and crashed with the ground lying on its left hand side. The pilot was trapped in the wreckage but was rescued by farm workers that lifted the helicopter upright.

The pilot sustained minor injuries during the accident. The helicopter sustained damages especially to its rotary system, and the airframe.

The weather was fine with good visibility.

The pilot was a holder of Helicopter Commercial Pilot License. His medical certificate was valid with no

restriction. The aircraft type was also endorsed in his license.

The last Mandatory Periodic Inspection (MPI) was certified by a South Africa AMO NO 040-1 with the Namibian approval number # 018 issued on the 18 February 2014 with the expiry date of the 17 February 2015 on 23 June 2014 at 2913.5 airframe hours. The approval was issued in accordance with part 145 of the Namibian Civil Aviation Regulations, 2001. At the time of the accident the aircraft had accumulated a further 10 hours since the last (MPI) was certified

Probable Cause

Aircraft struck a single electrical cable

CONTRIBUTING FACTOR

Loss of situational awareness which caused the aircraft to be flown into a single electrical cable



AIRCRAFT ACCIDENT REPORT

Name of Owner/Operator : Mooiplaas Farming CC
Manufacturer : Robinson Helicopter
Model : R22 Beta 2
Nationality : Namibian
Registration Marks : V5-HJB
Place : Immenhof Hunting and Guest Farm
Date : 24 June 2014
Time : 11:50 UTC

All times given in this report is Co-ordinated Universal Time (UTC).

Disclaimer:

This report is given without prejudice to the rights of the Directorate of Aircraft Accident Investigations, which are reserved.

Purpose of the Investigation:

*In terms of the aviation Act (act No 74 of 1962) and ICAO Annex 13, 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 establish legal liability**.*

This report contains fact relating to aircraft accidents or incidents which have been determined at the time of issue.

The report may therefore be revised should new and substantive facts be made available to the investigator(s).

1. FACTUAL INFORMATION

1.1 History of Flight

- 1.1.1 On the 24th June 2014 at around 11:20 UTC a Robinson R22 helicopter registration number V5-HJB took off from farm Immenhof with 12 US gallons (45.36litres) of fuel on board, flying time was about one hour for kudu capturing exercise within the farm. The kudus were bought by the owner of the helicopter for breeding purposes for his farm Farm Mooiplaas.
- 1.1.2 After takeoff, the pilot stated that two successful capturing of kudus were made and in the process of carrying out the third one a new herd of kudu were spotted.
- 1.1.3 The pilot stated that after gaining on the herd two kudus separated in a different direction the pilot decided to chase after them.
- 1.1.4 During the chase the helicopter struck a single phase electrical cable, lost control and crashed, and the pilot sustained minor injuries.
- 1.1.5 The whole flight from take off to crash was about thirty minutes (30 minutes).

1.2 Injuries to Persons

Injuries	Pilot	Crew	Pass.	Other
Fatal	0	0	0	-
Serious	0	0	0	-
Minor	1	0	0	-
None	0	0	0	-

1.3 Damage to Aircraft

1.3.1 The helicopter was destroyed.

1.4 Other Damage

1.4.1 There were minor damages to the single phase electrical cable.

1.5 Personnel Information

Nationality	Namibian				
Licence No	CR 0017	Gender	Male	Age	40
Licence valid	Yes	Type Endorsed	Yes		
Ratings	H269, BH206 and RH22				
Medical Expiry Date	30 October 2014				
Restrictions	None				
Previous Accidents	None				

Flying Experience:

Total Hours	4000
Total Past 90 Days	110
Total on Type Past 90 Days	110
Total on Type	3300

1.6 Aircraft Information

Airframe:

Type	Robinson R22	
Manufacturer	Robinson Helicopter	
Aircraft Serial Number	2768	
Year of Manufacture	1998	
Total Airframe Hours (At time of accident)	2923.5 Hrs	
Last Annual Inspection (Date & Hours)	23 June 2014	2913.5 Hrs
Hours since Last Annual Inspection	10 Hrs	
C of A (Issue Date)	07 May 2009	
C of A (Expiry Date)	22 April 2015	
C of R (Issue Date) (Present owner)	27 May 2004	
Operating Categories	D,E	

Engine:

Type	Lycoming O-360-J2A
Engine Serial Number	L-35701-36A
Hours since New	2962.5 Hrs
Hours since Overhaul	962.5

1.7.1 Meteorological Information

1.17 The following weather information was obtained from the pilot's questionnaire.

Wind direction	Northerly	Wind Speed	6.4 knots	Visibility	≥10knots
Temperature	25°C	Cloud cover	NIL	Cloud base	NIL
Dew point	Not known				

1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard Navigation Aids applicable for this type.

1.9 Communications.

1.9.1 The pilot was transmitting on unmanned frequency 124.8 MHZ.

1.9.2 There was no communication problem reported.

1.10 Aerodrome Information

1.10.1 The accident did not happen at an aerodrome

1.11 Flight Recorders

1.11.1 The aircraft was not equipped with Flight Data Recorders (FDR) or Cockpit Voice Recorder (CVR) nor was it required by regulation for this type of aircraft.

1.11 Wreckage and Impact Information

1.12 Note: the pictures were taken after the wreckage was pulled upright to remove the injured pilot



- 1.12.1 The aircraft was destroyed during the impact.
- 1.12.2 The distance from the electrical cable the aircraft struck to the wreckage was 50.1 metres in the direction of flight.
- 1.12.3 The tail boom and other small parts from the tail were found 33.1 metres away from the Wreckage.
- 1.12.4 The two main rotor blades remained attached to the hub but exhibited significant damage consistent with contacting the ground while under power.



Figure 1. A photo showing the aircraft where it crashed after it struck a single phase electrical cable, the tail rotor system was cut off completely, the cockpit wind shield has shattered, the right landing skid is broken and the main rotor blades are broken into pieces due to impact forces with the aircraft structure and the ground.



Figure 2. This photo shows the electrical cable that the aircraft struck and damages on the air frame and rotary system.



Figure 3. A photo showing the tail rotor system 33.1 metres away from the main wreckage

1.13 Medical and Pathological Information

- 1.13.1 The pilot was a holder of a Helicopter Commercial Pilot Licence. His Medical Certificate was valid at the time of the accident.
- 1.13.2 The pilot sustained minor injuries from the accident which were attended to by a local hospital in Omaruru and was discharged from the hospital the same day.

1.14 Fire

- 1.14.1 There was no pre or post impact fire.

1.15 Survival Aspects

- 1.15.1 This was a survivable accident because most of the forward momentum was reduced by the single phase electrical cable. The pilot was securely strapped in with a safety harness.

1.16 Tests and Research.

- 1.16.1 Not applicable

1.17 Organizational and Management Information

- 1.17.1 This was a Private flight.
- 1.17.2 The aircraft was owned by Mooiplaas Farming C.C.
- 1.17.3 Both Certificates (C of A and C of R) were valid at the time of the accident.
- 1.17.4 The last Mandatory Periodic Inspection (MPI) was carried out by Nicholson Helicopter AMO No. 40-1.

1.18 Additional Information

- 1.18.1 None

1.19 Useful or Effective Investigation Techniques

1.19.1 None

2. ANALYSIS

- 2.1.1 On the 24th June 2014 a Robinson helicopter R 22 registered as V5-HJB took off at around 11:40 UTC from Immenhof farm for a game capturing exercise within the farm. This exercise had to be carried out by a rated pilot in game/livestock culling? and the aircraft had to be flown below the regulated prescribed minimum height by civil aircraft as per NAM-CARS 91.06.33.
- 2.1.2 After two capturing of kudu exercise were completed, the pilot flew for another capturing exercise and found a new herd of kudu to be captured and when he gain on them two kudu separated from the herd into a different direction.
- 2.1.3 The pilot flew after them in order to bring them back to the herd and in the process lost situational awareness on the whereabouts of the single phase electrical cable.
- 2.1.4 The aircraft was flying from the western to the easterly direction and there was a single phase electrical cable that runs from the south to the north direction.
- 2.1.5 The aircraft struck the single phase electrical cable with the landing skid, became uncontrollable, pitched nose down then ended up on its right hand side on impact.
- 2.1.6 When the aircraft struck the power line and pitched nose down, the main rotor blade cut off the tail boom completely and it was found 43.1 metres away from the main wreckage in the southern direction which was the direction of rotation of the main rotor blades.
- 2.1.7 The weather conditions were fine with good visibility and it did not play any role in the accident.
- 2.1.8 The pilot who was the sole occupant sustained minor injuries during the crash.

3 CONCLUSION

3.1 Findings

- 3.1.1 The pilot's licence was valid at the time of the accident and the rating for game/livestock culling was endorsed in the license.
- 3.1.2 The pilot's medical certificate was valid at the time of the accident.
- 3.1.3 The aircraft's Certificate of airworthiness (C of A) and Certificate of Registration (C of R) were valid at the time of the accident.
- 3.1.4 The pilot was on a Private flight capturing kudu from farm Immenhof to be transported to farm Moolplaas.
- 3.1.5 The weather conditions were fine with good visibility at the time of the accident and was not considered to be a contributing factor contributing to the accident.
- 3.1.6 Weight and balance was not considered to be a factor to this accident as it was within the prescribed limit.
- 3.1.7 There was no evidence of engine, airframe or system malfunction prior to the accident.
- 3.1.8 The tail boom was cut off by the main rotor blade completely from the structure before the impact and further damages to the aircraft were attributed to the impact forces.

3.2 Probable Cause/s

3.2.1 Aircraft struck a single electrical cable.

3.3 Contributory Factors

3.3.1 Loss of situation awareness

4. SAFETY RECOMMENDATIONS

SAFETY RECOMMENDATIONS NUMBER 001/2015 HJB

4.1 Regulatory Authority (DCA): statistics shows that electrical wire accidents are a major contributing factor to helicopter accident in the world. It is therefore recommended that operators should draw up a check list for pilots doing aerial work, instructing them to do a reconnaissance flight and sign that they are aware of all the obstacle especially electrical cables and telephone wires that run through an area where operation is planned to take place.

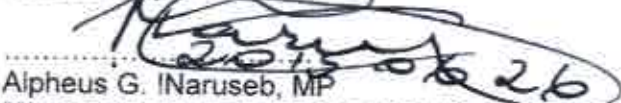
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T.H.Herman
Investigator-in-charge

Date: 04/06/2015

Released by:



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MINISTER: MINISTRY OF WORKS AND TRANSPORT

