AIRCRAFT ACCIDENT SHORT REPORT

CA18/2/3/9691

Date and time	: 13 March 2018 1427UTC
Occurrence type	: Accident
Aircraft registration	: ZS-RNW
Aircraft manufacturer	: Robinson Helicopter Company
Aircraft Type	: R 22
Last point of departure	: Rand Aerodrome (FAGM)
Next point of intended landing	: Rand Aerodrome (FAGM)
Location of accident	: 10 km south-west of Rand Aerodrome
GPS coordinates	: 26° 18’ 46.56” S; 028° 05’ 17.09” E
Meteorological Information	: Wind: 150°-240°/6 kts, T 23 °C, clouds: SCT045.
Type of operation	: Training Part 141
Persons on board	: 2
Injuries	: 1 Serious and 1 minor
Damage to aircraft	: Substantial

All times given in this report is 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 (2011) this report was compiled in the interest of the promotion of aviation safety and the reduction of the risk of aviation accidents or accidents and ***not to establish blame or liability.***

Disclaimer:

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

1. SYNOPSIS

1.1 The instructor, accompanied by a student, completed two initial private pilot licence (PPL) training flights on 12 March 2018. On 13 March 2018 the helicopter was refuelled and the instructor and student took off from Rand Aerodrome (FAGM) at approximately 1500Z for the third training flight (Exercise 5: Attitude and power changes). After take-off they flew to the Helicopter General Flying (GF) area approximately 7 nm south-west of FAGM.

1.2 On the return flight, flying at approximately 500 ft AGL, while changing the frequency, the instructor noticed that the engine RPM was revving high and the aircraft then yawed to the right and its nose pitched up. The inexperienced student unintentionally increases the throttle and over speeding the engine. The instructor then took control and closed the throttle to control the engine RPM and the helicopter began to descend rapidly. The instructor reported that the low rotor RPM warning horn sounded.

1.3 The instructor was unable to flare the helicopter; as a result the helicopter impacted the ground and sustained substantial damages, but the student and instructor managed to exit the helicopter. A small post-impact fire started and was extinguished by a bystander. The instructor sustained serious back injuries, while the student suffered minor injuries.

2. FACTUAL INFORMATION

2.1 The instructor held a valid Helicopter Airline Transport Pilot Licence (ATPL). He was appropriately rated as a Grade 3 instructor with the helicopter type rating endorsed in his licence.

2.2 The instructor held a valid aviation medical certificate.

2.3 The student did not hold a Student Pilots Licence (SPL), which was not required by the Regulator as the student had not yet obtained 5 hours of flying time.

2.4 The instructor had 1552.2 hours total flying time and 263 hours on type.

2.5 The student pilot had 1.8 hours flying time prior to the accident.

2.6 The student pilot had very little experience on the helicopter and the instructor had 210.1 hours as an instructor.

2.7 The helicopter was appropriately maintained by an approved AMO.

2.8 The helicopter was refuelled before the flight and had approximately 2/3 of the fuel capacity remaining after the accident.

2.9 The helicopter documentation was found to be valid and in order.

2.10 The wreckage of the helicopter was examined, and the governor switch was found to be off.

2.11 The wreckage also revealed that there was very little damage to the main rotor blades, indicating that the helicopter impacted the ground with low rotor RPM.

2.12 The AMO examined the engine and reported that grass was found in the cylinders, indicating that the engine was running when it impacted the ground. However, the engine RPM was undetermined.

2.13 The post-impact fire was caused by the hot exhaust coming into contact with the dry grass.

2.14 The pilot was seriously injured in the accident, but the student suffered minor injuries.

2.15 The weather did not have a bearing on the accident.

3. PROBABLE CAUSE/CONTRIBUTING FACTOR

3.1 The pilot mismanaged the throttle followed by an unsuccessful forced landing. Poor technique and improper use of engine controls.

4. CONTRIBUTING FACTORS

4.1 Inexperienced student unintentionally increases the throttle and over speeding the engine.

4.2 Instructor unable to rectify the situation by gently closing the throttle rather than “chopping”/closing it entirely. The closing of the throttle led to the decay of the rotor RPM and a subsequent unsuccessful forced landing.

5. REFERENCES USED IN THE REPORT

5.1 None.

Figure 1: The helicopter as it came to rest in the open grassy field

Figure 2: The rotor blades were mostly undamaged

6. SAFETY RECOMMENDATION

6.1 None

7. ORGANISATION

7.1 As a result of this occurrence, NAC has advised the AIID that they are taking the following safety actions:

7.2 NAC training instructors had another meeting on 28 May at 12:00 about the RNW accident. We do feel that the Instructors action to correct for the over speed to chop the throttle to idle and allowing the RPM to decay contributed to the seriousness of the accident.

7.3 The following points where highlighted:

Over speed recovery: Instructors need to be aware on how to react to an over speed scenario. Initially, with smaller inputs on the throttle to take the engine RPM down back to a 100% and then make the necessary further inputs the aircraft might need.

Control handover: There can be no ambiguity as to who is in control of the helicopter at any stage of flight. Proper control handover must be done at all times.

7.4 All NAC Training Instructors will be made aware of this accident and points raised to prevent this type of accident/incident to happen again.

8. TYPE OF SAFETY ACTION

8.1 None.

9. SAFETY MESSAGE

9.1 None.