

# FINAL REPORT

**AAIU Synoptic Report No: 2007-009**

**AAIU File No: 2007/0030**

**Published: 31/05/2007**

**In accordance with the provisions of SI 205 of 1997, the Chief Inspector of Air Accidents, on 12 April 2007, appointed Name Mr Frank Russell as the Investigator-in-Charge to carry out an Investigation into this Accident and prepare a Synoptic Report.**

<b>Aircraft Type and Registration:</b>	Robinson R22 Beta II, G-CCGF
<b>No. and Type of Engines:</b>	1 x Lycoming 0-360J2A
<b>Aircraft Serial Number:</b>	3454
<b>Year of Manufacture:</b>	2003
<b>Date and Time (UTC):</b>	10 April 2007 @ 15.00 hrs
<b>Location:</b>	Skinstown, Ballyragget, Co. Kilkenny
<b>Type of Flight:</b>	Private
<b>Persons on Board:</b>	Pilot - One
<b>Injuries:</b>	Pilot - None
<b>Nature of Damage:</b>	Substantial damage to Tail rotor/Tail boom
<b>Commander's Licence:</b>	UK PPL (H)
<b>Commander's Details:</b>	Male, aged 62 years
<b>Commander's Flying Experience:</b>	200 hours approximately, (all on R22)
<b>Information Source:</b>	Pilot informed AAIU and submitted AAIU Accident Report Form

## **SYNOPSIS**

As the Pilot air taxied the helicopter rearwards, in order to obtain a clearer forward take-off path over an adjacent boundary fence, the tail rotor struck the ground causing severe rotor vibration and subsequent damage. The Pilot landed immediately, shut down and exited the aircraft safely. There were no injuries.

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## 1. FACTUAL INFORMATION

### 1.1 History of the Flight

The helicopter was hangared in the northwest corner of a 15-20 acre field, close to the Pilot's residence. A large windsock stands in the southwest corner of the same field. The Pilot intended flying from his residence to Portlaoise on a private business trip. The weather that Easter Tuesday afternoon was good for the short trip, with winds of 15-17 kt from the north northwest.

In the Pilot's words, once he got the helicopter into the hover, he "*decided to go back a bit*", but overreacted on the controls as he gained more height and the helicopter developed a "seesaw motion", striking the ground with the tail rotor, and, later, the right hand skid. He dropped the collective lever and came to a rest back on the ground and shut down the engine. He was uninjured. There was no fire. Post accident inspection showed that the tail rotor blades had disintegrated, damage was caused to the tail rotor gearbox as a result of severance of the tailboom, the right skid was damaged and rivets popped on the main gearbox fairing assembly (See Photo).

## 2. AAIU COMMENT

The AAIU has reported on a number of helicopter tail rotor strikes over the years that occurred during pre take-off rearwards flight. The common link with these strikes was that none of the helicopters involved had dedicated crewmen on board to assist in rearwards manoeuvring. Such crewmen provide "an extra pair of eyes" to the pilot and are a critical safety factor in Search and Rescue (SAR) helicopter operations, for example. However, the majority of Private or Commercial operators' do not utilise the principle of the crewman.

Solo pilots do have a number of options in these manoeuvring circumstances. Prior to moving rearwards, the pilot can carry out a 360 degree clearing turn on the spot, followed by a 90 degree turn to the left or right (depending on pilot's seated position) for sideways air taxi flight to the intended point of the take-off run. Sideways flight negates against the classic tail down phenomenon experienced during rearward movement of the helicopter.

Such manoeuvres to check for or clear obstacles represent good airmanship, born out of experience. While obstacles were not an issue in the subject event, the standard instructors advice on sideways or backwards manoeuvring is worth recalling to mind. That is, "when moving backwards add additional height to the initial into wind hover height in order to give extra clearance to the tail". In his frank report, the Pilot stated that the seesaw motion, brought on by his overpitching of the flight controls, led to the tail rotor strike on the ground and the subsequent serious damage to the helicopter.

## 3. SAFETY RECOMMENDATIONS

This Report does not sustain any Safety Recommendations.

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**Final resting position of G-CCGF**

**- END -**