

# **INTERIM AIRCRAFT ACCIDENT REPORT**

**OCCURRENCE NUMBER 04/3712**

**Robinson R22 Beta 2740**

**ZK-HWP**

**Taumarunui**

**26 Nov 2004**

# AIRCRAFT ACCIDENT REPORT

## OCCURRENCE No.04/3712

<b>Aircraft Type, Serial Number and Registration:</b>	Robinson R22 Beta 2740 ZK-HWP
<b>Number and Type of Engines:</b>	1 Lycoming O-360-J2A
<b>Year of Manufacturer:</b>	1997
<b>Date and Time:</b> <sup>1</sup>	27/11/2004 09:00
<b>Location:</b>	Taumarunui area
<b>Type of Flight:</b>	AGRICULTURAL
<b>Persons on Board:</b>	Crew: 1 Passengers: 0
<b>Injuries:</b>	Crew: 1 Passengers: nil
<b>Nature of Damage:</b>	Destroyed
<b>Pilot-in-Command's Licence</b>	Commercial Pilot Licence (Helicopter)
<b>Pilot-in-Command's Age</b>	31
<b>Pilot-in-Command's Total Flying Experience:</b>	4000 Hrs (1000 on type)
<b>Information Sources:</b>	
<b>Investigator in Charge:</b>	Tom McCready

<sup>1</sup> Times are NZDT (UTC + 13 hours)

## Synopsis

The Civil Aviation Authority was notified of the accident at 11:00 hours on 27 November 2004. The Transport Accident Investigation Commission was in turn notified shortly thereafter, but declined to investigate. A CAA site investigation was commenced later the next day.

It was reported that the helicopter crashed into a paddock after take off during agricultural operations. One main rotor blade had separated in flight from the helicopter and was found some distance from the main wreckage. The pilot survived the accident and has reported that he experienced an in flight vibration which was not as severe as described in the applicable Airworthiness Directive DCA/R22/40A.

On the flight preceding the accident the pilot reported a mild out-of-track vibration that had not been present the day before. He shut down the helicopter and visually inspected the rotor blades and rotor head. Although NZ AD DCA/R22/40A requires a 10X visual AND eddy current examination, he did not believe the AD applied as the onset of vibration was not "sudden or severe" as detailed in the AD requirements.

The CAA investigation is ongoing however a metallurgical analysis has been completed and the specialist report has concluded that the main rotor blade failed due to fatigue cracking that initiated at the edge of a bolt hole in the blade root fitting. It was concluded that the helicopter had been operated in such a way that the loading on the blade was frequently higher than that expected by the manufacturer when the specified retirement life of these components was defined. No evidence that mechanical damage or corrosion contributed to the failure was observed. The blade was simply taken beyond its fatigue limit.

The CAA investigation is continuing however in order to keep industry informed a copy of the metallurgist's report is attached. The CAA has also published an article in Vector magazine dealing with the consequences of operating outside of flight manual limitations.

Report written by:  
R. White

Authorised by:  
R. White

Richard White  
Manager Safety Investigation

12/5/2005