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ATSB TRANSPORT SAFETY REPORT
Aviation Occurrence Investigation AO-2010-042
Preliminary

Collision with terrain, VH-RPN 257 km ENE of Derby, Western Australia 13 June 2010

Abstract

On 13 June 2010, a Robinson Helicopter Co R22 Beta, registered VH-RPN, was engaged in cattle mustering operations on a station property about 257 km east-north-east of Derby, Western Australia. During those operations the helicopter collided with the ground and caught fire. The pilot, the sole occupant of the helicopter sustained fatal injuries.

The investigation is continuing.

FACTUAL INFORMATION

The information contained in this preliminary report is derived from initial investigation of the occurrence. Readers are cautioned that there is the possibility that new evidence may become available that alters the circumstances as depicted in the report.

History of the flight

On 13 June 2010, a Robinson Helicopter Co R22 Beta (R22), registered VH-RPN (RPN), was one of two helicopters engaged in cattle mustering operations on a station property about 257 km east-north-east of Derby, Western Australia.

The helicopters were operating from a nearby roadhouse. Information provided by the pilot of the second helicopter was that the muster commenced that morning at about 0730[1] and proceeded during the first part of the day without incident. Drum stock fuel was used to refuel both helicopters at about 1030 and 1200. Both helicopters were refuelled from the same drum; using the same hand-operated fuel pump. The helicopters departed the roadhouse at about 1230.

At about 1300, the pilot of the second helicopter remembered that he had not added oil to his engine and radioed the pilot of RPN that he was going to land. He said that he flew a short distance and landed at the old station homestead airstrip to add the oil to his engine. When he took off to rejoin the muster, he was unable to contact the other pilot. He then noticed smoke coming from the vicinity of where RPN had been working, flew to that location and saw that the helicopter had crashed and was on fire.

The pilot of RPN sustained fatal injuries.

Pilot information

The pilot of RPN held an Australian Commercial Pilot (Helicopter) Licence that was issued 07 March 2007 and was endorsed on the R22. The Civil Aviation Safety Authority (CASA) issued the pilot with an Operational Approval for Low Flying (Helicopter) on 27 February 2007 and an Aerial Stock Mustering Approval on 19 December 2007. The pilot held a current Class 1 Aviation Medical Certificate, with nil restrictions.

The available preliminary information indicated that the pilot had about 1,700 hours total flying experience, the majority of which was in aerial stock mustering operations in R22 helicopters.

1 The 24-hour clock is used in this report to describe the local time of day, Western Standard Time (WST), as particular events occurred. Western Standard Time was Coordinated Universal Time (UTC) + 8 hours.

Aircraft information

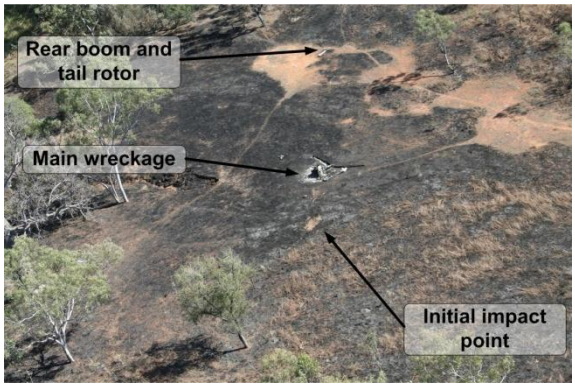
The helicopter, serial number 2241, was manufactured in the United States in 1992 and was first entered on the Australian aircraft register in January 1993. The Log Book Statement indicated that the helicopter was being maintained in accordance with the requirements of the manufacturer's maintenance manual. The maintenance documentation recorded the completion of a 2,200 hour engine and airframe overhaul in July 2009, at 8,383.0 hours total time in service (TTIS).

The last scheduled maintenance was a 100-hourly inspection, completed on 13 May 2010 (8,778.4 TTIS) and a maintenance release was issued for aerial work operations by day under the visual flight rules. The last recorded maintenance was the replacement of an engine magneto on 3 June 2010 at 8,828.3 TTIS.

Wreckage and impact information

The accident site was located on flat, clear terrain close to a small creek (Figure 1). The terrain surrounding the accident site was slightly undulating with numerous trees and saplings. There was no evidence to indicate that the helicopter struck any of those trees or saplings prior to the impact with the ground.

Figure 1: Aerial view of the accident site



The helicopter had collided heavily with the ground, collapsing the skid landing gear and destroying the lower of the engine components, including the carburettor and induction manifold. Associated ground contact marks were consistent with the helicopter's tail boom also striking the ground. The main wreckage was about 10 m from the initial ground contact. An intense post-impact fire consumed the main wreckage; the intensity of which was consistent with a significant quantity of fuel being on board the helicopter.

One of the main rotor blades had struck the helicopter's tail boom during the accident sequence and there were paint transfer marks from the tail boom on the skin of that rotor blade. The tail boom was located about 42 m from the main wreckage, along the approximate direction of flight.

The helicopter's main rotor blades were intact, securely attached to the main rotor hub and were situated with the main wreckage (Figure 2). Damage to both blades was consistent with impact forces and the effects of the post-impact fire. There was no evidence of the main rotor blades striking any foliage, terrain or other objects prior to the accident, or of pre-accident skin delamination on either of the main rotor blades.

Figure 2: Helicopter main wreckage

The tail rotor was intact and remained with the helicopter's tail boom. There was no evidence that the tail rotor struck any foliage, terrain or other objects prior to the accident.

The engine and its accessory components were substantially damaged by the post-impact fire. There was evidence of material residue from the rotor system V-drive belts in the upper and lower sheaves; consistent with those belts being in position at the time of the post-impact fire.

A number of items were recovered from the accident site for technical examination, including the helicopter's engine, the airframe oil filter, the main rotor gearbox chip detector, the cockpit fuel selector valve and the main rotor mast bump stop assembly.

FURTHER INVESTIGATION

The investigation is continuing and will include:

- a review of the pilot's records
- a review of the aircraft's maintenance documentation
- a review of the factors associated with the operation of the helicopter, including the weather conditions at the time
- the analysis of the results from the technical examinations and tests of the engine and other recovered items and components
- an analysis of the data that was collected at the accident site.