



Australian Government

Australian Transport Safety Bureau

ATSB TRANSPORT SAFETY INVESTIGATION REPORT

Aviation Occurrence Investigation – AO-2008-010

Preliminary

Mid-air collision

54 km NNW of Gascoyne Junction, WA

13 February 2008

VH-OUS

Piper PA-18 Super Cub

VH-ZDP

Robinson Helicopter Company R44 Raven



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Mid-air collision - 54 km NNW of Gascoyne Junction, WA - 13 February 2008 - VH-OUS, Piper PA-18 Super Cub / VH-ZDP, Robinson Helicopter Company R44 Raven

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Acknowledgements

Figure 1: Airservices Australia

Figure 4: USAF Pilot Training Class 55-I Association web site, <http://pilotclass55india.org/>

Abstract

On 13 February 2008, a Piper Aircraft Corporation Super Cub aeroplane and a Robinson Helicopter Company R44 Raven helicopter collided in midair during feral goat culling operations. The aeroplane impacted the ground at a steep angle, fatally injuring the two occupants. The helicopter, though damaged, was safely landed.

The investigation is continuing.

THE AUSTRALIAN TRANSPORT SAFETY BUREAU

The Australian Transport Safety Bureau (ATSB) is an operationally independent multi-modal bureau within the Australian Government Department of Infrastructure, Transport, Regional Development and Local Government. ATSB investigations are independent of regulatory, operator or other external organisations.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia that fall within Commonwealth jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to fare-paying passenger operations.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, relevant international agreements.

Purpose of safety investigations

The object of a safety investigation is to enhance safety. To reduce safety-related risk, ATSB investigations determine and communicate the safety factors related to the transport safety matter being investigated.

It is not the object of an investigation to determine blame or liability. However, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

Developing safety action

Central to the ATSB's investigation of transport safety matters is the early identification of safety issues in the transport environment. The ATSB prefers to encourage the relevant organisation(s) to proactively initiate safety action rather than release formal recommendations. However, depending on the level of risk associated with a safety issue and the extent of corrective action undertaken by the relevant organisation, a recommendation may be issued either during or at the end of an investigation.

The ATSB has decided that when safety recommendations are issued, they will focus on clearly describing the safety issue of concern, rather than providing instructions or opinions on the method of corrective action. As with equivalent overseas organisations, the ATSB has no power to implement its recommendations. It is a matter for the body to which an ATSB recommendation is directed (for example the relevant regulator in consultation with industry) to assess the costs and benefits of any particular means of addressing a safety issue.

About ATSB investigation reports: How investigation reports are organised and definitions of terms used in ATSB reports, such as safety factor, contributing safety factor and safety issue, are provided on the ATSB web site www.atsb.gov.au.

FACTUAL INFORMATION

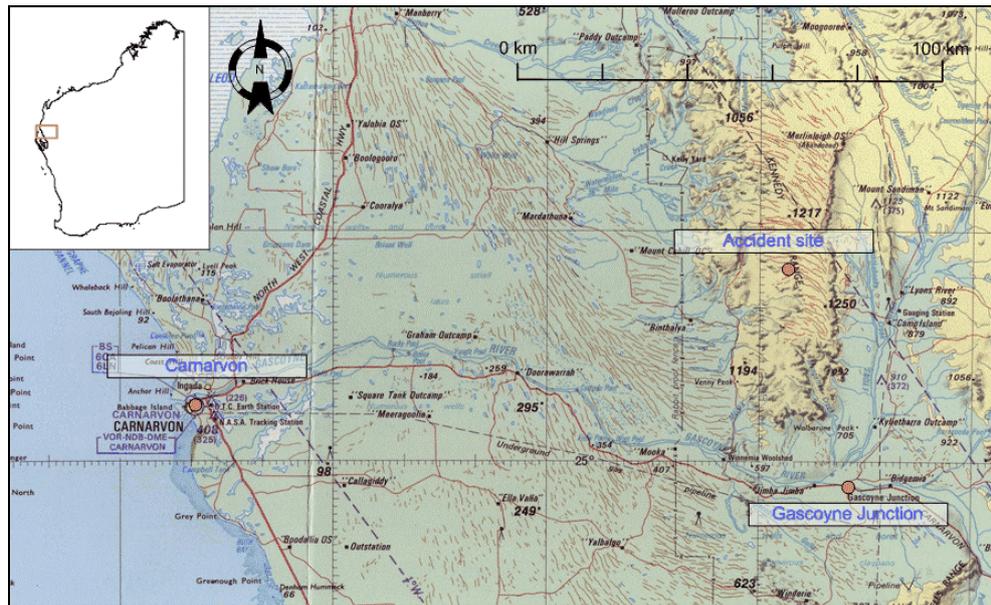
Note: The information contained in this preliminary report is derived from initial investigation of the occurrence. Readers are cautioned that there is the possibility that new evidence may come to light that alters the circumstances as depicted in this report.

History of the flight

On 13 February 2008, a Piper Aircraft Corporation PA-18 Super Cub aircraft, registered VH-OUS (Cub), and a Robinson Helicopter Company R44 Raven helicopter, registered VH-ZDP (R44), were engaged in feral goat culling operations in the Kennedy Range National Park, WA. The two aircraft were operating under the Visual Flight Rules (VFR) from Gascoyne Junction airstrip (Figure 1) and had completed two similar culling flights prior to the accident flight.

At about 1805 Western Daylight-saving Time¹, the two aircraft departed in company from Gascoyne Junction. On board the R44 were the pilot and a shooter. On board the Cub were the pilot and a spotter. The primary role of the Cub's occupants was to assist the R44 pilot to locate feral goats for culling.

Figure 1: Area map



The operation proceeded without incident until about 1915, when the R44 pilot and shooter observed the Cub flying towards them at the same estimated height of about 300 ft above ground level (AGL). The pilot of the R44 reported that the Cub diverged slightly right, putting it on the left side of the R44. At about the time the aircraft passed each other, the R44 pilot entered a climbing left turn, intending to take up a reciprocal heading to continue the search for goats, while keeping the Cub

¹ The 24-hour clock is used in this report to describe the local time of day, Western Daylight-saving Time, as particular events occurred. Western Daylight-saving Time is Coordinated Universal Time (UTC) + 9 hours.

in sight. The R44 pilot reported that, during the turn, the right wing of the Cub rose quickly and that, in response, he manoeuvred the helicopter in an attempt to remain clear.

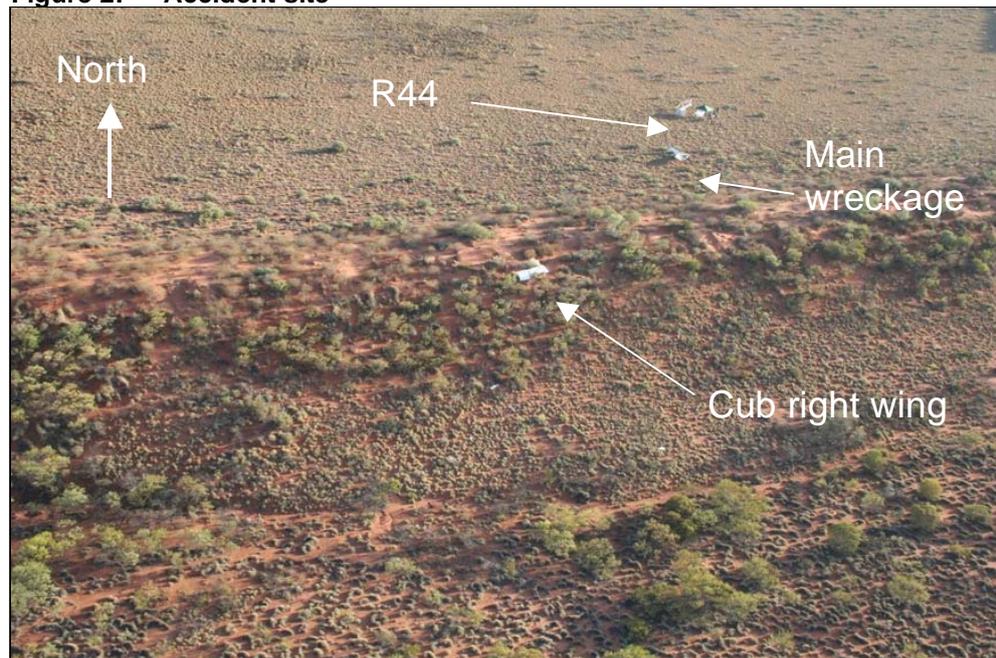
The two aircraft collided at about 400 ft AGL. The right wing of the Cub detached from the fuselage and the aircraft impacted the ground inverted in a steep, nose-down attitude. The pilot of the R44 retained sufficient control of the helicopter to conduct an initial approach to a low hover. On visually identifying the location of the Cub, the pilot of the R44 hover taxied to the vicinity of the wreckage before landing to render assistance to the occupants.

The R44 pilot and shooter established that both occupants of the Cub sustained fatal injuries. The R44 pilot and shooter were uninjured.

Wreckage location

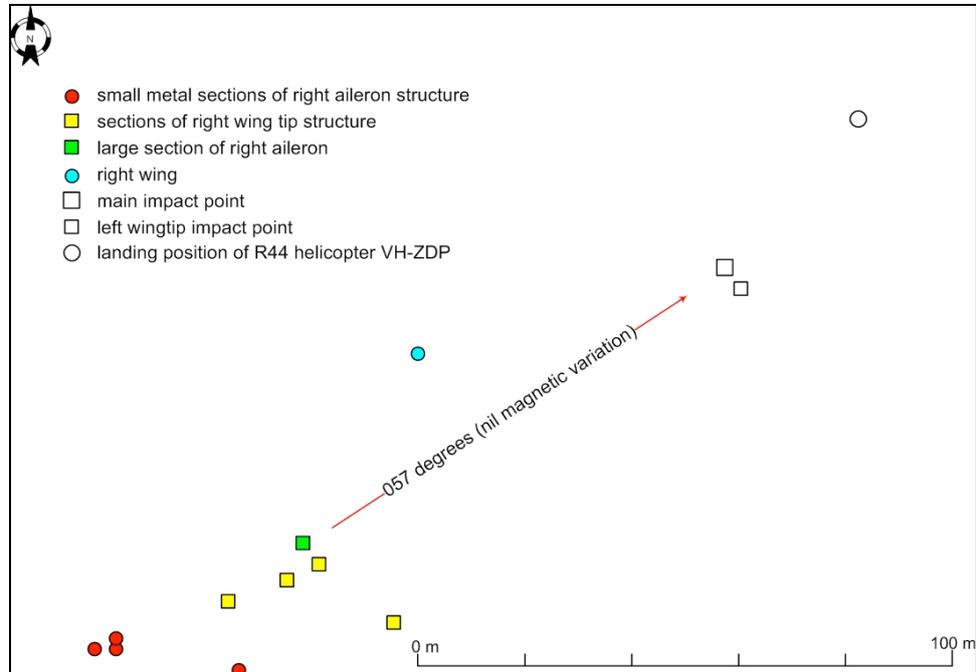
The accident occurred over relatively flat terrain, characterised by regular sand ridges that were 20 m high and orientated approximately east to west (Figure 2). The accident site was about 1,150 ft above mean sea level (AMSL).

Figure 2: Accident site



The wreckage trail of the Cub was orientated about 057 degrees and extended about 130 m across a sand ridge. The wreckage trail comprised the right wing and associated aileron and wing tip structure, and the main wreckage (Figure 3).

Figure 3: Aircraft wreckage plot



Aircraft damage

Piper PA-18 Super Cub

The Piper PA-18 Super Cub is a high-wing, tailwheel aeroplane that combines a metal structure with resin-impregnated fabric skin (Figure 4). The aircraft has provision for two occupants seated in tandem. The spotter was seated behind the pilot.

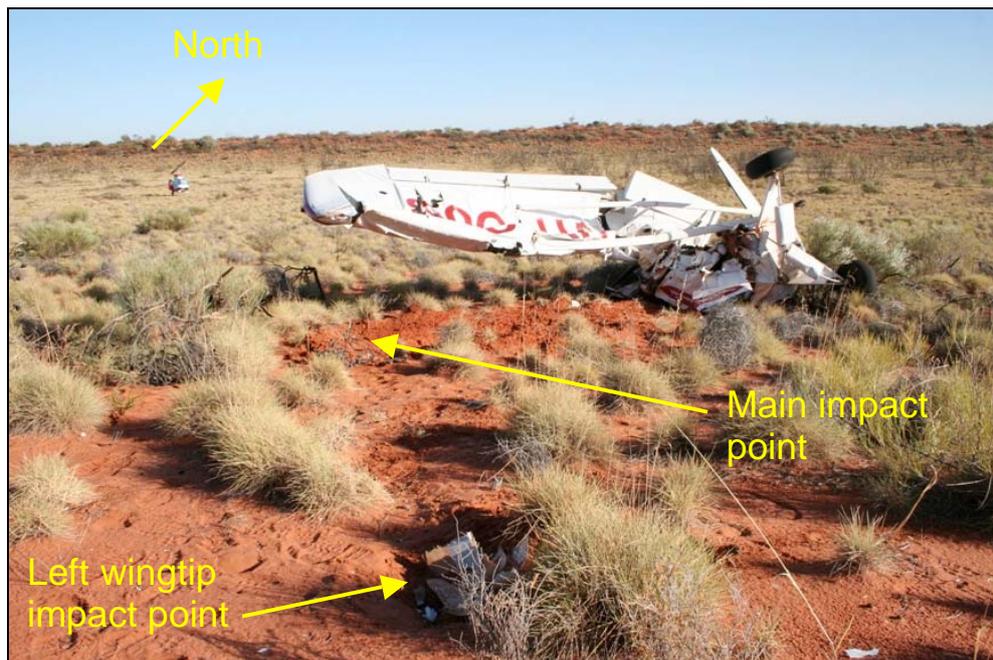
Figure 4: Example Piper PA-18 Super Cub



Examination of the Cub indicated that contact damage was limited to the right wing structure consistent with the R44 main rotor blades impacting the right wing support struts. Following that contact, the wing fractured at the inboard attachment fittings and detached from the fuselage. The aircraft then impacted the ground inverted in a steep, nose-down attitude. Following the initial impact, the aircraft rotated to the right before coming to rest, inverted, a short distance from the initial impact point (Figure 5).

Inspection of the wreckage accounted for all components of the Cub, and established the continuity of all flight controls.

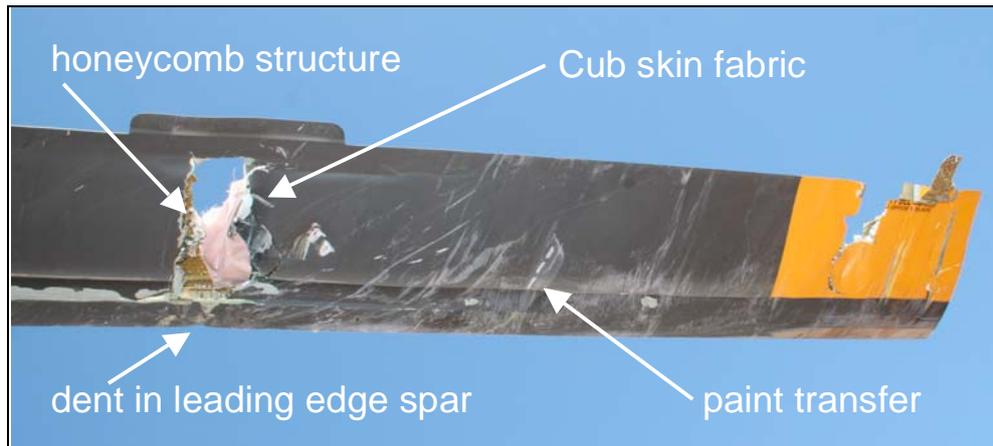
Figure 5: Piper Super Cub wreckage



Robinson R44 Raven

Examination of the R44 revealed substantial damage to one of the main rotor blades consistent with the mid-air collision (Figure 6). A section of the blade's skin and honeycomb structure was forced upwards between the leading edge spar and the trim tab, with part of the Cub's wing skin fabric retained within the blade. In addition, the blade tip had a section of the skin and honeycomb missing at the trailing edge. Both main rotor blades showed paint transfer along the majority of their length, in addition to creases on the lower surface of the blades' skin.

Figure 6: R44 main rotor blade damage



Further investigation

The investigation is continuing and will examine the following:

- the relative positions of the aircraft at impact and the damage sustained
- the visibility from the cockpit of both aircraft
- involved party procedures affecting the conduct of aerial spotting/culling
- the training and qualifications of the involved personnel.