



Australian Government

Australian Transport Safety Bureau

Collision with terrain involving Robinson R22, VH-RAS,

13 km south-west Koorda, Western Australia on 2 October 2022

ATSB Transport Safety Report

Aviation Occurrence Investigation (Short)

AO-2022-045

Preliminary – 9 December 2022

Released in accordance with section 25 of the *Transport Safety Investigation Act 2003*

Publishing information

Published by: Australian Transport Safety Bureau
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Addendum

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Preliminary report

This preliminary report details factual information established in the investigation’s early evidence collection phase, and has been prepared to provide timely information to the industry and public. Preliminary reports contain no analysis or findings, which will be detailed in the investigation’s final report. The information contained in this preliminary report is released in accordance with section 25 of the *Transport Safety Investigation Act 2003*.

The occurrence

On 1 October 2022, a Robinson Helicopter Company R22 Beta registered VH-RAS departed Jandakot Airport, Western Australia for a private flight to an airstrip at Koorda, Western Australia. The helicopter and several aeroplanes were participating in a social flying weekend, with the pilots and their passengers following a common itinerary, but operating independently.

On the morning of 2 October 2022, the aircraft departed at staggered times from Koorda, on the return flight to Jandakot (Figure 1). VH-RAS departed at about 1130 local time, with the pilot and one passenger on board. It was reported that the pilot intended to land en route at Northam Airport to refuel.

Figure 1: Flight from Jandakot to Koorda and wreckage location



Source: Google Earth and eTrex data, annotated by ATSB

When VH-RAS did not arrive at Jandakot as expected, a search was initiated. The wreckage was subsequently located at about 1600 that afternoon on a dry salt flat in the Cowcowing Lakes region, about 13 km south-west of Koorda. The helicopter was destroyed and both occupants were fatally injured.

Context

Pilot information

The pilot was the aircraft owner and held a valid class 2 aviation medical certificate. The pilot held private pilot licences for both aeroplanes and helicopters. At their last medical in January 2022, the pilot reported they had accrued about 3,000 hours total aviation experience (combined aeroplane and helicopter).

Passenger information

The passenger held a student pilot licence (aeroplane), with about 15 hours of dual flight experience, and a valid class 2 medical certificate.

Aircraft information

VH-RAS (Figure 2) was a 2-seat Robinson Helicopter Company R22 Beta helicopter, serial number 4617, powered by a Textron Lycoming O-360-J2A, 4-cylinder piston engine. It was manufactured in 2013 and registered in Australia the same year. It was purchased by the pilot in 2016 and had been maintained by the same maintenance organisation since that time. At the time of the occurrence, the helicopter had accrued about 2,080 hours total time in service.

Figure 2: VH-RAS



Source: Dallas Presser

Meteorological information

The graphical area forecast prepared by the Bureau of Meteorology (BoM) indicated visual meteorological conditions were expected during the flight to Jandakot. Winds were forecast to be generally east-south-easterly below 5,000 ft, between 15–20 kt. There were no SIGMET¹ or AIRMET² warnings applicable to the flight.

An analysis prepared by the BoM indicated a high-pressure system was situated to the south-west of Western Australia, producing moderate east to south-easterly winds in the vicinity of the accident site. Satellite imagery and measurements from the Bureau's weather station at

¹ SIGMET provides information on the occurrence or expected occurrence of enroute weather phenomena that are potentially hazardous to aircraft.

² AIRMET provides information on deteriorating conditions, not already included on the GAF.

Cunderdin (about 80 km south of the accident site) indicated scattered cloud³ could be expected at the accident site, with bases approximately 4,500–5,000 ft. There was the possibility of some thermal turbulence as the surface temperature and cloud base increased during the day, with a well-mixed air layer below the cloud. The air temperature at 2,500–3,000 ft was estimated to be about 10–12 °C, with a dewpoint of about 6–8 °C. The meteorological analysis did not identify the existence of any hazardous weather phenomena in the vicinity of the accident site.

Pilots of the other aircraft in the group reported good conditions existed for the flight back to Jandakot. Those reports were generally consistent with the BoM's analysis. There was slight variation in the pilots' estimates of the cloud bases during their flights, those estimates ranging between 3,000–4,500 ft. The pilots also reported encountering some light turbulence during the first part of the flight, including near Cowcowing Lakes.

Site and wreckage information

The aircraft collided with terrain inverted, on a dry salt flat, on an easterly heading. The main rotor head, with blades attached, and the top portion of the mast, were located alongside the fuselage. One main rotor blade had fractured, with the outboard section located about 3 m from the main rotor assembly. The tail cone and tail rotor assembly were attached to the fuselage. The stabiliser assembly had separated and was located about 6 m from the tail cone. The auxiliary fuel bladder was intact however, the main bladder had ruptured due impact forces. There was no fire.

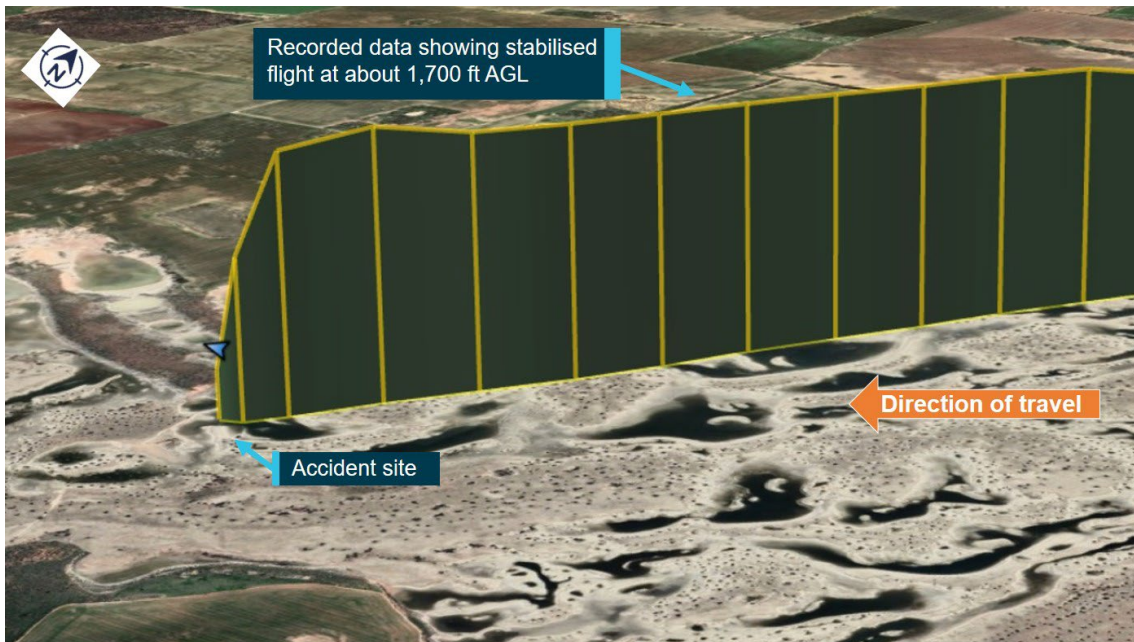
In early November 2022, the engine was disassembled and examined at a CASA-approved engine overhaul facility under the supervision of the ATSB. The engine condition was consistent with the engine's recorded time in service since overhaul. No internal or external damage was identified that may have prevented the engine from operating normally prior to the accident. No defects were identified in the induction system components, core engine, or cylinder assemblies that may have affected its pre-accident operation. One magneto was operationally tested with positive results, the other could not be tested due impact damage. Both magnetos were also internally examined and tested with nil defects identified. Further, the carburettor was internally examined and bench tested satisfactory.

Recorded data

Flight tracking data, recorded at 5-second intervals, showed the helicopter initially tracking in a stable south-westerly direction at about 1,700 ft above ground level (Figure 3). About 5 minutes into the flight the altitude increased by about 100 ft, followed almost immediately by a rapid descent. The data stopped in the vicinity of the accident location, about 10-15 seconds after the commencement of the descent.

³ Scattered cloud is used to describe cloud coverage between about 3/8 and half of the sky.

Figure 3: Last one minute of recorded flight data



Source: Google Earth and OzRunways data, annotated by ATSB

Further investigation

To date, the ATSB has examined the accident site and wreckage, interviewed witnesses, collected meteorological data, aircraft maintenance and pilot records, and obtained flight tracking data.

The investigation is continuing and will include further review of:

- pilot records and medical information
- aircraft maintenance and flight records
- aircraft wreckage and recovered components
- witness information
- meteorological data
- recorded aircraft tracking data.

Should a critical safety issue be identified during the course of the investigation, the ATSB will immediately notify relevant parties so appropriate and timely safety action can be taken.

A final report will be released at the conclusion of the investigation.

General details

Occurrence details

Date and time:	2 October 2022, 1130 Western Standard Time	
Occurrence class:	Accident	
Occurrence categories:	Collision with terrain	
Location:	80 km, 014° from Cunderdin Airport, Western Australia	
	Latitude: 30° 56.09231280' S	Longitude: 117° 24.92631660' E

Aircraft details

Manufacturer and model:	ROBINSON HELICOPTER CO R22 BETA	
Registration:	VH-RAS	
Serial number:	4617	
Type of operation:	Part 91 General operating and flight rules-Other	
Activity:	General aviation / Recreational-Sport and pleasure flying-Pleasure and personal transport	
Departure:	Koorda, Western Australia	
Destination:	Northam, Western Australia	
Persons on board:	Crew – 1	Passengers – 1
Injuries:	Crew – 1 fatal	Passengers – 1 fatal
Aircraft damage:	Destroyed	