



Australian Government

Australian Transport Safety Bureau

Collision with terrain involving Garlick Helicopters UH-1H VH-UHX

36 km north of Launceston, Tasmania on 14 February 2022

ATSB Transport Safety Report

Aviation Occurrence Investigation (Defined)

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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

The pilot of a Garlick Helicopters UH-1H, registered VH-UHX, was tasked by the Tasmania Fire Service (TFS) to provide fire-fighting support to combat the 'Labrina' bushfire, centred approximately 34 km north of Launceston, Tasmania. Over the period 10-13 February 2022, the pilot flew multiple aerial fire-bombing operations over the fire-ground from a temporary staging area established along Pipers Brook road. At the conclusion of each of these days the helicopter was flown to the south of Launceston and hangered at the pilot's residence.

On 14 February 2022, at about 0833 Eastern Daylight-saving Time,¹ the pilot departed toward the 'Labrina' fire-ground. Onboard GPS data showed that the helicopter tracked toward the staging area before diverting to the north-east sector of the fire-ground to conduct firebombing operations. Those operations were conducted using a water bucket attached underneath the cabin via a 140 ft long-line (the underslung bucket). After completing those sorties, the pilot returned to the staging area and landed, shutting down the helicopter at 0929.

At 1510, the pilot departed the staging area after receiving further tasking from TFS that a localised hot-spot had developed. The hot-spot had been identified by TFS fire commanders that were providing air attack supervision overhead the fire ground in an Airbus Helicopters AS350 helicopter, registered VH-RLR (designated Firebird 460). Onboard GPS data indicated that about 2 minutes after departure, VH-UHX entered a hover over a small dam where the pilot filled the underslung bucket.

Those onboard Firebird 460 observed VH-UHX approach the identified fire hot-spot and witnessed the release of the water load from the underslung bucket. The pilot of Firebird 460 recounted that the drop was unusual because the water missed the target (Figure 1). VH-UHX was then observed by those onboard Firebird 460 to commence a gradual left turn and track away from the staging area. Suspecting the pilot of VH-UHX was encountering an in-flight difficulty, and wanting to avoid any potential conflict with the approaching helicopter, the pilot of Firebird 460 initiated a climbing 360° turn away from VH-UHX.

A witness positioned at the staging area, who had also been monitoring VH-UHX, observed the pilot depart in the helicopter, fill the underslung bucket in a nearby dam and then track toward the hot-spot. On release of the water, the witness also identified that the load had missed the target. They then observed the helicopter commence a descending profile, enter a hover and then rapidly yaw twice, before descending from view below the tree line.

After completing the 360° turn the Firebird 460 pilot trailed VH-UHX and observed the helicopter descend toward an open paddock where it impacted the terrain. Throughout this monitoring phase, the Firebird 460 pilot did not detect any radio calls issued from VH-UHX. The Firebird 460 pilot landed adjacent to the wreckage and alighted along with the passengers to provide assistance. They reported that the helicopter was on its left side and was substantially damaged. A fuel-fed fire spread rapidly and despite attempts to extinguish the fire it was unable to be contained. Two other pilots who were positioned with their helicopters at the TFS staging area

¹ Eastern Daylight-saving Time (EDT): Coordinated Universal Time (UTC) + 11 hours.

also responded to the emergency and proceeded to the accident site to supply aerial suppressant to the fire. The pilot of VH-UHX sustained fatal injuries and the helicopter was destroyed.

Figure 1: VH-UHX photographed by a witness onboard Firebird 460 completing the aerial water drop away from the identified hot-spot



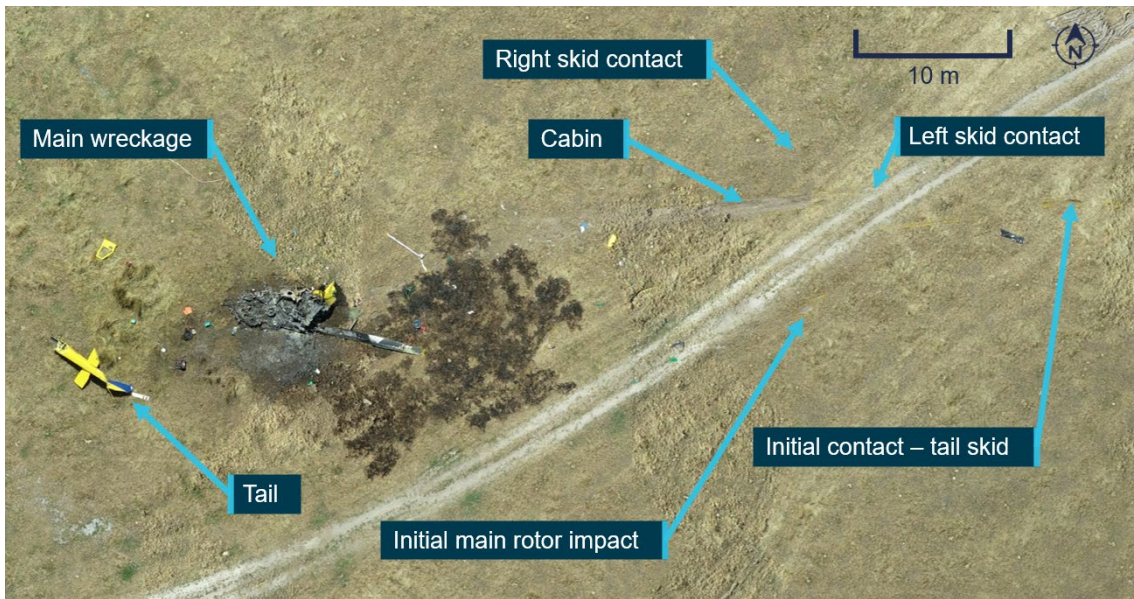
Source: Rod Sweetnam, amended by ATSB

Wreckage and impact information

The helicopter wreckage was located in an open paddock near Pipers Brook road, about 2.6 km north of the TFS staging area. It had been destroyed from exposure to ground impact forces and the subsequent fuel-fed fire. A survey of the accident site showed that the helicopter had impacted the ground along a westerly flight track. Ground scars at the site showed that the tail section made first contact with the ground, followed by the skids, main rotor blades and the cabin (Figure 2).

Almost the entire tail section, including the tail rotor gearbox, separated from the fuselage, and had come to rest a short distance from the main wreckage. Other items that separated from the helicopter included both main rotor blades, the battery and the landing skids. The furthest item from the accident site was the underslung bucket that remained attached to its long line. The bucket and line had been released from the helicopter prior to the ground impact and were positioned approximately 300 m from the wreckage.

Figure 2: Accident site



Source: ATSB

Aircraft information

The accident helicopter was manufactured as a UH-1H by Bell Helicopters in November 1965 for the United States (US) military and was converted by Garlic Helicopters for civilian application in November 2007 (Figure 3). The helicopter had a two-blade main rotor and two-blade tail rotor and was powered by a Honeywell Aerospace (formally Lycoming Engines) T53-L-703 turboshaft engine.

The helicopter was listed on the Australian Civil Aircraft Register as VH-UHX in September 2014. In October 2014, the Civil Aviation Safety Authority issued a Special Certificate of Airworthiness permitting the helicopter to be operated in the ‘restricted’ category for agricultural, forest, and wildlife conservation, firefighting, and slinging of external loads. An additional Special Certificate of Airworthiness was issued in May 2015 in the ‘limited’ category for the purpose of conducting adventure flights.

Maintenance records identified that the helicopter had accrued 6,785.6 hours total time in service while operating in the US. They further indicated that by 30 January 2022, the helicopter had accrued a total time in service of 7,746.0 hours.

Figure 3: VH-UHX at the Tasmania Fire Service staging area



Source: Jamie Davis

Recent maintenance

In December 2021, while completing fire-fighting operations at Sisters Beach, Tasmania, a defect associated with the 90° tail rotor gearbox required replacement of the gearbox and several components from the tail rotor drive system. Commencing 26 January and concluding 30 January 2022, a scheduled 150-hour airframe and engine inspection was conducted. An additional inspection of the engine’s axial compressor and its stator was performed that involved removal of the top half of the compressor case. On 13 February 2022, the day prior to the accident, a scheduled 25-hour main rotor blade inspection and airframe lubrication was completed at the pilot’s residence with no reported defects.

Further investigation

The investigation is continuing and will include consideration of the:

- helicopter flight profile during the occurrence flight
- engine, transmission, tail rotor gearbox and component examinations
- witness reports, imagery and video footage
- helicopter maintenance and its operational history
- helicopter performance and emergency procedures
- pilot’s qualifications, medical history, and experience
- related occurrences in Australia and overseas.

An accredited representative from the US National Transportation Safety Board (NTSB) has been appointed to assist with the investigation.

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.

Acknowledgements

The ATSB acknowledges the support of the Tasmania Police Force, Tasmania Fire Service, and all parties that assisted the investigation team through the evidence collection phase of the investigation.

General details

Date and time:	14 February 2022 – 1515 EDT	
Occurrence class:	Accident	
Occurrence categories:	Collision with terrain	
Location:	36 km north of Launceston, Tasmania	
	Latitude: 41° 6.770' S	Longitude: 147° 12.300' E

Aircraft details

Manufacturer and model:	Garlick Helicopters UH-1H
Registration:	VH-UHX
Operator:	Richmond Valley Aviation
Serial number:	4572
Type of operation:	Aerial work
Activity:	Fire-bombing
Departure:	Pipers Brook Road, Tasmania
Persons on board:	Crew – 1
Injuries:	Crew – 1 (fatal)
Aircraft damage:	Destroyed