



# Air Accident Investigation Unit Ireland

**INTERIM STATEMENT**

**ACCIDENT**

**Robinson R44 Raven II, N999RL  
Kennycourt, Co. Kildare, Ireland**

**11 December 2022**



**An Roinn Iompair**  
Department of Transport

# INTERIM STATEMENT

## Foreword

This safety investigation is exclusively of a technical nature and this Interim Statement details the progress of the Investigation.

In accordance with the provisions of Annex 13<sup>1</sup> to the Convention on International Civil Aviation, Regulation (EU) No 996/2010<sup>2</sup> and Statutory Instrument No. 460 of 2009<sup>3</sup>, safety investigations are in no case concerned with apportioning blame or liability. They are independent of, separate from and without prejudice to any judicial or administrative proceedings to apportion blame or liability. The sole objective of this safety investigation and Final Report is the prevention of accidents and incidents.

Accordingly, AAIU Reports or Statements should not be used to assign fault or blame or determine liability, since neither the safety investigation nor the reporting process has been undertaken for that purpose.

Extracts from this Interim Statement may be published providing that the source is acknowledged, the material is accurately reproduced and that it is not used in a derogatory or misleading context.

This Interim Statement is based on information currently known to the Investigation and may contain errors. Any errors in this Interim Statement will be corrected in the Final Report.

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<sup>1</sup> **Annex 13:** International Civil Aviation Organization (ICAO), Annex 13, Aircraft Accident and Incident Investigation.

<sup>2</sup> **Regulation (EU) No 996/2010** of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation.

<sup>3</sup> **Statutory Instrument (SI) No. 460 of 2009:** Air Navigation (Notification and Investigation of Accidents, Serious Incidents and Incidents) Regulations 2009.



## INTERIM STATEMENT

Report No: 2023-013

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Accident to Robinson R44 Raven II, N999RL, Kennycourt, Co. Kildare, Ireland, on 11 December 2022 @ 15:45 hrs.

## 1. INTRODUCTION

### 1.1 History of the Flight

The Pilot of the helicopter contacted the Shannon Flight Information Service (FIS)<sup>4</sup> by radio at 14:32 hrs on the day of the accident to report that the helicopter was departing from Ballygarrett, Co. Wexford, 'enroute to Rosslare and then over to Kilrush Airfield'. The Pilot confirmed to Shannon FIS that the communications were for 'information only'. The helicopter landed at approximately 14:42 hrs in Tagoat, Co. Wexford, which is 1.6 nautical miles (NM) south of Rosslare Town. At 14:58 hrs, the Pilot contacted Shannon FIS to advise that he was 'lifting out of Rosslare for Kilrush Airfield', located approximately 52 NM to the north-west, in Co. Kildare. At 15:26 hrs, the Pilot reported to Shannon FIS that he was 'switching now to Kilrush frequency'. The helicopter was first recorded by ATC radar at 15:28 hrs, when it was 5.2 NM south-east of Kilrush Airfield and at an altitude of approximately 2,300 feet (ft).

According to recorded radar data, at 15:32 hrs, when the helicopter was approximately 0.7 nautical miles (NM) to the south-west of Kilrush, it turned right (north-east). It continued past Kilrush and remained on a north-easterly heading for a further 8 NM approximately, before turning back towards the south-west. The helicopter then flew back and forth in the Kennycourt area, which is approximately 7 NM north-east of Kilrush Airfield. The helicopter was last recorded by radar at time 15:45 hrs when it was at an altitude of approximately 1,500 ft and approximately 0.4 NM south-east of the accident site. Video footage obtained by the Investigation briefly showed the helicopter descending in a steep nose-down attitude in the final moments of the flight. The Pilot, who was the sole occupant, was fatally injured. A post-crash fire occurred that was subsequently extinguished by local fire services. The helicopter was destroyed due to the impact and the post-crash fire.

The AAIU was notified of the accident by Dublin Air Traffic Control (ATC) shortly after it occurred. Two inspectors of Air Accidents deployed to the accident site to commence an Investigation. Four Inspectors of Air Accidents attended the site the following morning to continue the Investigation and recover the wreckage.

### 1.2 Accident Site

The accident site was located in the Kennycourt area in a grass-covered agricultural field situated in rolling hills, approximately 7 NM north-east of Kilrush Airfield and approximately 1 NM south-east of Brannockstown, Co. Kildare. The elevation of the site was approximately 476 ft (145 m) above mean sea level (AMSL).

<sup>4</sup> **Flight Information Service (FIS):** A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

## INTERIM STATEMENT

## 2. PROGRESS REPORT

### 2.1 General

The purpose of this Interim Statement is to detail the progress of the Investigation. For completeness, this Interim Statement should be read in conjunction with the Preliminary Report (AAIU Report No. 2023-01), which was published on AAIU.ie on 10 January 2023.

In accordance with ICAO Annex 13, a number of agencies, both national and international, are providing assistance to the Investigation, including: the Irish Aviation Authority (IAA); the National Transportation Safety Board (NTSB) of the United States (US); the US Federal Aviation Administration (FAA); and the Aircraft and Engine Manufacturers.

### 2.2 Witnesses

Several witnesses were situated in the Kennycourt and surrounding areas. These witnesses reported hearing the helicopter *'going over and back'*, *'coming and going'*, *'circling'* and *'moving around'*. Some of the witnesses reported being able to see a *'flashing light'*. Other witnesses said that they could not see the helicopter and could only hear it. One witness reported being able to hear it but could not see it *'due to the clouds'*. This witness said that the helicopter then became low enough to briefly see its underside before it climbed and *'re-entered the clouds'* and subsequently saw it going *'nose-down into the field'*.

One witness thought that the helicopter was going to land, before it climbed *'nose straight up'* and into cloud. Several witnesses reported seeing the helicopter descend steeply nose-first, prior to impact. Some of the witnesses described hearing the sound of an engine running until an impact was heard. Others heard a *'change in airflow through the propeller [rotor disc]'* before the sound of an impact. Some of the witnesses went to the accident site and saw the helicopter on fire.

A number of the witnesses used terms such as *'fine'* or *'okay'* to describe the visibility at ground level but that the cloud/fog was quite low.

The Investigation also spoke to witnesses who were at the site in Tagoat, Co. Wexford, from where the helicopter departed on the flight towards Kilrush. Prior to the flight, the Pilot told them he was flying to Kilrush Airfield for fuel. These witnesses provided the Investigation with video recordings of the helicopter arriving and departing from the landing site, and photographs of the helicopter at the site. The videos showed the helicopter to be operating normally. The sky appeared to be generally clear and blue in the videos and photographs.

### 2.3 Personnel Information

#### 2.3.1 Licence and Medical Certification

The Pilot, aged 71 years, held a European Union (EU) Part-FCL<sup>5</sup> PPL(H)<sup>6</sup>. This was issued by the Irish Aviation Authority (IAA) on 10 June 2021 to convert the Pilot's United States (US) Federal Aviation Administration (FAA) Airman Certificate (Private Pilot, Rotorcraft-Helicopter) following an application from the Pilot, the completion of theoretical and practical assessments, and the issuance of an EASA medical certificate by an Aeromedical Examiner (AME). The FAA Airman Certificate had been issued on 23 October 2006.

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<sup>5</sup> **Part FCL** (Flight Crew Licensing): Commission Regulation 1178/2011, laying down technical requirements and administrative procedures related to civil aviation aircrew.

<sup>6</sup> **PPL(H)**: Private Pilot Licence (Helicopters).



The EU PPL(H) contained a Robinson R44 Type-Rating, which was revalidated on 23 April 2022 following the completion of a successful proficiency check and was valid until 30 April 2023. The Pilot’s Class 2/LAPL<sup>7</sup> Medical Certificate, required for a PPL(H), was valid until 10 December 2023.

The IAA and the FAA confirmed to the Investigation that the Pilot could operate a US-registered helicopter in Ireland with a valid EU licence and valid medical certificate.

### 2.3.2 Flying Experience

The Pilot’s logbook was found within the aircraft wreckage. The logbook sustained significant fire damage; however, most entries remained legible. The logbook was dated September 2014 and initial entries appeared to reflect previous logbook hours. The last entry was made on 3 December 2022. The logbook records the following flying experience (**Table No. 1**).

<b>Total all types:</b>	316 hours
<b>Total on type:</b>	110 hours
<b>Last 90 days:</b>	18.2 hours
<b>Last 28 days:</b>	3.1 hours
<b>Last 24 hours:</b>	0.9 hours <sup>8</sup>

**Table No. 1:** Pilot’s Flying Experience

## 2.4 Helicopter Information

### 2.4.1 General

The four-seater helicopter was a Robinson R44 Raven II. The helicopter type is fitted with a Lycoming IO-540-AE1A5 fuel-injected, six-cylinder, reciprocating engine. The engine powers a counter-clockwise-rotating (viewed from above) two-bladed main rotor, with a diameter of 10.06 (m), and a two-bladed tail rotor, with a diameter of 1.47 m.

### 2.4.2 Airworthiness/Maintenance Information

The subject helicopter’s Certificate of Airworthiness was issued by the FAA on 28 February 2005. The last 100-hour/Annual Inspection was certified on 7 June 2022, at a total airframe and engine operating time of 973.8 hours (in this case, the helicopter and engine operating hours were the same). The Annual Inspection included an engine cylinder compression check, the scheduled replacement of the ignition magnetos and a scheduled check for compliance with the applicable airframe and engine Airworthiness Directives (ADs). The engine oil was replaced, as was the oil filter and air filter. The Annual Inspection also recorded a scheduled check of the helicopter’s cockpit carbon monoxide detector.

The technical records indicate that the most recent maintenance was a 50-hour Inspection which was performed on 10 October 2022 and included the replacement of the engine oil and filter. The total helicopter and engine operating time recorded on that date was 1,001.1 hours.

<sup>7</sup> LAPL: Light Aircraft Pilot Licence.

<sup>8</sup> Last 24 hours: Accident flight and the earlier flight from Ballygarrett to Tagoa.

## INTERIM STATEMENT

### 2.5 Wreckage Examination

#### 2.5.1 Helicopter

The helicopter was destroyed due to the impact and a fire. The fire resulted in significant destruction of the helicopter. The accident site was compact, and all parts of the helicopter were located close to the main wreckage, except for a piece of a main rotor blade, 0.74 m in length, which was situated approximately 60 m to the south-west, and a large fragment of a portable fire extinguisher which was found approximately 38 m away, also to the south-west.

The wreckage of the helicopter was recovered from the site and transported under escort to the AAIU's wreckage examination facility in Gormanston Co. Meath, where a detailed examination was carried out. The Investigation found no evidence of any pre-existing defects that would have prevented the helicopter from operating normally.

#### 2.5.2 Engine

The engine was removed from the helicopter at the AAIU's wreckage examination facility and was shipped to an approved engine overhaul organisation, where it was dismantled and examined in the presence of the Investigation. Engine disassembly found no evidence of any pre-existing defects that would have prevented the engine from operating normally.

### 2.6 Recorded Information

The helicopter was not fitted with a Cockpit Voice Recorder (CVR) or a Flight Data Recorder (FDR), nor was it required to be. The Investigation obtained recorded data relevant to the flight from several sources, including radio communications between the Pilot and Shannon Flight Information Service (FIS), Air Traffic Control (ATC) radar, and video footage of the final moments of the flight. Analysis of the data obtained is ongoing. In addition, a mobile phone and a computer tablet were found at the accident site. However, both devices were substantially damaged in the accident. Assessment at a specialist data recovery organisation is also ongoing.

### 2.7 Meteorological Information

The Investigation asked *Met Éireann*, the Irish meteorological service, to provide an aftercast of the meteorological conditions prevailing in the Kennycourt/Kilrush areas around the time of the accident. *Met Éireann* was also asked to provide aftercasts for Tagoat, from where the helicopter departed on the accident flight, and for Ballygarrett, from where the helicopter had departed for Tagoat. *Met Éireann* stated that the provided reports use data from the national climate archive to give the best estimate of conditions for the locations requested, with a bias towards the most representative stations at Johnstown Castle, Co. Wexford; Oak Park, Co. Carlow; and Baldonnel, Co. Dublin.

The estimated meteorological conditions for the Kennycourt/Kilrush area on 11 December 2022 at 15:45 hrs, as provided to the Investigation by *Met Éireann*, are outlined in **Table No. 2**.



<b>Meteorological Situation:</b>	Ireland lies in a light to moderate north-easterly airflow between an anticyclone over Greenland and a weak depression centred near the south coast of England.
<b>Surface Wind:</b> <b>Wind at 2,000 ft:</b> <b>Between Surface and 300 ft:</b>	Variable, 2-5 Knots (kt). North to north-east, 10-15 kt. North to north-east, 5 kt.
<b>Visibility (Ground Level):</b>	Generally, 3-5 kilometres (km), with pockets down to 300-800 m.
<b>Weather:</b>	Overcast and misty with pockets of freezing fog <sup>9</sup> .
<b>Cloud:</b>	Generally, an overcast layer (8 oktas <sup>10</sup> ) of cloud with bases <sup>11</sup> between 100 ft and 500 ft (AMSL). Cloud would have been lower and thicker in the fog patches. The low cloud and fog blanket was not deep, in the order of tens to a couple of hundred feet. Largely clear skies above the layer at 2,000 ft (AMSL).
<b>Surface Temperature/Dew Point:</b>	0 °Celsius (C)/-1 °C.
<b>Mean Sea Level (MSL) Pressure:</b>	1010 hectopascals (hPa).
<b>Freezing Level<sup>12</sup>:</b>	Surface to <1,000 ft.

**Table No. 2:** Meteorological aftercast for the Kennycourt/Kilrush Airfield areas

The estimated meteorological conditions for Tagoat on 11 December 2022 at 15:00 hrs, as provided to the Investigation by *Met Éireann*, are outlined in **Table No. 3**.

<b>Surface Wind:</b> <b>Wind at 2,000 ft:</b> <b>Between Surface and 300 ft:</b>	North to north-west, 7-10 kt. North to north-east, 15 kt. North to north-west, 8-12 kt.
<b>Visibility (Ground Level):</b>	30+ km.
<b>Weather:</b>	Clear and dry with crisp winter sunshine.
<b>Cloud:</b>	Few clouds (1-2 oktas) with bases around 4,000 ft.
<b>Surface Temperature/Dew Point:</b>	3 °C/-1 °C.
<b>Mean Sea Level (MSL) Pressure:</b>	1009 hPa.
<b>Freezing Level:</b>	<1,000 ft.

**Table No. 3:** Meteorological aftercast for Tagoat

<sup>9</sup> **Freezing Fog:** When fog forms in temperatures that are below freezing, water droplets in the air become supercooled and remain as liquid, even though they are below freezing temperature. Supercooled liquid water droplets in fog can freeze instantly on exposed surfaces when surface temperatures are at or below freezing.

<sup>10</sup> **Oktas:** Unit of cloud amount, expressed as number of eighths of the sky dome that is covered by clouds.

<sup>11</sup> **Cloud Base:** The lowest altitude of the visible portion of a cloud.

<sup>12</sup> **Freezing Level:** The lowest altitude over a given location, at which the air temperature is 0°C.

## INTERIM STATEMENT

The estimated meteorological conditions for Ballygarrett on 11 December 2022 at 15:00 hrs, as provided to the Investigation by *Met Éireann*, are outlined in **Table No. 4**.

<b>Surface Wind:</b>	Northerly, 3-5 kt.
<b>Wind at 2,000 ft:</b>	North to north-east 15 kt.
<b>Between Surface and 300 ft:</b>	North to north-west 5-10 kt.
<b>Visibility (Ground Level):</b>	30+ km.
<b>Weather:</b>	Clear and dry with crisp winter sunshine.
<b>Cloud:</b>	Few clouds (1-2 oktas) with bases around 4,000 ft.
<b>Surface Temperature/Dew Point:</b>	4 °C/1 °C.
<b>Mean Sea Level (MSL) Pressure:</b>	1009 hPa.
<b>Freezing Level:</b>	<1,000 ft.

**Table No. 4:** Meteorological aftercast for Ballygarrett

### 3. ONGOING ACTIVITY

The Investigation is ongoing, and a Final Report will be published in due course.

- END -

**In accordance with Annex 13 to the Convention on International Civil Aviation, Regulation (EU) No. 996/2010, and Statutory Instrument No. 460 of 2009, Air Navigation (Notification and Investigation of Accidents, Serious Incidents and Incidents) Regulation, 2009, the sole purpose of this investigation is to prevent aviation accidents and serious incidents. It is not the purpose of any such investigation and the associated investigation report to apportion blame or liability.**

**A safety recommendation shall in no case create a presumption of blame or liability for an occurrence.**

Produced by the Air Accident Investigation Unit

AAIU Reports are available on the Unit website at [www.aaiu.ie](http://www.aaiu.ie)



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