# Air Accident Investigation Unit Ireland

## PRELIMINARY REPORT

## ACCIDENT
## Cessna 208B, G-KNYS
## Near Clonbullogue, Co. Offaly
## 13 May 2018


An Roinn Iompair
Turasóireachta agus Spóirt
Department of Transport,
Tourism and Sport

## Foreword

This safety investigation is exclusively of a technical nature and the Final Report reflects the determination of the AAIU regarding the circumstances of this occurrence and its probable causes.

In accordance with the provisions of Annex 13[1] to the Convention on International Civil Aviation, Regulation (EU) No 996/2010[2] and Statutory Instrument No. 460 of 2009[3], 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, it is inappropriate that AAIU Reports should 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 Report 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.



[1] **Annex 13**: International Civil Aviation Organization (ICAO), Annex 13, Aircraft Accident and Incident Investigation.
[2] **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.
[3] **Statutory Instrument (SI) No. 460 of 2009**: Air Navigation (Notification and Investigation of Accidents, Serious Incidents and Incidents) Regulations 2009.

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This Investigation is conducted in accordance with Annex 13 to the Convention on International Civil Aviation, Regulation (EU) No 996/2010 and the provisions of SI No. 460 of 2009. This Preliminary Report contains information, as known at this time, and does not contain analysis or conclusions. This information is therefore subject to change, and may contain errors; any errors in this Report will be corrected in the Final Report. The sole purpose of this Investigation is the prevention of aviation accidents and incidents. It is not the purpose of this Investigation to apportion blame or liability.

**AIRCRAFT INFORMATION**

| | |
|---|---|
| Aircraft Manufacturer: | Cessna Aircraft Company |
| Model: | 208B |
| State of Manufacture: | United States of America |
| Registration: | G-KNYS |
| State of Registry: | United Kingdom |
| Serial Number: | 208B1146 |
| Year of Manufacture: | 2005 |

| | | |
|---|---|---|
| TYPE OF OPERATION: | Parachuting operations | |
| DATE / TIME (UTC)[4]: | 13 May 2018 @ 13.38 hrs approximately | |
| LOCATION / POSITION: | Approximately 3.5 Nautical Miles (NM) west of Clonbullogue, Co. Offaly | |
| PERSONS ON BOARD: | Crew - 1 | Passengers - 1 |
| INJURIES: | Crew - 1 (Fatal) | Passengers - 1 (Fatal) |
| DAMAGE: | Aircraft destroyed | |
| INVESTIGATOR-IN-CHARGE: | John Owens | |



[4] **UTC**: Co-ordinated Universal Time. All timings in this Report are UTC; Local time was UTC + 1 hour.

## 1. HISTORY OF FLIGHT

The Cessna 208B aircraft (**Photo No. 1**) took off from Runway (RWY) 27 at Clonbullogue Airfield (EICL), Co. Offaly at approximately 13.13 hrs. At departure, the occupants on board were the Pilot, who was seated in the left-hand cockpit seat, a passenger (a young child), who was seated in the right-hand cockpit seat, and 16 parachutists, who occupied two bench seats in the main cabin. The aircraft and its UK-based Pilot were operating the fifth parachuting flight that day and had been operating each weekend at the airfield since 21 April 2018. At approximately 13.15 hrs, the Pilot advised Dublin Air Traffic Control (ATC) that the aircraft was passing 1,500 feet (ft) and requested climb clearance to FL130[5]. According to airfield personnel, when the aircraft was above the drop zone[6], the Pilot, using the aircraft's radio, notified them that the drop would occur in two minutes. The airfield personnel said that following a check to ensure that the drop zone was clear, permission for the drop was given, and the 16 parachutists exited the aircraft. The Pilot reported to ATC at 13.34 hrs advising that the drop was complete and the aircraft was in the descent.

The airfield personnel said that the Pilot made contact with them to advise that the aircraft was on "*left base*[7]"; the aircraft's earlier flights that day had landed on RWY 09 – the reciprocal of the take-off runway. Therefore, left base would have been to the north-west of the airfield. No further transmissions were received from the aircraft, and when it did not arrive as expected, the airfield personnel attempted to establish radio contact, but were unsuccessful.

At approximately 13.54 hrs, the Marine Rescue Co-Ordination Centre (MRCC) in Dublin contacted Clonbullogue airfield to advise that an Alert Signal was being received from an aircraft's Emergency Locator Transmitter (ELT) close to the airfield. Another aircraft, which was based at the airfield, was used to conduct a search for the missing aircraft. A land-based search was also initiated and Dublin ATC was informed of the situation. A short time later, the accident site was located some 2.5 NM to the north-west of the airfield. The Pilot and passenger were fatally injured. There was no fire.




**Photo No. 1**: G-KNYS - Cessna 208B Grand Caravan (*David Reeves*)

[5] **FL130:** Flight Level 130, a three digit representation of aircraft altitude (13,000 ft in this case) referenced to standard pressure (1013.25 hPa).
[6] **Drop zone:** The area above and around a location where a parachutist freefalls and expects to land.
[7] **Base (leg):** The flight leg which precedes the final leg (approach leg) and which is normally approximately perpendicular to the extended centreline of the runway.

## 2. NOTIFICATION AND RESPONSE

The AAIU on-call duty Inspector was notified of the accident by Dublin Air Traffic Control (ATC) at approximately 14.15 hrs. Three Inspectors of Air Accidents immediately deployed to the accident site. Following an extensive excavation operation by emergency and local personnel to recover the two fatally injured occupants and an initial examination of the aircraft wreckage by the AAIU, the site was secured overnight by An Garda Síochána. Three Inspectors of Air Accidents returned early the following morning to further examine the site and the wreckage. The wreckage was subsequently recovered to the AAIU's wreckage examination facility at Gormanston, Co. Meath.

## 3. AIRCRAFT INFORMATION

### 3.1 General

The aircraft, a Cessna 208B (Grand Caravan) high wing, 12.7 metres (m) long, all-metal aircraft, was manufactured in 2005. It was fitted with a PT6A-114A gas turbine engine, manufactured by Pratt & Whitney Canada (PWC). A three-bladed aluminium alloy variable pitch propeller was installed. Two cockpit seats were fitted, permitting the aircraft to be operated from either side of the cockpit. The aircraft was configured for parachute operations, with two longitudinal benches mounted to the floor of the passenger cabin. The maximum take-off weight was 8,750 pounds (lbs).

### 3.2 Airworthiness Certification



The aircraft's Certificate of Airworthiness was issued by the UK CAA on 12 December 2017. The Airworthiness Review Certificate, also issued by the CAA, was valid until 11 December 2018.

## 4. ACCIDENT SITE

The aircraft impacted nose-down in boggy ground located in a forested area, approximately 2.5 NM to the north-west of the departure airfield. The impact site was compact, with minimal damage to the surrounding trees. The impact was such that the front section of the aircraft, forward of the main wheels, was buried in bog. There was a significant quantity of aircraft fuel in evidence at the site.

## 5. WITNESSES

The Investigation interviewed a number of witnesses. Two witnesses (Witness A and Witness B) were situated approximately 750 m to the south of the accident site at the time of the accident. Witness A described hearing the aircraft pass overhead, before seeing it flying "*sideways*" and that it was "*low down*". The witness indicated that the aircraft was on its left side and that it was travelling approximately northwards at the time. Witness A said that he and Witness B looked away momentarily and when they looked back, the aircraft was gone. He said that as he moved away from where they were standing, he met another person (Witness C) who said that "*the plane's gone down*". Witness B then assisted Witness C with contacting the emergency services, via mobile phone.

Witness C had been walking northwards, approximately 300 m to the east and 200 m further north of Witnesses A and B. He said that he heard the sound of an aircraft engine, looked up and saw the aircraft coming straight down, nose first, before it disappeared below a line of trees, located to his north-west. This was followed by what the witness described as a "*thump*". He estimated the time from when he first saw the aircraft to when it impacted was two to three seconds.

## 6. RECORDED DATA

### 6.1 Radar Data

Radar data obtained from Dublin ATC indicates that after take-off, the aircraft climbed to an altitude of approximately 13,000 ft, before circling above the airfield at approximately 13.33 hrs (to facilitate the exit of the parachutists on board). The data indicates that a short time later, the aircraft descended while travelling in a south-westerly direction, before turning to its right and travelling northwards for approximately 4 NM, while continuing to descend. The data also indicates that the aircraft then performed a left turn until it was on a south-easterly heading while continuing to descend. Valid radar returns ceased at approximately 13.37:36 hrs. This was most likely due to terrain masking. Analysis of the radar data is ongoing.

### 6.2 Aircraft Data Acquisition System (ADAS)

5 The aircraft was fitted with an "*ADAS+*" unit, which is designed to record data from several engine and airframe sensors. According to the engine manufacturer, the ADAS unit provides "*an integrated aircraft data source and analysis tool for operators, maintenance personnel and fleet owners*". The unit also contains a "*built in flight data recorder to assist in accident/incident investigations*". The unit is not certified as crash-survivable.

The ADAS unit from the accident aircraft was found at the site when the front section of the aircraft was lifted from the bog. It was damaged, but intact (**Photo No. 2**), and was shipped to the engine manufacturer's Norwood facility in the USA on 15 May 2018 for examination under the supervision of the National Transportation Safety Board (NTSB)/Federal Aviation Administration (FAA). Following extensive preparatory work by the engine manufacturer, the unit was successfully downloaded on 23 May 2018.


**Photo No. 2**: ADAS unit recovered from the wreckage

The ADAS unit from G-KNYS was capable of recording 30 minutes of data on a continuous loop. The engine manufacturer advised that ADAS units contain a built-in battery with a 10-year life, which is used to power the unit's internal clock. The battery life had expired in the ADAS unit from G-KNYS. Consequently, the actual date and time were not recorded. However, the data obtained correlated with the ATC radar data for the accident flight. Several parameters were recorded, including Engine Inter-Turbine Temperature (ITT), Outside Air Temperature (OAT), Engine Torque, Static Pressure, Engine Speed (Ng), Propeller Speed (Np), Fuel Flow (Wf), Airspeed and Altitude. Analysis of the ADAS data is ongoing. However, the data indicates that the engine was providing power to the propeller until the end of the data recording.

### 6.3 Video Recordings

The Investigation obtained CCTV recordings from several security cameras situated at a wind farm and a training facility located approximately 1.4 NM to the north-west of the accident site. The CCTV installations were optimised for viewing objects close to the camera. However, the imagery from a number of the cameras appears to briefly show the aircraft, in flight, in the distance, before it assumed a steep, nose-down attitude and descended below a line of trees as it approached the ground.

Several of the parachutists provided the Investigation with video recordings of their jumps. One of these recordings appears to show the aircraft for approximately one second, as it descended below a line of trees in the distance.

The Investigation will seek to determine if it is possible to enhance the image quality of the recordings.



## 7. METEOROLOGICAL INFORMATION

Met Éireann, the Irish meteorological service, was asked to provide details of the weather conditions prevailing in the Clonbullogue area between 12.00 hrs and 15.00 hrs on the day of the occurrence. The report received by the Investigation stated that the meteorological situation was as follows: "*…Weather conditions at the site of the incident were quite benign with generally shallow cumuloform cloud, light to moderate breezes and only a small risk of isolated light showers of rain*".

The report also stated that the surface wind was circa 230-240° at 5-10 knots (kts); the wind at 1,000 ft was circa 230° at 10-15 kts; and the visibility was 10+ kilometres (km). The cloud was recorded as "*SCT/BKN*[8] *CuSc* [Cumulus-stratocumulus] *with bases ranging 2500-5000 ft*". The surface temperature/dew point was "*13/06 degrees Celsius, becoming 15/06 degrees Celsius over the course of the period 1200-1500 UTC*". The Mean Sea Level (MSL) pressure was "*1015 hectopascals (hPa)*" and the freezing level was "*5000 ft*".

## 8. ONGOING INVESTIGATION

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

- END -

[8] **SCT/BKN:** Scattered/Broken.

**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

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