



Air Accident Investigation Unit Ireland

FACTUAL REPORT

INCIDENT

**De Havilland, DH104 Dove 8, G-OPLC
Abbeyshrule Aerodrome, Co. Longford**

27 May 2021



An Roinn Iompair
Department of Transport

FINAL REPORT

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 13¹ to the Convention on International Civil Aviation, Regulation (EU) No 996/2010² and Statutory Instrument No. 460 of 2009³, 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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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, the Chief Inspector of Air Accidents, on 27 May 2021, appointed Kate Fitzgerald as the Investigator-in-Charge to carry out an Investigation into this Incident and prepare a Report.

Aircraft Type and Registration:	De Havilland, DH104 Dove Mk 8, G-OPLC	
No. and Type of Engines:	2 X De Havilland Gipsy Queen 70, Mark 3	
Aircraft Serial Number:	04212	
Year of Manufacture:	1948	
Date and Time (UTC)⁴:	27 May 2021 @ 14:10 hrs	
Location:	Abbeyshrule Aerodrome (EIAB)	
Type of Operation:	General Aviation	
Persons on Board:	Crew – 1	Passengers – 2
Injuries:	Crew – Nil	Passengers – Nil
Nature of Damage:	Minor	
Commander's Licence:	Commercial Pilot's Licence (Aeroplanes) issued by the UK Civil Aviation Authority (CAA)	
Commander's Age:	43 years	
Commander's Flying Experience:	Over 3,650 hours	
Notification Source:	EAIB Aerodrome Manager	
Information Source:	AAIU Report Form submitted by Pilot AAIU Field Investigation	

⁴ **UTC:** Co-ordinated Universal Time. All times in this report are quoted in UTC unless otherwise stated; local time was UTC +1 hour on the date of the accident.

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SYNOPSIS

Following a re-positioning flight from Coventry Airport (EGBE), UK, the twin-engine aircraft, with a Pilot and two passengers on board, touched down firmly at Abbeyshrule Aerodrome (EIAB). The aircraft veered to the right and departed the paved surface of the runway. The Pilot applied left rudder and brake, and also increased power in the right engine in an attempt to steer the aircraft back on to the runway. However, due to soft ground, the aircraft continued turning to the right and came to a stop on an adjacent grassed area south of the runway. All three blades of the right propeller sustained damage and the right main gear tyre was found to have deflated. The Pilot and passengers were uninjured. There was no fire.

NOTIFICATION AND RESPONSE

The Aerodrome Manager at EIAB notified the AAIU by telephone shortly after the occurrence. Two Inspectors of Air Accidents travelled to EIAB to commence an investigation.

1. FACTUAL INFORMATION

1.1 History of the Occurrence

The aircraft with a Pilot and two passengers on board was on a re-positioning flight from Coventry Airport (EGBE), UK to Abbeyshrule Aerodrome (EIAB), Ireland following maintenance in Coventry. The Pilot informed the Investigation that when the aircraft was enroute to EIAB, he contacted the aerodrome by radio and was advised that the wind was from the south, which was a crosswind, and it was suggested that he overfly the airfield before selecting a runway for landing. The Pilot did this and selected Runway (RWY) 10.

The Pilot said that the aircraft touched down firmly on the runway and almost immediately began to turn towards the right. The Pilot stated that he had the ailerons positioned '*into wind*' and used differential braking in an attempt to keep the aircraft on the paved runway surface but as the aircraft slowed down it turned further to the right, departed the runway, and entered soft ground at the side of the runway. The Pilot increased the power in the right engine and applied left brake and rudder but was unable to steer the aircraft back on to the runway. The aircraft sank into the soft ground and each of the right propeller's three blades struck the ground and sustained damage, before the aircraft came to rest. The Pilot and passengers exited the aircraft normally. There were no injuries. After exiting the aircraft, the Pilot observed that the right main landing gear tyre was deflated.



1.2 Pilot Statement

The Pilot informed the Investigation that the approach speed had been higher than intended. The Pilot said that to reduce speed, engine power had been reduced, and the propeller was set to a fine pitch⁵ should a go-around become necessary. The Pilot recalled checking the indicated air speed at the start of the flare. He said that the sink rate of the aircraft in the flare was greater than expected and the aircraft touched down firmly. The Pilot believed that this may have been due to the configuration of the aircraft (fine pitch setting at low power) causing higher drag. The Pilot also noted that buildings close to the runway may have disturbed local air conditions and thought this may have been a contributing factor.

1.3 Injuries to Persons

No injuries were reported to the Investigation as a result of the occurrence.

1.4 Damage to Aircraft

The right main landing gear tyre was found deflated and all three blades of the right propeller sustained damage. The Pilot also reported that the right engine had been shock-loaded.

1.5 Personnel Information

The Pilot held a Commercial Pilot's Licence issued by the UK CAA on 7 May 2014. The licence included a rating for Multi-Engine Piston (Land) which was valid until 31 July 2021. The Pilot's Class 1 Medical was valid until 26 May 2022.

The Pilot informed the Investigation that he had over 3,650 hours flying experience, but due to a misplaced logbook was unable to be specific about the number of hours on the occurrence type.

1.6 Aircraft Information

The De Havilland DH104 Dove Mk 8 is a short-range passenger aircraft developed in the 1940s and is capable of carrying between six and eleven passengers. It has a retractable, tricycle undercarriage, and is powered by two De Havilland Gipsy Queen 70, Mark 3 piston engines driving two De Havilland PD143/312/7 propellers.

The occurrence aircraft was manufactured in 1948. The Certificate of Airworthiness was issued by the UK CAA on the 22 September 2014 and the most recent Airworthiness Review Certificate was valid until 18 July 2021. The aircraft was maintained by a UK-based Continuing Airworthiness Management Organisation (CAMO).

1.6.1 Tyre Inspection

The right main landing gear wheel was removed from the aircraft. The tyre was inspected by the Investigation using the tyre manufacturer's general practices manual for guidance. The size of the tyre was 27 x 8.75 – 12, and it had a 6 Ply Rating. The serial number on the tyre indicated that it had been manufactured in 1998. The tyre showed some signs of wear. There was also some damage evident, including scuffing and chunking of the tyre sidewall. This damage appeared to be new and was likely caused during this occurrence.

⁵ **Fine pitch:** where the angle between the propeller blade chord line and the plane of rotation of the propeller is low in order to maximise low speed performance.

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The Investigation disassembled the wheel to remove and inspect the tyre. A section of the inner tube was found to have separated/torn from the rest of the tube and indicated a failure under pressure.

1.6.2 Tyre Maintenance

The Aircraft Tyre Manufacturer's General Practices Manual includes the following information:

'There is no shelf life for rubber tyres if it is to stay serviceable. The storage conditions must be as detailed in [...] this document.'

The aircraft Operator informed the Investigation that the aircraft tyres were maintained in an 'on condition'⁶ basis.

1.7 Aerodrome Information

Abbeyshrule Aerodrome (EIAB) is a private aerodrome in County Longford, Ireland. It has one bituminous runway, designated 10/28, which is 620 m in length and 18 m in width.

1.8 Meteorological Information

Met Éireann, the Irish meteorological service, was asked to provide details of the weather conditions prevailing in the vicinity of Abbeyshrule Aerodrome at 14.10 hrs on the day of the accident. Details from the report received are reproduced in **Table No. 2**.

Meteorological Situation:	A depression of 1001 hectopascals (hPa) centred approximately 350 nautical miles northwest of Erris Head and an anticyclone of 1023 hPa centred over mainland Europe generate a mostly moderate south-easterly airflow over Ireland.
Surface Wind: Wind at 2,000 feet (ft): Between surface and 200 ft:	South-east 7-10 knots (kt) Southerly 10-15 kt Varying between south and south-east 8-12 kt
Visibility:	15 kilometres (km)
Weather:	Light rain
Cloud:	Scattered (3-4/8th Oktas ⁷) stratus clouds with bases around 1200-1500 ft and an overcast layer (8/8th oktas) of cloud with bases around 2,000-2,500 ft
Surface Temperature/Dew Point:	13/11 degrees Celsius
Mean Sea Level (MSL) Pressure:	1018 hPa
Freezing Level:	8,000 ft

Table No. 2: Weather conditions in the Abbeyshrule area at the time of the occurrence

⁶ **On condition:** a maintenance method where components are inspected at regular intervals but only removed when they deteriorate below criterion specified in the manufacturer's maintenance manual.

⁷ **Oktas:** An estimate of cloud coverage in the sky on a scale from 0 to 8; completely clear sky is described as 0 oktas, while completely overcast sky is described as 8 oktas.



2. AAIU COMMENT

The Pilot stated that the aircraft touched down firmly, and the aircraft deviated towards the right side of the runway on roll out. The Pilot tried to correct the track of the aircraft by the application of asymmetric thrust but was unsuccessful. The aircraft departed the paved surface of the runway and came to rest in an adjacent grassy area. The aircraft sustained damage to the right propeller when it struck soft ground during the runway excursion. The right main landing gear tyre was found deflated, all three of the right engine propeller blades were damaged and the Pilot reported that the right engine had been shock-loaded.

The subject aircraft tyre was manufactured in 1998. However, the tyre manufacturer's General Practices Manual stated that the tyres could be operated on condition i.e., when they were installed they could remain on the aircraft as long as they met the Inspection Limits specified in the General Practices Manual. When inspected by the Investigation, the tyre tube appeared to have failed under pressure. This could have occurred on landing, or during the runway excursion. The former is considered more likely given the directional control difficulties that were experienced on touchdown. The tyre showed some evidence of wear but the damage to the tyre appeared to be new and therefore was likely sustained during the occurrence sequence.

- 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.

Produced by the Air Accident Investigation Unit

AAIU Reports are available on the Unit website at www.aaiu.ie



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