Air Accident Investigation Unit Ireland

FACTUAL REPORT

SERIOUS INCIDENT

Bombardier DHC 8-402 (Q400), G-ECOP

Dublin CTA near point VATRY

27 April 2016

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.

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[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 460 of 2009, the Chief Inspector of Air Accidents on 27 April 2016, appointed Mr Leo Murray as the Investigator-in-Charge to carry out an Investigation into this Serious Incident and prepare a Report.

Aircraft Type and Registration:	**Bombardier DHC 8-402 (Q400), G-ECOP**	
No. and Type of Engines:	**2 x Pratt & Whitney Canada PW150A**	
Aircraft Serial Number:	**4242**	
Year of Manufacture:	**2009**	
Date and Time (UTC)[4]:	**27 April 2016 @ 14.16 hrs**	
Location:	**Dublin CTA[5] near point VATRY[6]**	
Type of Operation:	**Commercial Air Transport**	
Persons on Board:	**Crew - 4**	**Passengers - 33**
Injuries:	**Crew - Nil**	**Passengers - Nil**
Nature of Damage:	**None**	
Commander's Licence:	**Airline Transport Pilot Licence (Aeroplanes), issued by the UK Civil Aviation Authority (CAA)**	
Commander's Details:	**Male, aged 35 years**	
Commander's Flying Experience:	**5,100 hours, of which 4,300 were on type**	
Notification Source:	**ATC[7] Station Manager, Dublin Airport**	
Information Source:	**Operator's Safety Department and AAIU Report Form submitted by the Commander**	

[4] **UTC**: Co-ordinated Universal Time. Timings in this Report are quoted in UTC; to obtain local time add 1 hour.
[5] **Dublin CTA**: Dublin Air Traffic Control Area.
[6] **VATRY**: Reporting point at position N52 33.3' W005 30.0'.
[7] **ATC**: Air Traffic Control.

SYNOPSIS

On a scheduled passenger flight, shortly before descent into Dublin (EIDW), the Co-pilot began to feel unwell and requested to leave the flight deck for a few minutes. Before the Co-pilot left his seat, the Commander felt an unexpected aircraft upset in the form of a yaw and roll to the left. The Co-pilot, who had become incapacitated, had inadvertently made an input to the left rudder pedal. The Commander returned the aircraft to normal flight and the aircraft landed without further incident. There were no injuries.

1. FACTUAL INFORMATION

1.1 History of the Flight

The aircraft departed Exeter Airport (EGTE) at 13.37 hrs on a scheduled flight to EIDW with 33 passengers, two flight crew members, a Senior Cabin Crew Member (SCCM) and a Cabin Crew Member (CCM) on board. On this sector, the Commander was Pilot Flying (PF) and the Co-pilot was Pilot Monitoring (PM). Having briefed the expected approach and completed the descent checklist, the aircraft was cleared to descend to FL150. As the aircraft entered the Dublin CTA at point VATRY, the Co-pilot made a request to leave the flight deck to use the lavatory. The Commander called the SCCM to attend the flight deck while the Co-pilot was absent. Following this call the seatbelt sign was switched on. After the call was completed the Commander felt the aircraft unexpectedly yaw to the left and rolled approximately 18 degrees. The Commander disconnected the autopilot, restored a wings-level condition and retarded the engine power to maintain a stable descent. He then tried to ascertain what had caused the unexpected aircraft upset. The aircraft symbol showed at full deflection on the PFD[8] so he checked for a possible runaway of the rudder trim but this indicated normal. Simultaneously, the SCCM called the flight deck to see if all was okay and the Commander told her to standby. Asking the Co-pilot for his opinion, the Commander then realised that the Co-pilot was unwell. The Commander stated that the Co-pilot had become incapacitated and was not responsive to verbal communication or physical stimulation for a period of less than one minute.

Having ensured that the aircraft was on a safe flight path, the Commander called the Cabin Crew for assistance. He then made a PAN (Urgency) call to Dublin ATC, informed them of pilot incapacitation and requested priority for an approach to Runway (RWY) 28. The SCCM proceeded to the flight deck and rendered assistance to the Co-pilot. It was decided that for the approach and landing that the CCM would occupy the crew jump-seat once she had secured the cabin for landing and that the SCCM would manage the cabin. They ensured that the Co-pilot's seat was moved back from the controls and that his harness was locked. The Co-pilot gradually recovered and was able to converse approximately five minutes after his initial symptoms arose. He did not take any further part in the conduct of the flight and declined therapeutic oxygen which had been made available by the Cabin Crew. With the CCM occupying the jump-seat, an able-bodied passenger (ABP) was briefed and occupied the CCM crew seat at the rear of the passenger cabin for landing.

[8] **PFD**: Primary Flight Display.

Some holding delays were being experienced by inbound traffic at EIDW. However, ATC facilitated the flight with a direct routing and priority approach. The aircraft landed without further incident at 14.37 hrs and taxied to Stand 205L, where it was met by the Emergency Services. Paramedics immediately attended to the Co-pilot while the passengers remained seated. When the aircraft arrived on stand, the Co-pilot had recovered considerably; however, he was brought to a hospital in Dublin as a precaution.

1.2 Subsequent Events

The remainder of the Crew were stood down from subsequent duties and positioned home to the UK later that day.

The Co-pilot was kept in hospital overnight for observation before being released. It was determined that the Co-pilot suffered a brief loss of consciousness (syncope) due to a sudden drop in blood pressure. This condition can commonly occur in healthy people and recovery is normally prompt and without any persisting ill effects. At the time of writing, the Co-pilot had not yet returned to flying duties with the Operator.

1.3 Human Factors

Prior to the flight, the Crew positioned by taxi from their base at Southampton (EGHI) to EGTE. None of the other crew observed anything unusual about the Co-pilot that would highlight any form of medical issue, only that he seemed distracted due to the fact that his young child had a hospital appointment the following day. It was also reported that his recent sleep pattern had been disrupted.

1.4 Operator's Safety and Emergency Procedures

The Operator prescribes the actions to be taken in the event of Pilot incapacitation in its Operations Manual Part B (Ops Part B), Safety and Emergency Procedures (SEP) and the aircraft's Quick Reference Handbook (QRH). The procedure states that the flight crew may require assistance of a CCM to secure the seat and harness of the incapacitated flight crew member, administer oxygen if required and to occupy the flight deck jump-seat in order to assist with checklists. In this case, the CCM had some problems setting up the spare headset from the jump-seat position as the headset jack plugs had not been connected to the communications box nor was the microphone selected.

The event unfolded rapidly and consequently the Crew dealt with the situation without reference to the QRH or Ops Part B, SEP; however, the required elements of the relevant drills were covered. The Operator subsequently found that the QRH 'Pilot Incapacitation' checklist incorrectly referred to Ops Manual Part B, SEP Section 4-17 (the correct reference should have been Section 4-16).

Whilst the Operator monitored the developing situation, it did not activate its Crisis Management Centre (CMC). As part of its own investigation, the Operator chose to review the criteria used for activation of the CMC.

1.5 Personnel Details

1.5.1 Commander

The Commander was the holder of an Airline Transport Pilot Licence (Aeroplanes) issued by the UK CAA on 1 February 2013. This licence contained a Type and Instrument Rating on the DHC 8; he completed an Operator Proficiency Check (OPC) on 2 March 2016. His Medical Certificate (Class 1) was valid to 9 March 2017. At the time of the event, the Commander had 5,100 hours total flying time, of which 4,300 hours were on the DHC 8.

1.5.2 Co-pilot

The Co-pilot was the holder of an Airline Transport Pilot Licence (Aeroplanes) issued by the UK CAA on 2 March 2010. This licence contained a Type and Instrument Rating on the DHC 8; he completed an OPC on 17 December 2015. His Medical Certificate (Class 1) was valid to 27 April 2017. At the time of the event, the Co-pilot had 5,400 hours total flying time, of which 200 hours were on the DHC 8.

1.6 Crew Resource Management

Crew Resource Management (CRM) is an essential element in the operation of commercial aircraft. Both Flight Crew and Cabin Crew are trained in CRM procedures, which involve efficient crew co-ordination, effective communications, improved situational awareness and conflict resolution techniques. CRM optimises the use of all available resources, facilitating safe and effective operation of the aircraft.

1.7 Safety Actions by the Operator

As a result of this occurrence, the Operator conducted an internal safety investigation and undertook the following actions:

- An amendment was made to the Q400 QRH, Page 8.7, with reference to '*SEP Manual, Section 4.16*'.
- A review of its CMC activation criteria was carried out.
- Cabin Crew Initial and Cabin Crew Refresher Training programmes were revised to include the use of the flight deck jump-seat headset.

2. AAIU COMMENT

The Co-pilot was probably under some stress on the morning of the flight considering that his young child had a hospital appointment the following day. Stress and lack of quality sleep may have been factors in his feeling unwell and incapacitation during the flight.

In this event the Co-pilot requested permission to leave the flight deck at a time when the flight crew's workload began to increase at the commencement of descent. Before the Co-pilot could leave the flight deck, the Commander responded to an unexpected aircraft upset caused by an involuntary input from the Co-pilot as he became increasingly unwell.

Following the unexpected aircraft upset, the Commander reacted promptly and ensured that the aircraft was returned to a safe flight path. Only then did he realise that the Co-pilot was unresponsive and had become incapacitated.

As the Commander was already in communication with the SCCM, he considered the standard call to alert Cabin Crew was not required. The Crew reacted to the situation in an effective and co-ordinated manner, carried out the incapacitation drills and the CCM occupied the jump-seat for approach and landing. Notwithstanding a minor issue with a headset, there was good communication between the Commander and Cabin Crew. The Commander, assisted by the Cabin Crew, ensured that the Co-pilot was secure in his seat and away from the controls while the cabin was secured for the approach and landing with an ABP occupying the aft crew seat.

The situation was dealt with in an efficient manner by the Commander with good use of CRM by the Crew; in its own safety report the Operator commented that '*the reaction by the rest of the crew was swift and effective and they should be commended for their calmness, initiative and attitude throughout the incident*.'

The Operator took action to correct some minor issues identified by its internal safety investigation. As a result, this Investigation does not make any Safety Recommendations.

- 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

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