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ATSB TRANSPORT SAFETY REPORT
Aviation Occurrence Investigation AO-2007-004
Final

Airprox

VH-YJD, Dornier Werke GMBH DO 228-202 K
VH-FGW Cessna Aircraft Company T210M
Princess Charlotte Bay, Qld

25 April 2007

INFRA-08288

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Abstract

On 25 April 2007, at approximately 1155 Eastern Standard Time (EST),[1] the pilots of a Dornier Werke GMBH DO 228-202 K (Dornier), registered VH-YJD, sighted an aircraft at the same altitude approaching from the opposite direction while flying over Princess Charlotte Bay, Qld. The pilot flying the Dornier immediately climbed and turned the aircraft to the left to avoid the approaching aircraft. The conflicting aircraft passed 50 to 100 ft below the right wing of the Dornier. A Cessna Aircraft Company T210M (Cessna), registered VH-FGW, was subsequently identified as the other aircraft. There had been an Airprox.[2]

FACTUAL INFORMATION

Flight Information

At approximately 1040, a Cessna Aircraft Company T210M (Cessna), registered VH-FGW, departed Cairns, Qld, for Horn Island, Qld, on a private flight conducted under the visual flight rules (VFR). The Cessna tracked north via air route R204 and climbed to 8,500 ft above mean sea level (AMSL). The pilot was the only person on board the aircraft. At approximately 50 NM (92 km) north of Cairns, the cloud increased to an extent that precluded VFR flight at 8,500 ft, so the pilot climbed the Cessna to 10,000 ft AMSL (Figure 1).

At approximately 1100, a Dornier Werke GMBH DO 228-202 K (Dornier), registered VH-YJD, departed Horn Island, Qld, for Cairns, Qld, on a charter cargo flight, conducted under the instrument flight rules (IFR). The Dornier tracked south via air route R204, and climbed to 10,000 ft AMSL. There were two pilots and no passengers on board and the copilot was flying the aircraft. At 1135, the pilot in command (PIC) of the Dornier transferred to frequency 118.2 MHz and transmitted a mandatory radio report in accordance with the Aeronautical Information Publication (AIP).

Upon reaching 10,000 ft, the pilot of the Cessna commenced documenting the engine performance information. At approximately 1140,

1 The 24-hour clock is used in this report to describe the local time of day. Eastern Standard Time (EST) was Coordinated Universal Time (UTC) + 10 hours.

2 'Airprox', as defined in the *Transport Safety Investigation Regulations 2003,* means an occurrence in which two or more aircraft come into such close proximity that a threat to the safety of the aircraft exists or may exist, in airspace where the aircraft are not subject to an air traffic separation standard or where separation is a pilot responsibility.

the pilot of the Cessna transferred to frequency 118.2 MHz and monitored this area frequency. The AIP did not require the pilot of the Cessna to report or broadcast in this circumstance.

At approximately 1155, while over Princess Charlotte Bay, both pilots in the Dornier sighted an aircraft approaching at the same altitude from the opposite direction. The copilot immediately climbed and turned the Dornier to the left to avoid the approaching aircraft. The pilots of the Dornier reported that the other aircraft did not change heading or level and passed below the right wing at a distance estimated to be 50 to 100 ft. There had been an Airprox.

The PIC of the Dornier contacted air traffic control and advised that they had just passed an aircraft flying in the opposite direction, at the same level, at 45 NM (83 km) north of position reporting point KIMMI.

From the position and level information subsequently provided to air traffic control by the pilot of the Cessna, the Cessna was confirmed as the conflicting aircraft. The pilot of the Cessna was not aware of the Airprox and subsequently sighted the Dornier through the rear window of the Cessna.

When cloud below cleared and while still over Princess Charlotte Bay, the pilot of the Cessna descended the aircraft to 8,500 ft and maintained that level until approaching Horn Island. The pilots of the Dornier continued flying the aircraft at 10,000 ft until descending to land at Cairns.

Airspace and procedures

The airspace in the vicinity of Princess Charlotte Bay was structured, in accordance with the National Airspace System, as Class G. The provision of traffic information by air traffic control was in accordance with the requirements of the AIP and the Manual of Air Traffic Services. To assist in self-separation, pilots of aircraft conducting flight under the IFR in Class G airspace were entitled to receive relevant traffic information on other relevant IFR aircraft, though not on VFR aircraft.

The Civil Aviation Regulations (CARs) required pilots of aircraft conducting flight under the IFR and VFR, when weather conditions permit, to maintain vigilance so as to 'see and avoid' other aircraft.

The Summary of Reports and Broadcasting Requirements in the AIP specifies that pilots who conduct flight under the IFR in Class G airspace must report flight information, including aircraft type, callsign, position and intention, location at a position reporting point, and when changing frequency. Pilots conducting flight under the VFR in Class G airspace are not required to report or broadcast at position reporting points or when changing frequency. The pilots of both aircraft complied with the reporting and broadcasting requirements of the AIP.

The pilots of the Dornier chose to conduct IFR flight at 10,000 ft, which is an IFR level not appropriate to their magnetic track, because of the smoother flight conditions and optimised fuel flow at 10,000 ft. The pilots preferred not to fly at the appropriate level of 9,000 ft because this would have placed the aircraft in instrument meteorological conditions (IMC). Flight at a lower IFR level was not a preferred option due to increased fuel-burn rates and turbulence at lower levels. The pilots stated that flight at a higher IFR level was not possible as the aircraft did not have oxygen on board.

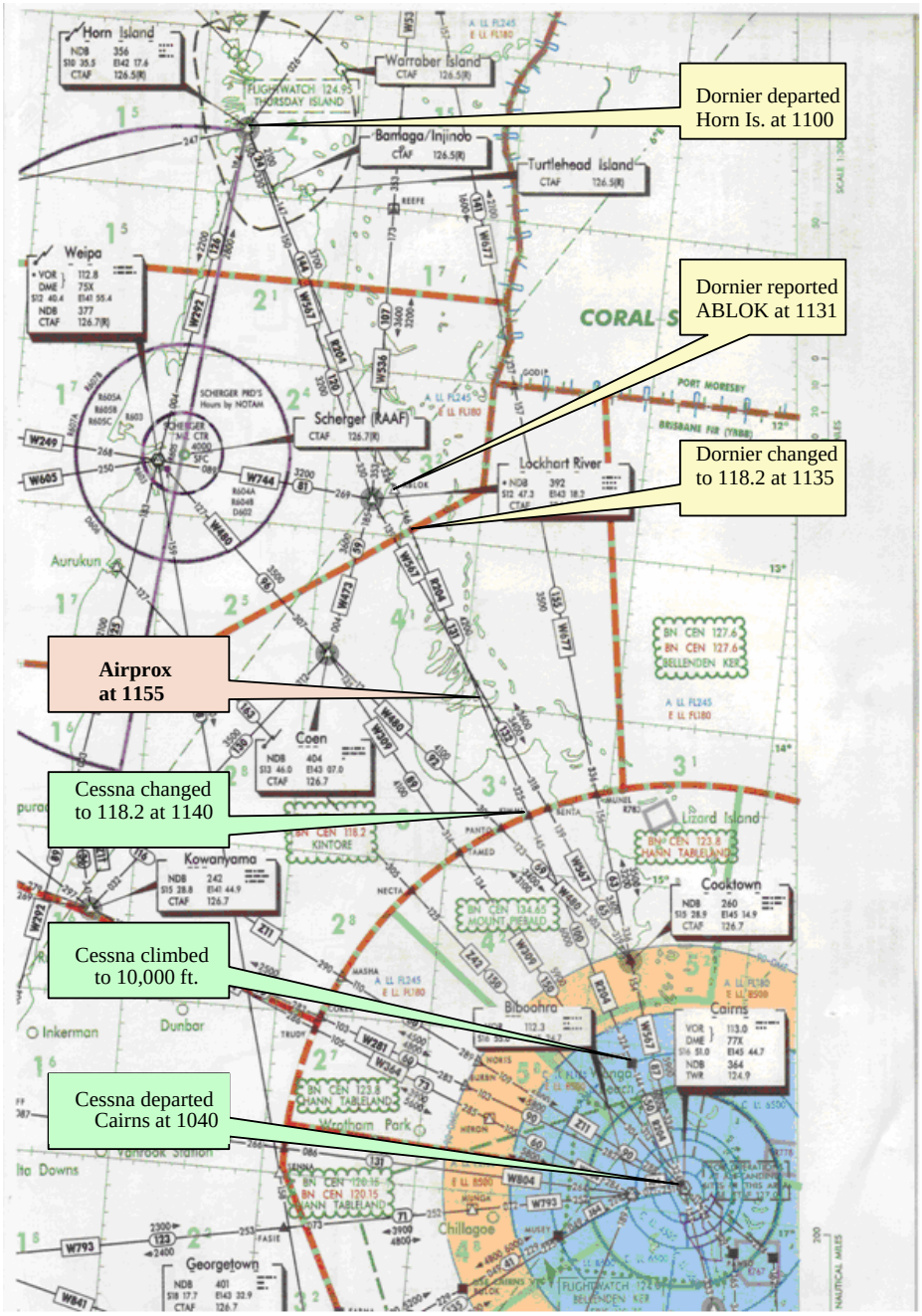
The CARs require that pilots conducting flights under the IFR and VFR outside controlled airspace shall be flown at a cruising level appropriate to their magnetic track.[3] For pilots flying at cruising levels appropriate to magnetic tracks, a self-separation minimum of 500 ft vertical displacement is provided during level flight between aircraft operating under the same and different flight rules.

CAR 181 requires certain procedures to be followed for an IFR flight that is unable, for any reason, to comply with the cruising level requirements of CAR 180 while outside controlled airspace. Flight under the VFR is not permitted at an IFR level.

At 10, 000 ft, the pilots of the Dornier were flying at a level not appropriate to the magnetic track. However, they complied with the requirements of CAR 181. At 10,000 ft, the pilot of the Cessna was flying at a level not permitted for VFR flight.

3 CAR 180 for IFR and CAR 173 for VFR.

Figure 1: Flight progress and position of airprox



Weather conditions

The forecast weather conditions between Horn Island and Cairns included cloud that was scattered to overcast from 6,000 ft to 9,500 ft AMSL.

The pilots of both aircraft reported that there was no cloud at 10,000 ft AMSL, with scattered to overcast cloud below, and the visibility was in excess of 10 kms.

ANALYSIS

The Civil Aviation Regulations (CARs) required pilots of aircraft conducting flight under the IFR and VFR, when weather conditions permit, to maintain vigilance so as to see and avoid other aircraft. The pilots of the Dornier sighted the conflicting Cessna; however, the pilot of the Cessna was documenting engine performance details and this reduced his ability to see and avoid the Dornier. The action by the Dornier

pilot to climb and turn the Dornier to the left averted a possible collision with the Cessna.

The self-separation minimum of 500 ft vertical displacement provided between aircraft operating under the same and different flight rules, during level flight, as provided by the CARs, was not achieved.

There was no meteorological reason why the Dornier could not be flown at an IFR level. There was no meteorological reason why the Cessna could not be flown at an appropriate VFR level below cloud while maintaining Visual Meteorological Conditions (VMC).

FINDINGS

Contributing Safety Factors

- The pilot of the Cessna was operating the flight under the Visual Flight Rules (VFR), at 10,000 ft, which was an Instrument Flight Rules (IFR) level not permitted for a VFR flight.
- The pilots of the Dornier were operating the flight under the Instrument Flight Rules (IFR), at 10,000 ft, which was not an appropriate level for its magnetic track.
- Neither the pilots of the Dornier, nor the pilot of the Cessna, had any awareness of the proximity of the other aircraft.
- The pilot of the Cessna was not looking out for other traffic (see and avoid principle) due to recording engine data on an in-flight engine trend monitoring sheet.

Other key findings

- The pilots of the Dornier sighted the Cessna and took avoiding action to prevent a collision.