Airbus A330 - Qantas Flight QF72

Introduction

This legal briefing is provided to you by Stewarts Law LLP, the largest and most experienced aviation law firm in the UK and the EU, representing only families and victims of air crashes, together with The Wisner Law Firm, who are one of the most experienced US plaintiff aviation firms committed to determining the causes of air incidents and holding those responsible to account.

Background Facts and Potential Cause Analysis

On 7 October 2008 Flight QF72, an Airbus A330-303 (registration VH-QPA) operated by Qantas, was on a scheduled service from Changi Airport, Singapore (SIN) to Perth Airport, Australia (PER) carrying 303 passengers, nine cabin crew and three flight crew. At 12:42pm, when the aircraft was at 37,000 feet and approximately 154 kms west of Learmouth, it unexpectedly made a pitch down manoeuvre. This in-flight event resulted in a sudden loss of altitude of 650 feet and unrestrained passengers and crew were thrown about the aircraft. A second, less severe, event occurred shortly afterwards, at 12:45pm. The pilot made an emergency landing at Learmouth airport and 14 people were airlifted to hospital. 106 passengers and nine crew sustained physical injuries. Many more have suffered the psychological effects of being involved in such a terrifying event.

VH-QPA parked at Learmouth

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The accident is being investigated by the Australian Transport Safety Bureau (ATSB). The following organisations are also involved;

1. The French Bureau d'Etquetes et d'Analyses pour la securite de l'aviation civile (BEA);
2. The US National Transportation Safety Board (NTSB);
3. Airbus ;
4. Northrop Grumman;
5. Qantas Airways; and
6. The US Federal Aviation Administration (FAA)

The ATSB have already issued a preliminary report (ISBN 978-1-921490-84-2) and an interim report (097-1-921602-20-7/ AO-2008-070). The aim of the ATSB is to identify the causes of this incident with a view to enhancing the safety of the aviation industry. For example, as well as looking into the cause of the in-flight incidents the ATSB also address the issue of cabin safety generally in their reports. It is not the object of the investigation to determine blame or liability.

The ATSB's investigations so far have revealed that one of the Air Data Inertial Reference Units (ADIRU1) was providing erroneous data, or 'spikes', to the other aircraft systems. The job of the ADIRUs (there were three on this particular aircraft) is to supply data such as altitude, speed, angle of attack, temperature, position and track to the aircraft's flight control computers so they can make the relevant adjustments to the flight controls.

The ADIRU

As a result of these 'spikes', the crew received numerous fault, caution and warning messages including an aural stall warning and fluctuating airspeed and altitude indications. It is also likely that the spikes recorded by the ADIRU led to the involuntary disconnection of the autopilot, which occurred at 12:40pm, just before the first in-flight event. Details recorded on the aircraft's flight data recorders indicate that the 'spikes' continued throughout the rest of the flight, until the aircraft landed in Learmouth.

In most cases, erroneous data provided by ADIRUs is filtered by the flight control primary computer (or PRIM) and does not affect the flight control commands. In this case however two spikes which came from the Angle of Attack (AOA) sensors were not filtered and the aircraft sought to correct itself from the position it thought it was in by pitching down. No faults were found with the AOA sensors themselves and the likelihood of erroneous AOA inputs having an influence on flight control commands is extremely rare. The ATSB investigation identified a very specific situation when the pitch down command would be generated and unfortunately this occurred twice in the space of a few minutes during this flight.

In the first event the aircraft reached a maximum angle of 8.4 degrees nose down and a force of 0.80g was recorded. In the second event the aircraft pitched down at a 3.5 degree angle and descended 400 feet. On both occasions the Captain applied back pressure on the side stick to correct the pitch-down movement within a second of it occurring which overrode the aircraft's computer. The pilot being uncertain that further inflight events would not occur and having receieved reports of serious injuries from the cabin, decided to issued an emergency broadcast and divert to Learmouth.

Damage to the aircraft was sustained mainly to the personal service units located above passenger seats and ceiling panels. There was evidence of impact damages in these areas and nine oxygen masks had deployed.

The ATSB are continuing their investigations because they have not identified what caused the ADIRU to malfunction. The ADIRU1 unit is currently in the possession of the manufacturer, Northrop Grumman, in Los Angeles, locked in a secure storage room, awaiting the arrival of the ATSB investigation team. One possible explanation for the 'spikes' is Electromagnetic Interference (EMI).

There have been two incidents where similar ADIRUs have malfunctioned in the same way as they did in this incident however on neither occasion did this affect the aircraft's flight controls. The first of these incidents occurred on 12 September 2006 and involved the same aircraft (VH-QPA) and the same ADIRU. The second occurred also on a Qantas flight (QF71) and also involved an Airbus A330-303 with the same model ADIRU.

Both of these incidents occurred within 1000km of Learmouth and it is for this reason that the possibility of EMI is being investigated. The Harold E Holt Naval Communication Station, located near Learmouth, was considered as a possible source of EMI however, the station has not made any changes to the nature of its transmissions or frequency in recent years and tests indicated that the electromagnetic field strength produced by the station was well below the levels at which the ADIRU was tested against during certification.

Conclusion

Our Attorney Group is aware that understanding why accidents such as this one occur and taking steps to prevent them happening again is important to our clients. For this reason we follow the relevant authorities' investigations closely and even carry out our own investigations if necessary so that answers can be provided.

The passengers on the aircraft have the right to seek compensation for their injuries from various defendants. Viable potential targets for liability include the following:

1. Qantas Airways - as the air carrier and operator of the aircraft, Qantas have specific responsibilities for their passengers and crew.
2. Airbus - the designer and manufacturer of the Airbus 330-303.
3. Northrop Grumman - the designer and manufacturer of the ADIRU
4. The aviation insurers of the above based in the aviation insurance market in the City of London.