BOEING 757 INAPPROPRIATE CREW RESPONSE TO UNRELIABLE AIRSPEED CAUSES INJURIES AND DAMAGE

News / Airlines

Turbulence and an inappropriate response to an unreliable airspeed caused 17 minor injuries and the loss of the centre hydraulic system on a Boeing 757 over Ireland, according to the Irish Air Accident Investigation Unit (AAIU).

Damage to service bay and associated structure (AAIU)

The aircraft, a Boeing 757-224, was on a scheduled passenger service from Newark Airport, USA to Dublin Airport, Ireland, with 8 crew and 131 passengers on board. The commander was Pilot Monitoring (PM), and the co-pilot was Pilot Flying (PF). The flight departed Newark at 23.22 UTC and the en route transatlantic phase of the flight was uneventful. Approaching Dublin, the aircraft was given an initial descent clearance to FL170 by ATC.

While descending through approximately FL250, in Instrument Meteorological Conditions (IMC), the aircraft encountered turbulent atmospheric conditions. The flight crew noted the presence of St. Elmo's Fire. As the descent continued through FL235, the co-pilot stated that the intensity of the turbulence increased "abruptly". At about the same time the intensity of`the St. Elmo's Fire increased and the co-pilot stated he noticed "the sound of abruptly entering precipitation". The aircraft position at that time was approximately 80 nautical miles (NM) southwest of Dublin.

The co-pilot reported that when the turbulence eased, he noticed that his indicated airspeed (IAS),

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as displayed on his instruments, was low – in the region of 90 kts. The co-pilot, believing that the aircraft was about to stall, immediately pushed the control column forward and applied full power without disengaging the autopilot or autothrottle. The co-pilot stated that following this, his airspeed “went back up into the normal range”, but as soon as he began to raise the nose and reduce power, “it went back into a stall – or the indications of a stall”. The co-pilot then commenced a second pitch down manoeuvre.

Following the second pitch down manoeuvre, the flight crew concluded that the co-pilot’s airspeed indications were reading incorrectly and that the commander’s airspeed indications, which agreed with the standby airspeed indications, were correct. Consequently, the commander took control of the aircraft and returned it to stabilised flight. When the co-pilot’s airspeed indications returned to normal the commander handed control back to the co-pilot.

At about this time, an alert was displayed on the Engine Indication and Crew Alerting System(EICAS), indicating a loss of hydraulic pressure in the centre hydraulic system. The relevant checklist was actioned, and the flight was continued towards Dublin. Reports were then received from the cabin that two flight attendants and a number of passengers had sustained minor impact injuries.

The commander advised ATC that they had encountered severe turbulence and that medical assistance was required on arrival because some passengers had been injured. In addition, the Airport Fire Service was also requested to be in attendance on landing due to the loss of the centre hydraulic system. A normal landing was performed at Dublin, without further incident. On inspection it was found that the aircraft had sustained significant damage.

Investigators concluded that the co-pilot applied a non-standard stall recovery manoeuvres without stating this to the commander. During these manoeuvres the aircraft exceeded Vmo by 30 kts.

Probable Cause:

– Temporary blockage of the right main pitot probe due to ice crystal icing, leading to an unreliable airspeed indication.

– Non-standard Flight Crew response to a low airspeed indication.

Contributory Cause:

– Startle effect due to a sudden unexpected indication of low airspeed, following an encounter with turbulence.

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