

SERIOUS INCIDENT

Aircraft Type and Registration:	Boeing 737-8AS, EI-DAL
No & Type of Engines:	2 CFM 56-7B26 turbofan engines
Year of Manufacture:	2003
Date & Time (UTC):	19 November 2009 at 2124 hrs
Location:	Runway 27, Bristol Airport
Type of Flight:	Commercial Air Transport (Passenger)
Persons on Board:	Crew - 6 Passengers - 135
Injuries:	Crew - None Passengers - None
Nature of Damage:	Underside of right engine cowl
Commander's Licence:	Airline Transport Pilot's Licence
Commander's Age:	32 years
Commander's Flying Experience:	3,553 hours (of which 3,248 were on type) Last 90 days - 209 hours Last 28 days - 87 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot and further enquiries by the AAIB

Synopsis

The right engine nacelle made contact with the runway during a landing with a strong and gusty crosswind. The crew did not realise that the engine had made contact with the runway until they vacated the aircraft.

History of the flight

The aircraft was on a scheduled flight from Dublin, Ireland to Bristol Airport. The crew were both based at Bristol and aware of the local conditions prevalent during strong crosswind approaches and landings on Runway 27. The commander was the pilot flying, the runway surface was dry and it was dark.

information which gave the surface wind as 190°/20 kt. However, later in the descent the crew were advised by ATC that the wind was now gusting 30 kt.

Although the final approach was turbulent, the aircraft was stable at 500 ft radio altimeter height (RA). At about 350 ft RA, the aircraft encountered a strong downdraught which resulted in an EGPWS glideslope warning and three red lights indicated on the PAPIs. This was corrected and the approach continued. At one point, the co-pilot made a "speed" call as the IAS approached 159 kt; V_{APP} was 143 kt.

Prior to the approach the crew received the ATIS

During the landing flare the commander decrabbed the

aircraft at 15 ft RA and closed the thrust levers at about 10 ft RA. The aircraft experienced a wing drop to the left, which the commander corrected, quickly followed by a more severe wing drop to the right as the right main landing gear touched down.

The remainder of the landing roll was completed uneventfully and the crew did not notice any abnormal aircraft indications. During the taxi to stand the co-pilot advised ATC that they had experienced a significant “wind shift” over the threshold. Although the crew did not believe an engine had contacted the runway the commander said to the co-pilot he would have a look after they shutdown.

The company engineers observed the landing and mentioned that it looked “pretty scary” and considered that the wingtip may have made contact with the runway. Whilst the passengers were disembarking the engineers inspected the aircraft and found damage under the right engine. They subsequently informed the crew who notified ATC. Further examination revealed that the damage was confined to the engine cowl and thrust reverser duct.

A runway inspection subsequently found evidence of contact from the engine nacelle abeam Taxiway Delta; 550 m from the threshold of Runway 27.

Weather information

During the approach the tower controller gave the crew instantaneous wind readouts of 180°/21 kt at 1,000 ft aal and 180°/24 kt at 500 ft aal.

Table 1 shows the recorded wind information at the windsock site located abeam the Runway 27 touchdown markings.

The incident occurred at 2124 hrs.

Recorded information

The CVR and FDR were removed by the operator and sent to the AAIB for analysis.

The FDR showed that just before touchdown there was 9° of left roll, followed by 11.4° of right roll with the right main landing gear compressed.

Discussion

The ATC wind reports and the recorded wind information show that the crosswind was unstable on short finals and during the landing. It is possible that, as the commander corrected the left wing drop and decrabbed the aircraft, the rudder input amplified the right roll to such an extent that the engine nacelle made contact with the runway.

Time	Wind Direction	Wind Speed
2110 hrs	188° Varying 165-206°	24 Gusting 15-35 kt
2120 hrs	186° Varying 163-208°	22 Gusting 12-38 kt
2130 hrs	185° Varying 170-208°	19 Gusting 10-32 kt

Table 1
Recorded wind information

Safety actions

The crew completed re-training in crosswind landing techniques in a simulator.