

SERIOUS INCIDENT

Aircraft Type and Registration:	Airbus A320-214, EI-EZV
No & Type of Engines:	2 CFM 56-5-B4/P turbofan engines
Year of Manufacture:	2003 (Serial no: 2001)
Date & Time (UTC):	16 January 2014 at 1505 hrs
Location:	London Heathrow Airport
Type of Flight:	Commercial Air Transport (Passenger)
Persons on Board:	Crew - 6 Passengers - 41
Injuries:	Crew - 4 (Minor) Passengers - None
Nature of Damage:	None reported
Commander's Licence:	Airline Transport Pilot's Licence
Commander's Age:	34 years
Commander's Flying Experience:	7,272 hours (of which 6,878 were on type) Last 90 days - 96 hours Last 28 days - 19 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

Synopsis

The aircraft was in the final stages of an ILS approach to land. The thrust was reduced at the normal flare height but there was no reduction in the rate of descent and the aircraft landed heavily. The FDR data showed evidence of over-controlling in pitch with a late increase in pitch attitude which had no effect on the rate of descent.

History of the flight

EI-EZV was carrying out an ILS approach to Runway 27L at London Heathrow Airport with the co-pilot operating as the Pilot Flying (PF) and the commander as the Pilot Monitoring (PM). The weather was: surface wind from 180° at 12 kt, visibility of 9,000 m, few clouds at 2,200 ft, scattered clouds at 2,600 ft and temperature 9°C. The commander reported that the aircraft experienced light turbulence during the approach.

The crew saw the runway at approximately 5 nm from touchdown, disconnected the autopilot and autothrust, and configured the aircraft with FLAPS 3 for the final approach and landing. The commander reported that, at the normal flare height, the thrust was reduced but there was no noticeable flare. He called "flare" but there was no reduction in the rate of descent and the aircraft touched down heavily.

The crew were treated by paramedics for minor back and neck pain.

Comment from the commander

The airline had recently introduced the practice of landing with FLAP 3, instead of FLAP FULL, on long runways. The pilots discussed that the aircraft would be more responsive during an approach and landing with FLAP 3 than would be the case with the more usual landing flap configuration. The commander thought that the light turbulence during the approach, combined with a more responsive aircraft than usual, might have led to the aircraft being over-controlled in pitch.

Flight data

Flight data from the landing is shown in Figure 1.

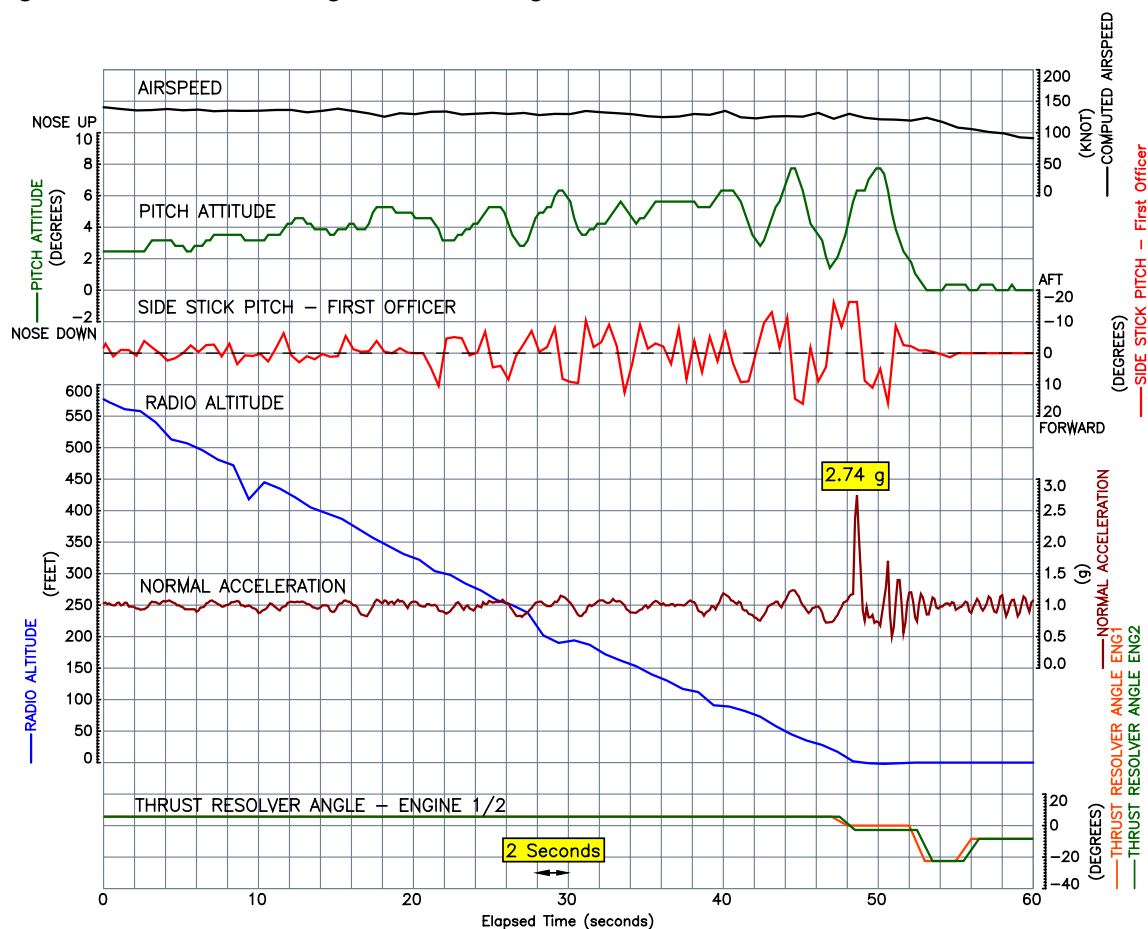


Figure 1

Flight data from the landing

The computed airspeed at touchdown (equivalent to groundspeed in the absence of headwind) was approximately 130 kt. The thrust levers were retarded over approximately 1.5 seconds to reach idle at touchdown. The average rate of terrain closure was 706 fpm during the descent from 500 ft radio altitude to touchdown. This approximates to the aircraft's rate of descent given the flat and level ground over which the aircraft was flying during the final approach. The ILS 27L page in the UK AIP entry for London Heathrow Airport shows that a rate of descent of 690 fpm is required to maintain the ILS glideslope at 130 kt groundspeed.

In the final 28 seconds before touchdown, the amplitude of sidestick input slowly increased but, although the pitch attitude varied, the average rate of descent remained constant. In the two seconds before touchdown, the pitch attitude changed from approximately 1.5° to 6.5° nose-up.

Analysis

During the final 28 seconds of flight, the high rate at which the pitch inputs were made and reversed meant that the pitch attitude did not always change in response. The pitch inputs also had little effect on the flight path and rate of descent. The pitch attitude varied significantly during the six seconds before touchdown, including a 5° nose-up pitch change in the final two seconds. However, the final increase in pitch attitude came too late to arrest the rate of descent leading to the hard landing.

BULLETIN CORRECTION

The following correction to this report was issued on 17 June 2014 online and published in the July 2014 Bulletin.

The scale for the parameter SIDE STICK PITCH – First Officer in Figure 1 is incorrectly labelled. The scale should read that positive values greater than zero indicate that the side stick has been moved forward and that negative values of less than zero indicate that the side stick has been moved aft. The revised plot has been inserted into the above report. The analysis remains unchanged.