

**SERIOUS INCIDENT**

<b>Aircraft Type and Registration:</b>	Airbus A319-111, G-EZDN	
<b>No &amp; Type of Engines:</b>	2 CFM56-5B5/3 turbofan engines	
<b>Year of Manufacture:</b>	2008 (Serial no: 3608)	
<b>Date &amp; Time (UTC):</b>	13 May 2015 at 2135 hrs	
<b>Location:</b>	On approach to Bristol Airport	
<b>Type of Flight:</b>	Commercial Air Transport (Passenger)	
<b>Persons on Board:</b>	Crew - 6	Passengers - 99
<b>Injuries:</b>	Crew - None	Passengers - None
<b>Nature of Damage:</b>	None	
<b>Commander's Licence:</b>	Airline Transport Pilot's Licence	
<b>Commander's Age:</b>	56 years	
<b>Commander's Flying Experience:</b>	11,500 hours (of which 5,000 were on type) Last 90 days - 172 hours Last 28 days - 60 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot, and the Company safety report	

**Synopsis**

During a manually flown night visual approach to Runway 27 at Bristol Airport the pilots became disorientated and, at an altitude of 1,200 ft the aircraft, flew across a ridgeline south of the city of Bristol. The crew realised that they had lost positional awareness and conducted a go-around. The radio altimeter showed the aircraft had descended to 488 ft agl. The aircraft landed safely from its subsequent approach.

**History of the flight**

The aircraft was inbound to Bristol Airport from Glasgow and the weather conditions were good. This was the fourth and final sector for the crew and their second approach into Bristol that evening. They were expecting and had briefed for an ILS approach to Runway 09, which would have been a repeat of their earlier approach. The commander, who was the pilot flying, used a function of the navigation system to place a 5 nm range ring centred on the threshold of Runway 09 as depicted on his Navigational Display (ND).

On contacting the approach controller at Bristol Airport, the pilots were advised that the wind had changed direction and an aircraft ahead of them had made its approach to Runway 27. The pilots checked the position of this aircraft using TCAS and decided it would be more expeditious for them also to use Runway 27. When they saw the preceding traffic, they requested a visual approach to the airfield from the north.

This was approved by the approach controller, in accordance with noise abatement procedures<sup>1</sup>. The commander then disconnected the autopilot and autothrust, and asked for the Flight Directors (FD) to be switched off, the Flight Path Vector (FPV) to be selected and for the inbound course to the runway (268° M) to be selected on the Flight Control Unit (FCU). He then asked for 2,300 ft to be set in the altitude window of the FCU and turned the aircraft onto a heading that would take it to a point near where the 5 nm range ring intercepted the extended centreline of Runway 27. He could not recall if he had updated the range ring to be centred on the threshold of Runway 27 instead of Runway 09.

The commander was conscious of the need to make a sharp 90° turn onto the final approach track, so, at what he perceived was 1 nm before crossing the centreline, turned the aircraft towards a point at 4 nm on final approach and descended towards 2,100 ft, intending to comply with Bristol Airport's noise abatement procedures. The pilots made no reference to the selected altitude of 2,300 ft as the aircraft descended through it. The co-pilot was unaware that the commander had changed his initial aiming point. He considered the aircraft was getting too close to the airfield and said the approach looked "a bit tight". The commander interpreted this to mean that the co-pilot thought the aircraft was above the intended approach profile.

The commander saw what he perceived, based on the airfield lighting, to be the threshold and turned the aircraft onto an intercept heading to the centreline. The crew then configured the aircraft for landing and changed frequency to Bristol tower, whilst the aircraft continued to descend.

As the aircraft passed 1,800 ft the first officer became concerned about the tracking of the aircraft, and looked at the ND to orientate himself. He became aware that they had turned too early were north of the correct approach track and stated this to the commander. The commander reassured him that they were "on glide path", which gave the first officer the impression that the commander still had situational awareness.

The first officer then saw the communication masts, which are positioned next to the village of Dundry, to his right in the 1-2 o'clock position instead of the normal 3 o'clock position. Although they were well clear of these masts, their position confirmed that the aircraft was north of the runway centreline. He looked across at the commander, who had stopped the aircraft descending at 1,200 ft and saw he was scanning outside for references. He instructed the commander to go-around. Simultaneously, the commander decided that he did not have the correct visual references and started to execute a go-around. The ATC Tower controller and the Approach controller were discussing that the aircraft's approach was not in accordance with their noise abatement procedures and that a violation would be unavoidable. They were about to inform the crew when the aircraft transmitted that it was commencing a missed approach.

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#### Footnote

<sup>1</sup> The noise abatement procedures required the aircraft to maintain 2,100 ft amsl until on the final approach track and thereafter not to descend below the height an aircraft would be on the glidepath. Aircraft approaching from the north should intercept the final approach at no closer than 3 nm.

The village of Dundry sits on top of a ridgeline roughly 705 ft amsl; within the village is a church, which extends up to height of 97 ft agl. There are communication masts located on higher ground approximately 0.3 nm to the west of Dundry. These masts are lit; the highest mast is depicted on the approach chart as being 886 ft amsl (275 ft agl). Bristol Airport is 622 ft amsl.

The go-around was commenced just to the north of the village and the lowest radio altimeter reading recorded during the manoeuvre was 488 ft agl. The aircraft was then repositioned for an ILS approach onto Runway 27 from which it landed safely.

### Recorded data

The company investigation made use of data from a wireless quick access recorder and the noise monitoring system at Bristol Airport gave a pictorial representation of the aircraft's track and height amsl. (Figure 1)

The aircraft made its turn towards Runway 27, approximately 2 nm to the north of the runway centreline at a slant range from the threshold of 4.3 nm. The aircraft was turned through 50° and its rate of descent was reduced. The aircraft then flew level at 1,200 ft for 25 seconds, during the last 10 seconds of this, the indicated radar altimeter height reduced from 950 ft to 488 ft. The go-around was executed at 2.75 nm slant range from the threshold, still approximately 1 nm north of the centreline. The go-around altitude was set in the altitude window of the FCU during the manoeuvre.



Figure 1  
Bristol Airport noise trace

**Analysis**

The crew made a late change to their briefed approach, but did not update their brief. This meant the co-pilot was not fully aware of how the commander intended to fly the approach, so was not properly able to monitor it. The commander probably did not update his 5 nm range ring from being centred on the threshold of Runway 09, and its subsequent use for situation awareness may have caused him to position too close in to the threshold of Runway 27. Both crew members then lost situational awareness, but neither communicated this to the other until the co-pilot called for a go-around. The fact the go-around altitude was not set until the go-around had commenced indicates either the landing checklist had not been completed or that it had not been completed satisfactorily.

**Comment**

The operator conducted an investigation of this incident and made three safety recommendations to its internal procedures.