



# ALERT CONTROLLER PREVENTS CFIT ACCIDENT

*The incident described below involved an Airbus A310 passenger flight to Birmingham Airport in November 2006. The account of the incident is reprinted from UK AAIB Bulletin 4/2007, omitting only the introductory information.*

## SYNOPSIS

The aircraft was being radar vectored for an ILS approach to Runway 15 at Birmingham Airport. The radar controller had cleared the crew to descend to an altitude of 2,500 ft, but noticed that the aircraft continued to descend below the cleared altitude. He instructed the crew to climb and repeated the QNH, which the crew had not set. With the correct QNH set the aircraft climbed and levelled at 2,000 ft, as instructed by the controller. Having intercepted the localiser they were cleared to descend with the ILS and a normal landing was completed.

## HISTORY OF THE FLIGHT

The aircraft was on a scheduled flight from Tehran to Birmingham Airport. The commander was the Pilot Flying (PF) and the co-pilot was the Pilot Not Flying (PNF). The crew contacted the Radar controller at 2037 hrs as they were approaching FL80. They confirmed that they had received the ATIS and repeated the QNH of 982 hPa. They were instructed to maintain FL80 and their present heading.

The controller intended to provide radar vectors for the aircraft to intercept the localiser for Runway 15 at a distance of 9 nm. At 2038 hrs he cleared the aircraft to descend to an altitude of 4,000 ft on the QNH of 982 hPa, which the PNF acknowledged

correctly. During this descent, the aircraft was cleared to descend further to an altitude of 2,500 ft and this was again acknowledged correctly by the PNF.

At 2043 hrs the crew were instructed to turn right onto a heading of 060° and to reduce speed to 180 kt; the aircraft turned onto the base leg and continued its descent. The controller, who was also controlling several other aircraft, saw F-OJHH descend through 2,500 ft. He transmitted "5020 CLEARED ALTITUDE TWO THOUSAND FIVE HUNDRED FEET SAY AGAIN TWO THOUSAND FIVE HUNDRED FEET". The PNF responded, "TWO FIVE HUNDRED 5020 TWO THOUSAND FIVE HUNDRED". Seeing the aircraft still descending the controller transmitted "YES IF YOU COULD CLIMB BACK UP TO TWO THOUSAND FIVE HUNDRED PLEASE AND TURN RIGHT NOW ONTO ONE TWO ZERO DEGREES". The PNF responded to the instruction after a short pause. Seeing the aircraft still descending, the controller repeated, "5020 YOU ARE STILL DESCENDING CLIMB TWO THOUSAND FIVE HUNDRED FEET ACKNOWLEDGE". This was acknowledged again by the PNF but the aircraft still continued to descend. The controller instructed the crew that there was a mast 4 nm due east of their position which was 1,358 ft amsl, and that they should climb immediately. The PNF acknowledged this instruction.

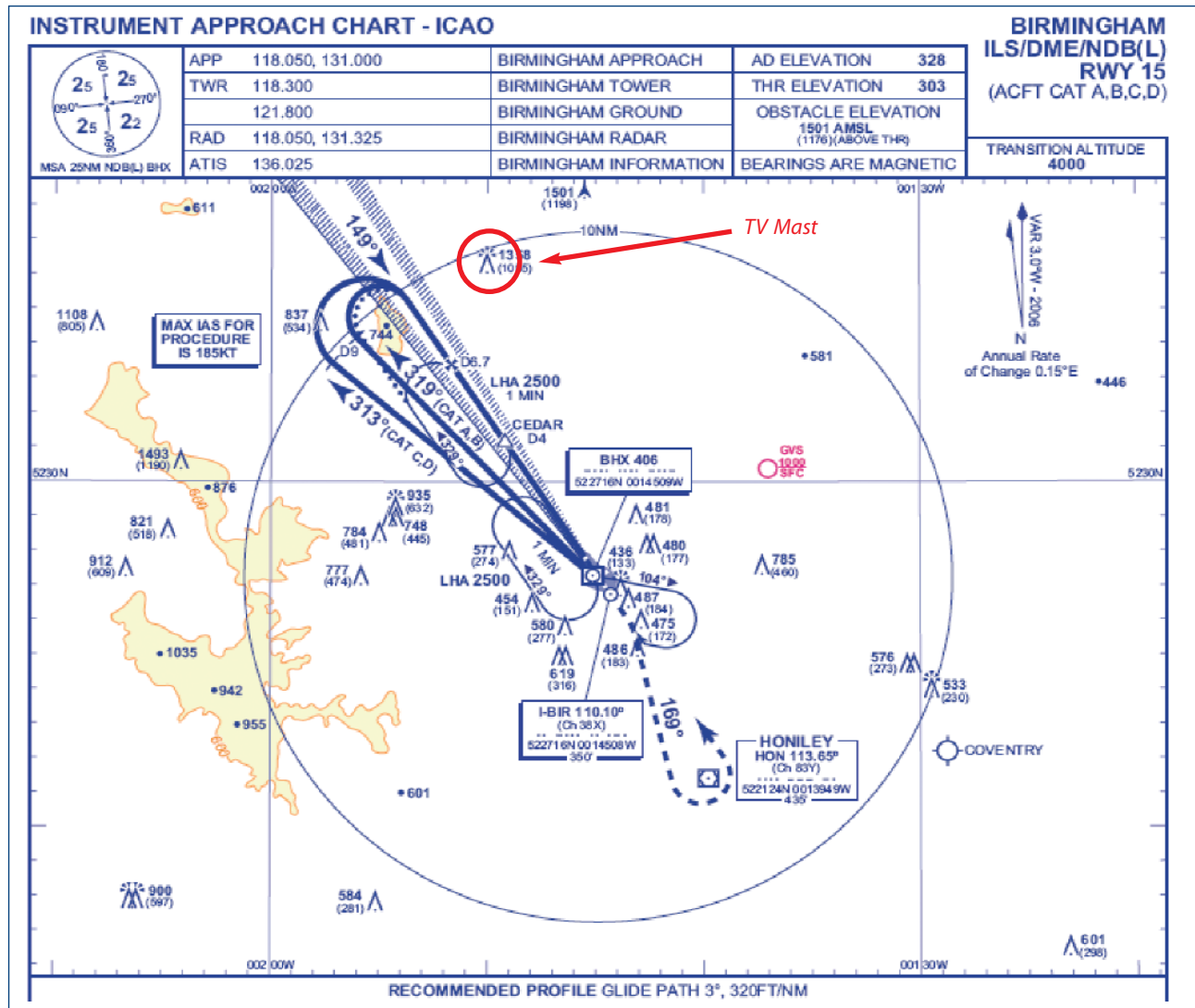
Suspecting that the crew had not set the QNH, the controller transmitted "5020 QNH 982 CONFIRM YOU ARE INDICATING ONE THOUSAND FIVE HUNDRED FEET". At this point the crew realised that the altimeters were still

set to the standard pressure setting of 1013 hPa and not the Birmingham QNH of 982 hPa. The PF initiated a climb and he and the PNF set the Birmingham QNH and crosschecked the altimeters. The PNF informed the controller "JUST GOT IT NOW AND CLIMBING READING 2,000 FEET". The controller responded "YOU CAN LEVEL OFF AT TWO THOUSAND FEET PLEASE TO INTERCEPT THE GLIDEPATH AT NINE MILES YOU ARE NOW CLEAR OF THE TV MAST". The PNF acknowledged the instruction and they were then cleared to descend on the ILS. The crew continued with the approach and landed without further incident.

## WEATHER

The synoptic situation at 2100 hrs on the day of the incident showed a low pressure system (969 hPa) centred near Eire. A broad warm sector was covering the southern half of the British Isles with a light to moderate south-south-westerly flow over the Midlands and Southern England. Weather conditions over the Midlands were cloudy with outbreaks of rain, mainly in the West Midlands. The surface visibility was generally 25 km but locally 10 to 15 km in rain. The mean sea level pressure in the Birmingham area was 982 hPa with the Barnsley Regional Pressure Setting, valid from 2000 hrs to 2100 hrs, of 974 hPa.

The 2020 hrs weather report at Birmingham Airport recorded a surface wind from 160° at 10 kt, with the visibility greater than 10 km in light rain, few clouds at 1,600 ft with scattered cloud at 2,200 ft, the temperature was 12°C, the dew point was 11 °C and the QNH was 982 hPa.



Extract from the UK AIP, published with the permission of UK CAA, showing the ILS approach procedure to RWY 15 at Birmingham Airport. The television mast is circled in red.

### ALTIMETER SETTING

The Standard Operating Procedure (SOP) for altimeter setting in the descent was set out by the operator in the descent checklist of the normal procedures. This requires both the PF and PNF to set the QNH when cleared by ATC to descend from a flight level to an altitude.

### ANALYSIS

The crew had not changed the altimeter setting from the standard setting of 1013 hPa to the Birmingham QNH of 982 hPa when first cleared to descend from a flight level to an altitude. Based on an average height of 30 ft per hPa, a height difference of 930 ft existed between the aircraft actual altitude

and that indicated on the altimeters. Consequently, thus when the altimeters were indicating 2,500 ft the aircraft had actually descended to 1,570 ft. As the aircraft continued its descent below its cleared level of 2,500 ft the radar controller notified the crew and warned them of the mast ahead. Having realised that the altimeter sub scale setting was incorrect the crew

initiated an immediate climb, re-set the altimeters to the correct QNH and followed the controller's instructions.

The crew could not recall any distractions or unusual flight deck activity at the point at which they would normally have adjusted the altimeter sub-scales.

### LESSONS LEARNED

The following extracts from EUROCONTROL Level Bust Briefing Note ATM2 are relevant:

"3.1. The controller has no way of knowing if, after a correct readback, a pilot has misunderstood his clearance or is likely to deviate from it (e.g. because he has mis-set aircraft equipment).

"3.2. The controller can reduce the incidence of level busts by monitoring the flight path of aircraft under his control to the extent that his work-load permits.

"3.3. A busy controller cannot be expected to monitor continuously the progress of all flights under his control. Some form of prioritisation is usually necessary, and experienced controllers often do this subconsciously.

"3.5. Priority in monitoring will be given to aircraft whose clearance has recently been changed from a stable situation (e.g. level flight on flight plan route) to a changing situation (e.g. climbing, descending, or changing routing)."

