

## **AIRPROX REPORT No 2014056**

Date/Time: 10 May 2014 0750Z (Saturday)

Position: 5214N 00135W  
(20nm SSE Honiley)

Airspace: Daventry CTA (Class: A)

Reporter: Birmingham Radar 1 Controller

Aircraft 1                      Aircraft 2

Type: B757                      ATP

Operator: CAT                      Civ Comm

Alt/FL: FL83                      FL90

Conditions: VMC                      VMC

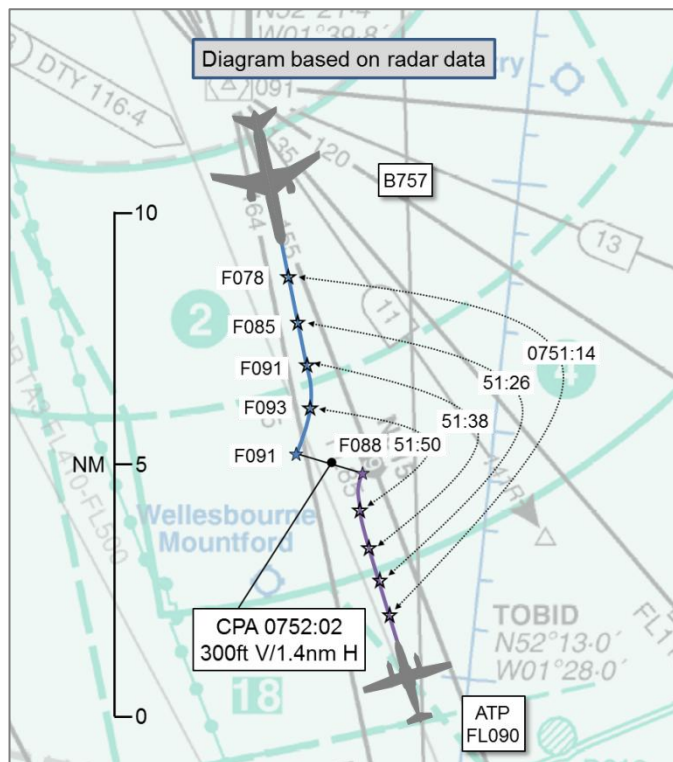
Visibility: 50km                      >10km

Reported Separation:

0ft V/2nm H                      NK

Recorded Separation:

300ft V/1.4nm H



Controller reported separation 300ft V/1.5nm H

## **PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

**THE B757 PILOT** reports that he was under London ATC's control, climbing to FL190 routeing to Compton (CPT) VOR under IFR but in VMC. Strobe lights were illuminated; SSR Modes C and S were selected; and TCAS 2 was on. ATC instructed him to stop his climb at FL80 but, at the time, he was already passing FL84, with a rate of climb of approximately 3500fpm. ATC issued an avoiding-action right turn heading 215°. The Pilot Flying (First Officer) re-set the Mode Control Panel (MCP)<sup>1</sup> to FL80 and he instructed him to 'hand fly' the aircraft. ATC then issued a further avoiding-action turn heading 225°. He took over control, disconnected the auto-pilot, turned right and pitched down, the bank-angle aural warning was ignored. He received a TCAS TA [he never received a TCAS RA]. During the right turn he saw an aircraft in his 1130 position, opposite direction at the same level, approximately 2nm away turning to the right. It was not on the same frequency as him. He then asked ATC for a climb to FL190 direct to CPT, which was approved.

He assessed the risk of collision as 'Medium'.

**THE ATP PILOT** reports operating IFR, in VMC, inbound to Coventry Airport (CVT). The lighting state was not reported; SSR Modes C and S were selected, TCAS was on. Subsequent to initial descent from FL170, he levelled at the cleared level of FL90, routeing inbound to the Honiley (HON) VOR. Simultaneously, the crew noticed traffic 12 o'clock climbing and commencing a right-hand turn. He recollected that the Birmingham Airport (BHX) controller transmitted '[ATP C/S] make immediate right-hand turn onto heading 090 for avoidance'. The right turn was instigated, which was followed by a TCAS RA 5-10 seconds later requiring a descent of 1500-2000fpm. Clear of conflict was generated shortly after descent was commenced. BHX ATC were informed of both the TCAS RA and 'clear of conflict', in accordance with the Standard Operating Procedure (SOP). A subsequent telephone call with the BHX Watch Manager confirmed that the TCAS RA was due to ATC error. The B757 was on London's frequency and had not been turned at the time of the TCAS RA. BHX ATC confirmed they would be filing an Airprox report.

<sup>1</sup> Function of entering altitude, heading, speed, vertical speed (rate of climb/descent) values into the autopilot and auto-thrust/auto-throttle.

**THE BIRMINGHAM AIRPORT (BHX) APPROACH RADAR 1 CONTROLLER** reports that, at approximately 0750, the B757 pilot departed on a Compton (CPT1L) SID from BHX. On passing 3500ft, climbing to 6000ft, he was transferred to the Swanwick Terminal Control (TC) Midlands Sector. The ATP was on his frequency routing direct to HON at FL90. He noted that the aircraft were head-on but were level separated. He monitored the SSR Mode S Selected Flight Level (SFL) of the B757 and confirmed that it remained at 6000ft. When the Short Term Conflict Alert (STCA) 'flashed' he checked the B757's SFL expecting to see it reading FL80. However, the SFL showed FL190. He issued the ATP pilot an avoiding action right turn and telephoned TC but received no answer. The ATP pilot reported that he had received an RA, which was acknowledged. The two aircraft appeared to pass about 1.5nm horizontally and 300ft vertically apart. The ATP's pilot then reported that the RA was resolved and he was returning to FL90 (having descended in response to his RA).

**THE BHX APPROACH RADAR 1 SAFETY CONTROLLER** reports that he was monitoring a colleague who had returned to work after a short period of absence; all of the actions described were undertaken by his colleague. The ATP pilot was inbound to CVT from the south, under its own navigation to HON at FL90, which had been co-ordinated with TC Midlands. The B757's pilot, outbound on a CPT1L SID from RW15, was transferred to TC. STCA appeared on the radar display relative to the two aircraft, which were opposite direction. The initial reaction of both himself and his colleague was that the STCA alert was due to the rate of climb of the outbound, which, in accordance with standing agreements, would normally climb to FL80. However, the B757's SFL confirmed that a climb to FL190 had been given. Having observed the SFL, avoiding action was issued to the ATP pilot, with an immediate right turn heading 090°. A telephone call to TC Midlands was made to assist in the resolution but there was no answer. As the ATP pilot turned onto the avoiding action heading he declared a TCAS RA which was acknowledged. The pilot of the ATP reported his TCAS RA to have been resolved and that he was returning to FL90. After resolution of the conflict, the ATP pilot was given his own navigation again to HON.

**THE TC MIDLANDS CONTROLLER** reports he was operating the Midlands Sector band-boxed, with no aircraft on frequency. He had been told by BHX Approach that the ATP pilot would be holding because CVT was not yet open; therefore, he kept the ATP's Flight Progress Strip (FPS) and moved it to the 'COWLY' bay in case there were any outbounds. When the pilot of the B757 called he was still not working any other aircraft and instructed him to climb to FL190. As a result of human error he forgot about the ATP and did not check his FPS bay for conflicts. When he realised his mistake the aircraft were 5nm apart head-on, with the B757 passing FL72 and the ATP level at FL90. He issued avoiding action to the B757's pilot to turn right heading 215° and to stop climb at FL80. During the pilot's read-back he could hear its TCAS alert in the background. Before he could pass Traffic Information the pilot requested confirmation of his cleared level and heading and asked whether the conflicting traffic was the aircraft now passing down his left-hand side.

## **Factual Background**

The required separation was 5nm horizontally and/or 1000ft vertically because the two aircraft were not under the control of the same controller and the controllers were not co-located.<sup>2</sup>

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<sup>2</sup> If they had been under the control of the same controller, or if the controllers had been collocated, then this would have allowed a minimum lateral separation of 3nm.

## Analysis and Investigation

### CAA ATSI

ATSI had access to reports from the BHX Approach Radar controller, the TC Midlands controller, area radar recordings and transcription of the BHX and Midlands frequencies. ATSI also interviewed the Midlands controller.

At 0738:00 the TC Midlands controller telephoned BHX Approach to ask if they wanted the ATP to route via the Coventry NDB (CT) or HON. The BHX Approach controller replied that Coventry were not open yet and to route the ATP via HON. This was acknowledged by the Midlands controller and he advised BHX that the ATP was released on contact. The ATP pilot was given a routing direct to HON, descent to FL90 and transferred to BHX Approach. The Midlands controller put the ATP's FPS in the COWLY bay to remind him that it was holding.

The ATP pilot contacted BHX Approach and was instructed to continue towards HON, as CVT was still closed. Three minutes later the B757 pilot contacted Birmingham Approach climbing to 6000ft having departed from BHX. He was then transferred to TC Midlands.

After the ATP pilot was transferred to BHX, the Midlands controller transferred one other aircraft to another frequency. He then had no aircraft on frequency for a couple of minutes before the B757 pilot called. At 0750:24 (Figure 1) the Midlands controller instructed the B757 pilot to climb to FL190. The Midlands controller reported picking up the FPS for the B757 from the departure bay, writing 'climb FL190' on it and re-placing it without scanning the rest of the bay.

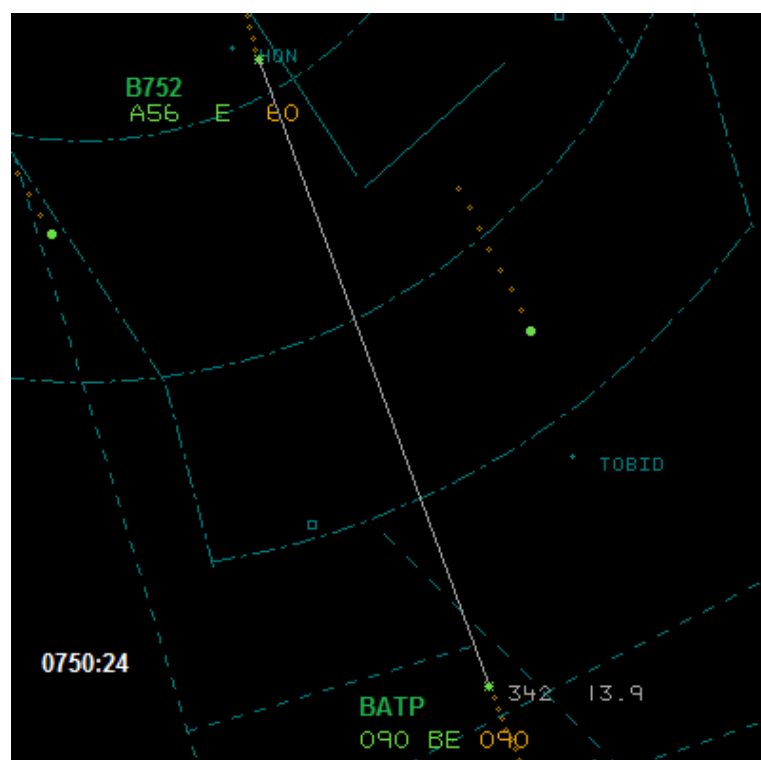


Figure 1

At 0751:18, two seconds before the low level Short Term Conflict Alert (STCA) activated (Figure 2), the Midlands controller saw the conflict and instructed the B757 pilot to stop the climb at FL80 and gave avoiding action to turn right heading 215°. The B757 pilot was climbing at a rate of approximately 3500fpm at the time the instruction was issued. At the same time BHX Approach gave avoiding action to the ATP pilot to turn right heading 090°.

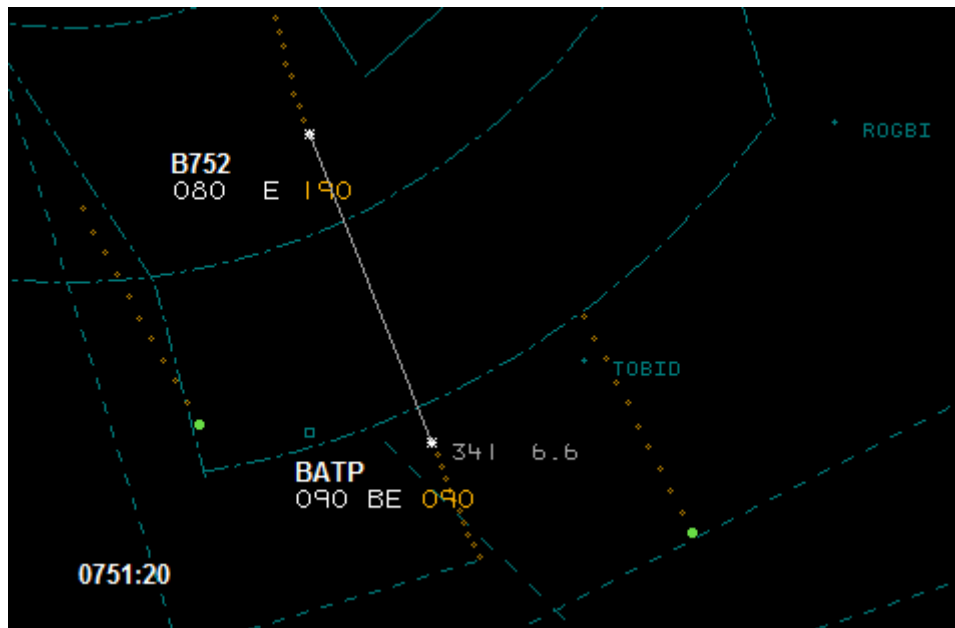


Figure 2

The B757 pilot read back the instruction to stop the climb at FL80, stated that he had contact with the traffic, and asked for the heading again. The Midlands controller gave avoiding action again with a heading of 225°. The pilot of the B757 reported turning onto the heading at 0751:44 (Figure 3), having reached FL93. The Midlands controller instructed the B757 pilot to climb to FL190.

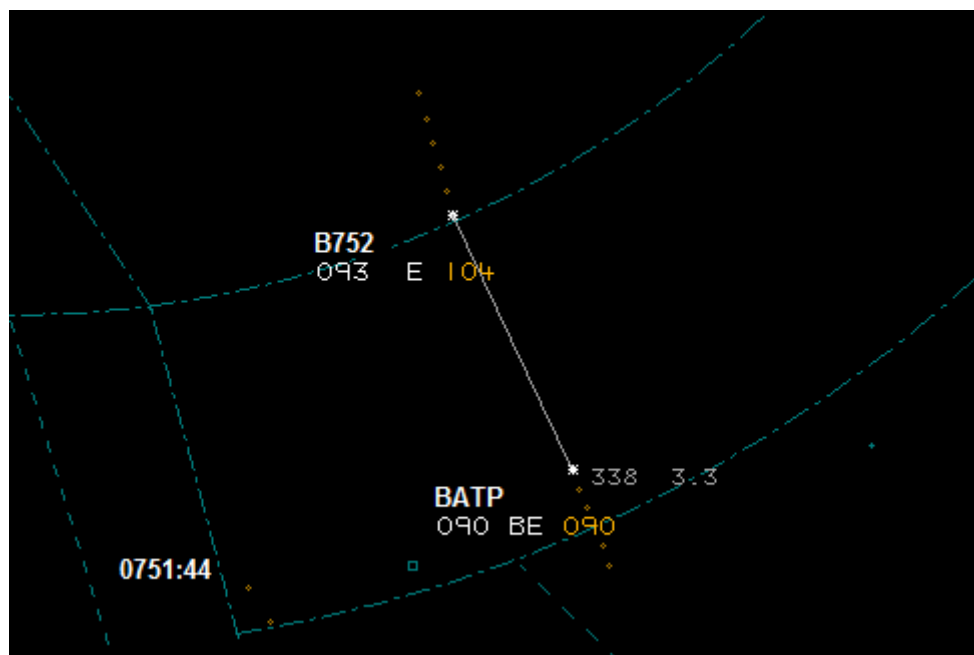


Figure 3.

At 0751:50 the ATP pilot reported a TCAS RA which was acknowledged by BHX.

The two aircraft continued to converge until 0752:03 (Figure 4), when CPA occurred (1.4nm horizontally and 300ft vertically). At the time the B757 was at FL91 and the ATP was at FL88. The ATP pilot subsequently reported clear of conflict.

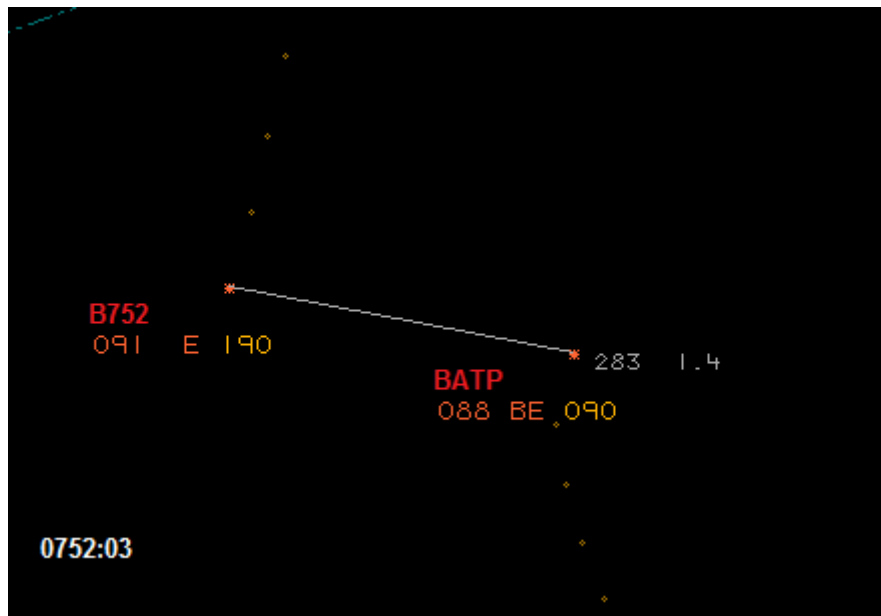


Figure 4.

At interview the TC Midlands controller stated that the sector was extremely quiet. He was not expecting the departing B757 because the sector does not receive a departure telephone call from traffic departing BHX, CVT or East Midlands. Departure FPSs are placed in the 'BB/BE/NX' bay by the assistant but the controller reported that FPSs can sometimes be there for 30-40 minutes before the aircraft take off; departures are normally seen by TC Midlands during part of their routine scan. The Midlands position is somewhat isolated when the position is quiet, and the controller reported that it could be difficult to maintain focus when very quiet. Also, no other TC sector monitors the area around BHX so there is not the same 'back-up' as for other sectors. The Midlands controller could have climbed the B757 pilot to the standard level of FL80 and then taken the time to check the sector as inbound traffic descends to FL90, although aircraft rarely hold for CVT and traffic inbound to CVT would normally have descended below the climb profile of any outbound traffic.

## Summary

The Airprox was reported in Class A airspace of the Daventry CTA by the BHX Radar controller when the TC Midlands controller forgot about the presence of the ATP at FL90 and instructed the B757 pilot to climb through its level whilst the two aircraft were on converging headings. The Midlands controller realised the confliction just before STCA activated. The BHX controller was alerted by STCA and realised the confliction by observing the B757's Mode S SFL. Avoiding action was issued to both aircraft. Only the ATP pilot reported receiving a TCAS RA. The CPA was 300ft vertically and 1.4nm horizontal.

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available included reports from both pilots, transcripts of the relevant RTF frequencies, radar recordings, reports from the controllers concerned and reports from the appropriate ATC and operating authorities.

The Board first considered the actions of the B737 pilot and noted his comments about exceeding the bank-angle aural warning limit during the avoiding turn. Members wondered whether this was a serious issue but Civil Pilot members commented that the pilot had disconnected the auto-pilot and was hand-flying the aircraft into a turn for traffic avoidance. In this sort of situation they considered that the aircraft might easily just go past the requisite bank-angle for a short period, thereby activating the alarm; they confirmed that they were not concerned about the issue and commented that the comfort of the passengers would not have been affected by such a manoeuvre. In addition to the avoiding action turn, the Board noted that ATC had instructed the

aircraft to level at FL80 when just below that altitude but, due to the aircraft's ROC, the pilot was, understandingly, unable to comply because he had already climbed through that level. A Civil Controller advisor wondered if 3500fpm was an excessive ROC but a Civil Controller member, current in Terminal Control (TC), commented that he considered that this was absolutely an appropriate ROC for aircraft in TC airspace because it enabled pilots to expedite any clearance such that the TC controllers could transfer them earlier to their en-route agencies.

Turning to the ATP pilot, the Board considered that he reacted commendably quickly to the ATC avoiding action instructions and had correctly instigated an immediate descent compliant with the TCAS RA instruction. The Board noted that the ATP pilot's TCAS RA had ceased shortly after he descended; members reasoned that this rapid change in flight vector might explain why the B757 pilot had not received a TCAS RA of his own.

The Board also commended the actions of the Birmingham Approach Radar controller after he was prompted that the two aircraft were on conflicting flight paths by the STCA; the value of Mode S display was again highlighted, especially because he would not have been expecting the B757 pilot to have been cleared to climb through the level of the ATP whereas the Mode S indications allowed him to quickly assimilate the situation.

The Board then discussed the actions of the TC Midlands controller. It was quickly apparent that the cause of the Airprox was that he had cleared the B757 pilot to climb through the level occupied by the ATP and the Board commended him for his open, honest and self-critical report. The Board commented that it would be easy to simply determine the who of the cause, but more important to them was why he had forgotten about the ATP and what was the reason. The ATSI advisor explained that when the controller cleared the B757 pilot to climb he lifted its Flight Progress Strip (FPS) out of the display, annotated it with the climb clearance and then placed it back in the display. In doing so, he had not noticed or consciously checked the ATP's FPS, which he had kept in the same bay. The Board noted that the B757 was the only aircraft that the controller was actually physically controlling at the time and members believed that this low workload had probably led to a low 'arousal rate' that affected his concentration on the task. This they considered was a recognised Human Factors issue where, at low levels of arousal, performance level is also low – especially in the early hours of the morning. Notwithstanding, it was recognised that the controller did notice the situation just before the STCA activated, and was able to issue appropriate avoiding action instructions to attempt to recover the situation.

The Board then discussed the degree of risk. Although avoiding action had been taken to prevent a collision, the Board considered that the level of erosion of separation resulted in safety margins being much reduced below the normal within Class A airspace. This was apparent by comparison of the recorded separation of 300ft vertical and/or 1.4nm horizontal against the required separation of 1000ft vertical and/or 5nm horizontal. Consequently, it was decided that the degree of risk should be categorised as B.

### **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: The TC Midlands controller cleared the B757 pilot to climb through the level occupied by the ATP.

Degree of Risk: B.

ERC Score<sup>3</sup>: 50.

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<sup>3</sup> Although the Event Risk Classification (ERC) trial had been formally terminated for future development at the time of the Board, for data continuity and consistency purposes, Director UKAB and the UKAB Secretariat provided a shadow assessment of ERC.