

AIRPROX REPORT No 2011038

Date/Time: 5 May 2011 0935Z

Position: 5334N 00056W (6.5nm
NNE Doncaster/Sheffield
- elev 55ft)

Airspace: Doncaster CTR (Class: D)

Reporter: Doncaster APR

1st Ac 2nd Ac

Type: B737-800

PA28

Operator: CAT

Civ Trg

Alt/FL: 2500ft↓ 800ft↑
QNH (1017mb) QFE

Weather: VMC CLOC VMC CLOC

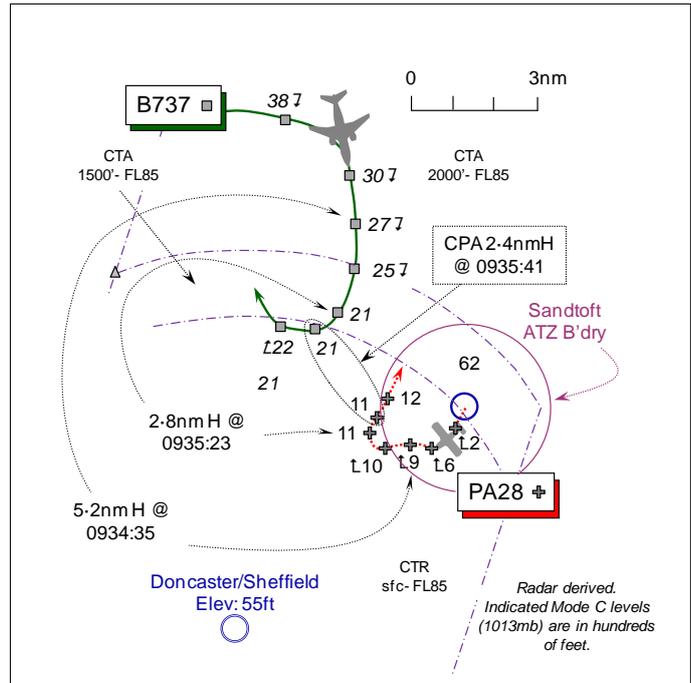
Visibility: 10km 9km

Reported Separation:

APR 1000ftV/4nm H
4nm H Not seen

Recorded Separation:

1000ft V/2.4nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE DONCASTER APR reports that he was vectoring the B737 for an ILS RW20. When it was approaching 8nm on a closing heading of 170° for the ILS an ac was observed squawking A7000 leaving Sandtoft on a SW'ly track. As the B737 reached 8nm and reported LLZ established the A7000 squawk was observed climbing, indicating 1300ft and continuing to route W. As the ac left the Sandtoft ATZ without any indication of a turn he gave avoiding action to the B737 flight of 'turn R heading 360°, climb altitude 2500ft'. Sandtoft were contacted by telephone and they stated that 1 ac was in the visual cct. The pilot of that ac, subsequently identified as the PA28, called on frequency requesting a BS for GH. As it was now identified the B737 was given a closing heading for the ILS and once 'established', was transferred to TOWER. The PA28 pilot was informed of the reporting action taken. Minimum separation was estimated to be 4nm and 1000ft.

THE B737-800 PILOT (B737) reports he was inbound to Doncaster IFR and in receipt of a RCS from Doncaster on 126.225MHz, squawking A6217 with Modes S and C. About 5nm from touchdown on the ILS to RW20 descending through 2500ft QNH (1017mb) at 170kt, avoiding action was requested by Doncaster ATC to avoid a PA28. The AP was disengaged and he thought a L turn, [but actually R], was initiated at 2500ft according to ATC instructions followed by a second approach. The PA28 was not seen but radar separation was given as 4nm as the PA28 penetrated CAS without ATC clearance. No TCAS alerts or warnings were received.

THE PIPER CHEROKEE WARRIOR II (PA28) PILOT, a flying instructor, reports flying a dual training sortie from Sandtoft, VFR and in receipt of an A/G Service from Sandtoft RADIO on 130.425MHz, squawking A7000 with Mode C. The visibility was 9km in VMC and the ac was coloured blue/white; no lighting was mentioned. After departing in crosswind conditions the ac was handled by his student, but he had to take control on initial climbout for the first cct and calm his student owing to the turbulent conditions. By the time the ac was under control in stable flight in the hands of the instructor climbing through 800ft QFE, the initial climb out had become extended leading to a wider cct than normal. The cct height at Sandtoft is 1000ft and the ATZ extends to 2000ft aal. Sandtoft

A/G had no phone call to let them know that an ac was inbound or in the Doncaster cct. He did not see the B737 or any other ac at the time.

ATSI reports that the Airprox occurred at 0935:28, at a position 6nm NNE of Doncaster Airport within the Doncaster Class D CTR. The B737 was inbound to Doncaster, IFR, from Tenerife. The PA28 was operating on a VFR flight from Sandtoft aerodrome.

Sandtoft is positioned 7.5nm to the NE of Doncaster Airport and has an ATZ of a circle 2nm radius centred on RW05/23 and extending from the surface to 2000ft above aerodrome level (elev 13ft). The southwestern part of the ATZ lies within the Doncaster Sheffield CTR (Class D). The upper limit of the ATZ lies partly within Doncaster Sheffield CTAs (bases 1500ft and 2000ft amsl).

The Letter of Agreement between Doncaster and Sandtoft, states:-

3) Pilots of transponding aircraft remaining within the Sandtoft ATZ will be expected to squawk the 'VFR Aerodrome Traffic Pattern' conspicuity code (7010) in accordance with AIC 9/2007.

8) Doncaster Radar will inform Sandtoft via the direct line of all aircraft being vectored for an approach to runway 20. This telephone call should be made at approximately 20DME. Specific mention should be made of all arrivals of 'Heavy' vortex category.

10) Pilots must ensure that they are in receipt of an ATC clearance from Doncaster Radar 126.225 MHz before entering Doncaster Controlled Airspace.'

RW20 was the notified Runway in use.

The applicable Doncaster/Sheffield METAR for 0920Z - 14011KT CAVOK 12/06 Q1020=

At 0929:18, the B737 crew, in receipt of a Radar Control Service, established contact with Doncaster RADAR, in the descent to FL070 with information 'Quebec'. RADAR responded advising that information 'Romeo' was current, QNH 1020mb, with vectoring for the ILS RW20 and No 1 in traffic. The B737 crew was given descent to an altitude of 2500ft, QNH (1020mb) and was then vectored right hand for the ILS approach RW20. At 0933:13, the radar recording shows the B737 positioned 11.8nm N of Doncaster Airport on right base.

At 0930:55, the B737 crew was advised about an aircraft that would be entering the hold at 3500ft, RADAR instructing the B737 crew, "...in the event of a go around not above 2 thousand 5 hundred feet Q-N-H 1-0-2-0....". This was acknowledged correctly by the B737 pilot.

At 0933:33, the B737 crew was given a closing heading for the ILS, "[B737 C/S] turn right heading of 1-7-0 degrees closing from the right report established when established descend with the glidepath." The B737 pilot responded, "Right heading 1 ???? er clear for the ILS [B737 C/S]". At this point the radar recording shows a 7000 squawk [the PA28] appearing 0.5nm to the SSW of Sandtoft airfield tracking SW at low level.

At 0934:40, RADAR passed TI on the unknown traffic, later identified as the PA28, "[B737 C/S] traffic er left 11 o'clock 4 miles er indicating a thousand feet believed to be remaining in the Sandtoft circuit." The B737 pilot replied, "We have on TCAS and we're established...[B737 C/S]....established on the ILS."

At 0934:59, the radar recording shows the PA28 leaving the Sandtoft ATZ on a WSW'ly track towards the Doncaster final approach at FL010 (converts to altitude 1189ft QNH (1020mb), with 1mb equal to 27ft).

At 0935:07, RADAR gave avoiding action to the B737 crew, "[B737 C/S] roger it's now avoiding action turn right heading 1-3 correction right heading 3-6-0 degrees that previously reported traffic still climbing and tracking towards." The B737 pilot responded, "er roger which altitude then right er 2

say again the heading,” The RADAR controller replied, “right 3-6-0 altitude 2 thousand 5 hundred feet.”

The Manual of Air Traffic Control Services (MATS), Part 1, Section 1, Chapter 5, Page13, states:-

‘15.2 The action to be taken by controllers when they observe an unknown aircraft, which they consider to be in unsafe proximity to traffic under their control, in various types of airspace is as follows:

(Class D). If radar derived, or other information, indicates that an aircraft is making an unauthorised penetration of the airspace, is lost, or has experienced radio failure – avoiding action shall be given and traffic information shall be passed.’

Although not a factor in the Airprox, ATSI noted that the radar controller did not use the correct avoiding action phraseology and did not pass the relative position, distance and heading of the PA28 [when it was issued].

MATS Part 1 App. E, Page 11, states:

‘(A/c identity) avoiding action, turn left/right immediately heading (three digits) traffic ([left/right] number) o’clock (distance) miles opposite direction/crossing left to right/right to left (level information).’

At 0935:20, the radar recording shows the PA28, 2.3nm to the SW of Sandtoft, outside the ATZ in a R turn. The distance between the two ac is 3.3nm.

At 0935:28, the B737 crew reported at 2300ft, climbing back to 2500ft QNH and turning R heading 360°. The radar recording shows the distance between the aircraft as 2.8nm, with both ac in a R turn. The B737 is indicating FL021 (ALT 2289ft QNH) and the PA28 is indicating FL011 (ALT 1289ft QNH). The CPA occurs at 0935:41 at a range of 2.4nm with a minimum vertical separation of 1000ft Mode C.

At 0936:31, the PA28 pilot called Doncaster RADAR and apologised. At 0936:35, the radar recording shows the PA28 leaving the Doncaster CTR. Thereafter, the B737 was vectored for the ILS without further incident.

The PA28 pilot’s written report indicates that a student was flying the ac, under the supervision of an instructor, in turbulent conditions with a crosswind. This resulted in a wider than normal cct. The pilot also commented that no call had been received by Sandtoft RADIO A/G Station regarding the inbound B737. Doncaster ATSU indicated that a call was made in accordance with the LoA. It was not possible to verify the phone conversations that occurred. The PA28 pilot required a clearance to enter the Doncaster Class D airspace before leaving the Sandtoft ATZ to the SW.

As the B737 turned onto the ILS for RW20, RADAR observed unknown traffic - the PA28 - in the vicinity of Sandtoft aerodrome. The controller considered it likely that the unknown traffic - the PA28 - was operating in the Sandtoft circuit and passed TI to the B737 crew. When it became clear that the unknown traffic - the PA28 - was leaving the Sandtoft ATZ on a WSW’ly track, the controller became concerned and gave avoiding action to the B737 crew in order to resolve the conflict.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequency, radar video recordings, reports from the air traffic controller involved and from the appropriate ATC authority.

In the absence of a landline transcript, it was not possible to resolve independently whether the Sandtoft A/G Operator was informed of the B737 inbound to Doncaster beforehand or, conversely, whether Sandtoft advised Doncaster about the circuiting PA28. However, it was plain that the PA28 pilot had not selected the appropriate squawk for an ac remaining within the Sandtoft A/D circuit in accordance with the LOA. Whether the PA28 pilot was intending to continue the flight outwith the ATZ, clear of CAS, had not been revealed by the PA28 pilot but the A7000 squawk might have been why the APR was perhaps paying close attention to the flight when the PA28 approached the ATZ/CTR boundary.

The PA28 instructor reports he had to take control of his aeroplane, in what were challenging wind conditions for his student. However, the radar recording clearly showed that the PA28 had entered the Doncaster CTR during his Crosswind to Downwind turn. The Board was surprised that the PA28 pilot had not seen the B737 at all. Nevertheless, it was evident that the PA28 pilot's excursion outwith the ATZ was quickly detected on radar by the alert APR who watched it carefully whilst keeping the B737 crew apprised through the transmission of TI. The crew also had the PA28 displayed on their TCAS but it was evident that the controller took positive action at an appropriate stage before TCAS was called upon to act. The Board agreed that the B737 crew had little impact on this Airprox other than that they had complied promptly with the avoiding action instructions issued by the Doncaster APR. Controller Members recognised that the APR had acted correctly and the radar recording reflects that the APR passed these instructions to the B737 crew, turning their ac off the LLZ and back into the pattern, moments after he observed the PA28 penetrating the Class D Doncaster CTR. The Members agreed unanimously that the Cause of this Airprox was that the PA28 pilot entered controlled airspace without clearance and into conflict with the B737 established on the ILS. Furthermore, the APR's prompt action ensured that separation of 1000ft and 2.4nm was preserved, thereby removing entirely any Risk of a collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The PA28 pilot entered controlled airspace without clearance and into conflict with the B737 established on the ILS.

Degree of Risk: C.