

AIRPROX REPORT No 2014077

Date/Time: 3 Jun 2014 1638Z

Position: 5101N 00301W
(15nm E MULIT)

Airspace: LON FIR (Class: G)

Aircraft 1 Aircraft 2

Type: DA42 Tornado

Operator: Civ Trg HQ Air (Ops)

Alt/FL: FL70 FL65

Conditions: VMC IMC

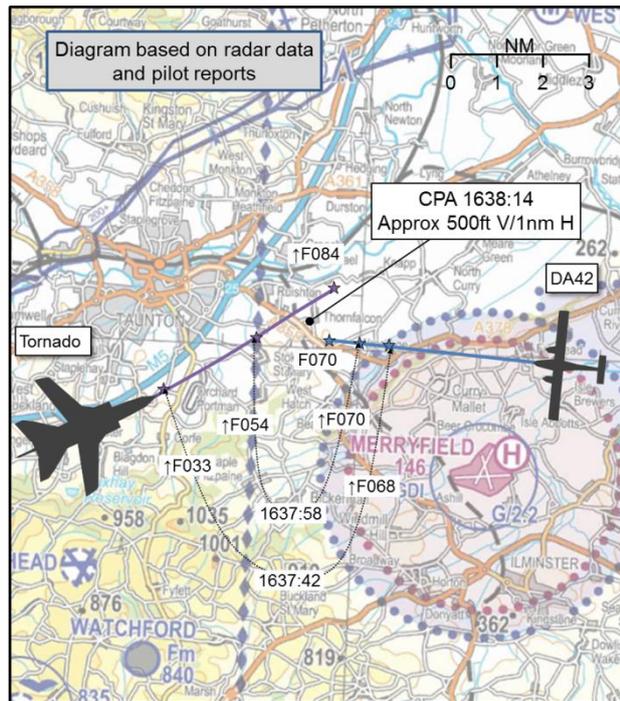
Visibility: >10k 0.5k

Reported Separation:

0ft V/0.5nm H NK

Recorded Separation:

500ft V/1nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE DA42 PILOT reports flying a white and blue aircraft with all lights illuminated and SSR transponder on with Modes 3A, C and S selected. The aircraft was not fitted with a TCAS. He was conducting an IR (Instrument rating) training flight and receiving a Traffic Service from Exeter approach. Exeter gave Traffic Information on traffic in his 1130 position, fast-moving, below his level but climbing; he reported that the ATCO had a note of concern in his voice so he knew the aircraft was a "threat". Shortly afterwards the controller called the traffic again, this time in the 12 o'clock position with a high rate of climb, again said with urgency. He saw the Tornado at the same level in his 1230 position, climbing and fast-moving, he reported visual to the controller and commented that it was close. He did not see the Tornado until it passed through his level because he was above a layer of cloud and the other aircraft came up from under his nose. From the first report until he saw the aircraft there was very little time to react, not even enough to request and respond to a Deconfliction Service. The pilot opined that routing to MULIT is a very common route used for IR training for a lot of flying schools in the area.

He assessed the risk of collision as 'Medium'.

THE TORNADO PILOT reports flying a grey aircraft with all lights and strobes illuminated. His transponder was on with SSR Modes 3A and C selected, but the aircraft was not fitted with TCAS. On commencing climb-out from LFA 2, the crew contacted Swanwick(Mil) for a radar service for transit back to base. Upon receiving a Traffic Service on passing 2000ft, a climb was commenced with the knowledge of traffic 6nm in the 2 o'clock position at FL65, he briefly levelled off whilst still VMC at FL55 because of the Traffic Information, the traffic was called again at 1 o'clock, 3nm, so the climb was continued IMC through broken cloud to above FL70. He didn't see the conflicting traffic.

He assessed the risk of collision as 'Low'.

THE EXETER CONTROLLER reports that he was providing a Traffic Service to the DA42 and observed a high-speed, unknown contact squawking 7001, routing north-east bound and climbing quickly. The unknown contact squawked ident and changed the squawk to one recognised as in use by Swanwick(Mil). He passed Traffic Information to the DA42 pilot twice, after the second time the pilot reported "visual, that was quite close".

THE SWANWICK(MIL) CONTROLLER reports that he was not informed about the Airprox until 2 months after the event. He recalls that the Tornado free-called approximately 15nm west of Yeovilton requesting a climb for the Swindon/Wescott corridor. He saw a conflicting aircraft at FL60 close to a contact that he believed to be the Tornado, and called the traffic prior to identifying and getting full intentions from the Tornado. The Tornado pilot acknowledged the Traffic Information and continued his climb under his own navigation. After identifying the Tornado and placing it under a Traffic Service, the controller again called the conflicting traffic. He recalls that the rate of climb indicated on the Mode C slowed initially, then dropped out with the Mode C readout going from FL55 to FL85 very quickly as the Tornado obviously “drastically increased” his rate of climb. The controller recalled that the track of the two aircraft was always going to give some lateral separation and, given that the weather conditions were good, he hadn’t felt that it was necessary to restrict the climb of the Tornado.

THE SWANWICK(MIL) SUPERVISOR reports that he was also not informed of the Airprox until two months after the event and therefore has no recollection of the traffic situation or workload at the time.

Factual Background

The weather at Exeter was reported as:

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EGTE 031620Z 18008KT 9999 FEW007 SCT025 14/11 Q1011
EGTE 031650Z 18005KT 140V210 9999 8000W SHRA FEW007 SCT025 14/11 Q1011
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Analysis and Investigation

CAA ATSI

ATSI had access to reports from the Exeter radar controller and the pilots of the DA42 and GR4, area radar recordings and RTF and transcript of the Exeter Radar frequency.

At 1633:20, the DA42 contacted Exeter Radar maintaining FL65. The DA42 was given a squawk, identified and a Traffic Service was agreed. The DA42 requested an NDB hold and approach for RW26 at Exeter, and to enter controlled airspace at MULIT at FL70. The Exeter Radar controller co-ordinated with Cardiff, and the DA42 was cleared to enter controlled airspace at FL70. The Exeter Radar controller passed missed-approach instructions to the DA42. The conversation finished at 1636:50, at which point the Tornado was 12.3nm west-southwest of the DA42, squawking 7001 on a converging heading (Figure 1) at FL022.

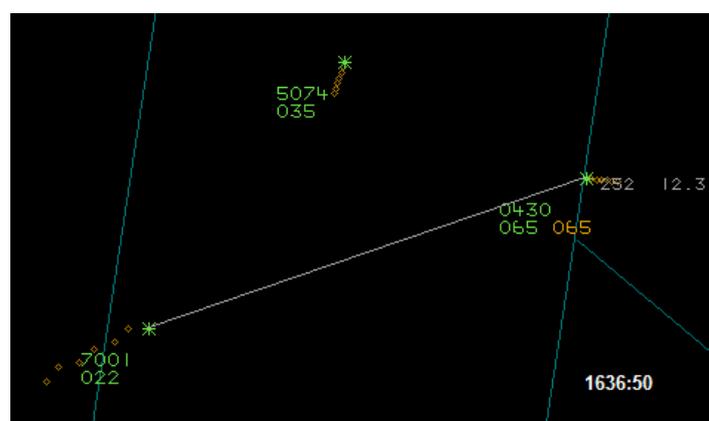


Figure 1.

The Tornado maintained its level, and changed the squawk to 3331 (Swanwick Military). At 1637:39 the Tornado was observed to climb and the Mode C changed from FL022 to FL029. At 1637:53 the Exeter Radar controller informed the DA42 of “*unknown traffic eleven o’clock three miles crossing left to right indicating flight level four five in the climb*” (Figure 2) which was acknowledged by the DA42.



Figure 2.

The next 6 updates of the radar showed the two aircraft converging (Figures 3 – 8) with CPA occurring at 1638:11. The Exeter radar controller immediately updated the traffic information, stating that the traffic was “*very high speed now just passing through your twelve o'clock range of two miles flight level five four*”. The DA42 replied “*visual yeah it’s quite close*”.

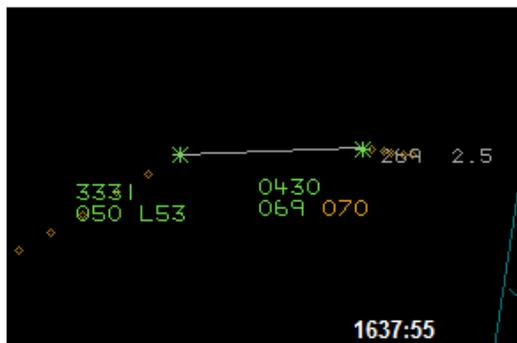


Figure 3.



Figure 4.

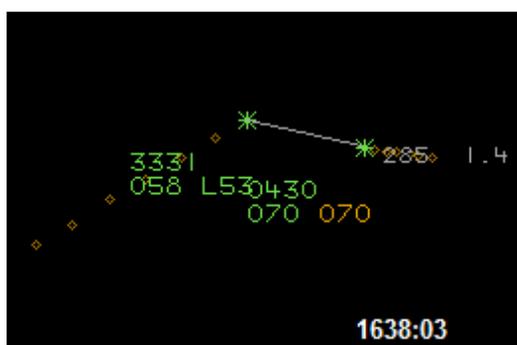


Figure 5.

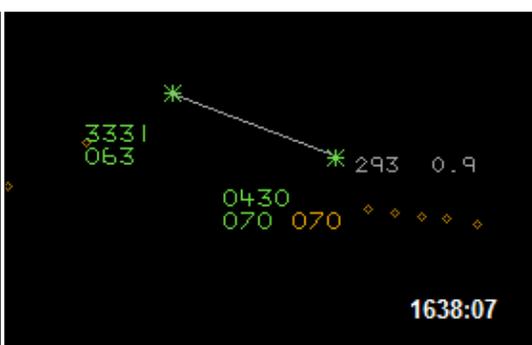


Figure 6.



Figure 7.



Figure 8.

At 1638:50 the DA42 reported that they would be filing an Airprox. The written report from the DA42 stated that they saw the Tornado at the same level in their 1230, it was climbing at a high rate and fast-moving. The DA42 pilot reported that they did not see the Tornado until it passed through their level as they were above a layer of cloud and the aircraft came from under their nose. The written report from the pilot of the Tornado stated that they contacted Swanwick Mil for a radar service to recover to base from Low Flying Area 2. Upon receiving a traffic service at 2000ft agl, the climb was commenced with awareness of traffic 6nm away in their 2 o'clock position at FL65. The aircraft briefly levelled off at FL55 whilst VMC due to the traffic. The traffic was called 1 o'clock 3nm so the climb was continued to above FL70. The written report from the Exeter radar controller stated that after observing a high-speed unknown contact routing northeast bound the controller passed traffic information to the DA42 twice, and the pilot of the DA42 reported that he was visual and that the traffic was quite close.

The DA42 was in receipt of a Traffic Service from Exeter Radar. When it became apparent that the Tornado was climbing the Exeter Radar controller passed traffic information on the Tornado to the DA42 and updated it in quick succession. Both pilots were ultimately responsible for their own collision avoidance.

Military ATM

The Tornado pilot was climbing from a low-level sortie to recover via the Swindon/Westcott Radar Corridors (RC). The crew were flying under broken cloud at 5500ft. Upon receiving the Traffic Service, traffic was called as 2 o'clock at 6nm at FL65 and the captain briefly levelled off at FL55. When the traffic was updated as 1 o'clock at 3nm, the climb was re-commenced to pass through the level of the DA42.

The Swanwick(Mil) controller recalled the free-call from low-level and noticed an aircraft climbing quickly in the reported area; a conflicting aircraft was also spotted routing westbound at approximately FL60 at a range of around 12nms. Traffic was called prior to identification of the Tornado, and the pilot acknowledged the traffic while climbing under his own navigation. The Tornado was identified and an update of traffic was called; the Tornado's rate of climb slowed but the Mode C disappeared as a higher rate of climb was initiated, and the Mode C went from FL55 to FL85. From the respective routings, the controller considered there to be lateral separation and a stop climb was not suggested to the Tornado pilot. From the Met conditions and the pilot's tone, the controller felt that the Tornado crew were content with the situation.

At 1636:47, the Tornado free-called 30nm west of Yeovilton climbing for the Swindon corridor. Prior to identification the controller ascertained that the crew required a Traffic Service.

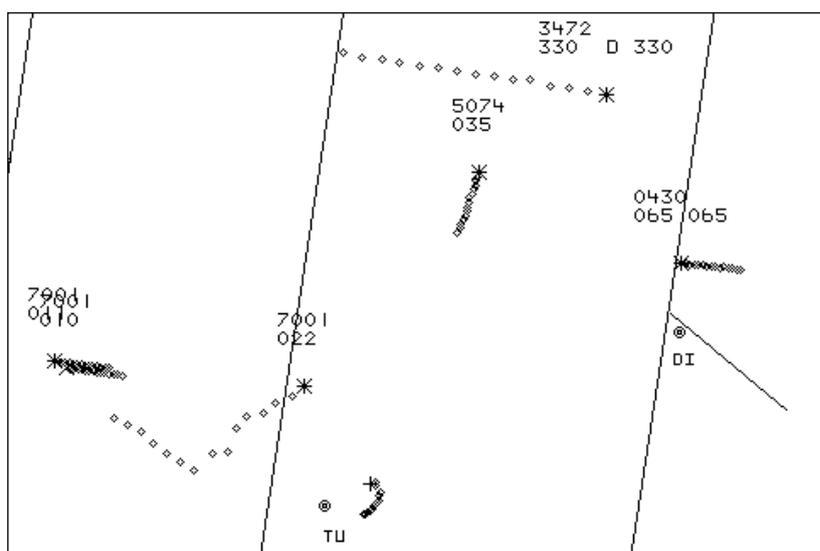


Figure 1: Geometry as Tornado freecalled (Tornado squawk 7001; DA42 squawk 0430)

At 1637:09, the controller transmitted, “*traffic believed to be you, has traffic right 1 o’clock, 5 miles, crossing right to left, slow moving, indicating FL65, type unknown.*” The Tornado crew confirmed that they were looking for the traffic.

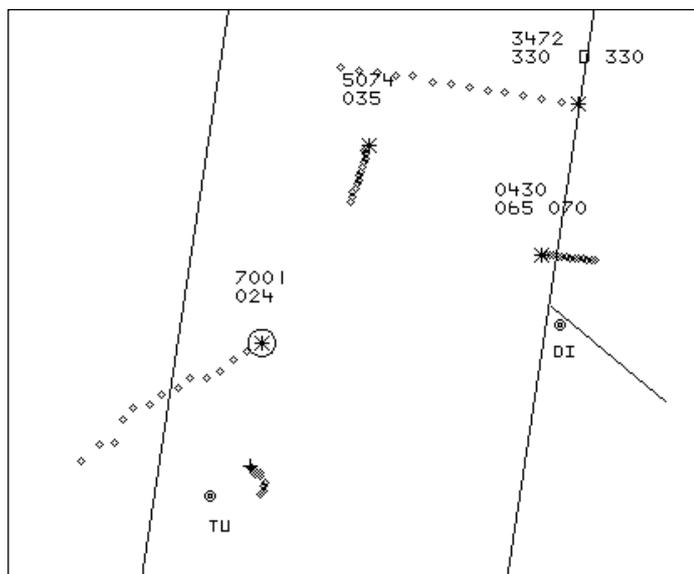


Figure 2: Traffic Information at 1637:09.

At 1637:37 the controller transmitted, as per Figure 3, “[Tornado callsign] *identified, traffic service [couple of clipped words] possible as you operate below my minimum safe altitude, previously called traffic, right 1 o’clock, 3 miles, crossing right to left, indicating FL68.*”

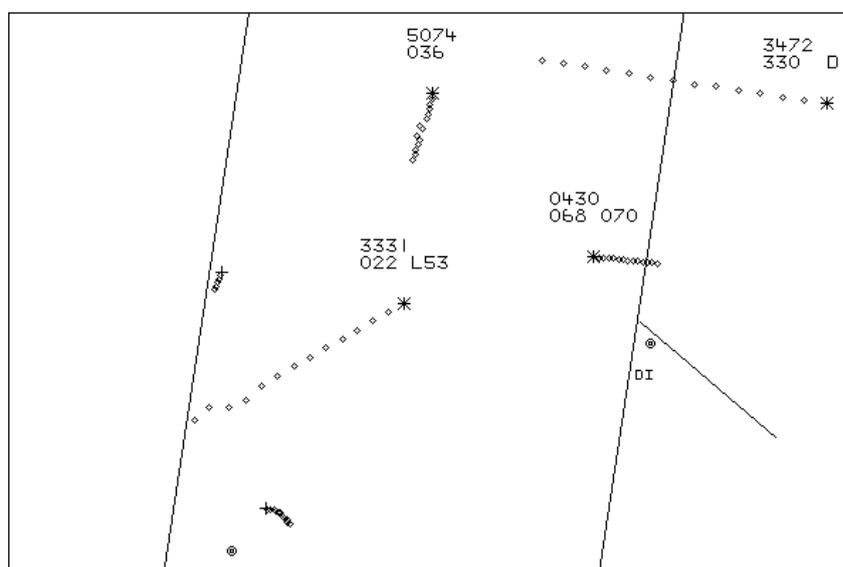


Figure 3: Traffic Information at 1637:37 (Tornado squawk 3331).

At 1637:56, the Tornado pilot replied with, “*Copy traffic, traffic service, [Tornado callsign] climbing for Swindon Westcott corridor.*”

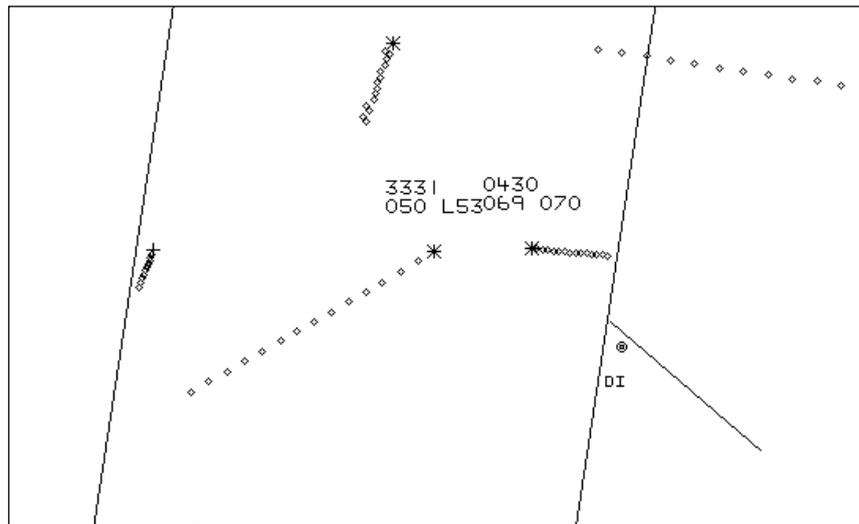


Figure 4: Geometry at 1637:56.

The radar replay at 1638:06 showed 1nm separation between aircraft, as per Figure 5. The DA42 had climbed from FL65 to FL70. The Tornado was climbing for the Swindon RVC at FL 230.

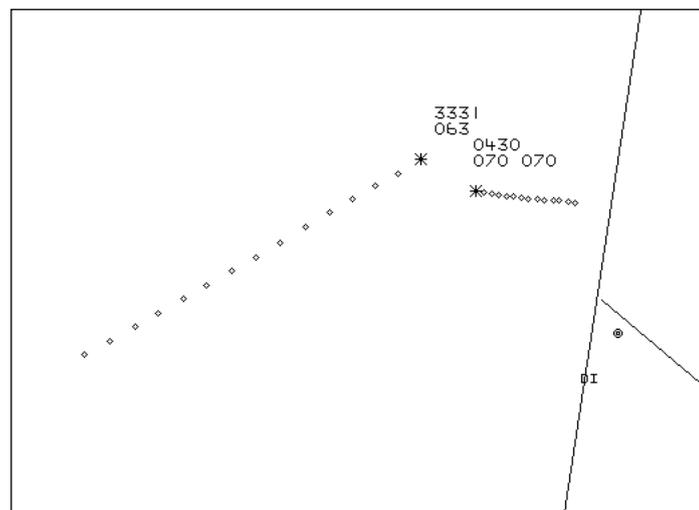


Figure 5: Geometry at 1638:06.

The CPA was placed between 1638:06 with 400ft height separation and 1nm lateral separation, as per Figure 5, and 1638:14 with 0.9nm with 600 ft separation, as per Figure 6.

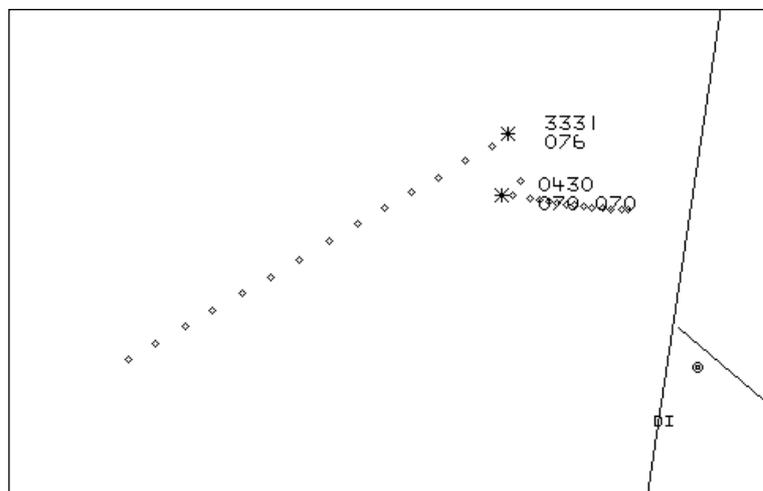


Figure 6: CPA at 1638:14.

Both aircraft were under a Traffic Service and information was provided by both controllers. Neither aircraft were fitted with an ACAS. Pilot lookout and radar-derived Traffic Information were the key barriers to this Airprox. The controllers passed accurate information including early information on traffic 'not yet identified' by Swanwick(Mil). In the case of the Swanwick(Mil) controller, a stop climb instruction was not suggested to the Tornado because it was judged that lateral separation existed and a risk of collision was not knowingly being introduced by the continuous climb. Due to the layer of cloud, lookout for both crews was hampered and this brings into question the type of service requested. The Tornado pilot considered maintaining FL55 but decided that an increased rate of climb would build in height separation, based on the Traffic Information.

UKAB Secretariat

Both pilots shared an equal responsibility to avoid a collision and not to fly into such proximity as to create a danger of collision.¹ The geometry is considered to be converging so the Tornado pilot was required to give way to the DA42²

Comments

HQ Air Command

The decision by the Tornado captain to climb through the height of known traffic is questionable, especially given the relatively close proximity of that traffic and the fact that it wasn't sighted. The Tornado crew have been open and honest with their reporting, and have subsequently briefed the lessons from this event to other members of the Tornado community.

Summary

An Airprox was reported at 1638 on 3rd June 2014 in Class G airspace, between a DA42 receiving a Traffic Service from Exeter, and a Tornado on climb-out from low-flying, receiving a Traffic Service from Swanwick(Mil). Both aircraft received Traffic Information, the DA42 pilot saw the Tornado but the Tornado pilot did not see the DA42.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both aircraft, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

The Board first looked at the actions of the DA42 pilot, he received good traffic information from the Exeter controller and this enabled him to focus his lookout in the right direction. Given his IR training task, some members of the Board thought that he would have perhaps been better served by arranging a Deconfliction Service, which would have enabled him to receive avoiding action when the controller first sighted the confliction.

Turning to the Tornado pilot, the Board noted that even having been given accurate traffic information, the crew still chose to continue the climb and not level off beneath the DA42. In examining why, the Board opined that it was a fine decision as to whether to have levelled off and waited to pass underneath the DA42 or to zoom-climb through the broken cloud given that the TI had indicated that it was 3nm away. On balance, and noting the likely closure rates and head-on aspect, the Board felt that it would have been wiser to treat the TI ranges with a degree of circumspection and wait until the aircraft had passed each other before conducting the climb. Such a course of action would have required a delay in the climb of less than 30secs and this was probably

¹ Rules of the Air 2007 (as amended), Rule 8 (avoiding Aerial Collisions).

² Ibid., Rule 9 (Converging).

insignificant to the Tornado crew. Again, the Board reflected on the value of a Deconfliction Service as the Tornado crew climbed out of low-level and towards the broken cloud layer, but they acknowledged that by the time this had been arranged the Tornado would probably have already passed through the cloud layer and achieved VMC above. Nevertheless, they commented that caution needed to be exercised by aircraft commanders when deciding the level of ATS they required and the risks associated with passing through cloud layers no matter how thin or broken.

In considering the actions of the two controllers involved, the Board agreed that both gave timely and accurate traffic information to their respective aircraft, and the Swanwick controller was particularly commended for passing useful traffic information to the Tornado before it was formally identified.

In summarising the event, the Board determined the cause of the Airprox to be that the Tornado pilot had climbed into conflict with the DA42; they assessed the risk category as B; safety margins had been reduced much below the normal.

PART C: ASSESSMENT OF CAUSE AND RISK

<u>Cause:</u>	The Tornado pilot climbed into conflict with the DA42.
<u>Degree of Risk:</u>	B.
<u>ERC Score</u> ³ :	20.

³ 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.