

AIRPROX REPORT No 2011117

Date/Time: 1 Sep 2011 1221Z

Position: 5100N 00221W
(1nm N Henstridge)

Airspace: Lon FIR/ (Class: G)
Boscombe Down ARA

Reporting Ac Reported Ac

Type: Alpha Jet DA42 Twinstar

Operator: AWC Civ Trg

Alt/FL: NK FL65
NK SPS

Weather: VMC CLAC VMC

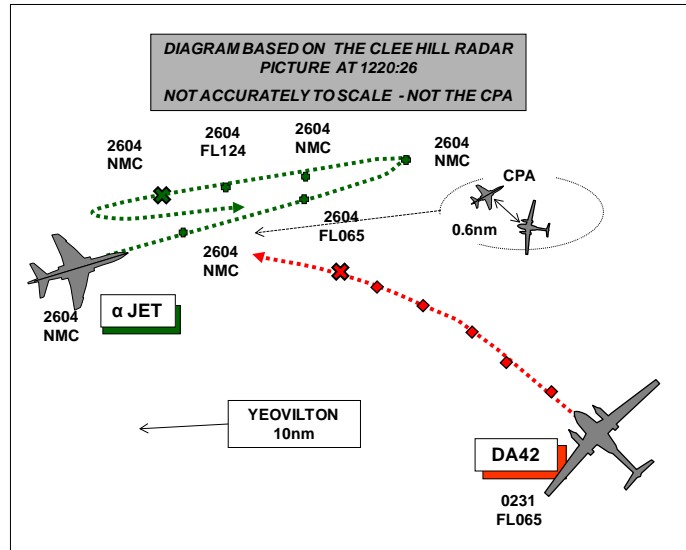
Visibility: 10km >10km

Reported Separation:

0 V/ ½nm H 0 V/1500m H

Recorded Separation:

NR V/0.6nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE ALPHA JET PILOT reports flying a local GH sortie with a student Flight Test Engineer (FTE) in the rear seat in a black and white ac with all external lights switched on. They were squawking as directed with Modes C and S and were in receipt of a TS from Boscombe RAD but a CWS was not fitted. While heading 090° just after completing a Vertical 8 manoeuvre, the FTE informed him of a white Diamond Twinstar light ac passing right abeam, co-altitude, about ½nm away. The time was noted and ATC was asked about the presence of other traffic; ATC reported the Diamond Twinstar was 6nm away despite the incident happening only 10-15sec prior to the request (time estimated by the crew).

Assessing the risk as being high due to the dynamic manoeuvre being flown, the crossing angle and relative speed when they saw the other ac precluded any avoiding action; they reported the incident to ATC by telephone on landing.

THE DA42 TWINSTAR EXAMINER reports that the candidate was flying an instrument rating test from the right hand seat under IFR using an 'exam' callsign in a white ac with blue trim and was squawking with Modes C and S while in receipt of a TS from Yeovil Radar (located at Yeovilton); the candidate's external view was restricted by IF screens.

While they were heading 280°, cruising at 140kt, Yeovil Radar advised them of traffic to the SW but he was initially unable to locate it. Shortly after a small military jet trainer was seen about 1500m away, directly ahead of them passing through their level in a near vertical climb. He was unable to take any avoidance as the ac was first seen passing through their level diverging in the climb

THE BOSCOMBE DOWN RADAR CONTROLLER (RAD) reports that the workload was light with only one speaking unit on frequency, the Alpha Jet, and a quiet general traffic picture. The Alpha Jet was conducting GH in receipt of a TS about 20nm W of Boscombe.

The Alpha Jet pilot asked if there was any traffic in his area and he informed him of traffic 6nm away which appeared not to be a factor; no other contacts were seen anywhere closer to the ac. At the time of the request nothing was seen on the screen that could be interpreted as conflicting traffic.

THE YEovil RADAR CONTROLLER DSATCO commented that although the unit was informed of the incident well after the event, he later spoke to the Supervisor who investigated it. Due to the delay in their receiving the report, the tapes were not impounded and were returned to service as part of the normal cycle.

Looking at the details reported, it appears that the correct TI was provided by Yeovil Radar iaw the provisions of a TS. Had the incident been reported by the pilot on the RT (or at least on landing), they would have initiated the correct steps regarding investigation and compilation of relevant evidence (tape transcripts etc).

UKAB Note (1): It was initially thought that the DA42 was in receipt of a service from Yeovil (Westlands) who were requested to impound their RT tapes. When this was done it became apparent that the DA42 was not in receipt of a service from them and was in receipt of a service from Yeovilton (Yeovil Radar). By then however, the Yeovilton RT tapes had been returned to service and detailed reports were not available.

BM SAFETY MANAGEMENT reports that this Airprox occurred between a DA42 Twinstar operating IFR in receipt of a TS from Yeovil Radar and an Alpha Jet in receipt of a TS from Boscombe RAD while conducting GH under VFR to the N of Henstridge. RAD assessed their workload and task complexity as low, with only the Alpha Jet on freq throughout the incident sequence.

At 1218:05, RAD passed TI to the Alpha Jet on the DA42 stating, *'traffic east-south-east seven miles, tracking north-west, flight level six five'* which was acknowledged by the Alpha Jet pilot; the radar replay however, commences 36sec later at 1218:41, at which time the lateral separation was 8.9nm. (By extrapolation the separation at the point that TI was passed would have been about 10.1nm.)

Through analysis of the radar replay it has been possible to determine that the Alpha Jet was conducting a series of vertical manoeuvres throughout the incident sequence, leading to the vertical 8 immediately prior to the Airprox. As a result of the manoeuvring, the Alpha Jet's Mode C is intermittent throughout the sequence.

At 1219:19 the Alpha Jet steadied on a track of 075° indicating FL100, with the DA42 6.3nm ESE, tracking NW and indicating FL065. At 1219:43 the Alpha Jet levelled at FL065 with the DA42 3.1nm SE and at 1219:55 the Alpha Jet passed through the DA42's 12 o'clock 1.7nm away. At 1219:59 the Alpha Jet's track on radar appeared to jink right and the ac commenced a climb, indicating FL071; at 1220:03 the Mode C dropped out and its lateral movement on radar reduced, suggesting that the ac had increased its RoC/RoD. At that point RAD updated the TI to the Alpha Jet stating, *'previously called traffic now south, one mile, tracking north-west, flight level six five'* which was acknowledged by the pilot.

CAP 774 states that controllers "shall update...traffic information if it [the ac] continues to constitute a definite hazard, or if requested by the pilot".

The Alpha Jet continued to manoeuvre with its track maintaining between 0.8nm and 1.2nm lateral separation to the N of the DA42's track at varying levels; however, the SSR Mode C remained intermittent throughout. Having initially maintained a NW'y track with a steady RoD, at 1221:08 the Alpha Jet's SSR Mode C again dropped out and the ac began to track SE. At that point, the DA42 was 1nm to the SE, maintaining its track and flight level.

The [second] CPA occurred at 1221:15 with 0.5nm lateral separation between the ac. Whilst it has not been possible to determine from the radar replay what vertical separation existed at the CPA, the Alpha Jet pilot reports that they were co-altitude with the DA42. Moreover, his report suggests that their first sighting of the DA42 was as it passed right abeam their ac, displaced by 0.5nm and this was subsequently confirmed in a telephone conversation with the Alpha Jet pilot.

The DA42 pilot reports being passed TI on the Alpha Jet to the SW but initially being unable to see it and that shortly after a small military jet trainer passed directly ahead of them about 1500m away in a near vertical climb. As the radar replay started at 1218:41, the Alpha Jet was tracking from a position to the WSW of the DA42; consequently, given that the Alpha Jet remained N of the DA42 throughout the remainder of the incident sequence, it is possible that this was when the DA42 received the TI. Through analysis of the radar replay, it is likely that the near vertical climb manoeuvre described by the DA42 pilot occurred at 1219.54. The DA42 pilot makes no mention of seeing the Alpha Jet again [it was by then behind him] so it is likely that he considered this event to be the reported Airprox.

At 1222:00, the Alpha Jet pilot asked RAD whether there was *“any traffic within now 5 miles of our position?”* and RAD responded that there was *“traffic north-west three mile, tracking north-west, flight level six five [the DA42] and there is er intermittent contacts south-west of you four miles, manoeuvring, no height information”* which was acknowledged by the Alpha Jet pilot. In the subsequent telephone conversation the pilot stated that the crew do not recall receiving TI on the DA42 from RAD.

From an ATM perspective, RAD provided TI iaw CAP 774 and that TI was acknowledged by the Alpha Jet pilot. Given RAD's low workload, while it could be considered good practice for them to have provided an additional update of the TI prior to 1220:03, until the Alpha Jet's manoeuvre at 1219:59, the DA42 did not constitute a continued definite hazard to the Alpha Jet and the pilot did not request an update. Moreover, given the continued proximity of the ac and the generally consistent lateral geometry from 1220:03 to 1221:15, it is reasonable to suggest that there was limited utility in RAD passing updated TI on the DA42 after 1220:03. Given the question posed to RAD by the Alpha Jet pilot at 1222:00 and the subsequent telephone conversation, it appears that although they acknowledged the TI at 1218:05 and 1220:03, they did not assimilate that information.

Given the description of the timing of the Alpha Jet's first sighting of the DA42, that the DA42 probably did not have sight of the Alpha Jet after 1222:00, that the Alpha Jet pilot did not assimilate the TI passed and that neither ac was fitted with a CWS, it is reasonable to suggest that the ac were separated by good fortune alone adding further weight to the argument for a CWS that is interoperable with all ac types operating in Class G airspace.

The Airprox occurred as a result of a breakdown of 'see and avoid' procedures by both pilots; a contributory factor was that the Alpha Jet pilot did not of assimilate (or hear) the TI passed to him.

HQ NAVY CMD comments that an Airprox should be reported to all control agencies concerned so that the correct steps can be taken to investigate. In this instance it is somewhat surprising that Boscombe Down ATC did not contact Yeovilton ATC in order to inform them of the Airprox that had been declared.

HQ AIR (OPS) comments that whilst the Alpha Jet pilot reports not hearing the TI on the DA42, the FTE may have as he gained 'tally' first. The TI came at a point where the pilot would already have been committed to his vertical manoeuvre and would have had reduced lookout capacity. The Alpha Jet's dynamic profile would always make the assessment of a 'definite hazard' difficult so a more relaxed JSP774 criteria might be more appropriate in such cases. Indeed, an 'update on any traffic within xnm' might be appropriate in these kinds of scenarios or exercises. The alternative is for the crew to request an update before every manoeuvre.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, a transcript of the Boscombe Down RT frequency, radar recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

Members were briefed on the reasons for the delay in requesting information from Yeovilton that resulted in less comprehensive reporting than they would have wished.

It was also pointed out to the Board that due to the high-energy vertical manoeuvring by the Alpha Jet causing a paucity of Mode C information, the exact geometry of the incident could not be determined accurately, particularly the relative positions of the ac when the respective pilots first saw the opposing ac. It was clear however, from the radar and the pilots' reports that the Alpha Jet was performing a vertical eight manoeuvre topping at about FL125 and at some time during that manoeuvre the ac was co-alt with the DA42. It was not clear however, whether this was at the CPA (H); when the ac were co-alt they could have been separated by significantly more than the 0.6nm recorded above. It was also thought likely that the ac were co-alt for a second time when the Alpha Jet descended behind the DA42 passing through its level as the ac were diverging.

The HQ Air Advisor, on noting the BM SM report, opined that although the transcript showed that the Boscombe Controller had passed TI regarding the DA42 to the Alpha Jet pilot twice, the pilot had either not heard it or not assimilated it. He was in a busy situation conducting aerobatics and Members (although not familiar with the Alpha-Jet) thought it possible, but unlikely, that the radio antenna was 'shielded'; it was more likely, they thought, that during the busy period he did not assimilate its significance and this view was substantiated by the pilot apparently (the RT transcript is not definitive) acknowledging the TI on both occasions. A military controller Member suggested that given the controller's low work-load, and knowing the Alpha Jet was performing aerobatics in a specified 'block', although not strictly required to do so, the Boscombe controller could have been more pro-active in highlighting the DA42 to the Alpha Jet pilot; the RT transcript however, shows several significant interchanges in the lead up to the event in addition to those reported by BM SM.

The DA42 was operating under a TS; the Board discussed whether its pilot should have requested a DS. Although there was no Yeovilton transcript to verify that this was not done, one pilot Member thought that, bearing in mind that the DA42 was flying through a congested area and that the examiner had divided responsibilities reducing his ability to look out, the DA42 pilot/crew should have considered requesting a DS from Yeovil Radar. Another observed that pilots often request a TS believing that this will allow them 'tactical freedom' to select a routeing suited to their exercise; a controller observed however, that even when operating under a DS, pilots are at liberty to reject ATC deconfliction vectors if they wish. Another controller observed that a DS can be requested even for relatively short periods when conflicts are known to exist. All Members agreed however, that a DS would have provided a greater degree of protection to the DA42.

A pilot Member opined that although neither pilot requested assistance from their respective agencies, had the controllers looked at the 'big picture' they could have taken action to prevent the conflict. Again although there was no transcript to verify that it was not done, a controller Member opined that on seeing a Boscombe or Yeovil squawk good practice would have been for the respective controllers to contact each other with a view to 'co-ordinating out' the conflict that would have been apparent to both.

Following discussion Members agreed that the prime cause of the incident was a sighting issue. It was agreed that the DA42 pilot had seen the Alpha Jet as early as the latter's high-energy manoeuvring permitted. The Alpha Jet pilot however, did not see the DA42 until it was pointed out to him ½nm away by the FTE, head on but passing behind. Since the pilot did not have time to manoeuvre his ac, a majority of Members agreed that this was an effective non-sighting by the Alpha Jet pilot but due to the separation inherent, there had been no risk of collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Effectively a non-sighting by the Alpha-Jet pilot.

Degree of Risk: C.