

AIRPROX REPORT No 2012116

Date/Time: 7 Aug 2012 0934Z

Position: 5414N 00234W
(8nm SE Kendal)

Airspace: Lon FIR – LFA17 (Class: G)

Reporting Ac Reporting Ac

Type: Tornado Hawk TMk1

Operator: HQ Air (Ops) HQ Air (Ops)

Alt/FL: 550ft ↓250ft agl
(1010hPa) RPS (1012hPa)

Weather: VMC CLBC VMC CLBC

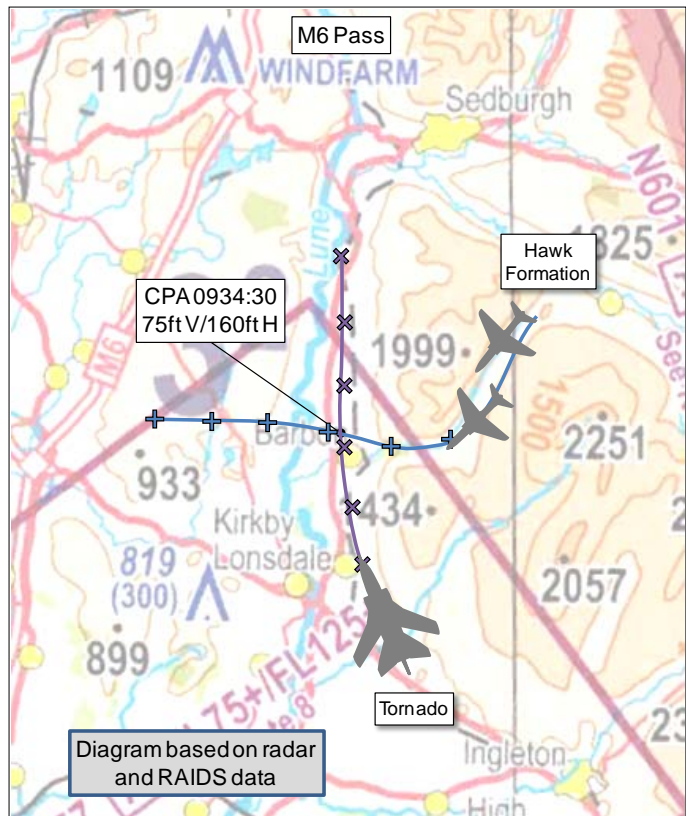
Visibility: 10km 25km

Reported Separation:

75ft V/160ft H 75ft V/100-200ft H

Recorded Separation:

75ft V/160ft H



BOTH PILOTS FILED

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE TORNADO PILOT reports flying a singleton low-level sortie [not below 250ft MSD], operating autonomously under VFR. The light grey coloured ac had navigation lights and HISLs selected on. The SSR transponder was selected on with Modes 3/A, C and S but the Tornado is not fitted with an ACAS. The ac was fitted with a RAIDS pod.

[UKAB Note (1): The Rangeless Airborne Instrumented Debriefing System (RAIDS) consists of ground equipment for data entry and replay and a data link pod fitted to the ac. Ac with RAIDS pods fitted are capable of data linking when in proximity such that a range of parameters, including separation range, can be recorded and assessed at the ground station.]

He descended to low-level at approximately 0925, having previously conducted an approach to RAF Linton-on-Ouse, and made a 'blind call' on the low-level common (LLC) RTF [278.000MHz] to state the location and direction of his route. At 0934:30, as he headed N at 430kt towards the 'M6 pass' [at a position approximately 8nm SE of Kendal], he heard a RT call of 'lead pull up' on LLC. As he heard this he looked to his R and saw a Hawk ac taking avoiding action by pulling up and passing over the canopy from R to L. The Tornado pilot maintained wings level. Subsequent ground examination of the RAIDS data showed that the ac passed with a separation of approximately 182ft.

He assessed the risk as 'High'.

THE HAWK PILOT reports leading a pair of ac operating autonomously under VFR at low-level, routeing W towards the Lake District in fighting-wing formation [UKAB Note (2): In fighting wing formation the subordinate ac maintains a swept position on the lead ac at a range of approximately 750m. This allows the leader flexibility of manoeuvre whilst also enabling some visual cross-cover between ac]. Both black coloured ac had navigation lights, HISLs and nose light selected on. The lead ac SSR transponder was selected on with Modes 3/A, C and S but the Hawk is not fitted with an ACAS. Both ac were fitted with a RAIDS pod. At 0934 the Hawk formation was at low level, heading 298° at 420kt. Approaching the S end of the 'M6 pass' and crossing a N-S valley near the village of

Kirkby Lonsdale, he was aware of a Tornado in his L 10 o'clock position at close range (estimated at similar height and inside 0.5nm). He took immediate avoiding action by breaking up and R, away from the Tornado, to avoid a potential collision. The other formation pilot became visual with the Tornado at approximately the same time and called 'lead pull up' on LLC. The incident was closely followed by a transmission on LLC by the Tornado pilot, who declared his proximity to the Hawk formation and, after being questioned by the Hawk pilot, informed him that he was a singleton. An initial investigation was conducted after landing using RAIDS data which indicated a minimum separation distance of 182ft.

The Hawk pilot also commented that the current low-level deconfliction is achieved using the 'Record of flight form (138 EAW form)'. The route deconfliction of the subject Tornado was one of 18 received that morning and consequently, due to the number of deconfliction sheets received, the Hawk pilots did not identify the confliction issue during mission planning. In addition, the quality and resolution of the faxed forms may have been a factor in not identifying the confliction.

He assessed the risk as 'High'.

THE HAWK STN COMMANDER reports that he had separately tasked the Air Safety Cell at his Station to liaise with command staff in order to determine whether there were any immediate lessons to be identified, with the aim of preventing a re-occurrence. He observed that this incident reinforced the need for crews to maintain an effective lookout and to 'expect the unexpected'.

THE TORNADO STN OC OPS WING stated that the short term measure of faxing low level routes and times to all low flying units was a way of increasing SA that other traffic was likely to be in the area at the same time. Due to tactical and weather factors, it was unlikely that ac would remain on the planned track line. However, the aim was to increase aircrews' awareness that there would definitely be planned traffic in the same LFA. Making blind calls on [LLC] was a further mitigation and had potential to build SA.

Following a survey, it appeared that the Stn Sqns faxed route details to all fixed wing units that might use the low flying system. However, they only receive faxes back from one other Tornado Stn. For the system to build SA for all users, all users had to participate. This was the second recent Airprox where other users were aware of the planned presence of Tornados in the same area they planned to fly in, but the Tornado crews were not afforded the same SA.

[Faxing routes] was a stop gap measure; a more robust solution was required that would build SA for other users in a specific area, followed by a method of providing collision warning. It was important to maintain operational capability through tactical flexibility and the current low flying system allowed this. In the meantime, all Stn Tornado crews had been reminded of the importance of using all sensors to build SA on other traffic in all flight regimes.

HQ AIR (OPS) comments that this near miss reinforced the need for effective lookout during flying operations but also demonstrated the limitations of the human eye. The Hawk pilot highlighted the limitations of the current system in place to de-conflict during the planning stage; the current process of faxing maps around other flying units was not a particularly robust mitigation to MAC. HQ Air is pursuing the acquisition of a defence-wide de-confliction planning tool, similar in nature to the CADS system that JHC already uses, which would aid de-confliction at the mission planning stage; this incident added further evidence to support its funding. Finally, if either ac had been fitted with CWS, then it is likely that prior warning of the developing situation would have been signalled to at least one of the crews and earlier avoiding action could have been taken. The acquisition of CWS for Tornado had been approved (though it is not yet fitted), and CWS is being considered by the MOD for the Hawk T1 fleet; this incident added further evidence to support its funding also.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, radar video recordings, ac data link information and reports from the appropriate operating authorities.

The Board first considered the deconfliction procedure extant at the time of the Airprox. Members agreed that the process was not robust with weaknesses including: the possible poor quality of printing of the received fax routes; the quantity of information requiring planning consideration and the potential to miss a conflicting route; the untested list of fax addressees resulting in missed conflicts; and assurance of delivery of the required deconfliction information when using fax as the transport medium.

Mil Pilot Members raised airmanship considerations, including defensive flying techniques when exiting or crossing a valley mouth. The Hawk flight could have remained high when approaching the valley exit until able to scan thoroughly along the valley they were entering; equally, the Tornado crew could have flown well clear of the mouth of the entering valley, enabling earlier visual scan into the valley and more time to evade aircraft exiting.

Pilot Members also discussed the applicability of an ACAS in the low flying (LF) environment. It was noted that LF is specifically designed to defeat conspicuity through terrain masking and as such would naturally limit the effectiveness of an ACAS; however, even in this Airprox scenario Members considered that an ACAS providing an alert as soon as the aircraft were in line of sight would likely have provided extra seconds of warning and prevented the aircraft flying into such close quarters.

Finally the Board considered the degree of risk. Some Board Members considered that the 182ft miss-distance was close enough to indicate that there had been a real risk of collision. Others noted that, although it had been a close encounter, the aircraft did not miss entirely through providence. The Hawk pilot had seen the Tornado in time to take effective avoiding action; furthermore his reaction, backed up by a call from his wing-man, was not a snatch on the controls resulting in an over-stress. On balance, the Board agreed that, although safety margins had been much reduced, the Hawk pilot's manoeuvre had resulted in a collision being avoided.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in the UKDLFS resolved by the Hawk pilot.

Degree of Risk: B.