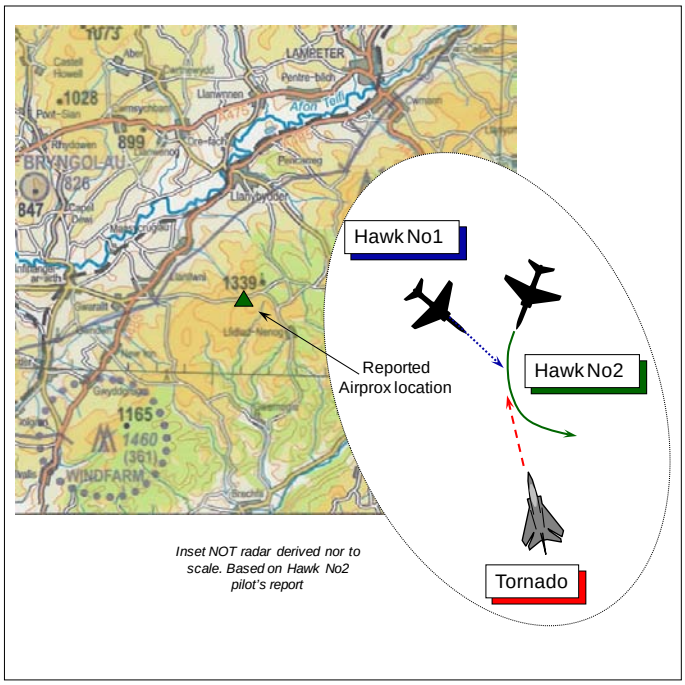
AIRPROX REPORT No 2012144

Date/Time:	13 Sep 2012 0955Z	
Position:	5202N 00409W (16nm ESE of Aberporth)	
Airspace:	UKDLFS LFA7	(*Class: G*)
	Reporting Ac	*Reported Ac*
Type:	Hawk T2 x2	Tornado GR4
Operator:	HQ Air (Trg)	HQ Air (Ops)
Alt/FL:	250ft MSD	300ft MSD
Weather:	VMC CAVOK	VMC CLBC
Visibility:	40km	10km
Reported Separation:	300ft (slant range)	NK
Recorded Separation:	Not recorded	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE BAe HAWK T Mk2 PILOT (HAWK No2) reports he was flying as the No2 of a pair of Hawks conducting the low-level portion of an Operational Training Manoeuvres (OTM) sortie in the southern half of LFA7 at 420kt. They were not in receipt of an ATS but listening out on the Valley low-level frequency of 142·775MHz. The low-level conspicuity squawk of A7001 was selected with Mode C; Mode S and TCAS are fitted.

The Airprox occurred whilst executing high energy manoeuvres about 16nm ESE of Aberporth/W Wales Airport at 250ft MSD [lat/log given]. As the pilot of the No1 Hawk reacted inwards to a simulated threat and he, as the PF of the No2 was taking collision avoidance against the No1, his rear seat occupant saw a Tornado outside the formation about 0·7nm away some 150° off heading [L of the nose]. He perceived the Tornado's vector would take the ac through the middle of the Hawk pair, which at that point was reacting towards each other to counter the simulated threat. His rear seat occupant called avoiding action for the Hawk pair, which resulted in avoiding action being taken by both Hawk crews. To avoid the Tornado he entered a L climbing turn, whereas the No1 was instructed to climb only. It was not until this point that his ac's TCAS enunciated a TA against the Tornado, which coincided with the aural TA that he expected to be generated by the proximity of Hawk No1 turning towards his ac. The Tornado passed an estimated 300ft away (slant range) with a 'medium' Risk of a collision; he stated that positive avoiding action was taken before TCAS displayed the Tornado.

After the Airprox had occurred, he switched to UK LFS Common to speak with the Tornado crew in the knowledge that all UK low-level traffic not based at Valley would be on that frequency. The Hawk pair was booked into LFA7 and was passing deconfliction calls on 142·775MHz - the Valley low-level frequency - as per Valley SOPs. The Tornado was also booked into LFA7 and was passing deconfliction calls on 278·00MHz, the UK LFS Common frequency, as per the Low Flying Handbook.

His ac is painted black; the white HISLs and white conspicuity nose light were 'on'.

UKAB Note (1): In a later telephone call with UKAB Staff the No2 Hawk pilot added that his ac's HUD recording showed his ac in a 10° climb at 490ft RAD ALT when the Tornado passed down his starboard side at a slant range of about 300ft. At this point the No1 Hawk was about 1½nm away to starboard as the Tornado flew between the formation ac.

THE TORNADO GR4 PILOT reports that after a high-level transit to Wales, the ATS was terminated as they entered the LFS in the vicinity of Ledbury, transmitting on 278·00MHz - LFS Common – their LFS entry point and their routeing; nothing was heard in response. About 50nm W of Ledbury following a track of 343° [from the copy of the chart provided] at 420kt, a single black Hawk was spotted at a range of 500m turning away with a slightly upward vector. He looked for a wingman but none was seen; as there was no confliction no avoiding action was taken and they continued. He assessed the Risk as 'low'. After about 10min, there was a call from the Hawk formation on 278·00MHz stating that they had seen the Tornado and had taken avoiding action. They had seen the Hawk but did not consider there was a collision risk.

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The Tornado crew was unaware of the potential for a conflict due to no 'warn-out' being received from Valley and no RT call being heard from the Hawk formation on the LFS Common frequency until after the Airprox had occurred. During pre-flight planning crews complete 'warn-outs', which include low-level bookings. This is then faxed to all fast-jet stations for their reference to see where a confliction might arise. Once on the ground he spoke to the Hawk pilot who said that they had received the 'warn-out' for their Tornado's route and that they were expecting to see a GR4 operating in that area. They also stated that Valley SOPs are to transmit their de-confliction on a specific Valley frequency, not on the LFS Common frequency - 278·00MHz. If the Hawk formation had been listening on LFS Common and heard the RT call from their Tornado, they would have had confirmation of the presence of their ac. Furthermore, had a 'warn-out' been received from Valley and the Hawk formation's RT transmissions been on 278·00MHz, the Tornado crew would have been aware of the presence of the Hawks.

The low-level conspicuity squawk of A7001 was selected with Modes C and S on; TCAS is not fitted. The ac has a grey colour-scheme but the HISL was on.

UKAB Note (2): This Airprox occurred outwith recorded radar coverage.

UKAB Note (3): The nearest available METAR:

CARDIFF 0950Z 28008KT 240V300 9999 FEW027 14/09 Q1022=

HQ AIR OPS comments that see-and-avoid was effective in this instance despite minimal time being available to sight the conflict due to terrain. TCAS provided a further barrier, although the warning was delayed due to terrain, and could have been masked by the anticipated warning triggered by the wingman. A CWS for the Tornado is being procured but will have the same terrain and formation limitation.

Both the Tornado Force and RAF Valley operate fax deconfliction systems that target their most likely, but not all, potential conflictors. This had been expanded temporarily by Marham to fax their routes more widely, which succeeded in highlighting the likely presence of the Tornado to the Hawks, although no attempt appears to have been made to avoid its route. An RAF-wide faxing process was being established at the time of this incident, but subsequently proved unworkable and has been withdrawn. HQ Air is pursuing the procurement of a software-based planning tool, DACAS, which should identify potential conflicts at the planning stage across the military low-flying community. Furthermore, UK LF Ops Sqn have updated their software to provide ac type and call sign of other booked traffic in the UKLFS to users when they place their bookings rather than the usual 'late warning of mixed traffic'; this will allow further deconfliction efforts to be made if necessary.

All users of the UKLFS have been reminded of the guidance contained within the UK LF Handbook which states that "the UKLFS Safety Freq should be monitored whenever possible". Again, around the time of this incident the Hawk fleet at Valley were asked by HQ Air to review their assessment of

whether this was possible, given their radio fit; the limited availability of VHF frequencies makes the dedicated use of the single UHF radio for formation chat frequencies problematic. Valley Safety Staff point out that such frequencies are not a panacea and that the requirement to provide info on such frequencies needs to be balanced against the safety risk of 'comms jamming' and creating a distraction. Further guidance on the use of the UKLFS Safety Frequency may improve its effectiveness. The procurement of a second UHF radio is also under consideration.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the Hawk and Tornado crews, a replay of the incident from the No2 Hawk's HUD and head-down recording system and comments from the operating authorities.

The No2 Hawk's TCAS replay clearly shows his leader on his starboard side and the moment the Tornado appears on the display as the 2 aircraft (Hawk and Tornado) are no longer hidden from each other by the terrain. In spotting the Tornado shortly before the TCAS TA was generated, the Board agreed that the No2 Hawk crew had seen the Tornado as early as the geometry and terrain allowed. The HQ Air Trg Member questioned the Hawk leader's choice of area to conduct simulated evasive manoeuvres; operating over high ground makes it difficult to detect aircraft approaching from lower terrain and valleys. Nevertheless, by calling the sighting to his leader and both Hawks taking avoiding action the Board was satisfied that the conflict was being resolved by the Hawk formation by the time the Tornado crew made their assessment that no avoiding action was necessary.

In assessing the risk, the Board's access to the HUD recording made it clear that the No2 Hawk pilot had manoeuvred positively but without using all of the aircraft's performance. Since the No2 was closest to the Tornado, this allowed the Board to conclude that the sighting had been early enough to ensure that the Hawk formation's avoidance was both measured and effective in removing the risk of a collision.

The Board noted that the Hawk pilots were aware of the Tornado's planned route because the Tornado Force routinely fax the details to other units. The Valley crews do not notify other units of their routes. While the utility of knowing other crew's plans can be limited by delays and the need to manoeuvre off-route for weather and tactical training requirements, Members were concerned at the lack of consistency in the notification process. The Board also noted that the Hawk formation was not operating on the Low Flying 'Common' RT frequency. The HQ Air Trg Member, expanding on his written comments above, outlined the work that is in progress to address the route notification and frequency issues, noting that there were some difficult problems to overcome. Given the number of Airprox in which these issues have been factors, the Board was moved to make a formal safety recommendation to HQ Air Cmd "to expedite measures to improve situational awareness and deconfliction planning in order to mitigate the risk of collisions in the LFS".

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in the LFS resolved by the Hawk formation.

Degree of Risk: C.

Recommendation: HQ Air Cmd is recommended to expedite measures to improve situational awareness and deconfliction planning in order to mitigate the risk of collisions in the LFS.