AIRPROX REPORT No 2011068

Date/Time: 1 Jul 2011 1237Z

Position: 5410N 00205W (22nm SW Leeming)

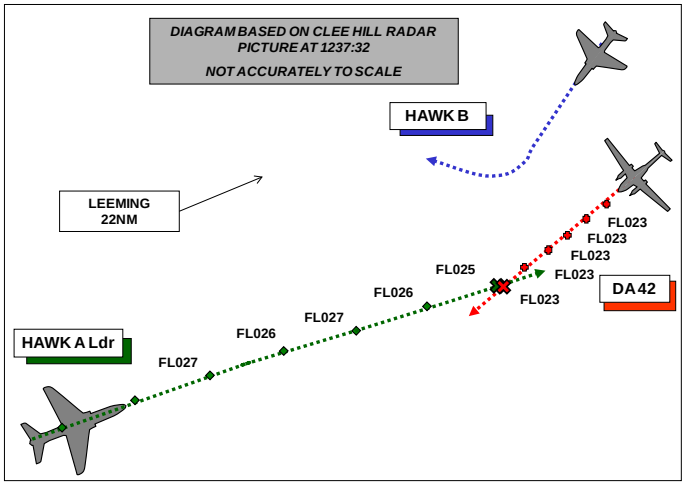
Airspace:	London FIR	(*Class: G*)
	Reporting Ac	*Reported Ac*
Type:	Hawk T1	DA42
Operator:	HQ Air (Ops)	Civ Pte
Alt/FL:	2900ft (QFE 1022mb)	3000ft (QNH 1026mb)
Weather:	VMC	NR
Visibility:	50km	50km

Reported Separation:

0 V/300-400ft H 200ft V/500m H

Recorded Separation:

200ft V/<0.1nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE HAWK T1 PILOT (HAWK A) reports that he was leading a formation of 2 black ac on an advanced training flight with all external lights switched on; they were heading 070° on recovery to Leeming at 380kt at 1000ft, squawking 7001 with Modes C and S but TCAS was not fitted. During the recovery he pulled up 30nm W of Leeming in order to listen to the ATIS and call APP. Once level at 2900ft on the Leeming QFE, both crew members saw another Hawk (Hawk B) in their 10 o'clock, slightly high in a right hand turn. They had yet to establish two-way communication with APP who was talking to another formation of Hawks. Whilst looking for other possible members of the formation, the handling pilot (front seat) looked forward and spotted a light-coloured twin-prop light ac ¾nm away, wings level on a reciprocal heading, about 300-400ft below them. To maintain separation and remain visual, he climbed slightly and once well clear turned 90° right to identify the other ac. The other ac appeared not to have deviated from its track and remained slightly lower than them.

He assessed the risk as being Medium.

THE DA42 PILOT reports flying a white twin-engine ac with TCAS fitted on private VFR local flight from Leeds/Bradford with a passenger, squawking with Modes C and S; at the time of the incident he was in receipt of a BS from Linton LARS [actually Leeming - see controller's report]. He was in the position of the reported incident, tracking 310° at 160kt and at 3000ft amsl when he saw a contact on TCAS. His TCAS display indicated that an ac was on reciprocal heading, above him in straight and level flight; about 2sec later he saw 2 black military ac, with nose lights, in his 12 o'clock that he believed were on a local training exercise [Hawk A Ldr and No2]. As he was taught on his initial pilot training, he maintained a steady heading and alt since he did not think it necessary to climb or descend in order to avoid them. He thought that the military ac would take the necessary avoiding action if they needed to.

He assessed the risk as low.

THE LEEMING ZONE CONTROLLER reported that at the time he was bandboxing Topcliffe RAD/Dir which included monitoring the LARS freq, Topcliffe VHF for Bagby traffic and 3 UHF frequencies (which were quiet at the time of the incident). It was a med-low intensity session within the capacity of a controller who was familiar with operating both Leeming LARS and Topcliffe, which

is not unusual. He was working 4 BS tracks; including the DA42 GH N of Leeds Bradford, an ac on a LARS transit to the W of Leeming and 2 tracks which free called inbound Bagby, resulting in a convoluted conversation with one track in particular whose C/S was difficult to ascertain. A number of ac were manoeuvring at low level to the W of Leeming and numerous primary contacts, believed to be gliders, were in the vicinity of Sutton Bank.

At about 1236 he passed TI to the GH ac to the W of Leeming (he believed to be the DA42 reported) and shortly after, updated the TI. The DA42 pilot replied that he had the other ac on TCAS and was also visual. Shortly afterwards, at about 1238, TI was passed to the DA42 pilot about another ac, also to the W of Leeming on a LARS transit. The DA42 then reported that he was visual with a Hawk [Hawk A No 2] that had gone underneath him and he would keep a good look out for further traffic.

The Hawk pilot reported the Airprox after landing.

BM Safety Management (abridged to avoid duplication) reported that this Airprox occurred between a Hawk (Hawk A Ldr) operating VFR on recovery to RAF Leeming, but not yet in communication with Leeming APP, and a DA42 conducting GH in the Vale of York under VFR and a BS from Leeming Zone.

At the time of the incident, Zone reports that they had 4 ac on freq under a BS and that their work and task-load was medium to low.

The DA42 contacted Zone at 1231:35 and was placed under a BS. At 1233:21 Zone passed TI to the DA42 on unrelated traffic, followed at 1236:17 by Zone passing further TI to the DA42 on an unrelated Hawk (Hawk B). At 1236:41 the TI on Hawk 2 was updated and the DA42 pilot reported, "*yeah visual, visual with that*". No TI was passed to the DA42 on Hawk A Ldr or No2.

At 1236:52 Zone began to transmit on Topcliffe VHF to Ac4, inbound to Bagby. The exchange of RT between Zone and Ac4 continued until 1237:24. There was then a gap of 28sec until Zone transmitted to Ac4 to recycle their SSR Mode 3A.

The pilot of Hawk A stated in his report that 'once level at 2900ft on the Leeming QFE, both crew members spotted another Hawk [Hawk B] in the left 10 o'clock, slightly high in a right hand turn'. Based upon the subsequent events and analysis of the radar replay, the ac spotted by the crew of Hawk A Ldr was Hawk B. On the radar recording, Hawk B can be seen in a right hand turn NW of the DA42 closing with it to about 0.6nm laterally and 400ft vertically.

The CPA with Hawk A Ldr was at 1237:32, with zero lateral separation discernable on the radar recording and 200ft vertical separation indicated. Hawk A Ldr freecalled APP at 1237:53, 21sec after the CPA. At 1238:14, Zone passed TI to the unrelated ac (Ac2) on both Hawk A Formation and Hawk B and continued to provide appropriate TI to all other ac in receipt of a BS.

Zone's actions in the period leading up to and following the Airprox demonstrate that he was aware of his duty of care under a BS and was discharging this by providing warnings when he perceived there to be a risk of collision. Therefore, the fact that he did not pass TI to the DA42 on Hawk A Ldr suggests that his attention was diverted elsewhere. Moreover, the fact that Zone passed TI to Ac2 on both Hawks indicates that this was the point where he re-focused his attention on that area of the display and, importantly, the first point where he saw Hawk A Ldr.

During and following the exchanges of RT at 1236:52 and 1237:24 between Leeming Zone and Ac4, it is reasonable to assume that Zone would have completed the FPS and waited for the ac to squawk the assigned SSR Mode 3A in order that he could validate and verify the SSR. It appears that these tasks may have precluded Zone from passing TI to the DA42 on Hawk A Ldr. However, the responsibilities of the crews of Hawk A Ldr and the DA42 to 'see and avoid' other traffic are clear. Moreover, as stated in the unit's internal investigation, it is reasonable to argue that Hawk A Ldr crew's relatively late sighting of the DA42 at ¾nm was as a result of their focus on gaining visual

contact with other members of the other Hawk formation, having sighted only one ac. Fortunately however, Hawk A Ldr crew was able to sight the DA42 in time to take effective avoiding action.

Of greater concern is the DA42 pilot's statement that 'as per pilot training I maintained a steady heading and altitude. I didn't feel the need to climb or descend in order to avoid. Military ac would take the necessary avoiding action if required'. One interpretation of this statement is that the DA42 pilot believes that military ac will 'see and avoid' civil ac. This suggests either a misunderstanding by this individual pilot of the Rules of the Air and their applicability to aviators or, more worryingly, could suggest a failure of the training delivered by that pilot's flying school.

HQ AIR (Ops) comments that the delay by the Hawk A Ldr pilot in contacting Leeming APP may have contributed to the Airprox, in that there was no opportunity for the controller to give TI to him on either the other Hawk formation [Hawk B] or the DA42. Hawk A Ldr pilot may have been devoting more attention to visual acquisition of the other formation and his lookout scan in other sectors could have been reduced. However, it seems that the DA42 pilot was aware of the Hawk's presence, firstly by TCAS and then visually, and should taken at least some avoiding action to prevent such a close encounter.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

Controller Members agreed that the circumstances of this encounter were such that, despite that the DA42 was on only a BS, Leeming Zone should have provided the pilot with a warning of Hawk A Ldr's presence since the ac were clearly on a collision course. Leeming App, on the other hand, although co-located did not have sufficient time or information to provide such a warning to Hawk A Ldr, but his heightened lookout for a possible wingman to Hawk B revealed the white DA42 directly ahead and slightly below him.

Members agreed that this had been a head on situation and the ANO Rule 10 applied which requires both ac to alter course to the right; needless to say this requires both pilots to see the opposing ac in time to do so. The Hawk pilot saw the DA42 at a distance he estimated to be ¾nm. At a closing speed of about 540kt this gave the Hawk pilot 5 sec to see assimilate and react to the DA42 by initiating a 'slight climb'. Members were perplexed as the Great Dun Fell radar recording [8 sec update rate] seemed to show the Hawk in a continuous slight descent [continuing even after the diagram above]. Mode C is accurate only to ±200ft and [in this case] only updates every 8 sec so small altitude deviations are sometimes not apparent on radar recordings. The DA42 pilot reported that despite having acquired the Hawks [A Ldr and 2] on TCAS he maintained heading and altitude as he thought that the military ac would take the necessary avoiding action if required. Members noted that the ANO is quite specific and in Class G airspace the respective pilots have an equal and shared responsibility to avoid each other; expecting other ac to initiate avoidance is imprudent since it is totally dependent on the other pilot seeing you in time to initiate avoidance and this is often not the case. Members thought it wise in a majority of encounters to assume that the opposing pilot has not seen you and react accordingly. Members could not determine whether the DA42 pilot had misinterpreted the ROA collision avoidance responsibilities and believed that military ac would avoid civil ones or had merely expressed himself poorly in his report. Another interpretation could be that he believed, in this case mistakenly, that the Hawk pilot's avoidance would be more timely and more effective than any he could initiate, or that sufficient vertical separation existed.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in Class G airspace resolved by Hawk A Ldr.

Degree of Risk: C.