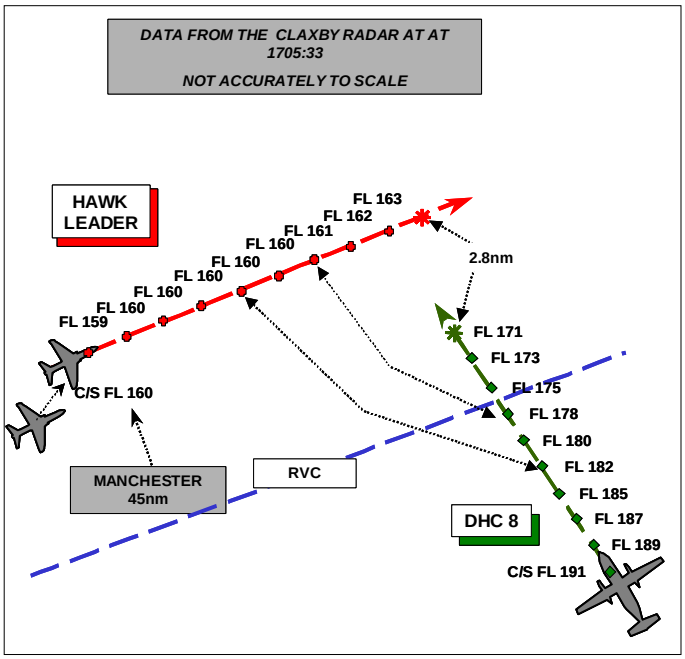
AIRPROX REPORT No 2010024

Date/Time:	24 Mar 2010 1706Z	
Position:	5244N 00135W (Lichfield Corridor)	
Airspace:	Y53	(*Class: A*)
	Reporting Ac	*Reported Ac*
Type:	DHC-8	Hawk
Operator:	CAT	HQ AIR (TRG)
Alt/FL:	FL170	FL160
Weather:	IMC CLAC	IMC KLWD
Visibility:	10km	0.5km
Reported Separation:	NR	NR
Recorded Separation:	800ft V/2.8nm H	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE DHC-8 PILOT reports flying a scheduled passenger flight under IFR, squawking as directed. Shortly after levelling at FL170, heading 325° at 240kt under RC from ScACC, about 50nm SE of MAN, the crew noted on TCAS an ac crossing about 5nm ahead and 1000ft below. Shortly afterwards the TCAS displayed a TA with "Traffic, Traffic" and it was noted that the ac had commenced a climb; by then the lateral separation was less than 5nm. Shortly thereafter ATC issued an instruction *"avoiding action turn left 280 degrees"* so the Captain disengaged the autopilot and made a level left turn and satisfactory separation was quickly attained. The minimum separation was estimated to have been 1nm and 600ft. ATC commented that the traffic was in the Lichfield RVC and did not have permission to climb above FL160. He believed that the traffic was a formation of 2 Hawk ac but only one was seen on TCAS.

The weather conditions were such that while they were in clear air, they were only just above cloud and were therefore IMC.

He assessed the risk as being low.

THE HAWK PILOT reports flying a training sortie; the handling pilot was an advanced flying training student pilot in the front cockpit with a QFI in the rear seat. They were heading 075° at M0.73 and they were cleared to FL160 by London Mil having climbed due to weather. During this period their No2, also being flown by a student pilot but with a QFI on board, was closing in to close formation due to weather, from a loose position swept at 75yds. Both the Captain and handling pilot were concerned that their No2 was not going to attain a close formation position before they went fully IMC and the QFI was looking over his shoulder to keep the ac visual. At this time the student pilot had, through distraction, allowed their ac to creep up to FL162, which the Captain noticed and promptly told the student pilot to recover to FL160; they peaked at FL163, which the QFI noted at the time.

Obviously this was enough to cause the avoiding action to be taken by the ac above at FL170 and they accept responsibility, but there was never any actual danger as the QFIs would not have allowed the situation to develop any further.

He considered it noteworthy that on their return flight at approx 2215 the same day, this time as a singleton, they also deviated from their cleared height. Again, the student pilot was flying and the

instructor prompted him to 'check height' as they climbed through FL161; he recovered and having topped at FL162. The controller informed him that they had indicated FL164, some 200ft above their indicated level. Whilst this is not an excuse for their poor height control it indicated that their IFF [Mode C] might have been over reading slightly. Unfortunately the avionics in the Hawk Mk1 are dated and they do not have an autopilot or 'height hold' facility, which means the ac is flown manually at all times.

Controller Reports. For brevity the ScACC Controller's report, the NATS Unit investigation and the London (Mil) controller's reports have not been included as the information they contain is included below.

HQ Air BM Safety Management reports that a pair of Hawk TMk1 ac were being flown as a formation by Advanced Flying Training student pilots with QFIs in the rear seats. They were transiting the Lichfield Radar Corridor (RVC), from W to E at FL160, within Class A CAS under RC from London Mil. The LIC RVC was booked for transit by the London Mil Cent TAC controller and the Hawks were coordinated through the corridor at FL160. Meanwhile a DHC-8 was routing to Manchester in Class A CAS under RC from ScACC at FL170. The corridor would normally be flown at FL140 Eastbound but, due to a previous ac experiencing icing at that level, a higher level was requested and agreed by ScACC.

The Hawks reported on frequency at 1656 saying, "*Er London C/S with you flight level one four zero"* and the controller responded, *"C/S London MIL good afternoon identified flight level one four zero traffic service own navigation through the Lichfield corridor*". At 1658 the controller instructed, "*C/S climb flight level one six zero to transit the Lichfield corridor, previous aircraft have been experiencing icing at flight level one four zero".*

At 1700, prior to the start time of the radar replay, London (Mil) transmitted, *"C/S check your level you are showing one six three"* and leader responded*, "Flight level one six zero C/S apologies*". Just after 1705 Hawk Leader requested a climb FL170. At 1705:12 the Hawks are shown indicating FL161 and on subsequent SSR updates they indicate FL162 and FL163. After the request the controller once again stated, "C/*S Er roger maintain flight one six zero until coordinated and check your level you are showing flight level one six three"* and leader responded "*Descend one six zero C/S"*. At 1706 leader transmitted "C/*S now happy to maintain flight level one six zero"*.

[UKAB Note (1): At 1659:50 the recording of the Clee Hill radar shows the Hawks to be level at FL161. At 1700:50 the Hawk leader ballooned for 1 sweep to FL163 in a left turn onto a heading for the RVC before returning to FL160 and remaining level until 1705:12 when it climbs to FL163 for 2 sweeps before again descending to FL160 as described above.]

The CPA occurred at 1705:37 and the Hawks passed 2.8nm ahead and 800ft below the DHC-8. After the Hawks were clear of the coordinated traffic, with no other traffic to conflict they were given a climb to FL170 as requested and released own navigation direct to RAF Marham.

LATCC (Mil) Cent TAC complied with the procedures for the Lichfield RVC and was proactive in seeking to use FL160 to overcome a reported icing level at FL140. The ac were also correctly placed under RC on entering Class A CAS. The controller monitored the flight and instructed the ac to check altitude prior to the incident. On seeing that the ac had again deviated from the coordinated level, the controller asked the crew to check their level. In a situation where a cleared level has been contravened, standard practice is to give avoiding action descent or climb; however in this situation the first indication of the ac operating outside the recognised Mode C limits (200ft) was coincidental to the CPA.

ATSI reports that the pilot of a DHC-8 reported an Airprox while at FL170 in Class A CAS, 19nm SE of TNT.

The DHC-8 was inbound TNT descending to FL200 when it called the ScACC STAFA Sector at 1702:20 while 41nm SE of TNT and the controller instructed the aircraft to route TNT–DAYNE. At this time a formation of 2 Hawks was transiting the Lichfield RVC, coordinated at FL160, and was 11nm SW of LIC. The transit had previously been co-ordinated by London (Mil) with the STAFA sector at 1656.

A review of the recording of the Clee Hill radar showed that the formation, while transiting the RVC prior to the incident, had been displaying Mode C level information of between FL160 and FL163, but mainly alternating between FL160 and FL161.

At 1703:20, as the DHC-8 was passing FL210 in the descent, the ScACC controller instructed the DHC-8 to "*descend flight level one seven zero"* and the clearance was read-back correctly and the Mode S Selected Flight Level was seen to change accordingly. The Hawk formation was then 4.5nm SE of LIC and in the DHC-8's 10 o'clock position at a range of 26nm. At 1704:44 the DHC-8 and Hawks were 10nm apart, still in the DHC-8's 10 o'clock. The DHC-8 was passing FL184 and its rate of descent was between 2 and 3000 fpm and the Hawks were reporting FL160.

As the Hawk formation came into the DHC-8's 12 o'clock at 1705:16, range 4.7nm, the level of the formation increased to FL161; the DHC-8 was then passing FL175. On the next radar update at 1705:25, the formation had climbed to FL163 and the DHC-8 was passing FL172 (900ft vertical separation) thus the required separation of 5nm/1000ft had been eroded. The formation passed through the DHC-8's 12 o'clock at a range of 3.7nm indicating FL163 and at this time the STAFA controller issued the DHC-8 with an avoiding action turn to the left and passed TI. The DHC-8 pilot reported seeing the formation on TCAS - but did not report an RA - and stopped his decent at FL171 (800ft vertical separation); the ac were 2.9nm apart. Minimum distance between the ac was recorded as 2.8nm/800ft at 1705:40 and at 1705:56 the required separation was restored when the Hawk formation descended back to their cleared level of FL160. The avoiding action turn of the DHC-8 and faster speed of the formation also rapidly increased the lateral distance between the ac.

Following the encounter the DHC-8 was instructed to resume its own navigation to DAYNE.

There are considered to be no implications for civil ATC as a consequence of this incident.

HQ AIR (TRG) comments that this Airprox was the result of distraction by the Hawk Lead crew who were concerned that their No2 was not going to attain a close formation position before they went fully IMC. Consequently, as soon as the QFI saw the level deviation, he told his student to 'check height' but not until they had climbed and triggered a TCAS TA in the DHC-8. From the position and levels of the aircraft involved there was no risk of an actual collision. The avoiding-action turn issued by the STAFA controller very quickly regained separation between the DHC-8 and Hawk formation.

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.

The Board observed that, although there were a number of factors underlying this incident, it was essentially an altitude deviation by the Hawk formation leader, unnoticed by the No2. Members noted that the deviation had taken place just after the formation had passed through the descending DHC-8's 12 o'clock, over 3nm away. Nevertheless, there was a breach of the stipulated separation but this did not cause a TCAS RA in the DHC-8. Furthermore, the alt deviation was noted almost instantaneously by both the ScACC and London (Mil) Controllers and both reacted quickly and, in the

Controller Members' opinion, correctly. Their respective actions ensured that separation was restored quickly and had prevented any risk of collision.

Pilot instructor Members observed that when instructing many aspects of flying, instructors are often faced with conflicting priorities. In this case the imperative for both instructors was ensuring that the No2 Hawk student closed from loose formation to close expeditiously but safely before the formation entered cloud. While the instructors' attention was focused on this aspect, the Lead student pilot allowed his ac to climb slightly, topping at FL163, before his instructor spotted this, simultaneously with the Controllers, and warned his student to return to their cleared level. Although, almost certainly a feature well known to student pilots, the lack of an autopilot and outdated altitude/SSR instrumentation in the Hawk T Mk1, make accurate manual flying even more important, as any unintentional climb/descent may cause unnecessary TCAS warnings in other ac.

There was extensive discussion regarding whether or not any TI to the Hawk formation regarding the DHC-8 would have contributed to the outcome. Current Military Controller Members agreed that providing TI regarding co-ordinated traffic is not considered necessary even if it were practicable for aircraft crossing these busy airways. Pilot Members, however, agreed that such TI would enhance significantly their SA regarding relevant airways traffic. Further, both pilot and Controller Members agreed that several years ago TI would have been provided routinely. A current NATS Controller Member agreed that TI would be beneficial and stated that, when it was possible to do so, passing TI would be considered best practice in terms of 'Defensive Controlling'.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Hawk pair climbed above their cleared level.

Degree of Risk: C.