AIRPROX REPORT No 2010154

Date/Time: 5 Oct 2010 1141Z

Position: 5422N 00320W (21nm S of DEAN CROSS VOR)

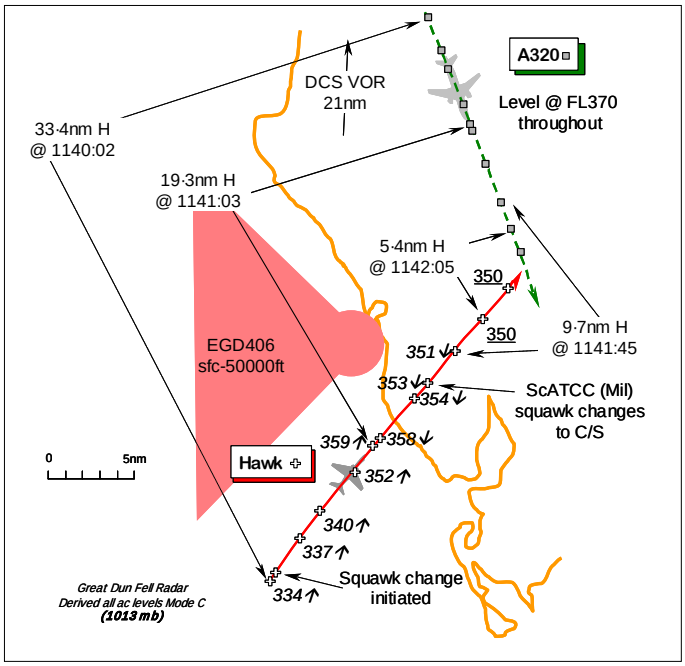
Airspace: UAR (*Class: C*)

Reporter: LAC Sector 4

	1st Ac	*2nd Ac*
Type:	Airbus A320	Hawk T1
Operator:	CAT	HQ Air (Trg)
Alt/FL:	FL370	↑FL350
Weather:	NR	NR
Visibility:	NK	NR
Reported Separation:	NR	NR

Recorded Separation:

1100ft min V @ 19·3nm H



CONTROLLER REPORTED

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE LACC SECTOR 4 TACTICAL CONTROLLER (S4 TAC) reports that they had received the A320 from DEAN CROSS (DCS) Sector outbound from Edinburgh and climbed it to FL370 under a RCS. The Hawk had been co-ordinated by LJAO with his PLANNER (S4 PLAN) to climb beneath the A320 to FL350 as it was non-RVSM compliant [Reduced Vertical Separation Minima could not be applied thereby requiring 2000ft vertical separation against GAT]. S4 PLAN noticed the Hawk had climbed through FL350. The Hawk was seen to climb to FL358 so he gave TI to the A320 crew, selected the climb rate button whilst talking and saw that the Hawk was now descending. He explained to the A320 crew that the other ac was a military jet and that it was now descending, but was non-RVSM compliant. No avoiding action was issued. The geometry was such that the A320 would have had to be turned R into an active Danger Area – EGD406 – to avoid the Hawk if the climb button had revealed the Hawk was level or climbing. Prescribed separation was not eroded.

THE LACC S4 PLANNER CONTROLLER (S4 PLAN) reports that LJAO NW rang to co-ordinate the Hawk, non-RVSM, against two ac on their frequency. The LJAO controller accepted FL350 for the Hawk, 2000ft underneath the A320 cruising at FL370. The Hawk was then observed climbing through FL355 with the STCA flashing. She immediately shouted across to LJAO NW to ask what they were doing and was told that they had transferred the Hawk to ScATCC (Mil). She asked LJAO NW to ring ScATCC (Mil) but at the same time could see the Hawk's Mode C was indicating it was now descending.

UKAB Note (1): Despite repeated attempts by the UKAB to establish contact with the company and obtain a report from the A320 pilot, no contact has been achieved, therefore no report is available.

THE HAWK T1 PILOT reports that whilst in transit to Dunbar on a solo navigational training sortie he was handed over to LONDON MILITARY and during a stepped climb was given clearance to climb to FL350. At some point between FL300 - FL330 he was issued with a new squawk and a frequency change to ScATCC (Mil). Whilst doing this, his height checks 'dropped out of the scan' due to a high workload within the cockpit: i.e. the frequency change, squawk change, navigating to an intersection and working out timeline changes etc. He had already switched from LONDON MILITARY's [LJAO

NW TAC] frequency at the point that he climbed through FL350 and he started the bunt at FL356; the highest level he saw at any time was FL357. As he had no two-way RT comms with anyone at that point, his next action was to get in contact with SCOTTISH MILITARY. When he established communication with the controller they confirmed the level he was cleared to and he descended back down to FL350. Minutes later, an airliner that had been coordinated 2000ft above him at FL370 flew directly overhead. However, by then, he had descended and had been maintaining FL350 for about 2min before it overflew his ac. He thought, incorrectly, that he might have set off their TCAS and the Airprox had been filed as a result; the Risk was assessed as 'low'.

THE LJAO NORTHWEST TACTICAL CONTROLLER (NW TAC) reports the Hawk pilot was flying a LAKEY to SHAPP profile from Valley looking to descend to low-level in the Dunbar area. The Hawk pilot had been instructed to climb to FL350. A Cleared Flight Path (CFP) [a co-ordinated cleared level on a specified track] was requested from S4 PLAN for the Hawk at FL350, maintaining the current heading - non-RVSM, which was approved. Furthermore, S4 PLAN was advised that an electronic CFP would be sent and that the Hawk would be changing to a squawk of A4627 for ScATCC (Mil). The handover, with co-ordination, was conducted in accordance with JSP552 and the receiving ScATCC (Mil) controller read back the instruction 'traffic you're handing me not above FL350 negative RVSM.' The Hawk pilot was instructed to contact SCOTTISH MIL on the frequency given and at this point the ac was passing about FL338 Mode C. Although he had seen the A320 he had not called the co-ordinated traffic to the Hawk pilot on RT, as at this stage it was still about 20nm to the NE. The Hawk was then observed to carry on climbing through its assigned level of FL350 Mode C. At this point he was on the landline to ScATCC (Mil) receiving a prenote when S4 PLAN asked, across the room, what the Hawk was doing. He asked the ScATCC (Mil) controller to transfer him to the controller working the Hawk having advised S4 PLAN that the Hawk was no longer under his control. The Hawk was observed to climb to FL358 Mode C before descending again to FL350 – he thought the A320 was about 12nm away from the Hawk at this point. The ScATCC (Mil) controller informed him that the Hawk pilot had continued its climb before contacting ScATCC (Mil) – as soon as the Hawk pilot had called on the RT the controller had instructed him to descend to FL350.

ATSI reports that the Airprox occurred in Class C airspace S of Dean Cross (DCS). The A320 was in contact with S4 on 132·860 MHz under a RCS. S4 was being operated by a Tactical controller - S4 TAC - and Planner controller - S4 PLAN.

At 1134:10, the A320 crew called S4 TAC maintaining FL350. The pilot requested FL370 for the cruise. S4 TAC instructed the A320 to climb to FL370 and route direct to Goodwood. The LJAO NW controller called S4 PLAN at 1137:45 and requested co-ordination on the Hawk. The Hawk was 60nm SW of DCS passing FL270 in the climb and displaying a SSR code-converted to callsign. S4 PLAN identified the Hawk and LJAO requested, "*looking for flight level 3-5-0 negative R V S M*". In accordance with CAP493 (MATS Part 1) Section 1 Chapter 3 paragraph 5.1.1, the required vertical separation standard for non-RVSM aircraft above FL290 is 2000ft. S4 PLAN pointed out an MD11 maintaining FL370 and the A320, which was climbing to FL370. A B777 at POL at FL360 was also pointed out by S4 PLAN and both parties agreed that the Hawk would pass ahead of this ac. At 1138:15, S4 PLAN stated, "*… yeah okay yeah so 3-5-0 underneath* [the MD11] *and the* [A320] *then"*. LJAO replied, "*…thanks I'll send you the electronics"* and*, "it's* [Hawk C/S] *changing to 4-6-4-1 going to Scottish now."* At 1140:25, the SSR code-converted callsign of the Hawk changed to a squawk of A4641, a code allocated to ScATCC (Mil). The Hawk was 36nm SSW of DCS, passing FL337, having reduced its ROC from approximately 4500ft/min to 1500ft/min.

The Hawk passed FL351 Mode C at 1140:56; subsequent Mode C level reports indicated that the ac was still climbing. The LAC Multi Radar Tracking recording shows that at 1141:07, the Hawk reached a maximum level of FL359 before starting to descend. Between 1141:17 and 1141:29 the Hawk's Mode C indicated FL355 for three consecutive updates. CAP493 Section 1 Chapter 5 paragraph 10.3.1 d) states: 'An aircraft may be considered to have reached an assigned level when three successive Mode C readouts indicate 200 feet or less from that level'.

At 1141:30, S4 TAC passed TI to the A320 crew, "*…3 o'clock range of about er 15 miles you'll see military crossing traffic 2 thousand feet below your level".* At 1141:40 the A320 pilot reported having

acquired the traffic on TCAS but not visually. Both S4 TAC and S4 PLAN reported activation of the STCA on their situation displays; S4 TAC reported feeling unable to give avoiding action because, '…the angle was such that the [A320] would have had to have been turned right into an active mil danger area…'. EG D406 was active to the W of the A320. The S4 PLAN reported shouting across to LJAO NW and asking them what they were doing, only to be told that LJAO NW had transferred the Hawk to ScATCC (Mil). By 1141:54 the Hawk was indicating FL350 Mode C 8·3nm SSW of the A320. The tracks crossed at 1142:29, 21nm S of DCS, the A320 was level at FL370 Mode C and the Hawk indicated FL350. At 1152:00, the A320 was transferred to the next en-route sector.

Co-ordination of the Hawk's transit of S4 airspace was made in accordance with the required vertical separation standard for non-RVSM aircraft above FL290. At the end of the co-ordination process LJAO NW informed S4 PLAN that the Hawk was about to change its squawk and be transferred to ScATCC (Mil). The SSR code of the Hawk was observed to change shortly thereafter as the aircraft was passing FL337. At the time of the SSR code change at 1140:25, the Hawk pilot had reduced his ROC but the ac was still climbing with 1300ft to go to the assigned level of FL350. The Hawk passed FL351 26sec later at 1140:56. The S4 controllers were alerted to a potential loss of separation as the Hawk's Mode C indicated it was continuing its climb above FL350. STCA acted to amplify the controllers' belief that a potential loss of separation was about to occur. Whilst descending back to FL350 the Hawk's Mode C remained level at FL355 for 3 updates of the display. This would further reinforce the S4 controlling team's belief that separation was about to be lost between the Hawk and A320. Appropriate TI was passed to the A320 crew by S4 TAC. S4 PLAN's ability to contact the Hawk's controller was limited as it was no longer in communication with LJAO NW controllers proximately located to S4. Separation was not lost as the Hawk established level at FL350, 8·3nm before the tracks of the two ac crossed.

It is concluded that:

The Hawk pilot received his cleared level, an SSR code change and frequency change over a short period of time causing the pilot to omit monitoring his ac's level.

The S4 controlling team received various indications that there was potential for a loss of separation to occur: Mode C of the Hawk climbing, STCA activation, inability to communicate with the Hawk's controlling authority, Mode C of the Hawk remaining constant at FL355 for 3 data updates.

The required vertical separation of 2000ft was achieved before the ac were less than 5nm apart laterally.

UKAB Note (2): The Great Dun Fell Radar (GDF) single source recording was used by UKAB as the basis of the diagram above and as such exhibits minor variations in time, range and level when compared to the LAC Multi-Radar Tracking recording available to ATSI. The GDF shows the maximum indicated level of the Hawk was FL359 at 1141:03, at a range of 19·3nm from the A320. The Hawk achieved level flight at FL350 on the GDF recording at 1142:05, at a range of 5·4nm from the A320.

HQ 1GP BM SM reports that the Hawk crew was routeing LAKEY-SHAPP under IFR, climbing to FL350 and in receipt of a RCS from the LJAO NW TAC controller, with the intention of descending to low-level in the vicinity of Dunbar.

LJAO completed a thorough investigation of this occurrence, confirming that the Hawk pilot was instructed to climb to FL350 and co-ordinated against the A320 at FL370. The controller was cognisant that the point of confliction was shortly after the point where they would be required to transfer the Hawk to the next ATCRU - ScATCC (Mil); therefore, NW TAC passed the SSR code issued by ScATCC (Mil) to LACC S4 in order that the S4 controllers could retain track identity and maintain their SA.

NW TAC handed over the Hawk to ScATCC (Mil), including the co-ordination with S4, in accordance with SOPs. NW TAC noted that the Hawk's SSR Mode C was indicating a climb through FL338, as they instructed the Hawk crew to contact ScATCC (Mil).

The Hawk pilot states that the excursion above his assigned level occurred after they had switched from NW TAC's frequency, but before he had established RT contact with ScATCC (Mil). The highest level indicated by the Hawk was FL359 Mode C at 1141:03, when the A320 was level at FL370, with horizontal separation of 19·3nm. The Hawk levelled at FL351 some 35sec later, with approximately 9·7nm horizontal separation extant, the A320 remaining level at FL370. At no stage does the A320 appear to take any avoiding action, either as a result of a TCAS RA or instruction from S4 TAC.

The Hawk pilot states that due to high cockpit workload, his height checks had dropped out of his scan and consequently the level-bust occurred. Given the timing of this, with the pilot switching between ATCRUs, it was not possible for either LJAO NW TAC or ScATCC (Mil) to take any corrective action earlier than they did.

HQ AIR (TRG) comments that it was unfortunate that the pilot was given a frequency change so close to his level-off altitude. It appears that this contributed to his distraction from the priority task of levelling at the assigned level. The Hawk T1 is a rudimentary ac with no autopilot or altitude warning system and so maintenance of cleared levels requires a high degree of concentration and task prioritisation. This event appears to be more of a level bust than an Airprox.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included a report from the Hawk pilot, transcripts of the relevant LAC and LATCC (Mil) RT frequencies, radar video recordings, reports from the controllers involved and reports from the appropriate ATC and ac operating authorities.

The Board noted the absence of a report from the A320 pilot, which did not show the company in a good light and denied the Board the A320 pilot's perspective. However, Members accepted that the A320 crew had virtually no impact whatsoever on the outcome of this incident and in the Board's view, their assessment was no less valid without it.

The reports from ATSI and HQ 1GP BM SM confirm that co-ordination had been agreed between LJAO NW and LAC S4 to ensure that the stipulated vertical separation of 2000ft would be maintained between the Hawk climbing to FL350 and the A320 maintaining a level cruise at FL370. Having been instructed to climb to this co-ordinated level and switch to ScATCC (Mil), the Hawk pilot reports candidly that he then became distracted by a number of in-cockpit tasks and did not monitor his level effectively. This resulted in the Hawk pilot climbing above his assigned level of FL350 to a maximum of FL359 Mode C, the GDF radar recording revealed. Members commended the Hawk pilot for his frank account and accepted that his altimeter had indicated that his ac had only ascended to FL357, which was within the allowable tolerance for verified Mode C of +/-200ft. When he realised what had occurred, the Hawk pilot reaffirmed his cleared level with ScATCC (Mil) and descended to FL350, which Members recognised was achieved well before the stipulated horizontal separation of 5nm against the A320 could have been breached. It was clear that the S4 controllers had spotted the Hawk's excursion above FL350 in good time and were also alerted by the activation of STCA. Unfortunately, this occurred whilst the Hawk pilot was switching between the LJAO NW and ScATCC (Mil) frequencies, therefore it was not until the Hawk pilot established contact that the ScATCC (Mil) controller could interject; by that stage, however, the Hawk pilot had already realised the situation. This switch between controllers also impinged on S4's ability to check what was happening. For their part S4 TAC had wisely passed TI to the A320 crew beforehand, who had acquired the Hawk on their TCAS display. Thus despite S4 being justifiably concerned about what the Hawk pilot was doing, the situation was quickly resolved before any erosion of separation occurred. The Board agreed unanimously that this Airprox had resulted because the Hawk pilot climbed above his co-ordinated level giving the LAC S4 controllers cause for concern. However, as vertical separation was not less than 1100ft based on the ac's Mode C indications and potentially slightly more, which increased as

the extant horizontal separation decreased, the Members agreed unanimously that no Risk of a collision had existed.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Hawk pilot climbed above his co-ordinated level giving the LAC S4 controllers cause for concern.

Degree of Risk: C.