AIRPROX REPORT No 2010075

Date/Time: 24 Jun 2010 (Thursday) 1406Z

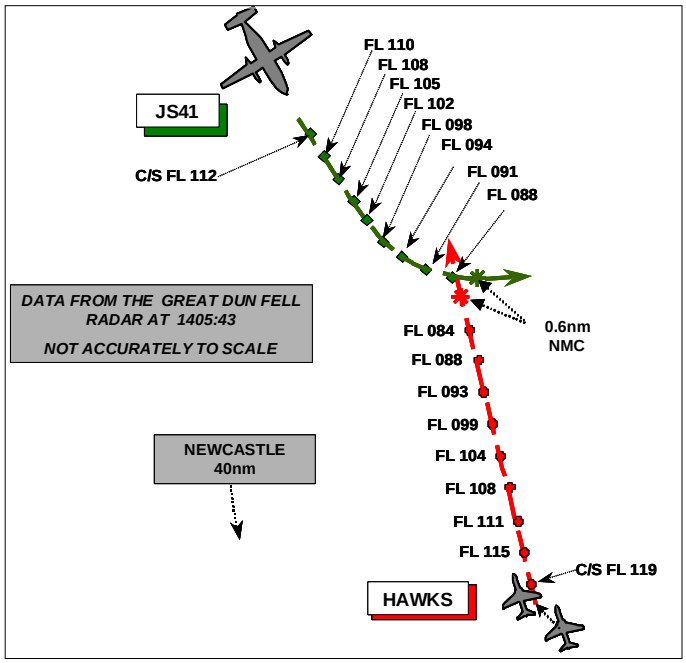
Position: 5545N 00140W (40 NM N Newcastle)

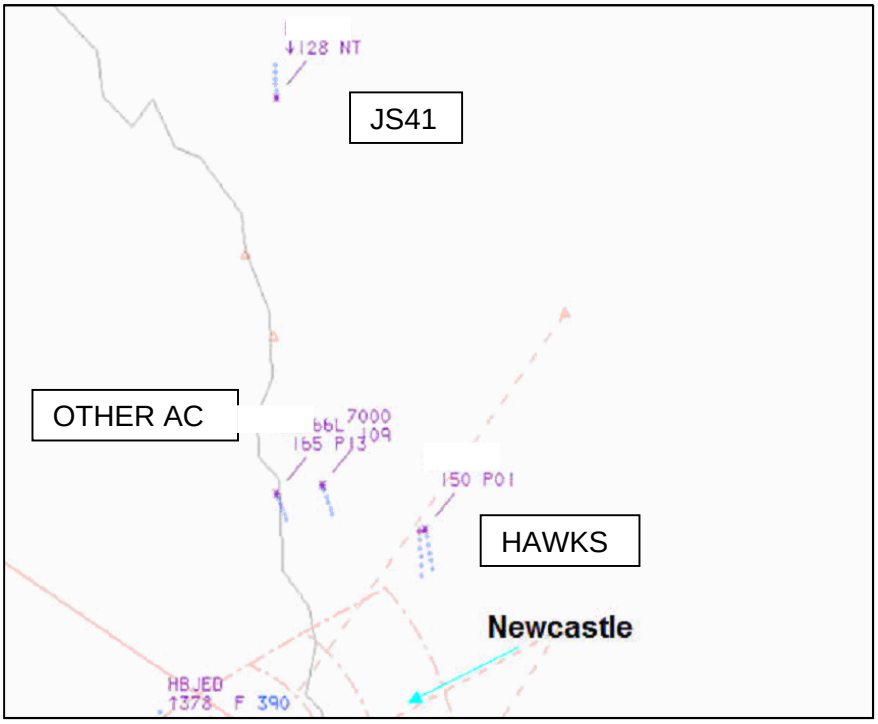
Airspace: Scottish FIR (*Class: G*)

	Reporting Ac	*Reported Ac*
Type:	Jetstream 41	Hawk X 2
Operator:	CAT	HQ AIR (OPS)
Alt/FL:	FL90	FL90
Weather:	VMC CLAC	VMC CLAC
Visibility:	>50km	40km
Reported Separation:	Not Seen	1000ft V/1nm H

Recorded Separation:

NR V / 0.6nm H (See UKAB Note (1).





Time 1403:30

UKAB Note (1): On the sweep of the CPA the Mode C of both ac drops out. On the sweep before the CPA (8 sec) the JS41 indicates FL088 and the Hawks FL084 and on the sweep after the JS41 087 and the Hawks FL078. Therefore, by interpolation, the vertical separation was about 600ft.

UKAB Note (2): The incident shows clearly on the recording of the Great Dun Fell Radar, a snapshot at 1430:30 of which is shown above.

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE JETSTREAM 41 PILOT reports flying a scheduled passenger flight under IFR in receipt of a DS from ScACC, squawking as directed with Modes C and S. While about 50nm N of Newcastle flying at 240kt they were given a Southerly heading due to military traffic that had been called by the controller. They then were given 3 or 4 incremental heading changes of 10° to the left and then told to descend from FL100 to FL70 and to expedite decent. A short while later an 'Avoiding Action' instruction was given to turn left onto a heading of 090° and, as they passed through FL90, still in the turn, a descending TCAS RA was issued with 'Adjust Vertical Speed', commanding a reduction in their vertical speed. This was carried out in accordance with company SOPs. They were unable to acquire visually the other ac and exact headings and flight levels could not be recalled as they were concentrating on reacting to the TCAS. He reported the incident on the radio and assessed the risk as being low.

THE HAWK PILOT reports that he was leading a formation of 2 Hawks on a Nav training flight with students in the rear seats, squawking as directed with Mode C. They were transiting N for a planned low level entry at Boulmer and were under TS from ScACC (Mil). TI was passed regarding a JS41 ac in the descent to Newcastle. While in the descent at M0.7, with the No2 closing to close formation for a cloud penetration, they saw the ac about 2nm away at the same level in their 1 o'clock position and clearing to their right. It was visually assessed that there was no collision risk and neither they nor the JS41 took avoiding action as the formation was passing well behind and about 1000ft below the Jetstream. They continued their descent to low level uneventfully and assessed the risk as being none.

The ScACC (Civil) Controller reports that he took over the TAY Sector at about 1400 while the JS41 was receiving a DS so he continued to provide that service to the ac, which was about to descend into Newcastle. Shortly thereafter the pilot requested a descent and he cleared it to FL100, the level he coordinated with Newcastle; simultaneously he passed TI on opposite direction traffic consisting of 3 ac, one at FL165 (squawking 6131), one at FL150 (the Hawks) and one squawking 7000 indicating FL109 (unverified). As the JS41 descended he decided to turn it left to take it away from the unknown ac (squawking 7000 at FL109). At the time the Hawks were behind that ac maintaining FL150 and were working a military console. The Hawks then started to descend and TI was given to the JS41.

The Hawks then became a likely conflict so he passed further TI and cleared the JS41 to a lower level of FL70, which he coordinated with Newcastle, in order to descend it below the Hawks.

Other ac were calling on the frequency and he did not have time to call the military controller, so he was unaware what type of service was being given to the conflicting Hawks. He initially passed a turn of 20° degrees to left and then upgraded it to avoiding action with further left turn on to 090° and again updated the TI. The conflicting traffic was seen to be descending at a greater rate than the JS41 so he stopped the JS41's descent as the conflicting traffic passed below it by about 600ft and passed TI. As the ac passed, the JS41 reported receiving a TCAS vertical RA in the same direction as he had given but the crew was not visual with the Hawks. He then gave the JS41 further TI, turned it back towards Newcastle and transferred it to them.

The ScACC (Mil) Controller reports that he had taken a silent internal handover of a formation of 2 Hawks that were in the descent from FL150 to FL050 on a TS. On his first transmission to the Hawks he passed TI regarding the JS41 at '11 o'clock, 20 miles opposite direction'. He was then called by another ac climbing out of low level in the Rannoch area for a transit back to Lossiemouth. He then returned his attention to the Hawks passing further TI on the JS41 at 'left 11 o'clock 5 miles'. The Mode C of each ac was similar; however, the Hawks were descending quicker than the JS41. He then got a STCA red conflict alert so he called the traffic again; the position was left 11 o'clock 1 mile 200ft above.

At this point he was surprised to see that the JS41 had turned left towards the Hawks and went over the top of them by 200ft [he assessed]. At this point the Hawk leader called visual with the JS41 as it passed overhead and he then asked for a DS, which he gave, but by then the confliction had passed.

TAY sector then called and asked if he was working the Hawks. He replied that he was and he [the ScACC Civ Controller] said that he was reporting the incident. At 1406 the Hawks went en-route.

When he first took over the Hawks he thought that the JS41 would come just within 5nm [before the heading changes] so he called the traffic to them. He assumed that if the JS41 were receiving a DS then TAY would have called to coordinate it, as normally they are very quick to do so. He always felt that the ac would pass down each other's left hand side until the JS41 turned left towards the Hawks, so the thought of stopping off the Hawk's descent was discarded and, as he had called the traffic several times to the Hawks, he assumed they were happy to continue.

ATSI concurred the most comprehensive NATS report, which is summarised below.

THE NATS REPORT indicates that, although the incident highlighted the limited time both controllers had to initiate co-ordination and that there was a difference in understanding as to the responsibilities for its initiation.

The investigation indicated that, had co-ordination taken place prior to the descent of the Hawks, there would have been an opportunity to prevent the incident, but circumstances prevented that co-ordination from being achieved.

The Military controller's focus for resolution of the incident was based on the fact that he was providing a TS to the Hawks and he was satisfied that, although he might not achieve 5nm, there was sufficient spacing between the ac to allow for TI only if there was a problem, then TAY Sector would initiate co-ordination.

TAY Sector controller was attempting to achieve the DS minima of 5nm or 3000ft against 3 opposite-direction tracks. His initial plan to take the JS41 laterally away from the unknown and conflicting ac squawking 7000 at FL109 and to go underneath the Hawks that [at that time] were maintaining FL150, was sound until the Hawks began to descend at a greater rate than the JS41.

He was then faced with a situational 'fait accompli' since he did not have sufficient spacing (less than 7nm) between the two conflicting ac to achieve 5nm.

In summary, both the civil and military controllers provided their respective services as required. The civil controller (providing a DS) attempted to provide 5nm lateral deconfliction from two [other] tracks and 3000ft vertically from the Hawk formation but their unexpected and rapid descent resulted in that plan being thwarted. The military controller provided a TS as required and was expecting the JS41 to pass to the W of the formation (albeit separated by slightly less than 5nm) and not to turn left towards it. Although there was about 80sec available to react to the changing situation, there would have been time to initiate co-ordination; however, other calls, attempts to resolve the developing conflict and an expectation that the other controller would initiate the co-ordination resulted in no contact being made between the controllers until after the event

No 'Personnel' causal factors were identified in the report since none could be attributed to military controller, civil controller or any of the aircrew involved; they considered that all the action taken by the controllers was both in accordance with the rules and appropriate under the circumstances. The lack of co-ordination, however, was considered to have contributed.

The primary causal factor was considered to be an interaction outside CAS where two controllers attempted to follow their responsibilities but where the circumstances still resulted in an Airprox.

The following systemic factors were identified:

a. Conflicting ac operating different agencies with different services.

b. Hesitation regarding co-ordination or agreement initiation responsibilities [Causal Factor 4]

HQ AIR BM ATM Safety Management reports that NATS report covers many of the issues surrounding this Airprox and HQ Air BM SM accepts the findings with the following observations:

a. Although 'neither party attempted to coordinate the conflicting tracks' is an accurate reflection of what occurred, it was the responsibility of the civil controller, at the time holding executive control of the JS41 under a DS, to achieve separation or co-ordination.

b. Causal Factor 4 gives concern. There should be no doubt that a controller vested with the executive authority to control a flight under a DS should not wait to receive a course of action to resolve any confliction. Regardless of the service being provided to the conflicting traffic [the other ac], that controller must take action to avoid any confliction by providing avoiding action or initiating coordination. In this case, the late descent of the Hawks reduced the planning time available to the civil controller, which in turn hindered his ability to resolve the situation by avoiding action alone.

The procedural fail-safes within this Airprox worked on this occasion. The Hawks were VFR, receiving a TS and, with the aid of the accurate TI passed by the military controller, became visual with the JS41.

Any move to amend the current guidelines to military controllers regarding burden of responsibility to coordinate traffic could lead to further confusion. If this situation had been reversed, current guidelines would mean the military controller would instinctively seek resolution to the confliction and not assume the other controller would carry out coordination or avoiding action.

HQ AIR (OPS) has no comment since the Hawks were in sight of the JS41 and avoided it by a suitable margin.

UKAB Note (3): A Deconfliction service is defined in CAP 774 as:

A Deconfliction Service is a surveillance based ATS where, in addition to the provisions of a Basic Service, the controller provides specific surveillance-derived traffic information and issues headings and/or levels aimed at achieving planned deconfliction minima, or for positioning and/or sequencing. However, the avoidance of other traffic is ultimately the pilot's responsibility.

CAP 774 also defines the deconfliction minima as:

The deconfliction minima against unco-ordinated traffic are:
• 5 NM laterally (subject to surveillance capability and regulatory approval); or
• 3,000 ft vertically and, unless the SSR code indicates that the Mode C data has been verified, the surveillance returns, however presented, should not merge.
(Note: Mode C can be assumed to have been verified if it is associated with a deemed validated Mode A code. The Mode C data of aircraft transponding code 0000 is not to be utilised in assessing deconfliction minima).

And states the following caveat:

High controller workload or RTF loading may reduce the ability of the controller to pass deconfliction advice and the timeliness of such information. Furthermore, unknown aircraft may make unpredictable or high-energy manoeuvres. Consequently, it is recognised that controllers cannot guarantee to achieve these deconfliction minima; however, they shall apply all reasonable endeavours.

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.

Despite that there was no risk of collision in this incident, Members found determination of the cause challenging as there were differing opinions regarding the responsibilities of controllers when controlling ac in Class G airspace. All agreed however, that both ac had an equal right to operate there and consequently the pilots had an equal and shared responsibility to avoid other ac. Both pilots had elected to make use of an ATC service to assist them with their responsibility. The Hawk leader requested a TS and expected to be informed of other ac to aid his visual acquisition and enable him to take visual avoidance. In providing this service, the ScACC (Mil) controller passed accurate TI, first indicating that the JS41 was descending and flying in the opposite direction to the Hawks and then identifying it had turned L towards the Hawk formation. This enabled the Hawk leader to see the JS41 and assess that there was no requirement for avoidance action. One controller Member was uncertain about when the Hawk Leader first saw the JS41 [the time of the "Tally" call on the transcript and the pilot's report confirm that this was at about 2nm], as it seemed that this had been just as or after it commenced its turn onto E and he regarded this as being late; most other Members, however, disagreed. Despite that the actual separation had been less (in both planes) than the Hawk pilot estimated, it was of the order of 600ft vertically which the HQ Air (Ops) Member reminded the Board, is more than the IFR separation required in some circumstances; Members agreed that it had been reasonable. Although a more positive breakaway might have prevented the (passive) TCAS RA, the HQ Air (Ops) Member also pointed out that the No2 Hawk was still closing into close formation on the Leader and therefore a positive break away was inadvisable. It was pointed out that IFR traffic, whether civil or military, cannot expect any priority over VFR operations when routeing through Class G airspace and the Rules of the Air for Collision Avoidance, i.e. the 'See and Avoid' principle applies.

The JS41 pilot being on an IFR CAT flight, sought greater separation from other ac and so the pilot asked for a DS where the controller attempts to provide 5nm or 3000ft separation from other traffic [UKAB Note (3)]. One civil controller Member opined that in practice this is hard to achieve but another disagreed saying that his unit do it routinely and do not encounter any procedural difficulties. Further, there was disagreement regarding the option to coordinate and an apparent difference between civil and military procedures; a civil controller stated that the coordination responsibility was mutual, but the military viewpoint was that the responsibility lay solely with the controller providing the DS who is required to endeavour to achieve either 5nm or 3000ft deconfliction minima, whereas one providing a TS does not.

Although the radar picture above illustrated that the civil controller was not faced with a straightforward problem to resolve, it seemed to Members that there were 2 potentially viable alternative solutions: namely to turn the JS41 to the W of the approaching 'wall' of ac or to attempt to coordinate directly with the military console controlling the Hawks (displayed on his radar screen). Notwithstanding this however, the Controller's selected course of action would most likely have provided the deconfliction minima he was seeking but this was dependant on the Hawks not descending, which unfortunately they did at 1403:33, immediately after the radar snapshot above. Although the controller had already passed the JS41 pilot a left turn (onto 170°) 16sec before the Hawk's descent was first visible, the 2nd turn (onto 160°) was 25sec after the descent commenced and the 'avoiding action' turn onto 090°' at 1404:57 (the 4th left turn) when the JS41 (FL105) was just 300ft below the Hawks (FL108). A Member observed that after the first turn, which was understandable, the 3 subsequent ones exacerbated the situation rather than resolving it. Another Member opined that the ScACC civil controller might have expected that his military counterpart would anticipate the need to position the JS41 for an approach to Newcastle, since its squawk indicated that to be its destination, and consequently request the Hawk formation to stop its descent. A military controller Member opined that the initial assumption that the Hawks would not descend had been injudicious since military ac frequently descend in that area in order to enter low level near

Amble. He also pointed out that there was no onus on the military controller as he was providing a TS [see HQ Air BM SM report], which the TAY Sector controller could have deduced since the Hawks did not turn away. Following the extensive discussion a majority of Members agreed that the actions of the military controller had been appropriate.

Excepting that the civil controller did not achieve the deconfliction minima that he was attempting to, the Hawk formation was not descending when he formulated his plan, which was otherwise workable and, had the Hawks not descended, the JS41 would have been separated [UKAB Note (3)] from both the unknown ac squawking 7000 and the subject Hawks. Members noted that the TAY Sector controller was working traffic in CAS and Class G Airspace simultaneously. A controller Member opined that, if the controller's workload was such that he did not have the capacity to make a coordination call, then the sector was undermanned and he could have exercised the option to downgrade the Service provided to the JS41. Although it could be argued that he did not modify the plan sufficiently when it became apparent that the Hawks had started to descend, in the 80sec available he was also dealing with another ac and most Members thought his actions understandable. A Member suggested that it might be advantageous if all the ac in the area had been on the same frequency. After the Meeting it was pointed out by HQ Air that, although there is a MoU between Aberdeen and ScACC (Mil) regarding the handling of IFR traffic departing to the S through Class G Airspace, since the JS41 was not an Aberdeen departure and this would not have applied.

In assessing the cause of the incident, Members noted that although the deconfliction minima desired were not achieved (resulting in the JS41 receiving a passive TCAS RA), due to assumptions subsequently revealed to be incorrect, they agreed with the NATS investigation which found that there had been no 'personnel' causal factors. That being the case, Members somewhat reluctantly agreed that this incident had been a conflict between 2 ac operating legitimately in class G airspace.

The FOI Advisor reminded the Board of FOD COM 33/2009 regarding guidance on risk assessments for operators of CAT flights outside CAS.

The Director informed the Board that he would be discussing this incident and other similar ones with the CAA and MoD as part of his periodic review.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in Class G airspace between IFR and VFR traffic.

Degree of Risk: C.