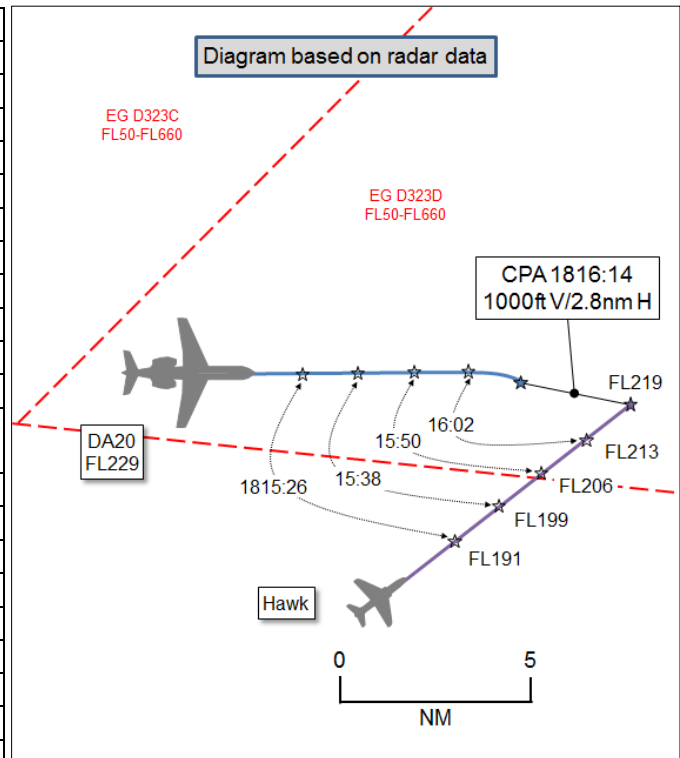


AIRPROX REPORT No 2017031

Date: 21 Feb 2017 Time: 1816Z (Night) Position: 5339N 00102E Location: West corner EG D323D

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DA20	Hawk
Operator	Civ Comm	HQ Air (Ops)
Airspace	London FIR	London FIR
Class	C	C
Rules	IFR	IFR
Service	Traffic	Radar Control
Provider	Hotspur (GCI)	Hotspur (GCI)
Altitude/FL	FL229	FL219
Transponder	A, C, S	A, C, S
Reported		
Colours	Blue, white	Black
Lighting	HISLs, nav	Nav, strobes, nose light
Conditions	VMC	VMC
Visibility	NK	40km
Altitude/FL	23000ft	FL230
Altimeter	RPS (990hPa)	SPS
Heading	160°	070°
Speed	250kt	NK
ACAS/TAS	TCAS II	Not fitted
Alert	TA	N/A
Separation		
Reported	0ft V/3nm H	NK
Recorded	1000ft V/2.8nm H	



THE DA20 PILOT reports that he was leading a flight of 2xDA20s, tasked for a sortie with 2xHawks, together operating as 'red air' for night tactical operations against 4 Typhoons. The exercise was due to take place in EG D323D Southern MDA¹ with the DA20s operating from Durham Tees Valley airport and the Hawks and Typhoons operating from RAF Coningsby. The portion of airspace allocated for the red air RV was the western corner of D323D, which formed a reasonably tight 'triangle' of airspace. During the preparation phase of the sortie, normal lines of communication were disrupted due to the Hawks being located away from home base, but a telephone brief and material was provided to all players. The Lead DA20 EWO formulated and briefed a sound tactical plan to the Hawk crews while the Lead DA20 Captain, who was turning from a previous sortie, concentrated on associated 'sortie admin'. The tactical plan and sortie admin were then both briefed to the remaining DA20 crew members. During the transit to the D323D Airspace, the 2xDA20s were level at FL230 and in receipt of a Traffic Service from the allocated GCI controller (Hotspur). The 2xDA20s had requested a climb to their sortie sanctuary heights (26000ft and 27000ft) en-route to the exercise area, but had been held at FL230 due to other traffic. It was thought that the Hawk formation were also in receipt of a Traffic Service from GCI as they departed RAF Coningsby inbound to the exercise airspace. Upon entry to D323D, the DA20 formation were aware via RT that the Hawk flight was inbound, but SA was not high as to their precise location. The Lead DA20 Captain was aware that several climb clearances had been passed to the Hawk formation members, but neither he nor the crew had assimilated a request and clearance for the lead Hawk to climb to FL320. Once established in D323D, the Lead DA20 EWO used on-board systems to inform the Captain and FO that the lead Hawk was in the 1 o'clock position, just outside the exercise airspace at a range of approximately 5-10nm. At this time, a TCAS contact at approximately FL210 was observed by the crew, which corresponded with the position indicated by the EWO. However, confirmation that this contact was

¹ UK AIP ENR 5.1-19: 'MDA' are danger areas established for air combat manoeuvre training within which activity is managed by the Military Airspace Booking Co-ordination Cell (Tel: 01489-612495).

the lead Hawk had not been achieved with GCI. RT was busy, with an attempt by the Lead DA20 Captain to clarify if the TCAS contact observed was the lead Hawk. The non-standard communication used by the DA20 Captain to try and confirm the identity of the TCAS contact was not effective, and more importantly, did not convey the concern that the contact appeared to be in a steady climb toward the DA20's altitude of 23000ft (RPS set). At approximately 4nm to the TCAS contact, a TCAS TA was received. As a result, the DA20 FO disengaged the autopilot and turned the aircraft through approximately 30° to the right to try and point behind the direction of travel of the TCAS contact. This resulted in the DA20 exiting the exercise airspace by a small margin. In response to the non-standard communications transmitted by the Lead DA20 crew, the lead Hawk pilot called that he was visual and both aircraft passed around 3-4nm laterally, approximately co-altitude. The DA20 Captain noted that the exercise was unusual but that he had not considered it to pose a significant safety challenge. However, had he considered the airspace entry part of the sortie thoroughly he would have realised the potential for the 4 aircraft of red air to arrive at similar heights, from different directions, into a constrained RV location. An entry flow to deconflict formations should have been formulated and would have removed any potential for conflict. Neither he nor the Hawk crew could recall whether any Traffic Information was passed about the proximity of the two aircraft. Recollection of R/T at this time was that it was busy.

He assessed the risk of collision as 'Low'.

THE HAWK PILOT reports leading a Hawk pair which formed the subordinate element of the red air package, consisting of the Hawk flight and 2xDA20s conducting night affiliation training in D323D against 4 Typhoons. The Hawk pair had prepositioned to RAF Coningsby on a previous sortie, and were climbing out of Coningsby into the booked airspace at the time of the incident. He and the other Hawk had departed as separate elements 2 minutes apart and had been handed over to Hotspur under a Traffic Service. After requesting a climb to FL360, he and the other Hawk were capped around FL190. He was aware that the DA20 flight was inbound to the area from the northwest and that they were at FL230 somewhere to the north of him. Shortly before entering D323D GCI cleared him to climb into his sanctuary block (above 29000ft) and he initiated the climb. As he climbed through around FL230 the Lead DA20 pilot expressed concerns to Hotspur of a contact on his nose at a similar height. This prompted the Hawk pilot to look left and he saw an aircraft light, co-altitude but at a distance far enough away not to cause him concern. He was unable to give an accurate range estimation due to it being night. He assumed the aircraft he saw to be the Lead DA20, declared on the radio that he had the traffic sighted and continued to climb. He did not recall being passed Traffic Information on the DA20 flight.

He assessed the risk of collision as 'Low'.

THE HOTSPUR CONTROLLER reports transiting 2xDA20 and 2xHawk to D323D for a routine sortie with Typhoons. Each aircraft was transiting as a singleton. The Lead DA20 was the first aircraft to enter the airspace at which point Hawk flight 'admin' was taking place. Various Typhoon traffic around D307 needed to be called to the Hawk flight during their transit. The controller noted that the Hawks had got airborne from Coningsby which was a non-standard occurrence. The lead Hawk pilot requested a climb to FL380, which the controller eventually cleared once he was confident the Hawk was clear of traffic on his nose. The climb was very slow. At this point he had to call traffic to the No2 Hawk and received a phone call from the Fighter Allocator to clear the No2 DA20 into the exercise airspace via D323C. He then received a broken transmission from the Lead DA20 pilot in which he heard "southeast 4 miles my nose". On asking him to repeat he only heard part of the message but pieced both transmissions together incorrectly, thinking he had said "contact southeast my nose". The Lead DA20 pilot then said "that contact my nose, who is he?". The controller replied with "that contact [lead Hawk C/S]". At that stage the lead Hawk pilot took over the comms and spoke to the Lead DA20 pilot. The controller noted that his initial thoughts when clearing the lead Hawk pilot to climb was that the climb would be quicker, keeping him clear of the Lead DA20 and allowing him to focus his attention on the aircraft outside of segregated airspace. Had he noticed the slower climb earlier he would have been able to be more proactive by providing Traffic Information.

He perceived the severity of the incident as 'Low'.

THE HOTSPUR SUPERVISOR reports supervising 2 controller positions for a 3v4 split frequency sortie in D323D and a pair of Typhoons in D323C, who later requested a service due to bad weather. All positions were manned on a spare capacity basis due to sickness. The DA20 flight got airborne in 20-30nm trail and transited through the Vale of York. The controller capped their height to take Mode C separation on civilian traffic, and the Typhoon pair in D323C cleared the DA20 flight through D323C to their start point. D307 was active and the airspace surrounding it was busy. As the lead Hawk passed D307 he requested a climb to FL380, once clear of factor traffic the controller approved the climb and then conducted the check-in of the No2 Hawk who was 20nm trail of the lead. It was at this point that the Typhoons in D323C requested a service and to move from D323C to the Vale of York due to weather. When the Supervisor was content that both Hawks were clear of factor traffic at D307, he began briefing another controller on the last minute request from the Typhoons in D323C. His focus was on briefing the controller and he was unaware of any confliction until after the sortie.

Factual Background

A transcript of the exercise frequency was provided, as follows:

From	To	Speech Transcription	Time
		Allocator calls HOTSPUR to transfer Coningsby ATC	
Allocator	HOTSPUR	<i>(landline call)</i> I've got a handover of [Hawk Flight C/S] for you.	18:09:29
HOTSPUR	Allocator	OK, standby <i>(pause)</i> OK, go ahead	
HOTSPUR	Con ATC	HOTSPUR Controller 2	
Con ATC	HOTSPUR	Coningsby departures, handover [Ld Hawk C/S]	
HOTSPUR	Con ATC	Go ahead	
Con ATC	HOTSPUR	OTBED south 5 miles heading 070 squawking 1741, 5123 coming down	
HOTSPUR	Con ATC	Contact	
Con ATC	HOTSPUR	Yeah, climbing FL130, traffic service	
HOTSPUR	Con ATC	In the climb FL130 single hawk [Ld Hawk C/S] identified traffic service, contact HOTSPUR TAD 110 backup, correction, TAD 026 backup 110	
Con ATC	HOTSPUR	TAD 110 back up 0. Say again TAD?	
HOTSPUR	Con ATC	026	
Con ATC	HOTSPUR	110 back up 026, handover of, standby for further handover	
HOTSPUR	Con ATC	Negative that's primary 026 back up 110	
Con ATC	HOTSPUR	Apologies, 026 back up 110	
HOTSPUR	Con ATC	Affirm.	
Con ATC	HOTSPUR	Standby for further handover. [No2 Hawk C/S] squawk 5124. Yeah ground please standby. Err [No2 Hawk C/S]	
HOTSPUR	Con ATC	Go ahead.	
Con ATC	HOTSPUR	It's Coningsby north 4 miles heading 070 squawking 1742 but 5124 coming down.	
HOTSPUR	Con ATC	Contact	
Con ATC	HOTSPUR	Climbing FL130 traffic service	
HOTSPUR	Con ATC	In the climb FL130 [No2 Hawk C/S] single Hawk, identified traffic service, contact HOTSPUR TAD 026 backup 110.	
Con ATC	HOTSPUR	026 backup 110	
HOTSPUR	Con ATC	Affirm.	
Con ATC	HOTSPUR	Coningsby many thanks <i>(end of landline call)</i>	18:10:43

From	To	Speech Transcription	Time
		HOTSPUR calls Assistant	
HOTSPUR	Assistant	(<i>landline call</i>) Assistant.	18:10:54
HOTSPUR	Assistant	Err, Controller 2, could you ask the Allocator if [Typhoon formation in D323C] are happy for [Ld DA20 C/S] to cut through the corner of 323C into Delta.	
Assistant	HOTSPUR	I'll ask the question	
HOTSPUR	Assistant	Thank you (<i>end of landline call</i>)	18:11:03
No2 Hawk	HOTSPUR	HOTSPUR, [No2 Hawk C/S] with you traffic service	18:11:03
Ld Hawk	HOTSPUR	HOTSPUR, [Ld Hawk C/S]	18:11:10
HOTSPUR	Ld Hawk	[Ld Hawk C/S], readability 5 identified traffic service. Traffic BRAA north 15, tracks 160, FL160/180, pair of Typhoons	18:11:16
Ld Hawk	HOTSPUR	Roger, traffic service, Err [Ld Hawk C/S], copied the traffic. [Ld Hawk C/S] flight are airborne as fraggged. [Ld Hawk C/S] B/E 194/102	18:11:27
HOTSPUR	Ld Hawk	HOTSPUR.	18:11:37
No2 Hawk	HOTSPUR	HOTSPUR, [No2 Hawk C/S] level FL130	18:11:39
HOTSPUR	No2 Hawk	[No2 Hawk C/S], HOTSPUR acknowledged. B/E check 197/113	18:11:43
No2 Hawk	HOTSPUR	B/E sweet [No2 Hawk C/S], looking for further climb to 280	18:11:46
Ld Hawk	HOTSPUR	[Ld Hawk C/S], when clear of traffic or able would like a climb into FL380	18:11:52
		Allocator calls HOTSPUR, Assistant clicks in	18:11:56
HOTSPUR	Ld Hawk	[Ld Hawk C/S], HOTSPUR acknowledged, previous traffic BRAA; North-10-tracks 140- FL160/180	18:12:00
Ld Hawk	HOTSPUR	[Ld Hawk C/S], traffic sighted	18:12:08
		HOTSPUR clicks in to call from Allocator	18:12:10
HOTSPUR	Allocator	(<i>landline call</i>) Controller 2	
Allocator	HOTSPUR	Err Allocator you are clear through the bottom 15 miles of Charlie.	
HOTSPUR	Allocator	No worries, thank you very much (<i>end of landline call</i>)	
HOTSPUR	Ld DA20	[Ld DA20 C/S], HOTSPUR clear left east direct track 323D	18:12:19
Ld DA20	HOTSPUR	[Ld DA20 C/S] left east	18:12:25
HOTSPUR	No2 DA20	[No2 DA20 C/S] maintain heading	18:12:27
No2 DA20	HOTSPUR	Maintain [No2 DA20 C/S]	18:12:29
HOTSPUR	No2 Hawk	[No2 Hawk C/S], Typhoon traffic BRAA; 030-12- FL160-manouevres right through 220	18:12:37
No2 Hawk	HOTSPUR	[No2 Hawk C/S] tally	18:12:45
HOTSPUR	No2 Hawk	[No2 Hawk C/S], additional traffic BRAA; 105-17- FL195-climbs-tracks 330	18:12:53
No2 Hawk	HOTSPUR	[No2 Hawk C/S]	18:13:05
Ld Hawk	HOTSPUR	[Ld Hawk C/S], can see I am clear of the traffic on my nose, requesting to climb FL380	18:13:07
HOTSPUR	Ld Hawk	[Ld Hawk C/S] shows traffic your nose FL180 crosses left right	18:13:14
Ld Hawk	HOTSPUR	[Ld Hawk C/S] has traffic sighted	18:13:20
HOTSPUR	Ld Hawk	[Ld Hawk C/S], clear climb FL280, radar control at and above FL195	18:13:22
Ld Hawk	HOTSPUR	Err climb FL380 radar control above 195, [Ld Hawk C/S]	18:13:30
HOTSPUR	Ld Hawk	[Ld Hawk C/S] confirm 380 level required?	18:13:34

From	To	Speech Transcription	Time
Ld Hawk	HOTSPUR	Affirm [Ld Hawk C/S]	18:13:37
HOTSPUR	Ld Hawk	Clear climb FL380	18:13:39
Ld Hawk	HOTSPUR	Climb FL380, [Ld Hawk C/S]	18:13:41
HOTSPUR	Ld Hawk	[Ld Hawk C/S] maintain visual traffic your nose 2 miles FL180	18:13:46
Ld Hawk	HOTSPUR	[Ld Hawk C/S] traffic sighted	18:13:51
HOTSPUR	No2 Hawk	[No2 Hawk C/S] previous traffic BRAA; 120-8- FL210-climbs	18:13:54
No2 Hawk	HOTSPUR	[No2 Hawk C/S], no update	18:14:01
		Allocator calls HOTSPUR	18:14:11
Allocator	HOTSPUR	<i>(landline call)</i> You can clear [No2 DA20 C/S] now	18:14:12
HOTSPUR	Allocator	Thank you <i>(end of landline call)</i>	
HOTSPUR	No2 DA20	[No2 DA20 C/S] clear left east direct 323D	18:14:15
No2 DA20	HOTSPUR	Left east for [No2 DA20 C/S]	18:14:18
Unknown	Unknown	Charlie what time can you make the start point?	18:14:55
No2 Hawk	HOTSPUR	[No2 Hawk C/S] in the climb FL280	18:15:06
HOTSPUR	No2 Hawk	Clear climb FL280, radar control at and above FL195	18:15:09
No2 Hawk	HOTSPUR	Clear climb, radar control above 195, [No2 Hawk C/S]	18:15:14
HOTSPUR	Ld DA20	[Ld DA20 C/S] traffic service	18:15:33
Ld DA20	HOTSPUR	Traffic service [Ld DA20 C/S]	18:15:36
Ld DA20	HOTSPUR	HOTSPUR [Ld DA20 C/S] request to climb, [Hawk C/S] 4 miles my nose (... <i>unintelligible</i>)	18:15:48
HOTSPUR	Ld DA20	[Ld DA20 C/S] say again	18:15:56
Ld DA20	HOTSPUR	Contact my nose 3 who is he?	18:16:01
HOTSPUR	Ld DA20	HOTSPUR	18:16:04
Ld DA20	HOTSPUR	HOTSPUR, who is the contact my nose 3 miles climbing 23 000?	18:16:08
HOTSPUR	Ld DA20	[Ld DA20 C/S], HOTSPUR that contact [Ld Hawk C/S]	18:16:12
Ld DA20	HOTSPUR	Copied, does he know I'm here?	18:16:16
Ld Hawk	Ld DA20	[Ld Hawk C/S] has you 5	18:16:19
Ld DA20	Ld Hawk	Copied (2 <i>second pause</i>) [Hawk Flight C/S] What height are you climbing to?	18:16:25
Ld Hawk	Ld DA20	[Ld Hawk C/S] is climbing to block 3, [No2 Hawk C/S] is climbing high block 2	18:16:30
Ld DA20	HOTSPUR	Right HOTSPUR, grip this	18:16:37
HOTSPUR	Ld DA20	HOTSPUR	18:16:40

Analysis and Investigation

Military ATM

An Airprox occurred on 21 Feb 17 at approximately 1816 hrs UTC, 15nm ENE of Coningsby, between a DA20 and a Hawk. The DA20 pilot was in receipt of a Traffic Service and the Hawk pilot in receipt of a Radar Control Service from the same Hotspur controller while establishing in D323D. Figures 1-6 show the positions of the Hawk and DA20 at pertinent times in the lead up to, and at the time of, the Airprox. The screen shots are taken from a replay of the Claxby radar feed.

At 18:13:46 (Figure 1), the Hotspur controller passed Traffic Information to the Hawk pilot, squawking 5123, of traffic on the nose at FL180, crossing left to right.



Figure 1

The pilot had previously reported clear of said traffic and requested a climb to FL380. The Hotspur controller instructed the Hawk pilot to climb to FL280. After discussion to clarify the requested level, the pilot was instructed to climb to FL380 and reminded to remain visual with the previously called traffic.

At 18:15:33 (Figure 2), the Hotspur controller agreed a Traffic Service with the DA20 pilot who by then was within D323D, but did not pass Traffic Information on the Hawk nor to the Hawk pilot, who was outside D323D, in Class C airspace, under a Radar Control Service.

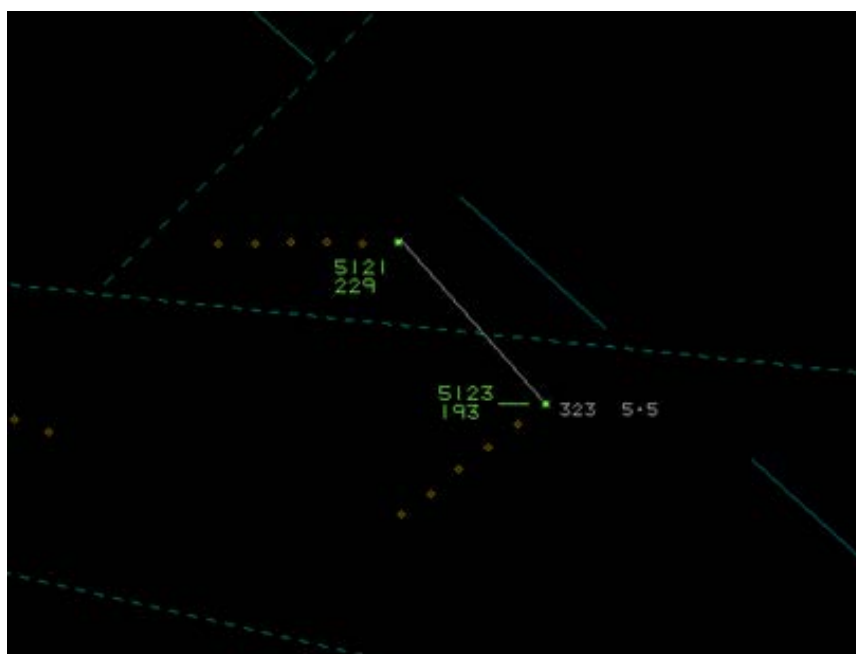


Figure 2

At 18:15:48 (Figure 3), the DA20 pilot requested to climb and possibly suggested that the Hawk was in his 12 o'clock at range 4nm. The Hotspur controller asked the DA20 pilot to say again, to

which the DA20 pilot asked what the traffic was on his nose at 3nm. The Hotspur controller stated their call sign but did not pass Traffic Information to either aircraft.

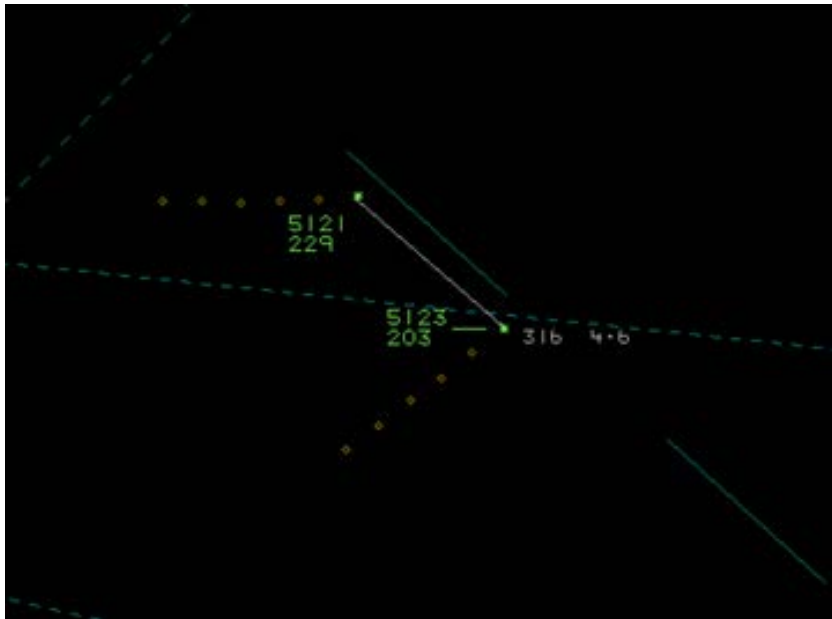


Figure 3

At 18:16:08 (Figure 4), the DA20 pilot asked the Hotspur controller to clarify what the traffic was on his nose, 3nm, climbing 23,000ft. The Hotspur controller responded that it was the Hawk.

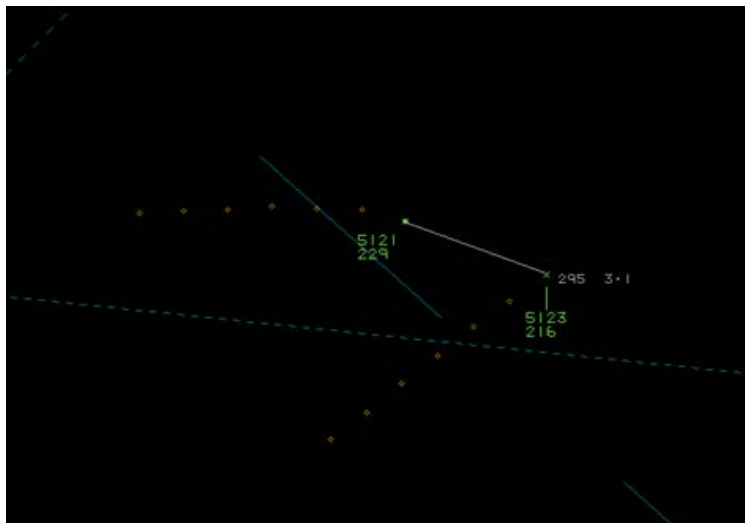


Figure 4

At 18:16:16 (Figure 5), the 2 aircraft were at their CPA of 2.8nm. The DA20 pilot asked the Hotspur controller if the Hawk pilot was aware of the DA20 traffic. The Hawk pilot, who was on the same frequency, responded that he had the DA20 '5'. A short conversation between the Hawk and DA20 pilots followed in order to clarify each other's intentions.

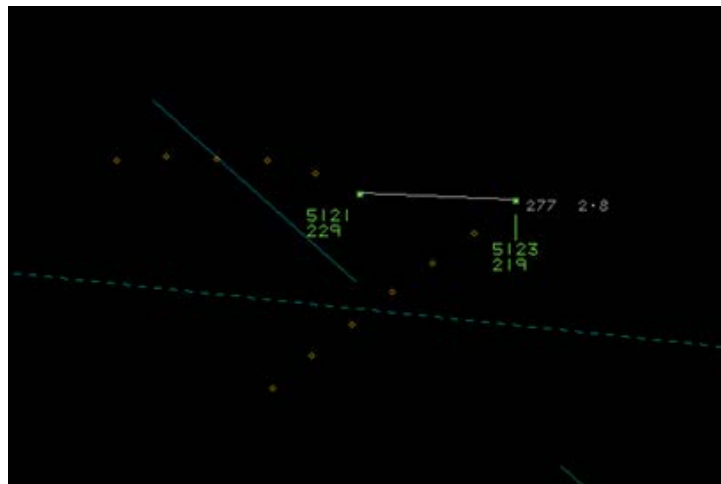


Figure 5

The Hotspur controller was working 4 aircraft, all singleton transits to the same operating area. Temporary Reserved Area (TRA) 6 was inactive due to the time of day but the Managed Danger Area (MDA) being used, D323D, was active. As the DA20 transited through D323D, the type of service was changed from Radar Control to Traffic Service, but no Traffic Information was passed on the converging Hawk.

Having given the Hawk pilot a step-climb and passed Traffic Information on 2 other conflicting aircraft, the Hawk pilot was instructed, once clear of the traffic, to climb to FL380. The pilot was told that on passing FL195, on entering Class C airspace, he would be under Radar Control. Traffic Information was passed to a different aircraft, then the Hotspur controller's attention turned to a landline conversation with their Fighter Allocator (supervisory position) during which clearances into the operating area were agreed.

The Hotspur controller stated that they anticipated the Hawk would climb quickly and therefore not come into conflict with the DA20; however, they did not adequately monitor the traffic or react to what was actually happening, and so neither the Hawk nor the DA20 pilots received Traffic Information on each other. Although the DA20 pilot was operating under a Traffic Service, the Hawk pilot was under Radar Control and therefore required 5nm separation from other traffic in CAS, which was not achieved.

After the Airprox, the Hotspur controller issued an 'all players' instruction to operate within D323D under a Traffic Service, a commonly used method of communicating which reduces the number of individual transmissions, keeping the frequency clear for other tactical calls. The Hawk pilot remained under Radar Control until that point.

UKAB Secretariat

The DA20 and Hawk pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard². If the incident geometry is considered as converging then the DA20 pilot was required to give way to the Hawk³. If the incident geometry is considered as overtaking then the DA20 pilot had right of way and the Hawk pilot was required to keep out of the way of the other aircraft by altering course to the right⁴, notwithstanding ATC instructions.

² SERA.3205 Proximity.

³ SERA.3210 Right-of-way (c)(2) Converging.

⁴ SERA.3210 Right-of-way (c)(3) Overtaking.

Occurrence Safety Investigation

The Hotspur investigation found that the controller was used to controlling Typhoons, which are able to use their radar to monitor traffic in front of them, which is not the case with the Hawk. A relatively high workload on transit (4 singletons) and clearance to manoeuvre in the airspace resulted in a loss of SA on the two aircraft in conflict. The controller misheard the initial proximity call and did not realise the gravity of the situation until after the sortie when the DASOR was put in. The Supervisor was monitoring another sortie and also did not notice.

Comments

HQ Air Command

It appears that neither element of the Red Air formation received the Traffic Information they were expecting because the controller didn't assimilate that a conflict was developing. However, the DA20 crew had amassed enough SA coupled with their on-board sensors to identify a potential threat with regards to the climbing Hawk formation. With conflicting arrival tracks, the DA20 captain acknowledged that the domestic elements of the formation planning did not receive the full attention that on this occasion was warranted. It is often the most repetitive or apparently simple tasks where situations such as this occur. The Hawk T1 isn't currently fitted with a CWS. Due to the Hawk T1's remaining lifespan, a working group comprising of military Hawk T1 operators is currently looking into options for future fitment. Post the event, the controller has recalibrated his appreciation of Hawk T1 capability regarding both rate of climb and on board equipment (having been accustomed to Typhoon operating performance), additionally he has received a safety check to ensure any skill fade he may have been experiencing has been addressed.

Summary

An Airprox was reported when a DA20 and a Hawk flew into proximity at 1816 on Tuesday 21st February 2017 whilst marshalling to join up as a formation. Both pilots were operating under IFR in VMC at night, both in receipt of an Air Traffic Service from a Boulmer controller, the DA20 pilot under a Traffic Service and the Hawk pilot under Radar Control.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, a transcript of the relevant RT frequency, radar photographs/video recordings, a report from the controller involved and reports from the appropriate ATC and operating authorities.

Members first discussed the Hotspur controller's actions and agreed that he had made a plan based on his experience of Typhoon rate of climb rather than Hawk. Rather than then controlling based on what the radar screen showed, he had allowed himself to become distracted and this had both prevented him from providing adequate Traffic Information to either pilot and had also resulted in him inadvertently vectoring the Hawk into conflict by clearing the pilot to climb. Members agreed that this latter oversight was the cause of the Airprox, with the lack of Traffic Information being contributory. A military ATC member commented that it was unusual for a Fighter Controller to manage traffic in transit to the operating area for such an exercise and that this was usually handled by Swanwick.

Discussing the pilots' actions, it was agreed that a more robust plan to manage the aircraft entering the exercise area would have been appropriate, especially at night, and that a contributory factor had been that the Lead DA20 pilot, as the package leader, had not ensured a sufficiently robust marshalling plan for the red-air aircraft. Finally, controller members commented that, although the Hawk pilot had entered D323D, he was still subject to the agreed Air Traffic Service, Radar Control above FL195, and hence separation minima had not been achieved. Members agreed that although this was the case, the SA of the DA20 crew and Hawk pilot was such that although safety was not assured, there was no risk of collision.

PART C: ASSESSMENT OF CAUSE, RISK AND SAFETY BARRIERS

Cause: The Hotspur controller vectored the Hawk pilot into conflict with the DA20.

Contributory Factors:

1. The Hotspur controller did not provide adequate Traffic Information.
2. The DA20 pilot's marshalling plan was not sufficiently robust.

Degree of Risk: C.

Safety Barrier Assessment⁵

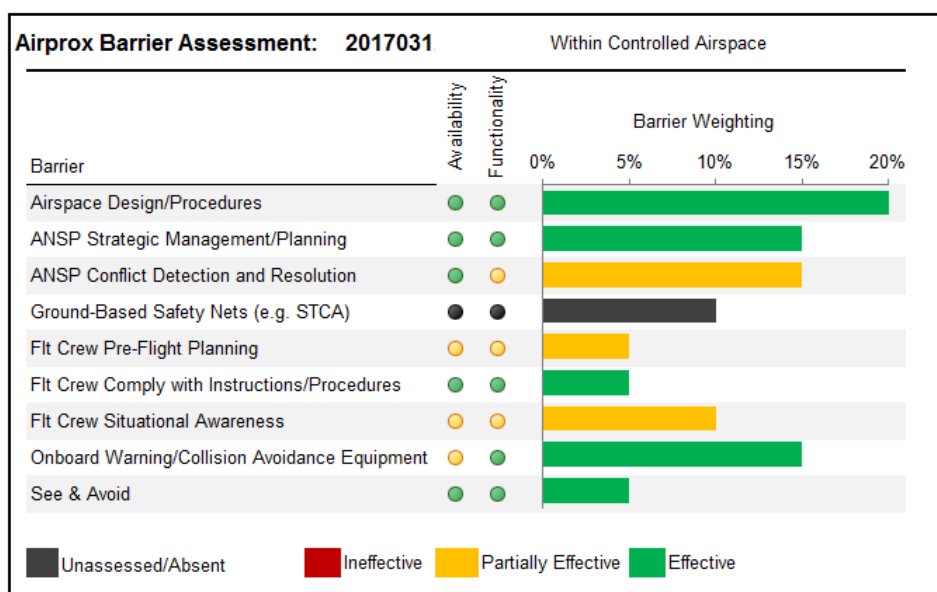
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

ANSP Conflict Detection and Resolution was assessed as **partially effective** because the controller had not deconflicted the aircraft as required for the Radar Control Service under which the Hawk pilot was operating, and the aircraft subsequently passed each other inside separation minima.

Flight Crew Pre-Flight Planning was also assessed as **partially effective** because the DA20 planning lead had not ensured a robust marshalling plan within the confines of the western corner of D323D.

Flight Crew Situational Awareness was assessed as **partially effective** because although the Hawk pilot eventually saw the DA20 and assessed that there was no collision risk, neither pilot was given timely Traffic Information on each other.

Onboard Warning/Collision Avoidance Equipment was assessed as **effective** because the DA20's TCAS had provided timely information even though the Hawk had no such equipment and so CWS was only partially available overall.



⁵ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).