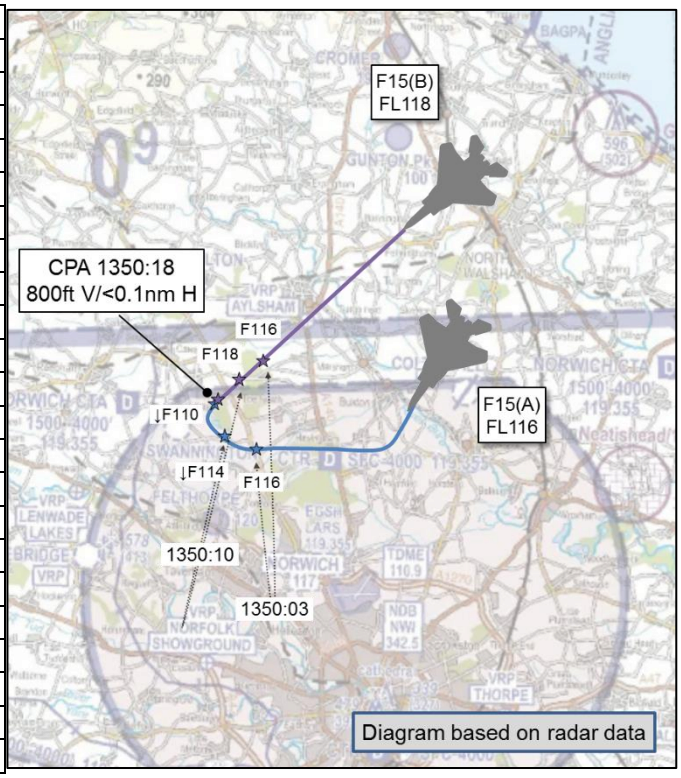
AIRPROX REPORT No 2019295

Date: 03 Oct 2019 Time: 1350Z Position: 5245N 00112E Location: NW Norwich

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	F15(A)	F15(B)
Operator	Foreign Mil	Foreign Mil
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Traffic	Traffic
Provider	Swanwick(Mil)	Magic
Altitude/FL	FL110	FL118
Transponder	A, C	A, C, S
Reported		
Colours	Dark Grey	Dark Grey
Lighting	Strobes, Nav	Strobes, Nav
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	10,000ft	11,000ft
Altimeter	QNH (29x92 in)	QNH (29x92 in)
Heading	300°	190°
Speed	350kt	320kt
ACAS/TAS	Not fitted	Not fitted
Separation		
Reported	300ft V/0.1NM H	1000ft V/1NM H
Recorded	800ft V/<0.1NM H	



THE SWANWICK(MIL) EAST CONTROLLER reports that he took over the controller position with 2 pairs of F15s and a singleton. The controller he was relieving stated that the formation did not require Traffic Information on the other F15s and that one pair in particular were often not responding to any transmissions directed at them. Shortly after taking over, F15(A) was operating in the vicinity of Norwich in a block 8000-24000ft on the regional pressure setting, when a 4-ship was observed NE of his position, tracking SSE and indicating FL140. Traffic Information was passed to F15(A) 3 times with the associated height information and track as they descended towards RAF Lakenheath. F15(A) was in a right-hand turn when the final Traffic Information call was given and as the aircraft became closer, the controller issued an avoiding action turn to 180° to 'prevent a possible mid-air collision'. The conflicting traffic was indicating between FL116 and FL118 on Mode C and was possibly receiving a service from an airborne controller. The F15(A) pilot descended upon seeing the other aircraft and, as it continued its right-hand turn, the other aircraft was seen to climb to FL120 at the last minute. The F15(A) pilot did not respond to any of the Traffic Information, or to the avoiding action, until after the event, when it became apparent that he had been surprised by the other traffic.

The controller perceived the severity of the incident as 'High'.

THE SWANWICK(MIL) SUPERVISOR reports that he had very little situational awareness at the time of the incident. The unit was getting to the end of an extremely busy period, several of the controllers on console were approaching, or had passed their maximum time on console and it was during shift changeover, so he was briefing the oncoming shift and de-briefing the outgoing controllers. The controller in question was also the furthest away from his location, so he didn't even have a general overview of his traffic other than he was working general handling traffic. However, that controller did have a planner in position supervising the E sector. His first knowledge of the incident came when the controller called him over to brief him on the incident, at which point the pilot was asked to call the Supervisor on landing and the controller was relieved to complete the relevant action. Sometime later, the lead pilot called and explained that he had heard all the Traffic Information and avoiding action that

had been issued, but his wingman appeared to have lost situational awareness and not received the calls.

THE F15(A) PILOT reports that he had been executing training in East Anglia as part of a pair and with other F15s. On the return to base, he received Traffic Information from Swanwick(Mil) on 4 occasions, culminating in avoiding action at 1350:15. The WSO was visual with the 4-ship of F15s at 3NM away, in the descent pointing towards RAF Lakenheath, but the pilot did not communicate to the controller that deconfliction was met.

The pilot assessed the risk of collision as 'Low'.

THE F15(B) PILOT reports that he was part of a formation of 4 F15s, all co-altitude at FL120. They were all on the E3 controller's frequency while RTB and had planned to vertically deconflict with the formation that F15(A) was a part of. The formation had situational awareness on the F15 pair, received Traffic Information from the controller and subsequently became visual at 3NM. F15(A) was not showing on the data link but they could see it was remaining predictable following the 'close-air-support wheel'. However, as they approached, they saw F15(A) appear to climb, followed by an aggressive manoeuvre to de-conflict from the 4-ship.

The pilot assessed the risk of collision as 'Low'.

THE E3 CONTROLLER reports that he was the check-in controller on the E3 for a USAF exercise that was conducted in the EG D323 complex. The incident took place during the recovery phase; he was responsible for the ingress and egress of all aircraft in the exercise to Lakenheath and Mildenhall, with or without assistance from Swanwick(Mil) (depending on the workload of both units). His duties also included the AAR portion of the mission; he also had 2 tankers in 'cell'. All air systems were under a Traffic Service and he had aircraft routing through the EAMTA from the west and east due to their geographical positions at the point of recovery. The AAR on towline 8 (it was unexpectedly active and wasn't in the USAF mission brief) also had a number of non-exercise aircraft that he had to deal with periodically; this was a big drain on capacity and one of them had been the F15(A) formation. Furthermore, one of his duties was also to inform Swanwick(Mil) about what the E3 controllers would be controlling. He did this prior to the execution; the intent to recover them all himself from EG D323 back to Lakenheath was also passed. He was also the main conduit between Swanwick(Mil) and the controlling team throughout the session, so was balancing this with his controlling responsibilities.

During the recovery phase he had noticed what he believed to be fast-jet aircraft conducting general handling in the EAMTA, so he did have situational awareness on F15(A), although he was unaware of who they were at the time due to workload. His belief at the time, from previous discussions with Swanwick(Mil), was that they were busy (they later said they were at capacity when he tried to hand some of the red air fighters over), so he elected to recover the F15s himself; he took them to the edge of their respective ATC radar limits before switching them across to Lakenheath. The F15(B) formation was the last of 3 formations (in a stretched trail), taking an identical route back to Lakenheath through the eastern portion of the EAMTA - all 3 formations were given freedom of manoeuvre during their recovery. They were periodically asking for further descents to set up their approaches, which he was approving rather than commanding their descents. Traffic Information was provided to all 3 formations about the general handling traffic (the F15(A) formation) during their recovery, and interactions with it were minimal for the first 2 formations. For the F15(B) formation, Traffic Information was provided on a few occasions; he initially felt that F15(A) was manoeuvring away and would be no factor but recalled that the next time he looked they were coming back into confliction. He believed he provided Traffic Information at that point but was not 100% certain. He recalled that the F15(B) pilot called/requested an adjustment to their height before switching them to Lakenheath, possibly 'see and avoid'. With hindsight, he thought he should have attempted to contact Swanwick(Mil) during the recovery as there may have been a better option than relying purely on Traffic Information, but it was difficult to find the opportunity due to workload. Communications had been very good prior to that. He was unaware of the perceived severity of the Airprox until he saw the DASOR; neither Swanwick(Mil), the F15(B) pilot nor the Weapons Manager reported an Airprox at the time of the event.

He also confirmed that, like Swanwick(Mil), there were occasions on frequency where crews were not responding to his transmissions; an example was even though Swanwick(Mil) was very proactive with pre-notes and handovers of some of the non-exercise formations joining towline 8, some aircraft joined the tanker without checking in or out with him, of which the F15(A) formation was one. The F15(B) formation was also slow to respond to calls earlier in the mission, requiring repeated instructions.

Factual Background

The weather at Norwich was recorded as follows:

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METAR EGSH 031350Z 18006KT 150V220 CAVOK 12/05 Q1016 NOSIG=
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Analysis and Investigation

Military ATM

F15(A) was conducting general handling culminating in a simulated attack in a tactical situation and was receiving a Traffic Service from Swanwick(Mil) in the block 8000-24000ft. The F15(B) formation had conducted a tactical sortie in segregated airspace and was in the process of returning to Lakenheath while under the control of an E3 and was also receiving a Traffic Service. During the recovery phase, the F15(B) pilot was given a descent to FL100 and Traffic Information was passed twice on F15(A). Swanwick(Mil) provided Traffic Information to the F15(A) pilot on 4 occasions and, receiving no RT response, issued avoiding action to the F15 pilot, which was again not acknowledged. The F15 pilot subsequently reported receiving but not acknowledging the calls due to workload.

Figures 1-6 show the positions of F15(A) and the F15(B) formation at relevant times in the lead-up to and during the Airprox. Having completed their exercise, the F15(B) formation leader requested a return to Lakenheath and a descent to FL100. At this point, separation between the aircraft was in excess of 35NM and therefore the descent was approved by the E3 controller.

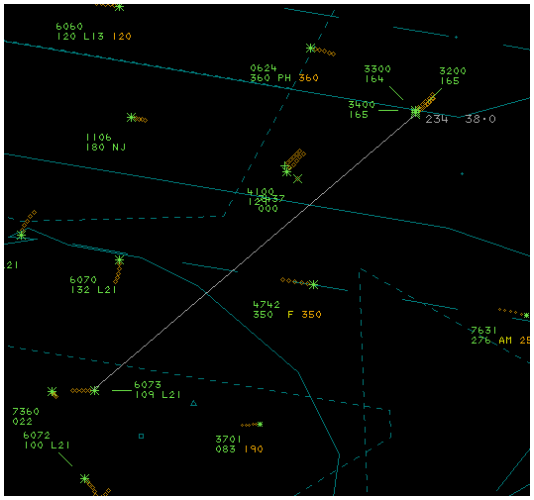


Figure 1 – F15 Formation begins descent

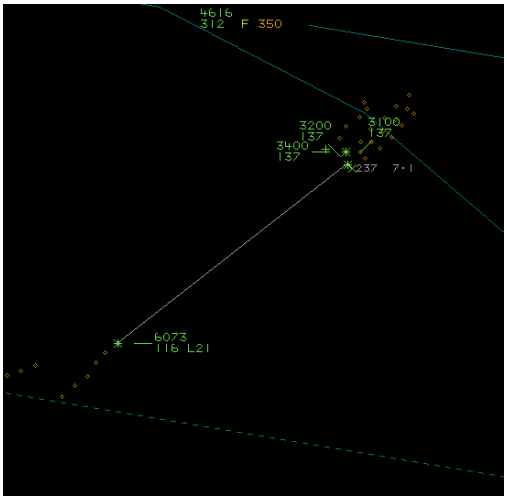


Figure 2 – 1st TI from Swanwick (Mil)

Traffic Information was passed for the first time to the F15(A) pilot by Swanwick(Mil) at a range of 7NM. No response was received from the pilot to this Traffic Information.

Shortly after this, the E3 controller passed Traffic Information to the F15(B) formation about F15(A). This Traffic Information was not accurate as the controller stated the confliction was at the 9 o'clock position, when actually it was in the 12 o'clock position, and did not conform to CAP 413. Notwithstanding this, the F15(B) formation reported visual with F15(A).

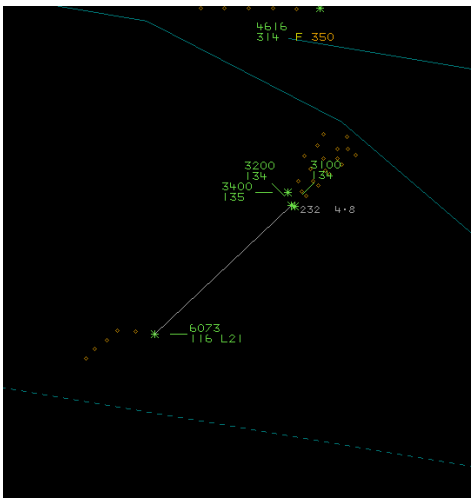


Figure 3 – 2nd TI issued by both controllers

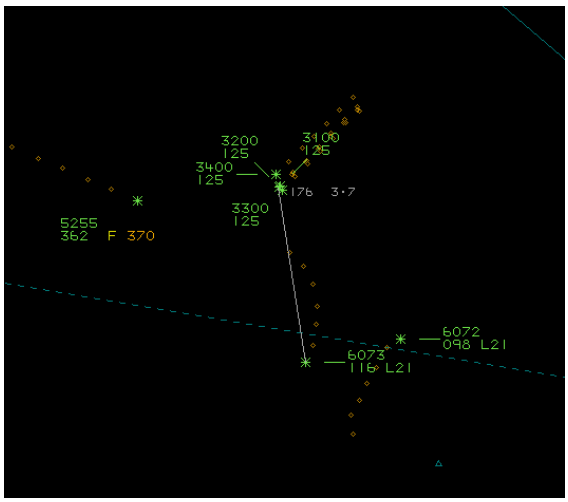


Figure 4 –TI issued by the E3 controller

Swanwick(Mil) passed Traffic Information for a second time to the pilot of F15(A). As before, no response was received. Almost concurrent with this, the E3 controller passed Traffic Information to the F15(B) formation. This again did not conform to CAP 413 and, despite requesting if the formation was visual, no response was received.

The Swanwick(Mil) controller passed Traffic Information for a third time at a range of 3NM and 1000ft and again 20sec later at a range of 3NM and a similar altitude. Again, no response was received from the pilot of F15(A).

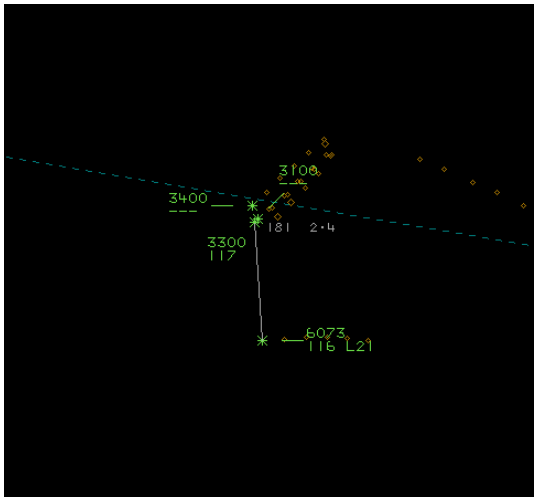


Figure 5 – 3rd & 4th TI issued by Swanwick(Mil)

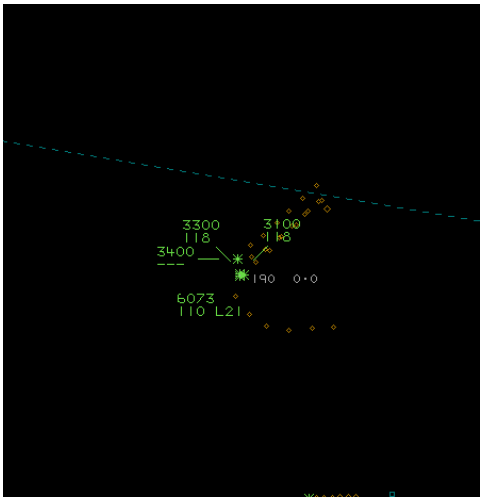


Figure 6 – Avoiding Action and CPA

The Swanwick (Mil) controller issued avoiding action to the F15(A) pilot almost concurrent with CPA. This was accompanied by a descent from F15(A) resulting in a CPA of 800ft with no lateral separation. Shortly after CPA, the F15(A) pilot contacted Swanwick(Mil) reporting the formation had flown through his level and asking if there had been any deconfliction. Swanwick(Mil) responded by reiterating that Traffic Information had been passed 4 times and avoiding action issued.

Although with different controlling agencies, the pilots involved in this incident received Traffic Information on each other 6 times, and it is unfortunate that on 5 of those occasions no response was received from the pilot of either aircraft. For their part, the E3 controller was in a relatively benign environment as the F15(B) formation leader had reported visual with F15(A) at a range of 3NM and they were therefore much more comfortable with the developing situation. The Swanwick(Mil) controller was much less comfortable with the situation, as none of their Traffic Information calls had been acknowledged and it was evident that there was a growing confliction. This culminated in 2

Traffic Information calls and avoiding action within 37 secs and it is evident from the post-incident RT exchange that the F15(A) pilot was unaware of the approaching F15(B) formation.

UKAB Secretariat

The F15(A) and F15(B) pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[1] If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.[2] If the incident geometry is considered as converging then the F15(A) pilot was required to give way to the F15(B).[3]

Occurrence Investigation

A Lakenheath investigation found that, although the formation lead in the F15(A) pair was aware of the presence of the 4-ship, the F15(A) pilot was not. The following table provides the timeline of events.

TIME (z)	F15(B) ALT	F15(A) ALT	ALT Δ	RANGE	NOTES
13:48:00	14,000	11,460	2,540	7.1nm	F15(A) reverses to a right hand turn to set geometry for target attack, reversing turn places F15(A) in front of F15(B) flt. F15(B) flt is cleared down to FL100.
13:48:50	13,110	11,450	1,660	3.2nm	F15(A) passes in front of the nose of F15(B). who has situational awareness on F15(A), deconflicted 5nm. Perceives no factor traffic.
13:49:02	12,700	11,440	1,260	3.4nm	F15(B) formation lead recognizes potential conflict with F15(A) and requests a level-off at FL120.
13:49:32	12,120	11,390	730	3.7nm	F15(A) calls in with direction for attack. F15(B)flt is still descending to FL120 with SA of lead of F15 pair, and visual F15(A). F15(B) continues below level-off altitude of FL120.
13:50:00	11,660	11,460	200	2.0nm	F15(A) WSO directs check right and descend to pilot perceiving co-altitude with F15(B) flt. F15(B) WSO directs pilot to climb to deconflict.
13:50:02	11,650	11,460	210	1.9nm	F15(A) begins aggressive manoeuvre to deconflict.

[1] MAA RA 2307 paragraphs 1 and 2.
[2] MAA RA 2307 paragraph 13.
[3] MAA RA 2307 paragraph 12.

13:50:05	11,670	11,330	340	1.7nm	Magic makes call about factor traffic 5nm away. No Magic C2 SA on F15(A)
13:50:08	11,690	11,310	380	1.3nm	
13:50:10	11,710	11,140	550	1.0nm	F15(B) WSO directs another climb, perceives deconfliction met with F15(A) manoeuvre.
13:50:13	11,790	10,640	1,150	0.5nm	
13:50:16	11,850	10,390	1,460	0.0nm	F15(B) and F15(A)have direct vertical pass. F15(A) provides deconfliction with manoeuvre.
13:50:20	11,990	10,310	1,680	PASS 3/9	F15(B) flt switches to Lakenheath approach.

Comments

USAFE-UK

The 48th Fighter Wing has carried out an extensive internal investigation in order to understand (a) what happened on this occasion, and (b) how to prevent further similar events. This investigation is part of a wider effort to ensure that a lack of F15 response to ATC information and instructions does not become a trend. The Unit specifically emphasizes the importance of maintaining 2-way communication with Swanwick(Mil) whenever it is appropriate to do so (in this instance it was clearly appropriate to do so); as an aside, aircrew are also directed to check in with Swanwick(Mil) at the earliest opportunity when departing the EG D323 complex for a recovery to RAF Lakenheath; however, it is recognized that Swanwick(Mil) has a finite capacity, which may have resulted in the F15(B) element being controlled by Magic. Aircrews are also advised that when working in the East Anglia MTA they should maintain 2-way radio communications with Swanwick(Mil) throughout their sortie. It seems that in this case, the F15(A) pilot may have failed to keep at least one radio up (or sufficiently turned-up) on the allocated Swanwick(Mil) frequency. The exact reasons on this occasion are unknown, but all aircrew have been reminded, via the RAF Lakenheath Flight Safety Officer, of the importance of maintaining 2-way communication with Swanwick(Mil), especially when operating in known busy airspace. The Board can be assured that if the F15(A) pilot had heard the radio calls from Swanwick(Mil), they would definitely not have purposely ignored them.

Summary

An Airprox was reported when F15(A) and F15(B) flew into proximity NE of Norwich at 1350hrs on Thursday 3rd October 2019. Both pilots were operating under VFR in VMC, the F15(A) pilot in receipt of a Traffic Service from Swanwick(Mil) and the F15(B) pilot in receipt of a Traffic Service from an E3 controller.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided a combination of written contributions and dial-in/VTC comments. Although not all Board members were present for the entirety of the meeting and, as a result, the usual wide-ranging discussions involving all Board members were more limited, sufficient engagement was achieved to enable a formal assessment to be agreed along with the following associated comments.

The Board first looked at the actions of the F15 pilots. Members agreed that both pilots had been given enough Traffic Information from their respective controllers to be able to recognise the potential confliction much earlier than they had. They heard from the USAFE (UK) advisor that the pilot of F15(A) had been conducting a sortie that required a high cockpit workload and that he had probably been task-focused in trying to become visual with his formation lead, who had been some 10NM to the east of his position at the time of the incident (**CF6**, **CF7**). Members agreed that this high workload had probably meant that he had not assimilated the Traffic Information that had been provided by the Swanwick(Mil) controller (**CF4**). The lack of acknowledgement of the Traffic Information implied that the pilots of both elements of the formation had been distracted by the in-cockpit workload (**CF3**), but the Board doubted whether the F15(A) pilot had actually been aware of F15(B); certainly his comments on the RT after having seen it implied that he had not expected it to be there, and members thought it had been a late sighting on his part, probably prompted by the WSO (**CF8**).

The F15(B) pilot had first been given Traffic Information when around 7NM away from F15(A). This was updated at 3NM and the formation lead pilot had reported being visual with it. In his report, the F15(B) pilot stated that F15(A) had been operating in a CAS wheel and he believed it was predictable in its manoeuvring and had assessed that it was had not been likely to affect his descent into Lakenheath. Nevertheless, members thought that he should have given a wider berth to the other aircraft to allow for the case where, as actually happened, it turned unexpectedly towards the formation (**CF2**). Given that the F15(B) pilot had reported visual, members agreed that the formation could have acted more proactively to ensure adequate separation either on first being given Traffic Information from the controller, or once visual (**CF5**,**CF9**).

The USAFE (UK) advisor assured the Board that ConOps for the F15s is to listen for, and acknowledge, all calls made by ATC. Further, the airspace in East Anglia is usually informally allocated during planning to deconflict any F15 activity (although he acknowledged that this did not provide any protection from other airspace users). The flight safety team intended to use this Airprox to highlight the importance of maintaining 2-way communications with ATC.

The Airprox was reported by the Swanwick(Mil) controller, and members sympathised with the difficult situation that the controller had found himself in; the F15(A) pilot had not acknowledged his Traffic Information and he had not known whether the pilot was visual or not, eventually resorting to issuing last-minute avoiding action to alleviate the unfolding situation. For his part, the E3 controller had also had a high workload; although he had passed Traffic Information using an incorrect clock-code on the first occasion (**CF1**), it had later been updated and members agreed that it did not contribute to the Airprox given that the F15(B) pilot had reported visual.

Finally, in determining the risk, members first debated whether there had been a risk of collision at all, given the final separation was in the region of 800ft. After some discussion, it was agreed that because the WSOs on both aircraft had called for the pilots to take action, and that the action had been somewhat last-minute, safety had not been assured; Risk Category B.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2019295		
CF	**Factor**	**Description**	**Amplification**
	Ground Elements		
	• Situational Awareness and Action		
1	Human Factors	• Traffic Management Information Provision	Not provided, inaccurate, inadequate, or late
	Flight Elements		
	• Tactical Planning and Execution		
2	Human Factors	• Insufficient Decision/Plan	Inadequate plan adaption
3	Human Factors	• Accuracy of Communication	Ineffective communication of intentions
	• Situational Awareness of the Conflicting Aircraft and Action		
4	Human Factors	• Understanding/Comprehension	Pilot did not assimilate conflict information
5	Human Factors	• Lack of Action	Pilot flew close enough to cause concern despite Situational Awareness
6	Human Factors	• Distraction - Job Related	Pilot was engaged in other tasks
	• See and Avoid		
7	Human Factors	• Distraction - Job Related	Pilot looking elsewhere
8	Human Factors	• Monitoring of Other Aircraft	Late-sighting by one or both pilots
9	Human Factors	• Lack of Action	Pilot flew close enough to cause the other pilot concern

Degree of Risk: B.

Safety Barrier Assessment[4]

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

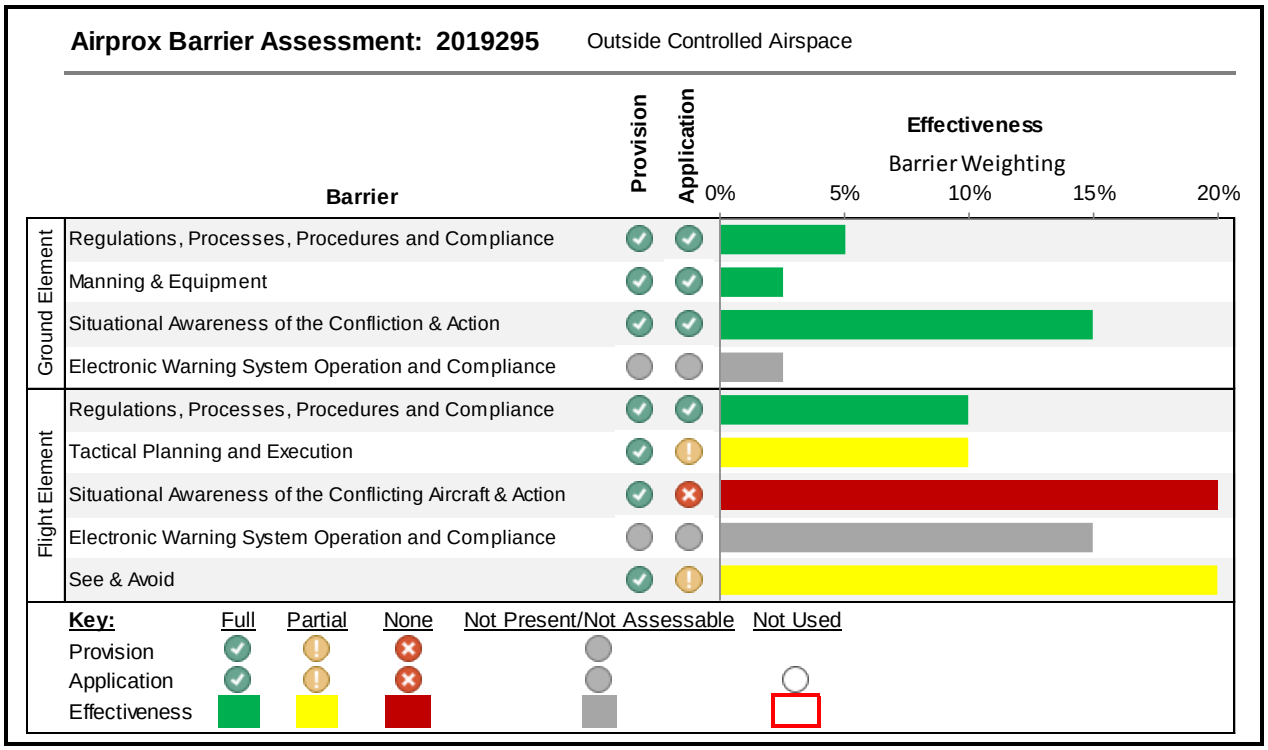
Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the F15(B) formation could have taken earlier action to give F15(A) a wider berth.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither crew acted on the Traffic Information provided by the controllers.

See and Avoid were assessed as **partially effective** because the F15(A) pilot took emergency avoiding action to increase the separation.

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


Airprox Barrier Assessment: 2019295
Outside Controlled Airspace
Barrier
Provision
Application
Effectiveness
Barrier Weighting
0%
5%
10%
15%
20%
Ground Element
Regulations, Processes, Procedures and Compliance
Manning & Equipment
Situational Awareness of the Confliction & Action
Electronic Warning System Operation and Compliance
Flight Element
Regulations, Processes, Procedures and Compliance
Tactical Planning and Execution
Situational Awareness of the Conflicting Aircraft & Action
Electronic Warning System Operation and Compliance
See & Avoid
Key:
Full
Partial
None
Not Present/Not Assessable
Not Used
Provision
Application
Effectiveness