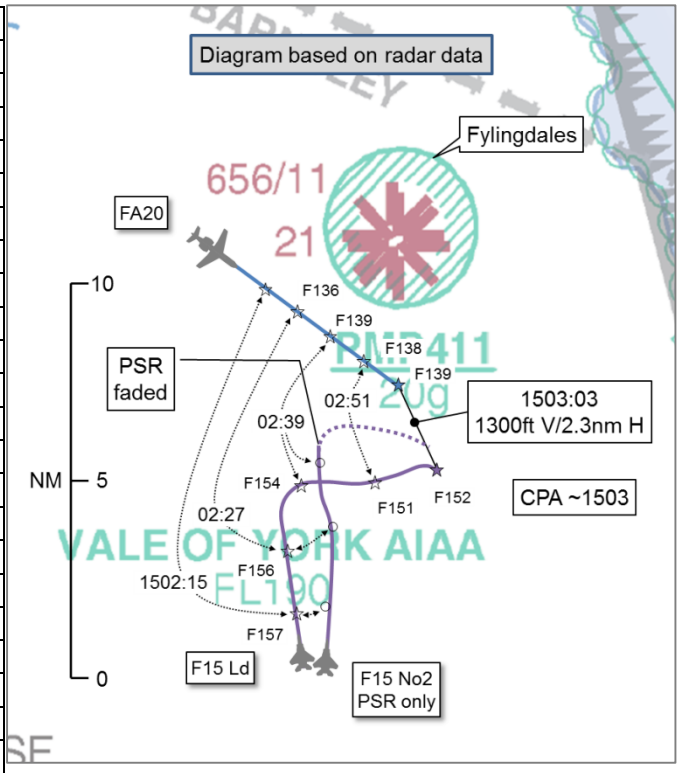
AIRPROX REPORT No 2015214

Date: 9 Dec 2015 Time: 1503Z Position: 5417N 00039W Location: Vale of York AIAA

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	FA20	F15
Operator	Civ Comm	Foreign Mil
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	VFR
Service	Traffic	Traffic
Provider	Swanwick Mil	Swanwick Mil
Altitude/FL	FL138	FL154
Transponder	A, C, S	A, C, S
Reported		
Colours	Blue, white	Dark grey
Lighting	HISL, nav	Strobes, nav
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	FL150	FL150
Altimeter	SPS	SPS
Heading	160°	NK
Speed	300kt	400kt
ACAS/TAS	TCAS II	Not fitted
Alert	RA	N/A
Separation		
Reported	100ft V/0.5nm H	NK
Recorded	NK[1]	



THE FA20 PILOT reports levelling at FL150 on instruction from Swanwick Mil, against other traffic. Shortly afterwards, they received a TCAS TA, swiftly followed by an RA. The PF followed the RA until 'Clear of Conflict'. Two F15s were seen in the right 2 o'clock at about 2nm. They crossed ahead of their aircraft, descending from right to left, before turning right, crossing ahead again and departing to the west. In subsequent UKAB conversation with the FA20 pilot, he noted that he had stated on RT that he would be 'filing' but did not think he used the word 'Airprox'.

He assessed the risk of collision as 'Low'.

THE F15 PILOT reports being in a two-ship of F15s in a descent. Swanwick informed them of the traffic which was picked up on radar at 10nm and visually. The formation continued descent below the traffic, remained visual, and manoeuvred away to the west to avoid further conflict.

He assessed the risk of collision as 'None'.

THE SWANWICK CONTROLLER reports that he was the single TAC NE controller, when the SPIDER Tactical air-to-air refuelling towline (TAC TOW) became active from FL210 to FL240. A pair of FA20s had been pre-noted out from Durham Tees Valley airport as single elements, and another 2 pairs of F15s were transiting from East Anglia. The controller requested a Planner based on the potential workload. The first FA20 was transiting and the second had been delayed on the ground. An Overload console was set-up to take the TAC TOW and tanker aircraft, and their frequency was sent across. The Supervisor advised him that an aircraft was also about to come to them from UMBEL for a practice diversion (PD) to Doncaster. The first pair of F15s were also dispatched to the Overload

[1] The lead F15 was recorded with a minimum separation of 1600ft V/2.4nm H. It was considered that the F15's formation turn shortly before CPA probably placed the No 2 F15 closer to the FA20. The No2 F15 PSR return faded from area radar during the turn and separation at CPA could not be ascertained from radar.

console as they were for the SPIDER TAC TOW after general handling. With a Planner now in situ, the controller took the handover on the PD aircraft overhead UMBEL at FL430. Durham Tees Valley attempted to pre-note the second FA20 again but this became protracted due to RT loading with the first FA20 attempting to raise an E3D AWACS. The controller was aware of several GAT tracks to affect the descent profile of the PD aircraft, and initiated a profile to the west, at FL250 and above the 'gaggle' of aircraft ivo SPIDER TAC TOW. The F15 formation had been allocated by East, and the controller finally managed to complete the electronic handover north of the Humber estuary, being advised that they were now for general handling before low-level in LFA11 and then to the SPIDER TAC TOW. The Planner took the handover on the second FA20, on a VHF RT frequency, climbing to FL150 below the SPIDER TAC TOW. A Traffic Service was issued to the second FA20, and his request to climb higher was refused based upon the TAC TOW above. The F15 formation arrived on a UHF RT frequency and the controller issued Traffic Information against another pair of F15s in the Vale of York, in the block between FL050 and FL190. All Overload and NE tracks were now operating around the SPIDER TAC TOW. The PD aircraft was now away from the TAC TOW and a lower level and deconfliction heading was issued to it against the GAT traffic. Around this time the second FA20 advised him that he was descending in accordance with a TCAS RA against the F15 formation. The controller then passed Traffic Information on the F15 formation as south 4 miles indicating FL151. Traffic Information was issued to the F15 formation on the second FA20 as north 3 miles indicating FL138. The F15 formation called visual with the FA20.

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

THE SWANWICK SUPERVISOR reports traffic intensity was building as the F15 afternoon wave was pre-noted out of Lakenheath and a tanker got airborne for the SPIDER TAC TOW in the Vale of York. He suspended a Pennine task to cater for the anticipated increase in traffic levels on the NE sector and in the Vale of York due to the SPIDER TAC TOW track. Overload was manned to take the SPIDER TAC TOW and a Planner put in place. NE traffic levels started to increase at that point, with additional pre-notes. The Planner was switched to NE to help the controller re-allocate the SPIDER TAC TOW tracks to Overload and to take the handover of the PD aircraft. At the time of the incident the Supervisor was checking the Overload controllers' workload to see if another Planner needed to be called. He did not witness the occurrence.

Factual Background

The weather at Durham Tees Valley was recorded as follows:

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METAR EGNV 091450Z 19022G32KT 9999 FEW020 11/06 Q1020=
METAR EGNV 091520Z 19025KT 9999 FEW020 11/06 Q1019=
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Analysis and Investigation

Military ATM

The Airprox occurred on 9 Dec 15 at 1515, south of Durham Tees Valley Airport. The incident took place between an FA20 and 2 x F15s, all under a Traffic Service with the RAF (U) Swanwick NE Tac Controller. This incident was not initially declared as an Airprox, and the unit involved did not impound the tapes; as a result a tape transcription was not available.

The NE Tac described a 'high' task difficulty with 5 aircraft on frequency. A tactical towline was being established for air-to-air refuelling (AAR), and the F15s were handed over for General Handling prior to routing into LFA11 and, subsequently, more refuelling. The Planner had taken the handover on the FA20 climbing to FL150, and a request to climb higher was refused to remain beneath the AAR towline. The tracks under service were in the vicinity of the AAR activity, and the controller recalled providing vectors to keep a military callsign clear of GAT. The FA20 changed to the Swanwick NE squawk at 1501:08 (see Figure 1); Class G airspace was congested with several military and civil callsigns in the vicinity.

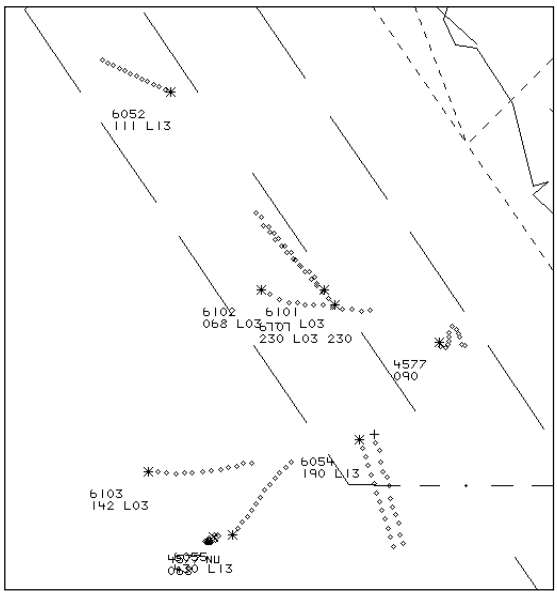

Figure 1: Traffic scenario at 1501:08 (FA20 6052; F15s 6054)

The lead F15 element was squawking 6054 and the wingman can be viewed as a primary only track at 1502:07 (Figure 2). The aircraft continued on a closing geometry at 1502:31 (Figure 3).

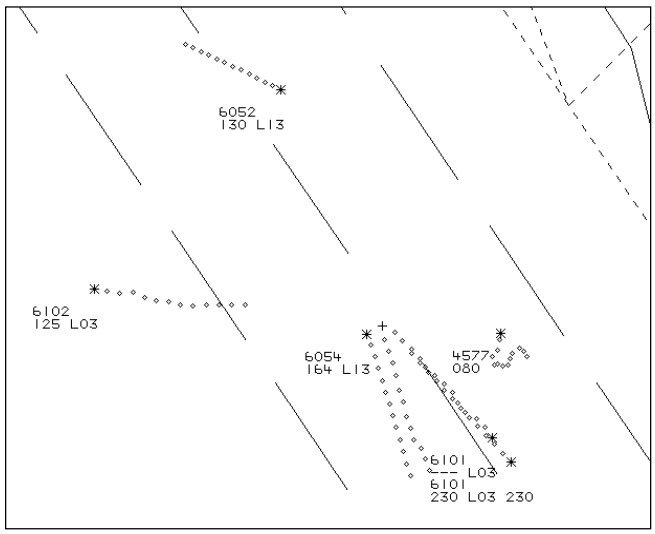

Figure 2: Geometry at 1502:07

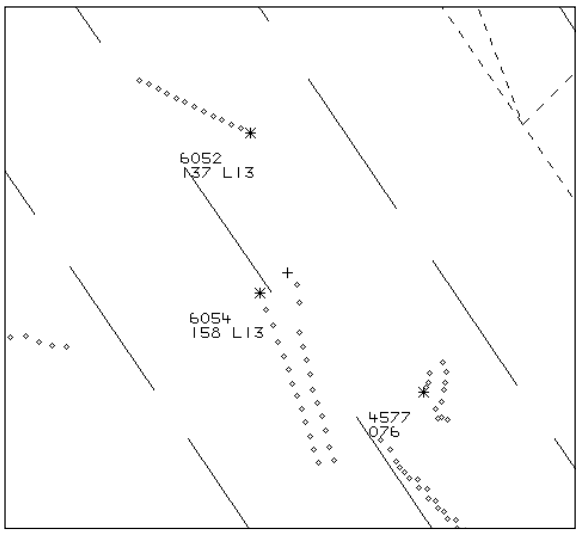

Figure 3: Geometry at 1502:31

The lead F15 element took up a northeast heading at 1502:44 (Figure 4).

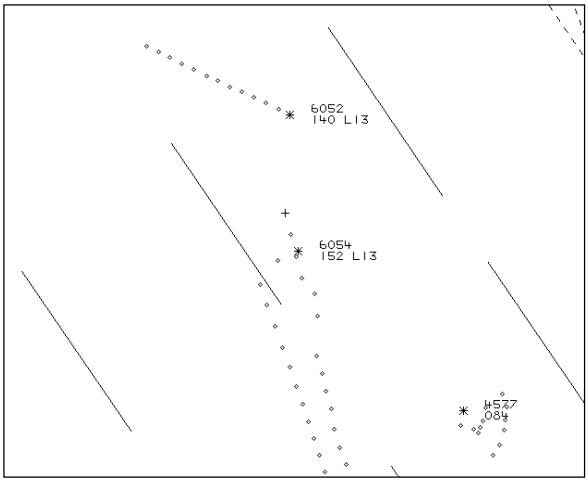

Figure 4: Geometry at 1502:44

The FA20 pilot advised the Swanwick controller that he was responding to a TCAS RA on the F15s and Traffic Information was then passed. The Swanwick Mil controller reported the FA20 pilot was informed of the F15s at 4nm at FL151 and the F15s were informed of the FA20 3nm to the north, indicating FL138. The CPA was estimated at 1503:00 (Figure 5) with 2.4nm horizontal separation and 1600ft feet altitude separation.

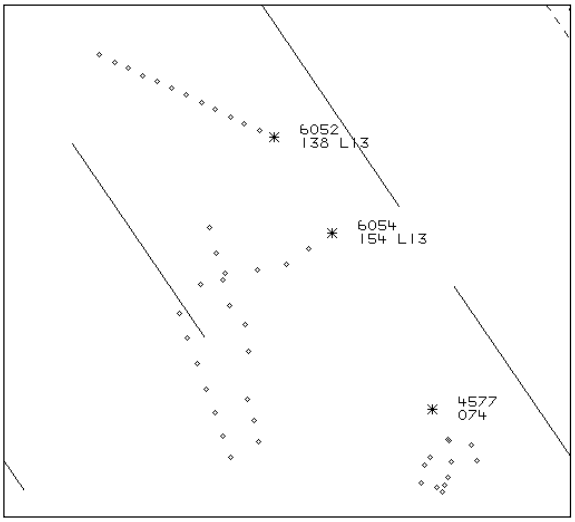

Figure 5: Geometry at CPA at 1503:00

Traffic volume was building steadily at Swanwick as the AAR and F15 afternoon wave started. Certain tasks were suspended at Swanwick to anticipate the traffic in the northeast and the Vale of York. A Planner was put in place to assist the NE Tac controller and the AAR task was due to be allocated to an Overload console. The Supervisor did not witness the incident but was aware of the high workload for the NE Tac controller.

The Tac controller did not pass Traffic Information to either of the aircraft involved in the Airprox until being informed of the TCAS RA by the FA20; the controller workload was busy with traffic, including handovers, deconfliction and distractions caused by prolonged RT. The NE Tac and Planner rightly prioritised separation with GAT over information to traffic under a Traffic Service but no limitation of service, due to high traffic density, was made. The Planner had taken the handover on the FA20 and had coordinated two GAT tracks; however, as the Tac could not brief the Planner upon arrival, there is a likelihood that the Tac was already close to capacity and an earlier spread of workload may have allowed the capacity to provide Traffic Information. CAP774[2] states that, under a Traffic Service, the pilot is responsible for collision avoidance and information from ATC is subject to controller workload; however, the controller also had a duty to advise the crews that the service provided was limited, due to high traffic levels, as per CAP413[3].

UKAB Secretariat

The FA20 and F15 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[4]. If the incident geometry is considered as converging then the FA20 pilot was required to give way to the F15s[5] and 'the aircraft that has the right-of-way shall maintain its heading and speed'[6]. Additionally, 'an aircraft that is obliged … to keep out of the way of another shall avoid passing over, under or in front of the other, unless it passes well clear and takes into account the effect of aircraft wake turbulence'[7].

[2] Chapter 3.
[3] Section 6.79
[4] SERA.3205 Proximity.
[5] SERA.3210 Right-of-way (c) (2) Converging.
[6] SERA.3210 Right-of-way (a).
[7] SERA.3210 Right-of-way (c).

Summary

An Airprox was reported when an FA20 and an F15 formation flew into proximity at 1503 on Wednesday 9th December 2015. Both pilots were operating in VMC with each in receipt of a Traffic Service from Swanwick Mil; the FA20 pilot was operating under IFR and the F15 pilots under VFR.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, a report from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

The Board first considered the pilots' actions, noting that the FA20 pilot was operating under IFR and the F15 pilots under VFR. Discussion quickly turned to the degree of collision avoidance responsibility of each party (including ATC). Members noted that the FA20 pilot was under a Traffic Service and had been given an ATC vector; notwithstanding, operating under IFR did not remove the requirement in Class G airspace to comply with the provisions of SERA.3210 (Right of way) or CAP774 (UK FIS) which is clear that pilots ultimately retain responsibility for collision avoidance under a Traffic Service even when controllers have provided headings and/or levels for the purposes of positioning or sequencing. Members agreed that interactions of this kind could easily lead to confusion as to who was responsible for giving way, but opined that SERA.3210 and CAP774 were clear. What was less clear was the point at which each of the parts of SERA regulation became relevant, e.g. when did the responsibility on one pilot to give way become an equal responsibility on both pilots to avoid collision? The Board agreed that, quite rightly, individual pilots' airmanship was crucial in making the correct decision under conditions of ambiguity, and that the key to that decision making process was communication with and consideration for other airspace users. Although the FA20 pilot was technically required to give way to the F15s, he could only do so if he was aware of the other aircraft and had assimilated that the geometry was converging, either from visual acquisition or by observing a closing TCAS contact. In this respect, Traffic Information from ATC was key, it had simply been unfortunate that the controller in question had been overloaded at the time and had not been able to provide timely information – even under a Traffic Service, CAP774 notes that passage of information is subject to controller workload.

The discussion then turned to the TCAS aspects of this case, and the Board noted that the lead F15 flight vector had been such that it generated a TCAS RA in the FA20, which was followed by the FA20 pilot. Members commented that TCAS was not designed specifically for the Class G environment and that VFR manoeuvring could generate TCAS alerts from geometries that would not be considered unsafe otherwise; equally TCAS could not generate alerts against non-squawking aircraft which might be much closer than desired. Members noted that only the lead F15 was squawking, and that actual separation from the No2 F15 was likely much less than that from the lead, due to the geometry of the F15s' turn from north on to east. This probably accounted for the fact that the FA20 pilot's visual report of separation (100ft and 0.5nm - likely from the non-squawking No2 F15) was much less than the radar-derived CPA (1600ft and 2.4nm – from the lead squawking F15). The Board noted that the FA20 TCAS RA would have been generated from the further, squawking, F15 in this case and that this highlighted the need also to maintain a robust lookout for non-squawking aircraft rather than to rely solely on TCAS or ATC.

As for the F15 crews, the Board noted that they had had the FA20 'on radar from 10nm and visually'. Although they were no doubt comfortable with the subsequent separation, the Board cautioned that pilots should operate with consideration for others who may not have the same level of situational awareness as they. The F15 formation could either have given the FA20 a wider berth, or positively confirmed on RTF that they were visual and would ensure separation.

Turning to the controllers, it was apparent that they were operating in a busy and complex traffic environment. Some members wondered whether the environment itself had been overly complex in design, e.g. with the SPIDER Tactical AAR towline located above the Vale of York AIAA and with traffic to and from it routeing through the AIAA. In the event, the controller was required to pass

Traffic Information to the FA20 and F15 pilots, or restrict the Traffic Service, but the high level of activity prevented either action until after the TCAS RA and probably close to CPA. Members agreed that the Swanwick controller had been over-loaded and was not able to pass Traffic Information or restrict the Traffic Service before the TCAS RA, and that this had been a contributory factor in the Airprox.

Turning to the cause and risk, the Board agreed that, in the end, the FA20 pilot had seen both F15s before CPA, as had the F15s seen the FA20. Although uncertainty had existed in the mind of the FA20 pilot as to the intentions of the F15s, members agreed that the complex and dynamic geometry of the situation had led to the FA20 pilot becoming concerned by the proximity of the F15s, and that separation, flight vectors and the crews' situational awareness had been such that there had not been a risk of collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The FA20 pilot was concerned by the proximity of the F15s.

Contributory Factor: The Swanwick controller was over loaded and was not able to pass Traffic Information or restrict the Traffic Service before the TCAS RA.

Degree of Risk: C.