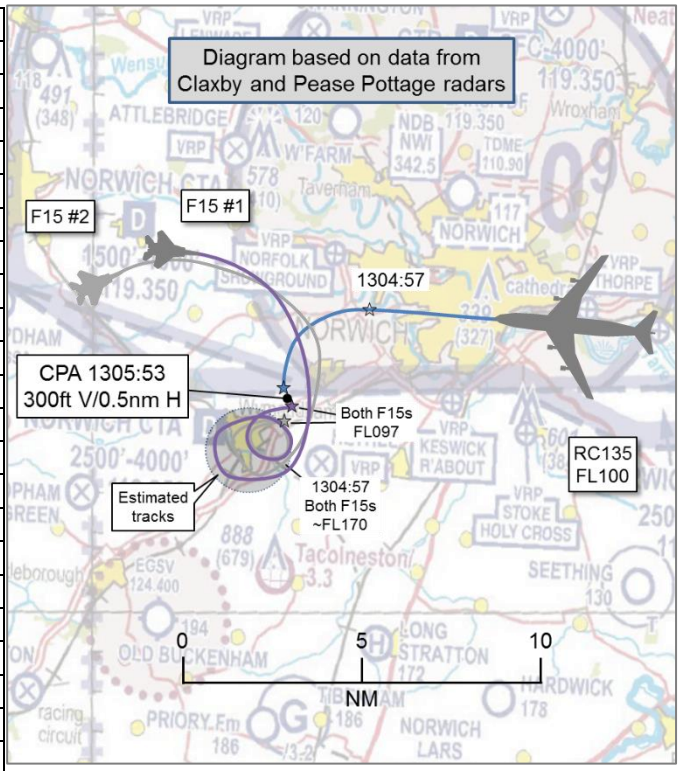
AIRPROX REPORT No 2017282

Date: 27 Nov 2017 Time: 1306Z Position: 5235N 00109E Location: 25nm E Mildenhall

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	RC135	2 F15s
Operator	Foreign Mil	Foreign Mil
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	VFR
Service	Traffic	Traffic
Provider	Lakenheath	Swanwick Mil
Altitude/FL	FL100	FL95
Transponder	A,C,S	A,C,S
Reported		
Colours	White/grey	Grey
Lighting	Strobes/nav	NK
Conditions	VMC	VMC
Visibility	10km	NK
Altitude/FL	FL60	8000ft
Altimeter	(1013hPa)	'Local'
Heading	250°	360°-027°
Speed	250kt	250kt
ACAS/TAS	TCAS II	Not fitted
Alert	RA	N/A
Separation		
Reported	200ft V/0.1nm H	300-500ft V/1nm H
Recorded	500ft V/0.2nm H from second F15	



THE BOEING RC135 PILOT reports being en-route to Mildenhall and had just switched frequencies from Swanwick Mil to Lakenheath Approach. They were in receipt of a Traffic Service and were proceeding to Mildenhall for the ILS to RW29. Shortly afterwards, they picked up two aircraft on their TCAS display at roughly 5nm in their 10 o'clock, approximately 1000 feet below. They visually acquired the aircraft and identified them as 2 'fighters' flying in formation. The 2 aircraft began a climbing left turn towards their aircraft. They then received a TCAS RA, directing a descent. About 5 secs after the RA, the F15s initiated a right turn to stay clear of their aircraft.

He assessed the risk of collision as 'Medium'.

THE F15 PILOTS report fighting a 3km 'Perch' Basic Fighter Manoeuvre sortie[1] at 8000ft minimum altitude on the local altimeter setting, in receipt of a Traffic Service. Whilst starting a left-hand turn, the 'Defender' pilot picked up a visual of an RC135 about 1nm away. They 'knocked-off' the fight while executing a right-hand turn away from its flight-path. Swanwick Mil did not issue a call-out.

He assessed the risk of collision as 'None'.

THE LAKENHEATH APPROACH DEPARTURE CONTROLLER reports that Swanwick Mil handed over the RC135 destined for Mildenhall to them a few miles north of Norwich on what appeared to be a 270° heading. The only other traffic that could affect the RC135 was what appeared to be a flight of 2 fast-jets General Handling, operating approximately 15nm west of the RC135. They were performing high-performance manoeuvres in the general area north of Lakenheath. At the handover, this traffic appeared to be no factor and, on initial contact, he gave the RC135 pilot an initial heading southbound

[1] 'Perch' being a way of commencing combat manoeuvres where one aircraft is the defender and the other is the aggressor, who is normally positioned offset behind and above the defender (in this case 3km behind).

and a descent to increase separation with the fast-jets, who tended to be unpredictable in their manoeuvres. The fast-jets were observed to be several thousand feet above the RC135 when they began to merge, and appeared to not be a factor. The fast-jets then lost the altitude portion of their secondary readout due to rapid altitude change and, by the time he began receiving their altitude again, it appeared that they had passed through the RC135's level and its pilot informed him that they were responding to a TCAS RA. He issued Traffic Information to the RC135 pilot on the fast-jets, who verified that it was 2 F15s and, once they were informed that the RC135 pilot had stopped responding to the RA, they continued to vector him for his approach into Mildenhall.

THE LAKENHEATH APPROACH ASSISTANT reports that they received a handover (hand-off) from Swanwick Mil on the RC135, which was proceeding to Mildenhall. A flight of multiple F15s, under the control of Swanwick Mil, were General Handling and performing fast fighter-jet manoeuvres in the same area as the RC135 during the handover (both in uncontrolled airspace). After initial contact with the RC135 pilot, the altitude display of the F15s was lost due to their rapid altitude changes. The RC135 pilot then advised them that he was responding to a TCAS RA. Once they regained an altitude read-out on the F15s, they realised that they had passed through the RC135's altitude and Traffic Information was issued to the RC135 pilot. Updated Traffic Information was issued to the RC135 pilot on the F15s and, once they advised them he was no longer responding to the RA, they were given further instructions to continue their approach into Mildenhall. After the incident, Swanwick Mil advised them that Traffic Information had been issued to both the RC135 and the F15 pilots prior to the handover, and that the F15 pilots had the RC135 in sight.

THE LAKENHEATH WATCH SUPERVISOR reports that they received a handover (hand-off) from Swanwick Mil on the RC135 proceeding to Mildenhall. A flight of multiple F15s under the control of Swanwick Mil were General Handling within 5nm of the RC135 and approximately 6000ft above at the time of the handover. About a minute after initial contact with the RC135 pilot, he advised he was responding to an RA. At the time he could not see any aircraft conflicting with the RC135 because the F15s were rapidly descending, causing their altitude readout to not show. They then saw the altitude of the F15s after their pilots had stopped their descent and realised that they were at the same altitude as the RC135. After the incident, he telephoned the Swanwick Mil Supervisor and asked what had happened. They said the F15 pilots had the RC135 in sight and there had not been a conflict.

Factual Background

The weather at Mildenhall was recorded as follows:

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METAR EGUN 271256Z AUTO 27018G26KT 9999 BKN110 09/09 A2978
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Analysis and Investigation

Military ATM

An Airprox occurred on 27 November 2017 at approximately 1300hrs in East Anglia between an RC135 and a pair of F15s. The RC135 pilot is believed to have been receiving an Air Traffic Service from RAF Lakenheath ATC and the F15 pilots were receiving a Traffic Service from the Swanwick Mil East Tactical (Tac) controller whilst General Handling. The perspective of Lakenheath ATC has not been considered in writing this report, but the radar replays do not appear to show any avoiding action taking place, and the transcripts do not allude to any landline communication between them and Swanwick Mil East.

The following pictures show the positions of the RC135 and F15s in the time leading up to and during the Airprox:

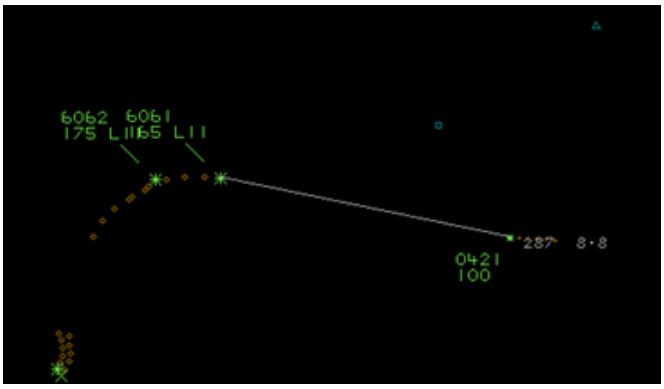

Figure 1 Geometry at 1303:56

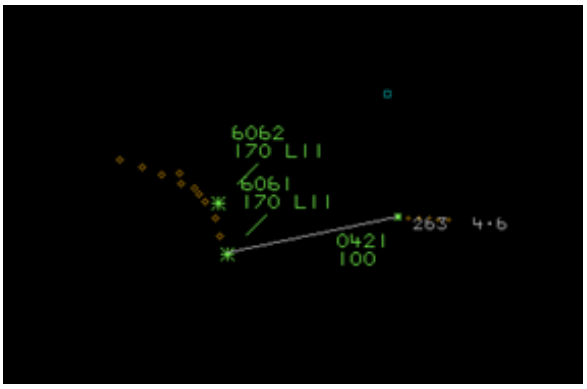

Figure 2 Geometry at 1304:25.

(RC135-0421; F15s-6061/6062)

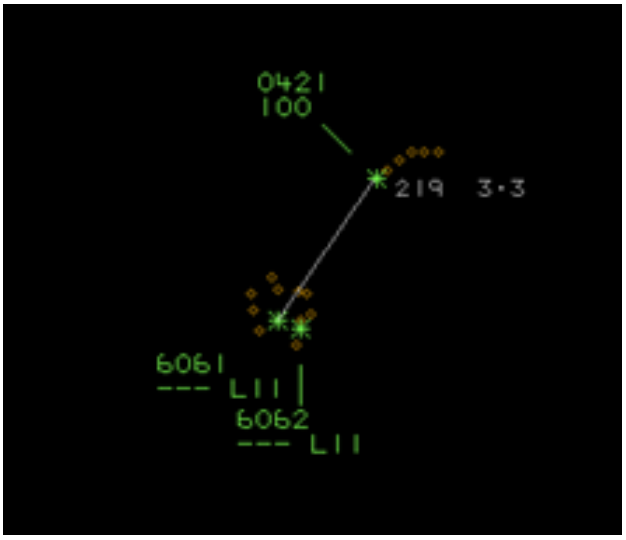

Figure 3 Geometry at 1305:32.

Figure 4 Geometry at 1305:56 (CPA).

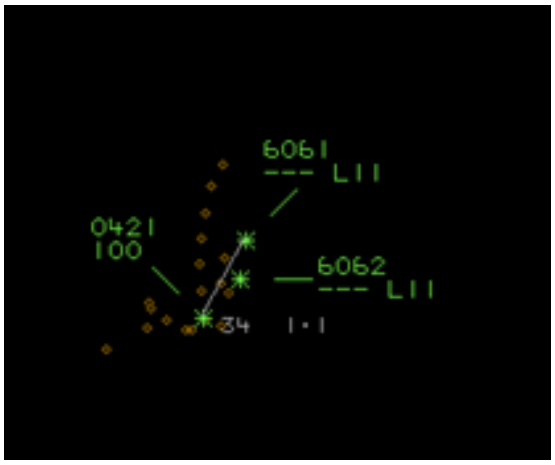

Figure 5 Geometry at 1306:02.

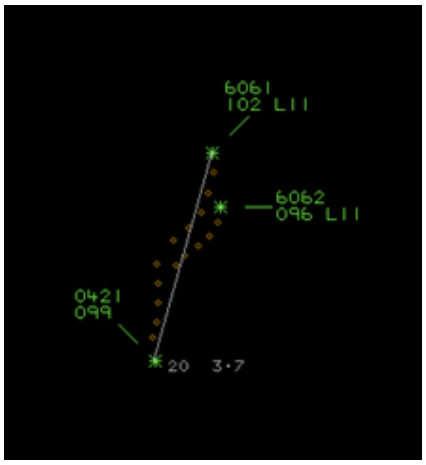

Fig 6 Geometry at 1306:21.

RAF(U) Swanwick was only notified of the Airprox two months after the event, therefore no controller reports are available, and transcripts could not be completed with accurate timings. That said, the transcripts do show that the controller passed Traffic Information on the RC135 to the F15 pilots three times, at 20nm, 10nm and 0.5nm separation. The final update appears to have coincided with the F15 pilots conducting high energy manoeuvres, the loss of Mode C readout usually indicating a rapid climb or descent. At such times, a controller must use judgement when considering interrupting the pilots, as that action in itself distracts them from their mentally and physically demanding task. Although it would probably have been helpful to update the Traffic Information with greater than 0.5nm separation, it is not known what the controller or unit workload was or what geographical split of traffic the controller may have been working.

UKAB Secretariat

The RC135 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[2]. If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right[3]. If the incident geometry is considered as converging then the F15 pilots were required to give way to the RC135.

Comments

USAFE-UK

USAFE-UK comments that it is regrettable that the Airprox report was filed so long after the event and thus beyond the retention period for radio and radar replays, not to mention individuals' recall of events. Normal operating procedures would have dictated that, on handover of the RC135 by Swanwick Mil to the Lakenheath RAPCON, the controller would have stated that Traffic Information on the F15s had been passed to the RC135 pilot or that they, the F15s, were not a factor. Further, it would be normal practice for the RAPCON Approach controller to have passed Traffic Information to the RC135 pilot on the F15s when he lost Mode C due to their high energy manoeuvres unless, possibly, he was under the impression that the RC135 pilot was in visual contact with the fighters. Lastly, the distance that a fighter pilot considers the risk of collision as 'None' with regard to a big jet is sometimes at odds with the range at which the TCAS equipped aircraft has to react to an RA.

Summary

An Airprox was reported when an RC135 and 2 F15s flew into proximity at 1306hrs on Monday 27th November 2017. The RC135 pilot was operating under IFR in VMC, the F15 pilots were operating under VFR in VMC. The pilots were in receipt of a Traffic Service, the RC135 from Lakenheath and the F15s from Swanwick Mil.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots and controllers concerned, area radar and RTF recordings and reports from the appropriate ATC and operating authorities.

The Board expressed their disappointed that the Airprox report form had not been distributed until about 2 months after the incident. Because of this delay, valuable information was no longer available and the recollections of the incident by those involved was greatly reduced.

The Board was briefed first by the USAFE-UK member. He confirmed that the RC135 pilot had not been informed about the presence of the F15s by Lakenheath or Swanwick Mil until after the CPA. The F15 pilots, however, had been issued with Traffic Information about the RC135 on three occasions although they had not recollected, in their report, having received any Traffic Information. The Lakenheath Approach controller had reported that when the RC135 was handed over at FL100 from Swanwick Mil, the only possible traffic he could see to conflict with it were the F15s but, at the time, they were about 6000-7000ft above the RC135 and, therefore, not considered by him to be a factor. As far as he could recollect no information was passed by Swanwick about the F15s, and he considered that no coordination was necessary because of the vertical distance between them. Controller members wondered whether the F15s and the RC135 had been in receipt of an ATC Service from the same controller at Swanwick prior to handover and could therefore have been passed mutual Traffic Information at an earlier stage; the Military ATM investigator commented that it was not possible to determine whether this was the case, but they though it was probably unlikely.

On the RC135 pilot's initial contact with Lakenheath, the controller instructed him to turn onto a southerly heading and to descend. This, he reported, was to increase the separation from the F15s.

[2] SERA.3205 Proximity.
[3] SERA.3210 Right-of-way (c)(1) Approaching head-on.

Some members commented that it was presumably apparent to the Lakenheath controller that the F15s had previously been conducting highly-dynamic height changes and they wondered why the controller would turn the RC135 towards the F15's operating area despite the fact that they were indicating well above at that time. The radar recordings showed that the RC135 pilot did not commence descent from FL100 until after the CPA, and controller members thought that a better course of action would have been to descend the RC135 on its westerly heading before then turning it south towards the F15s. Notwithstanding, they acknowledged that, at the time, he had presumed that they were vertically separated by more than 5000ft and it was only shortly after this that the F15s' Mode C disappeared from the radar display, indicating a possible high rate of vertical displacement. Nevertheless, the Board considered that in these circumstances it would have been prudent to have issued Traffic Information to the RC135 pilot regarding the manoeuvring F15s. Although acknowledging that ATC do not have to separate VFR and IFR traffic in Class G airspace, some Board members opined that the two controllers could have coordinated a course of action to prevent the aircraft coming into close proximity, ideally during the handover.

Fortunately, portions of the R/T recording of the Swanwick Mil East Tac controller, who was providing a service to the F15s, were still available. These showed that the F15 pilots were issued with Traffic Information about the RC135, initially at a range of 20nm, tracking west, descending to FL100. This was followed up with the same information at a range of 10nm. Finally, albeit late, the traffic was reported north of them by 0.5nm. The F15 lead pilot reported visual; in his report he said that he had sighted the RC135 at about 1nm. Although they were engaged in highly-dynamic manoeuvring, members commented that the F15 pilots therefore had sufficient information about the RC135 with which to ensure separation, and they wondered whether their task-focus had meant that they had not fully assimilated this information prior to turning towards it.

A protracted discussion ensued regarding whether the cause of the Airprox was the turn issued by the Lakenheath controller to the RC135 pilot (which routed the aircraft towards the F15s with no Traffic Information), or the turn by the F15 pilots towards the RC135 (about which they had Traffic Information). Noting that at the time he issued the turn direction to the RC135 pilot the controller did not consider there to be a confliction because the aircraft were vertically separated, the Board concluded in the end that the F15s had been given appropriate Traffic Information about the RC135, including its level, and had then descended and turned at a high rate towards its position. Accordingly, the Board agreed that the cause of the Airprox was that the F15 pilots flew into conflict with the RC135, despite having received Traffic Information.

Turning to the risk, the RC135 pilot reported that he had seen the F15s on TCAS at about 5nm and had then obtained visual contact. The F15 pilots reported seeing the RC135 at about 1nm and turned away. The radar recordings show that one of the F15s passed within 0.2nm of the RC135, but the vertical separation at the time was 500ft. Consequently, it was considered that although safety had been degraded, there had been no risk of a collision and the Board therefore categorised the Airprox as risk Category C.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The F15 pilots flew into conflict with the RC135, despite having received Traffic Information.

Degree of Risk: C.

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:

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

ANSP:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because there was insufficient coordination between Swanwick Mil and Lakenheath regarding the RC135's handover.

Situational Awareness and Action were assessed as **ineffective** because the RC135 pilot was vectored towards the F15s who could previously be seen to be highly dynamically manoeuvring and thus liable to rapid height changes. Additionally, the Traffic Information issued to the F15 pilots was not updated before they came into close proximity with the RC135.

Flight Crew:

Warning System Operation and Compliance were assessed as partially available because only the RC135 was equipped with an electronic warning system.