

AIRPROX REPORT No 2012086

Date/Time: 28 May 2012 1026Z

Position: 5243N 00146E (18nm E of Norwich)

Airspace: London FIR (Class: G)

Reporting Ac Reported Ac

Type: KC-135R F-15C

Operator: Foreign Mil Foreign Mil

Alt/FL: FL170 ↑FL190

Weather: VMC VMC N/K

Visibility: >10km NR

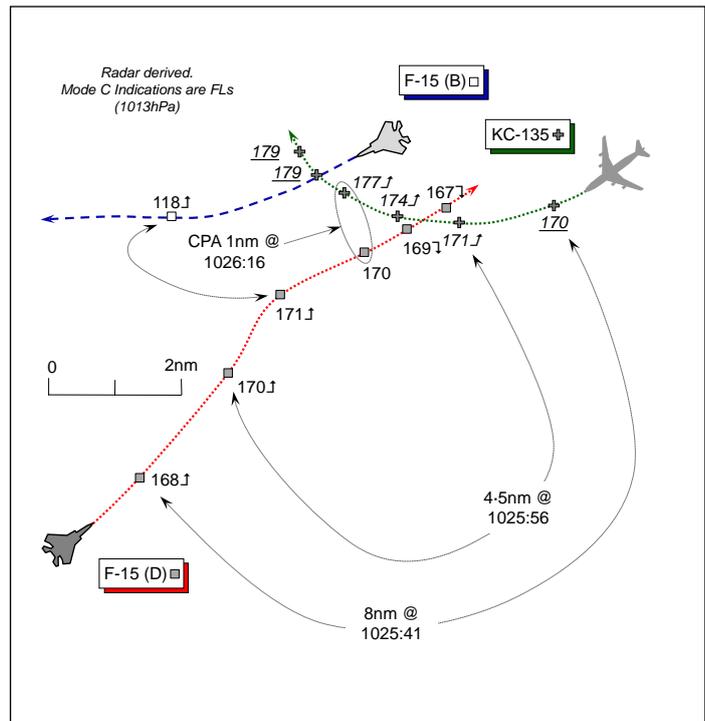
Reported Separation:

100ft V/0.1nm H 1000ft V/2nm H

Recorded Separation:

100ft V @ 4.5nm H

1nm H @ 700ft V



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE KC-135R PILOT reports he was holding over the sea at a position of about 056° MLD (Mildenhall TACAN) 75nm, making R turns, whilst executing fuel jettison procedures. They were in receipt of a TS from London MILITARY on 277.775MHz [LJAO E TAC], level at FL170 operating IFR in VMC; the assigned squawk was selected with Modes C and S on, TCAS is fitted.

Whilst finishing their checklist in preparation for fuel jettison, London MILITARY advised them of traffic below them in the area. They suggested to the controller that the other traffic should be vectored out of their holding area to prevent fuel landing on the other ac and then spotted a 2-ship of F-15s turning L onto their heading about 3000ft below them. London MIL told them to move instead, to a left-hand holding track 10nm N of their position. At that point heading 235° a TCAS TA was enunciated against traffic in their 11 o'clock - low – 5nm away in a climbing turn. They began their R turn back onto the inbound leg of their holding pattern, but soon afterwards whilst turning R at 300kt, TCAS enunciated a CLIMB RA commanding a 2500ft/min ROC, which they followed immediately, whilst also continuing the turn. The next RA directed a level-off, which they followed. A further RA then directed a 2000ft/min CLIMB, which was complied with. These RAs happened quickly, back to back, and resulted in a climb to FL179 before they were complete. Minimum separation was 100ft vertically and 0.1nm horizontally; his co-pilot saw the traffic [F-15(D)] in a climbing turn through their level. They returned to their assigned level of FL170 and subsequently called the F-15 leader on the RT who said they were operating in a block FL70-FL250. He assessed the Risk as 'high' and reported the Airprox to London MIL on the RT.

The ac has a grey colour-scheme and the HISLs were on.

THE PILOT OF THE F-15C [F-15 (D)] provided a brief account about 4 months after the event, reporting that he was the No4 of a 4-ship F-15 formation, operating VFR under a TS from London MILITARY [LJAO E TAC] on 259.6MHz; the assigned squawk was selected with Mode C. Climbing in VMC to FL190 at 350kt, radar contact was obtained and the KC-135 was seen; visual deconfliction was effected by passing >2nm away separated vertically by 1000ft. He assessed the Risk as 'none', adding that there was no concern by the formation and did not consider this occurrence to be an Airprox. TCAS is not fitted; Mode S was selected 'off'.

THE LATCC (MIL) LJAO EAST TACTICAL CONTROLLER [E TAC (2)] reports he was the oncoming controller in the E TAC position and had been briefed that 4 F-15s were operating in the Lakenheath ATA between FL50 and FL240 [the CPA occurred about 2nm W of the western boundary of the ATA]. He was also handed the KC-135 dumping fuel at FL170 before recovering to Mildenhall. During the position handover, the off-going controller – E TAC (1) - stated that the KC-135 would be setting up L hand orbits on a bearing of 050° Mildenhall at range of 70nm. The off-going E TAC (1) informed him that all traffic had been called to each other, that an F-15 pilot had called 'tally' with the KC-135 and that the latter's pilot had called 'roger', before stating that he didn't think it was a good idea for the F-15s to be manoeuvring below his ac whilst he was trying to dump fuel. The off-going E TAC (1) controller then pointed out that the F-15 pilots were operating on another discreet frequency. He completed the handover and observed an F-15 climbing rapidly towards the KC-135. His PLANNER also noticed this and he called the KC-135 to the pilot of F-15 (D), who responded 'tally'. The 5 ac were all manoeuvring in close proximity and it took some time to differentiate the ac trails on radar, such that the traffic call was made at ½nm range; however, having been told by the off-going E TAC (1) that the 4 F-15 pilots were visual with the KC-135, he did not consider that this was an issue. He then observed the KC-135 climb rapidly to FL177, whose pilot stated that he had received a TCAS RA and had climbed to avoid an F-15 – F-15 (D). The KC-135 pilot asked for the callsign of F-15 (D), stated that he would be filing an Airprox report and requested that LATCC (Mil) impound the RT and radar tapes. When the F-15 leader switched back to 259.6MHz and called for recovery, he was informed by the KC-135 pilot that an Airprox was being filed.

THE LATCC (MIL) LJAO EAST TACTICAL CONTROLLER [E TAC (1)] did not submit a report.

THE LATCC (MIL) LJAO EAST PLANNER CONTROLLER (E PLAN) did not submit a report.

THE LATCC (MIL) LJAO SUPERVISOR (SUP) reports that at the time of the incident he was rotating controllers to allow breaks, when he was called to the E Sector position following notification of a TCAS RA from the KC-135. The 4 F-15s were conducting ACT in the Lakenheath ATA with the KC-135 at FL170 in close proximity to the N. All ac were in receipt of a TS and the E TAC controller confirmed that TI had been passed to the KC-135 and the F-15s by the off-going controller.

BM SAFETY MANAGEMENT reports that this Airprox occurred between a KC-135R operating IFR and F-15(D) operating VFR as part of a 4-ship, both in receipt of a TS from LJAO E TAC.

The E Sector was manned by PLANNER and TAC controllers. E TAC reported that their workload was high to medium with low task complexity. At the time of the incident, LATCC (Mil) did not perceive a requirement for occurrence reporting action to include PLANNER controllers; hence the E PLANNER did not submit a report and their landline tape was not impounded. Moreover, the controller who submitted the DASOR for the event assumed the control position approximately 6secs prior to the Airprox. Consequently, this report refers to E TAC (1) Was the controller in place at the start of the incident sequence and E TAC (2) as the controller in place for the final stage of the incident sequence. Unfortunately, the Unit did not perceive a requirement for E TAC (1) to submit an occurrence report, albeit that the Unit's investigation was informed by an interview with E TAC (1). BM SM contends that whilst these issues have not affected the finding of Cause, they are nevertheless disappointing.

The incident sequence commenced at 1020:59, as the F-15 formation contacted E TAC (1) on a discrete UHF frequency. At this point, the formation had separated into 4 distinct speaking units and were manoeuvring between 5000 – 24000ft YARMOUTH RPS (29.97in), about 20nm SW of the KC-135. The KC-135 was holding in the Mildenhall fuel dump area on the 056° radial Mildenhall 75nm, at FL170, preparing to jettison fuel. From 1021:18, throughout the remainder of the incident sequence, E TAC was only providing an ATS to the 4 F-15s and the KC-135.

At 1022:46 [3½mins before the CPA], E TAC (1) passed TI to the pilot of the KC-135 on F-15 (C) as, *"traffic south, 5 miles, manoeuvring at flight level 1-6-0, manoeuvring in the block flight level.5-0 to 2-*

4-0." The KC-135 pilot replied that they had the, "traffic in sight." F-15 (C) was 6.7nm S of the KC-135 indicating FL150. E TAC (1) then passed TI to the pilot of F-15 (C) on the KC-135 as, "traffic north 5 miles tracking south-west at Flight Level 1-7-0." The pilot of F-15 (C) replied, "radar tra...contact." The remainder of the F-15 formation were operating between 15-20nm WSW of the KC-135.

Immediately after the acknowledgement by the pilot of F-15(C), at 1023:08, the KC-135 pilot advised E TAC (1) that they were, "going to be adjusting gross weight shortly, so traffic beneath us is probably not wise." E TAC (1) acknowledged this stating that there were, "F-15s manoeuvring in the East Anglia area so err if you wish to dump fuel if you could turn north about 10 miles, there's no traffic up there to effect." The KC-135 pilot replied, "understand you'd like us to move 10 miles to the north?" E TAC (1) answered, "affirm, there are 4 F-15s manoeuvring in your present area" to which the KC-135 pilot replied, "Okay [KC-135 (C/S)] how about we hold at the same point, the 0-5-6 at 7-5 but we'll do left hand turns to keep us more to the north?" There was no reply from E TAC (1).

At 1024:35, the KC-135 pilot called E TAC (1) again and asked, "would you like us to hold to the north of 0-5-6 at 7-5 DME from Mildenhall but do right turns to keep us more to the north?...I'm sorry, left hand turns at that radial." In reply E TAC (1) stated, "affirm if that takes you err to the err north of the err F-15s". The KC-135 pilot replied, "Okay I'm trusting you I can't see them so I'm gonna do the left hand turns at that radial DME and adjust gross weight and if you could keep traffic away from beneath us while we do that that would be great." E TAC (1) then asked the KC-135 pilot to, "say again the radial from Mildenhall where you're going to be manoeuvring?" To which the KC-135 pilot replied, "0-5-6 at 0-7-5 D-M-E left hand turns 20 mile legs", which was acknowledged at 1025:28 by E TAC (1).

The changeover of control of the E TAC position was achieved at around this point [<1min before the CPA]. Although the conversation relating to the TAC position handover was not recorded, the incoming controller, E TAC (2), has stated that E TAC (1) briefed them that 'all traffic had been called to each other, that [F-15 formation (C/S)] had called 'tally' with [KC-135 (C/S)] and that [KC-135 (C/S)] had called 'roger' before stating that he didn't think it was a good idea for the F15s to be manoeuvring below whilst he was trying to dump fuel'. Based upon this, it is clear that E TAC (2) believed that all elements of the F-15 formation had acquired the KC-135 and that the KC-135 pilot was aware of all elements of the F-15 formation. Analysis of the RT tape transcript has demonstrated that this was not the case. Moreover, it is reasonable to suggest that E TAC (2)'s understanding of the situation was wholly reliant on the handover from E TAC (1) as E TAC (2) had not heard the KC-135R pilot's transmissions between 1023:08 and 1025:28 directly. However, it has not been possible to determine exactly the content of the handover from E TAC (1) to E TAC (2); it may be that E TAC (1) provided an accurate handover that was either perceived or recalled incorrectly by E TAC (2).

The confliction between F-15 (D) and the KC-135 became evident at 1025:39, as F-15 (D) steadied on a NE'ly track, converging with the KC-135. Whilst it has not been possible to determine exactly when the transfer of control was achieved, E TAC (2)'s first transmission occurred at 1026:11; this was, when E TAC (2) passed TI to the pilot of F-15 (D) [indicating FL171] on the KC-135 as, "traffic west 2 miles [sic] tracking correction..north half a mile [recorded at 1.3nm] tracking west is a K-C-1-3-5 Flight Level 1-7-0..[indicating FL174] dumping fuel."

[UKAB Note (1): The pilot of F-15 (D) replied, "..[F-15 (D) (C/S)] has tally that traffic" at 1026:25, when F-15(D) was indicating FL167 passing 2.5nm SE of the KC-135, the latter indicating FL179 after manoeuvring in accordance with the reported TCAS RAs. At 1026:29, the KC-135 pilot reported, "and LONDON MIL [KC135 C/S] we just had a resolution advisory with someone in our holding pattern here". This was followed at 1026:32 by a transmission on the discrete frequency using the F-15 formation C/S, "recommend we stay below 17". The KC-135 pilot added at 1026:37, "we climbed a thousand feet to avoid er collision and we're now descending back to 1-7-0 towards the radial we've been cleared to".]

E TAC (2) reported that having assumed control of the position, they and E PLANNER observed F-15 (D) 'climbing rapidly' towards the KC-135; however, as the KC-135 and the F-15 formation were all in close proximity, the respective ac's tracks 'took some time to differentiate and as such the traffic call was made at half a mile'. The ATS to both the KC-135 and the F-15 formation had not been reduced due to high traffic density. Moreover, E TAC (2)'s surveillance display was orientated to observe the KC-135 and F-15 formation and the OTR area, in anticipation of traffic leaving the en-route structure at DOLAS, routing OAT to NAVPI. Consequently, they had limited ability to manipulate their picture further to differentiate the tracks of the F-15s and the KC-135. E TAC (2) also reported that as they believed that all elements of the F-15 formation were visual with the KC-135, they did not consider the TI provided at 1026:11 was late.

The CPA occurred at 1026:17, [2nm W of the western boundary of the ATA] as F-15 (D) indicating FL170 passed 1nm SSE of the KC-135 that had entered a right-hand turn through NW onto a NE'y heading climbing through FL177.

[UKAB Note (2): When the CPA occurred F-15 (A) was 3½nm NNE of the KC-135 westbound in a slow climb through FL125; F-15 (B) was steady westbound in a slow climb through FL120 and F-15 (C) was over 12nm SE, turning onto NW, level at FL60.]

The confliction between the F-15(D) and KC-135 was resolved through the latter crew's compliance with their multiple TCAS RAs and the pilot of F-15 (D) discharging his responsibility to 'see and avoid' the other ac. The timing of the TI from E TAC (2) to F-15 (D) on the KC-135 did not provide sufficient warning for the pilot to assimilate this information and to act, effectively rendering the TI nugatory.

Whilst E TAC (1) provided initial TI to one pilot within the F-15 formation, E TAC (1) did not provide TI for situational awareness to all members of the formation. Moreover, at times during the incident sequence the KC135R was within 5nm laterally and 3-5000ft of F-15 (A) and F-15 (B) and within their manoeuvring block, with no TI passed by E TAC (1) to either F-15 crew, or the KC-135 crew; this might suggest a limited awareness of the high energy manoeuvring capability of the F-15. Furthermore, as highlighted by the Unit's investigation, a reduction of the ATS for high traffic density may have provided a warning to the crews that E TAC (1) was unable to provide timely TI, yet such a reduction was not forthcoming. Finally, both the situation and the KC-135 crew called for some form of lateral deconfliction measure to be introduced; E TAC (1) did not act positively to effect this.

Whilst it has not been possible to positively determine the point that E TAC (2) assumed responsibility for the control position, nor at what point the handover started, E TAC (2) was afforded very little time to affect the situation. Moreover, whilst it has not been possible to determine the content of the brief that E TAC (2) received from E TAC (1), it is possible that E TAC (2)'s perception of that brief was not an accurate representation of the situation and, arguably, provided assurance to E TAC (2) that action was not required. This Airprox highlights the critical nature of the position handover, specifically the accuracy of the information contained therein and the timing of the handovers when ac are in close proximity.

As a result of the investigation conducted into Airprox 2012081, BM SM requested RAF ATM Force Cmd to direct a review of LATCC (Mil)'s occurrence reporting procedures; the occurrence reporting action taken by LATCC (Mil) in regard to this Airprox provides additional supporting evidence for this recommendation.

BM SM will utilise the findings of this Airprox to highlight to RAF controllers the criticality of console handovers.

THE F-15C PILOT'S UNIT comments that if a KC-135 is operating under a TS they must accept the possibilities of RAs.

USAFE-UK comments that the F-15 formation were advised of the position and intentions of the KC-135 and had confirmed they had it contact; all 5 ac were VMC. Nevertheless, F-15 (D) flew sufficiently close to the KC-135 to trigger a TCAS RA, not once but twice and, unlike many TCAS

events, was acquired visually by the co-pilot. Further, there is the question of a 4 ship formation manoeuvring in the same airspace as a tanker dumping fuel, the timing of the handover from E TAC (1) to E TAC (2) and finally, the forced use of a range scale too great to maintain identification of all 5 ac and thus provide an effective TS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequency, radar video recordings, a report from two of the four air traffic controllers involved and reports from the appropriate ATC and operating authorities.

The Board was briefed that the KC-135 crew was commencing their fuel dump procedure in the normal location out to sea, but the USAFE-UK Advisor commented that further research suggested that some F-15C pilots were not aware that this was the recognised location for this procedure adjacent to the Lakenheath ATA boundary. As the conflict had occurred some 2nm W of the western boundary of the ATA, it was evident that some of the formation elements had momentarily 'spilled out' of the Area. A military area controller Member opined that trying to move or impose restrictions on a formation of 4 F-15s is difficult and incompatible with allowing them the tactical freedom to complete the aim of the sortie, and a military pilot Member agreed. Other controller Members contended that F-15 formations have invariably been highly co-operative and acceded to such requests whenever it was feasible. However, the KC-135 crew had been requested to move to the N at short notice and it was apparent that the tanker was flying in the middle of the formation's level block. Controller Members perceived it was an easier proposition to move the tanker clear of the vicinity as vertical separation could not be engineered and enable the fuel dump to be accomplished safely. The Board understood the KC-135 pilot's concern about ac under flying his tanker as the fuel dump was about to start, but on the other hand, if he was expecting LATCC (Mil) to move all other flights in Class G airspace out of his way then that was exceeding the controller's remit under the established TS. Some Members were critical of the KC-135 crew for conducting such an evolution under a TS and if the PIC wanted separation against other traffic operating in the vicinity to be provided by the controller then a DS would have been the correct radar service. Nevertheless, a controller Member opined that the off-going E TAC (1) controller had not gripped the situation from the outset; the controller was working both flights and it should have been apparent that their different tasks required spatial deconfliction rather than simply TI. Furthermore, the F-15 pilots had not been informed that the KC-135 was intending to dump fuel until about 4secs before the CPA occurred - within E TAC(2)'s first transmission of TI. The BM SM report highlights the inadequacy of the TS provided by E TAC (1) both to the KC-135 crew and the F-15 formation. TI was passed by E TAC(1) to the KC-135 crew about F-15(C) and vice versa, but the oncoming E TAC (2) was under the impression that all elements of the F-15 formation had been called to the KC-135 crew by the off-going E TAC(1) controller. It was plainly unrealistic to expect the tanker crew to maintain visual contact on 4 highly agile fighters conducting high energy manoeuvres in a block from 5000–24000ft amsl, whilst they maintained a race track holding pattern, even with the benefit of TCAS. The BM SM report shows that in the period leading up to this Airprox E TAC (1) had not provided an appropriate level of service and to expect the KC-135 crew to maintain SA without a satisfactory flow of accurate TI on the formation ac was indicative of poor appreciation by E TAC (1) of the task at hand. The Board was again dismayed at the absence of reports and landline transcripts from LATCC (Mil) controllers involved in an Airprox – here the off-going E TAC (1) and the E PLANNER – which did not allow the Board to take a comprehensive view of what had happened.

Controller Members noted that this was another Airprox where a conflict had developed during the hand-over of a control position (ostensibly <1min before the CPA) and which, in the view of some Members, was a significant issue. A military controller Member opined that when the Airprox occurred it was a dynamic high workload situation and it did not seem to be an appropriate point to hand-over to another controller; he perceived that the PLANNER or the SUPERVISOR could have interjected and delayed the hand-over between the off-going E TAC (1) and the oncoming E TAC (2) to a more appropriate point – perhaps waiting till after the KC-135 had relocated or the F-15s had cleared from the vicinity. Nevertheless, the two TAC controllers should have realised themselves

that it was unwise to hand-over control at this juncture. E TAC (2) reports that the hand-over had been completed just before he noted the developing conflict between the KC-135 and F-15 (D) and it was difficult to distinguish the respective ac's tracks, hence the late TI. The BM SM report confirms that TI was given to the pilot of F-15(D) within E TAC(2)'s first transmission and was issued a mere 6sec before the CPA; moreover the TI was ambiguous and inaccurate. Members agreed it was far too late to be of practical use when the two ac were only 1.3nm apart and the climbing F-15 (D) was only 300ft beneath the KC-135 that was evidently already responding to the TCAS CLIMB RA. Indeed the BM SM view was that this TI was nugatory. This was also the first mention to any of the F-15 pilots that the tanker was about to dump fuel. Fortunately, the pilot of F-15(D) reports that he had already obtained radar contact and seen the KC-135 visually, enabling him to effect deconfliction, calling "*..tally..*" when he was already some 1000ft below and 2.5nm SE of the KC-135 that was still climbing in response to the multiple CLIMB RAs. Nevertheless, the pilot of F-15(D) was mistaken in his belief that he passed >2nm away, separated vertically by 1000ft, as the radar recording shows that at the closest point horizontally the F-15 (D) passed 1nm to the SSE of the climbing KC-135 that was turning through NW away from F-15(D).

A Military controller Member opined that the pilot of F-15(D) should have been aware that turning to cross ahead of the KC-135 whilst climbing rapidly up through its level close would trigger a TCAS RA in the tanker. Nevertheless, a military fast-jet pilot Member opined this was Class G airspace where 'see and avoid' prevails. Whilst the Member did not agree with the comment from the F-15(C) pilot's unit that when operating under a TS the KC-135 crew must accept the possibilities of RAs and it was a valid report, the pilot of F-15(D) had not flown within 1nm of the tanker and had clearly adjusted his flight path to manoeuvre away from the tanker. Other Members agreed and the Board concluded that the Cause of this Airprox was that the pilot of F-15(D) flew close enough to cause TCAS RAs in the KC-135. However, given the radar contact, visual acquisition and that the pilot of F-15 (D) had afforded no less than 1nm of separation and passed clear astern and below the KC135, the Members agreed by a majority verdict that no Risk of a collision had occurred in these circumstances.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The pilot of F-15(D) flew close enough to cause TCAS RAs in the KC-135.

Degree of Risk: C.