

AIRPROX REPORT No 2011037

Date/Time: 1 Mar 2011 1541Z

Position: 5251N 00010W
(15nm S CONINGSBY)

Airspace: Lincs AIAA (Class: G)

Reporting Ac Reported Ac

Type: Sentinel F15Ex2

Operator: HQ AIR (Ops) USAFE

Alt/FL: FL150 NR

Weather: VMC CAVOK NR

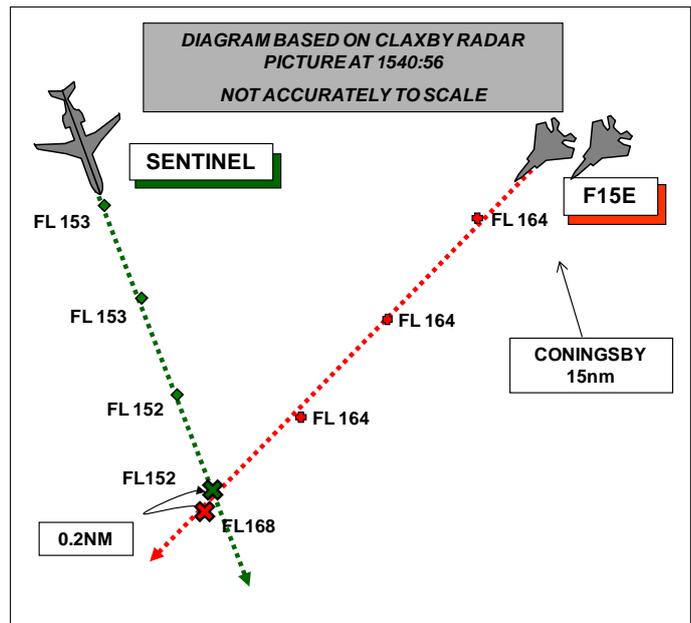
Visibility: 20km NR

Reported Separation:

500ft V/0m H NR

Recorded Separation:

1600ft V/0.2nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE SENTINEL PILOT reports flying a grey ac on a training flight under IFR, with all lights switched on, under a TS from London Mil and squawking with Modes C and S. While heading 165° at 250kt on the climb-out from RAF Waddington, a pair of F15Es was seen to the left of the ac about 6nm away, above them but they appeared not to be closing. As they passed through FL140 the HP asked the NHP to check whether London Mil had them on Radar. On passing FL150 the pair was seen to be closing on a heading of 210° and on a collision course. At that point the TCAS generated a TA immediately followed by a RA of 'adjust vertical speed' suggesting a descent [he believed] to remain clear of conflict so he initiated a descent and the ac passed between 500 and 1000ft directly overhead. Once clear, the TCAS enunciated 'clear of conflict' and the pilot continued the flight as normal. He reported the Airprox to London Mil and assessed the risk as being medium.

THE F15E PILOT reports that he was contacted over 2 months after the event (see UKAB Note 1 below); he recalls that he was leading a pair of but could not recall precisely the mission details. He thought that they were in level flight on RTB and had just entered the Wash AIAA when his wingman called a radar contact. The pilot 'boresighted' the traffic, got a radar lock and shortly afterwards saw the traffic on their RHS at about 9nm. He could not initially tell the ac aspect because of its range but thought that it was going the same way.

About 15sec later he realised that they were on a collision course and saw that the traffic was continuing to climb up towards their formation. At about 3nm he saw that the Sentinel was not stopping its climb and he directed the pair to climb to avoid it; they climbed about 500-700ft and then passed directly over it.

He considered filing an 'incident report' and instructed that their tapes be retained for a couple of weeks, but he decided against reporting it because they had full awareness of the traffic from just inside 10nm and they thought they had passed more than 1000ft above the Sentinel.

The F15Es were under a TS from London Mil who only called the traffic after they had already passed it; he thought that the call was something like, 'Traffic left 9 o'clock 3 miles, Eastbound'.

He did not assess the risk.

UKAB Note (1): The incident was reported on ASIMS by the Sentinel pilot on the day following the event. The report was not released by the Station, however, until over 7 weeks later, hence the delay in contacting the F15E HQ and London Mil; fortunately the RT and radar recordings were still available.

UKAB Note (2): The recording of the Claxby radar shows the incident as depicted above. The Sentinel levels at FL153 (at 1540:43) then descends by 100ft before continuing its climb after the ac cross. The F15Es are initially level at FL160 but climb to FL170 as the ac cross before descending again.

HQ 1GP BM SM reports that this Airprox occurred in Class G airspace between a Sentinel operating IFR in VMC in receipt of a TS from LJAO (North-East TAC) and a pair of F15Es operating VFR in VMC, in receipt of a TS from LJAO (East TAC).

All altitudes stated are based upon SSR Mode C information derived from the radar replay unless otherwise stated.

Initially this occurrence was reported by the LJAO North-East TAC as a TCAS-RA report; when the Unit was advised 6-8 weeks later that this incident had been filed as an Airprox by the Sentinel crew [see UKAB Note (1)], the LJAO East TAC had no recollection of the occurrence other than that it was busy; consequently, there is no Defence Flight Safety Occurrence Report (DFSOR) from the LJAO East TAC. However, it appears from the transcript that in the period up until around 60sec before the commencement of the incident sequence at around 1540:03, LJAO East TAC had been operating under a relatively high workload, with 5 speaking units on freq which were geographically dispersed across the LJAO East/North-East AoRs. This workload had rapidly tailed off to 2 speaking units, with 2 formations of F15Es routing from EGD323C at medium level beneath Y70 to the East Anglian (EA) MTRA for GH. Research has demonstrated that psycho-physiological alertness reduces significantly immediately following a high to low workload transition and remains so for up to 15min, regardless of the individual's motivation for the task. Further research has proved that humans consistently over-estimate their level of psycho- physiological alertness.

LJAO North-East TAC described their task complexity as medium and workload as medium to low, with the Sentinel climbing out from Waddington on a South-Easterly track and a single Typhoon on a medium-level transit 6nm SE of the Sentinel on a similar track; consequently, LJAO North-East TAC's geographical focus was tight. It has not been possible to establish LJAO North-East TAC's workload prior to the incident sequence.

Both tracks worked by LJAO North-East TAC were identified and placed under an ATS by about 1539:41 at which point, from extrapolation of the radar data, about 7.8nm separation existed between the Sentinel and F15E formation. There are no further recorded landline conversations or transmissions to or from LJAO North-East TAC until 1540:09. At approximately 1540:03 LJAO East TAC requested from the F15E formation what levels they required for GH in the EAMTRA. At that point, the F15E formation was at FL160, 5.6nm E of the Sentinel climbing through FL141.

At 1540:09 the Sentinel called LJAO North-East TAC stating *“(Sentinel C/S) has traffic in the er in our ten o'clock, similar height, approximate range 5 miles, can you confirm?”* at that point, the F15Es were 5nm E of the Sentinel at FL160 which was climbing through FL144. In his report the Sentinel pilot said that, at that point, the F15Es appeared *“not to be closing”*. LJAO North-East TAC responded at 1540:20, *“you got er Typhoon (LJAO North-East TAC's other track) left 11 o'clock five miles flight level hundred ah traffic left 9 o'clock at 3 miles flight level 160, appears to be a pair”*. From the Sentinel pilot's report it is clear that they were monitoring the F15Es and as they passed FL150 assessed them to be on a collision course (at 1540:22 coincident with LJAO North-East TAC passing TI). The Sentinel pilot reported that it was at that point that the TCAS generated a TA closely followed by a RA of adjust vertical speed. Eleven sec later the Sentinel pilot advised LJAO North-East TAC that they were manoeuvring in accordance with a TCAS RA; at that point 2.7nm lateral and 700ft vertical separation existed, with the Sentinel indicating FL153 and the F15Es FL160.

At 1540:41 LJAO East TAC asked the F15E pilot to confirm the altimeter setting that they wished to operate on in the MTRA. This question was followed immediately, without pause, by LJAO East TAC passing TI to the F15E formation on the Sentinel stating, “*traffic er 12 o'clock half a mile crossing right to left indicating flight level 150 climbing*” with the F15E formation reporting, “*Tally.*” At this point 0.9nm lateral and 1200ft vertical separation existed suggesting that the Sentinel has descended in response to the TCAS RA and that the F15E formation had climbed to avoid the Sentinel, (as stated in their report).

The F15E formation reports that both elements of the formation were visual with the Sentinel at a range of about 9nm and at that stage they considered there to be no risk of collision. Although this is before the radar replay commences, by extrapolation of the data, it has been possible to determine that this would have been about 1539:31; the F15 leader reported that he realised that they were in conflict with the Sentinel around 15sec later. At that point, again by extrapolation of the radar data, about 7nm lateral separation existed between the F15s and the Sentinel; the leader further reported that when they were about 3nm apart, he instructed the formation to climb over the Sentinel, which accords with the radar data.

As far as the Airprox element of this occurrence is concerned, the Sentinel and F15 crews acquired each other visually in good time, enabling them to monitor the situation and decide upon appropriate courses of action; initially both crews considered there to be no risk of conflict but updated that assessment as the range closed and took action to resolve the conflict. However, the timeliness of the TI provided to both ac requires further examination.

Given the question posed by LJAO East TAC to the F15E formation at 1540:41, immediately followed by the passing of TI to them, it is reasonable to suggest that the first time that LJAO East TAC perceived there to be a conflict was shortly after 1540:41, (during the transmission). Moreover, it is reasonable to suggest that, given their workload history, LJAO East TAC may have been suffering from reduced psycho-physiological alertness which served to delay their perception of the growing conflict. While LJAO East TAC passed TI to the F15E formation at 1539:17, which from reviewing the radar data may have been regarding LJAO North-East TAC’s Typhoon, this TI immediately followed their period of high workload. There was then a period of about 39sec where LJAO East TAC made no transmissions and their workload appeared to be low.

Thirty eight sec elapsed between LJAO North-East TAC completing their initial RT liaison with the ac under their control at 1539:41 and the Sentinel requesting information on the F15s at 1540:09. It is inappropriate to discuss whether LJAO North-East TAC would have passed TI without the intervention of the Sentinel; however, given the gap between 1539:41 and 1540:09, best controlling practice suggests that the opportunity existed for a more timely warning to be given. It is possible that this missed opportunity may be grounded in reduced levels of psycho-physiological alertness caused by LJAO North-East TAC’s workload history; however, it is not possible to substantiate this hypothesis.

Whilst LJAO East TAC and LJAO North-East TAC were obligated to provide TI earlier in accordance with CAP774, given the range at which the crews visually acquired each other’s ac, this factor was neither causal nor contributory.

HQ AIR (OPS) comments that both elements could see each other and there was no risk of collision. The Sentinel had right of way and initially maintained its course; however, once the TCAS RA was generated, the crew responded. The F15Es avoided the Sentinel by a safe margin but flew close enough to generate the TCAS event. The delay of 7 weeks for the DFSOR to leave the station is unacceptable and will be investigated.

HQ 3 AF comments that both the Sentinel and the F15E pair had each other in sight from around 6nm and 9nm respectively and both subsequently took adequate avoiding action, one by following a TCAS RA and the other by climbing. However, in view of the convergence of the 2 tracks it is surprising that, according to the HQ 1Gp BM SM analysis, no coordination took place between

LJAO(North-East TAC) and LJAO(East TAC) and both flights received little, if any, meaningful traffic information; the absence of either action should be considered a contributory factor.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequencies, radar recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

Members noted that this incident took place in Class G airspace where 'see and avoid' is the primary means of collision avoidance. Despite the good weather conditions, both pilots sensibly opted for a TS in order to assist with this responsibility.

Despite that there may have been inadequacies by both Controllers most Members were of the opinion that this was a TCAS RA incident rather than an Airprox. Both crews saw/were aware of the opposing ac/flight from an early stage, even before the respective controllers could have reasonably been expected to pass information regarding the other ac. That being the case avoidance was primarily the responsibility of the pilots and both had correctly exercised that responsibility thus removing any risk of collision. Despite that TI should have been passed to both pilots as stated in the HQ 1 GP BM SM report above, it also followed that contrary to that report, the lack of such TI was not contributory to the incident.

While noting the F15 crew's decision to take vertical avoidance, Members pointed out that depending on the nature of the climb it would still (most likely) cause a TCAS RA, as was the case in this incident and the Sentinel pilot was obligated to react to that RA causing (avoidable) disruption to his planned flightpath. A small heading change by the F15 flight to pass behind the Sentinel would have avoided the TCAS RA.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in Class G airspace resolved by the crews of both flights.

Degree of Risk: C.