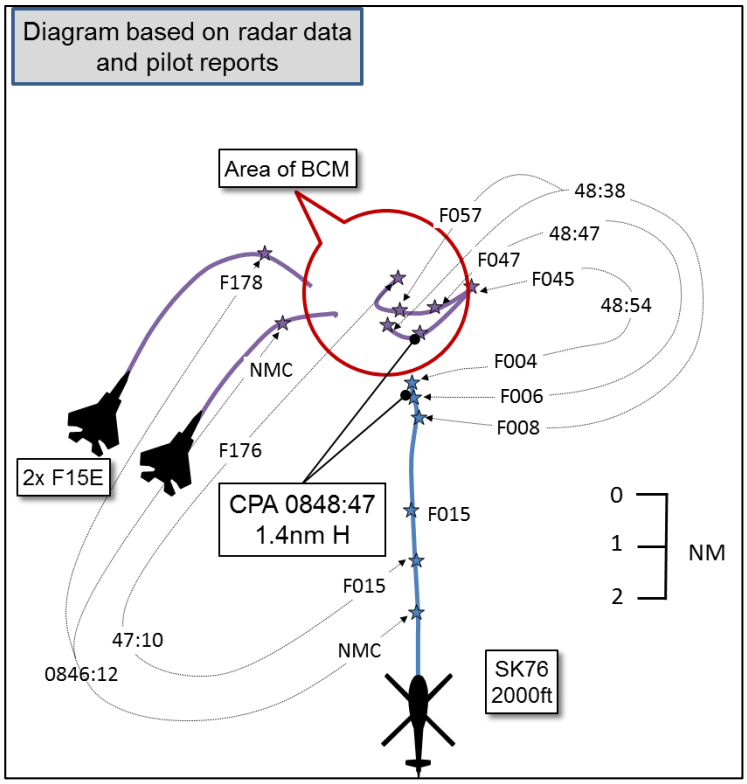
AIRPROX REPORT No 2014023

Date/Time: 11 Mar 2014 0848Z

Position: 5346N 00219E (78nm ENE of Spurn Point)

Airspace: London FIR (*Class*: G)

	Aircraft 1	*Aircraft 2*
Type:	SK76	2xF15
Operator:	Civ Comm	Foreign Mil
Alt/FL:	700ft NK	NK NK
Conditions:	VMC	VMC
Visibility:	>10nm	>10nm
Reported Separation:	0ft V/>1nm H	NK V/NK H
Recorded Separation:	NR V/1.4nm H	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE SK76 PILOT reports flying IFR, in VMC, heading down-sun in 'bright sunny conditions' with 'very high level cloud' and visibility 'greater than 10nm'. He was on a flight from the Viking Bravo to the Murdoch Gas platforms and was in receipt of an Offshore Deconfliction Service from Anglia Radar. The helicopter had HISLs and navigation lights illuminated, transponder Modes 3/A, C and S had been selected, and TCAS2[1] was operational.

Whilst in a level cruise at 2000ft, the SK76 pilot was passed Traffic Information, by the Anglia Radar controller, on a pair of 'military jets' operating at high level in D323C; one aircraft was squawking with Mode C and the other was displaying 'primary only' he recalls. Weather conditions were such that the SK76 crew could 'see the jets at altitude dog fighting'; they reported visual contact to Anglia Radar. When the jets started to descend, the Anglia Radar controller updated the Traffic Information and advised the SK76 crew that they could manoeuvre as required to avoid them. The SK76 crew initiated a 50° to 60° turn to the left and started a 'high rate of decent' to avoid the jets, which were now in a 'very high-energy dive' and launching flares 'which made them easier to track'. The SK76 crew assessed that F15s passed through their altitude (700ft at that time), within a mile of their position, before pulling out of their dive towards the SK76. The helicopter crew recall that the F15s were close enough to be able to make out their canopies before they climbed back up to high-altitude and the SK76 crew resumed their navigation towards the Murdoch. During the encounter, the SK76 pilot noted that the TCAS did not provide any Traffic Alerts or Resolution Advisories, and only displayed a blue diamond to represent 'the jet squawking'. On returning to their base, the SK76 pilot called Anglia Radar to confirm details of the occurrence.

He assessed the risk of collision as 'Medium'.

THE F15 PILOT reports that he has no recollection of the Airprox. According to his flight records, the pair of F15s were carrying out air combat manoeuvring training in D323C at the time. Their normal practice is to establish a 5,000ft minimum altitude and the pilots would not normally descend below this altitude; they did not recall doing so during this sortie.

[1] Traffic Alerting and Collision Avoidance System

THE ANGLIA RADAR CONTROLLER reports providing an Offshore Deconfliction Service to the crew of the SK76, which was flying north-bound at 2000ft. When the helicopter was underneath D323C, the controller passed the pilot Traffic Information on two unknown contacts, one of which was squawking Mode 3/A 7002 and the other appeared as a primary only radar contact. The controller recalls that the helicopter pilot reported visual contact with both aircraft and that, at that stage, acceptable lateral and vertical separation existed. Having confirmed that the SK76 pilot was content to maintain his own separation against the F15s, the controller then saw the radar contacts track southbound towards the SK76; the Mode C on the squawking F15 indicated a rapid descent and the SK76 pilot reported taking an avoiding action descent, which the controller acknowledged, and confirmed that the helicopter crew were free to manoeuvre as they required. The controller then saw the F15 radar contacts, tracking southbound, pass 'overhead' the SK76's radar return.

Factual Background

The Norwich weather at 0820 and 0850 was recorded as:

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METAR EGSH 110820Z 04009KT 9000 SCT007 BKN014 07/06 Q1035 BECMG SCT015=
METAR EGSH 110850Z 04011KT 010V070 9999 BKN007 07/06 Q1036 BECMG BKN012=
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Analysis and Investigation

CAA ATSI

ATSI had access to the reports from both pilots, area radar recordings, radar recordings from Aberdeen, and transcription of the Anglia Radar frequency. Radar pictures in this report are obtained from the area radar recordings in order to obtain distance between aircraft – they are derived from the same source used by Anglia Radar but they are not 'at the glass' screenshots.

At 0841:33 the pilot of the SK76 pilot contacted Anglia Radar whilst lifting from the Viking Bravo platform. The SK76 pilot was instructed to squawk 'ident' and given the Yarmouth QNH 1030hPa. The SK76 pilot requested climb to 2000ft. The controller informed the SK76 pilot that he was identified (according to local procedures, informing a signatory helicopter that it is identified is also notification that the default FIS (Offshore Deconfliction Service) will be provided) and instructed the pilot to climb to 2000ft.

At 0845:28 the controller asked the SK76 crew to report their flying conditions. The SK76 crew replied that they were VMC and the controller informed them that there was military traffic manoeuvring in their 10 o'clock at 10nm, high level (Figure 1).

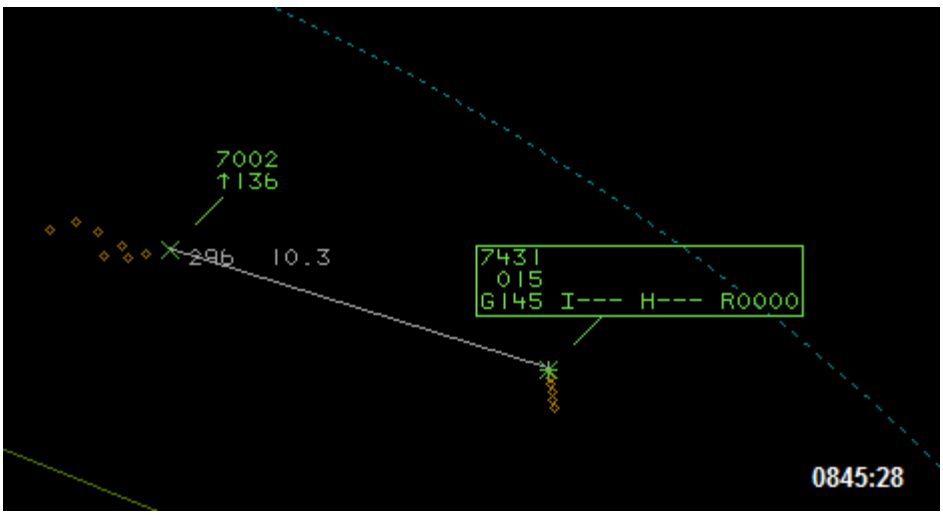

Figure 1.

At 0847:02 the controller updated the traffic information to the SK76 pilot, stating that the aircraft were now "*in your twelve o'clock range of six miles crossing left to right one still high level the other no height information*" (Figure 2). The crew of the SK76 replied that they were visual.

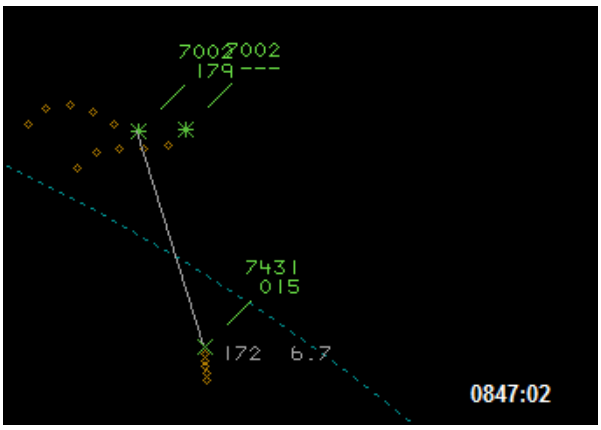

Figure 2.

At 0847:42 the controller asked the SK76 crew if they were happy with their own deconfliction from the military traffic to which they replied that they were.

At 0848:10 the SK76 crew informed Anglia Radar that they were descending in light of the military traffic (Figure 3). The descent was acknowledged by the controller and the SK76 crew were subsequently advised that there was no other traffic to affect them and asked if they wished to turn due to the military traffic. There was no response from the SK76 crew.

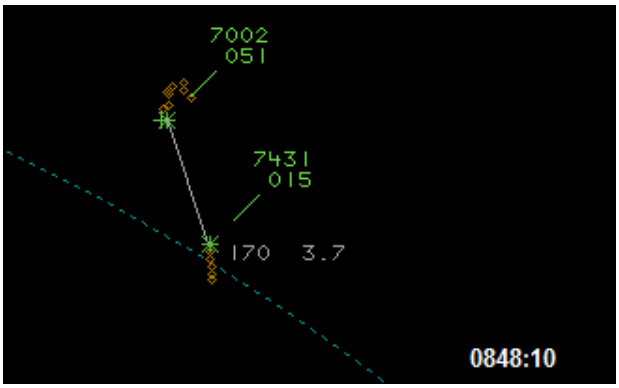

Figure 3.

At 0848:49 CPA occurred as the Mode C readout from the F15 displayed FL43 (using single source radar to avoid the predictive element of MRT). The F15 which was not displaying Mode C was closest to the SK76 laterally – the horizontal distance was 1.4NM (Figure 4).

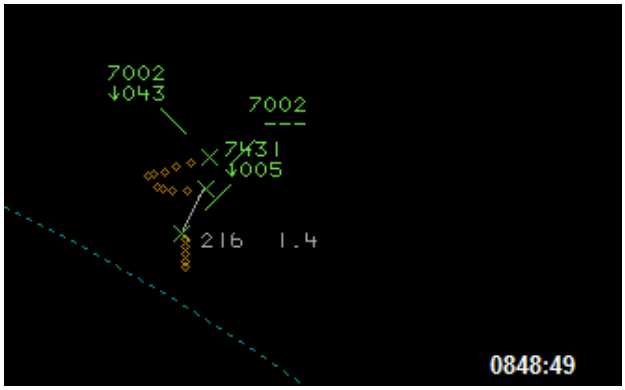

Figure 4.

At 0849:20 the SK76 crew stated that they were level at 700ft and the military traffic was now behind them.

The base of D323C is notified as FL50. The airspace below D323C is Class G and there are no agreements between Lakenheath or any other agency and Aberdeen (Anglia Radar) that aircraft will remain within the vertical confines of D323C.

Between the time the SK76 crew reported taking avoiding action and the CPA, the response from the Mode C from the F15 was fairly consistently transmitted. The rate of climb/descent during that time period did not exceed 8000fpm so it is unlikely that the rate of climb or descent had an effect on the accuracy of the height information displayed, although only one F15 was displaying height information.

The Anglia Radar controller passed Traffic Information on the F15s to the SK76 crew until the they reported being visual with the F15s. The SK76 pilot reported that the F15s descended below the SK76 when it was at 700ft. Only one of the F15s was transmitting height information, which did not display lower than FL045. It was not possible to definitively determine the geometry of the Airprox.

UKAB Secretariat

Both pilots had equal responsibility to avoid a collision and to avoid flying in such proximity to other aircraft as to create a danger of collision.[2]

Comments

USAFE

The pair of F15Es were carrying out BFM[3] within EGD323C as part of an instructor upgrade sortie. The lead WSO[4] on the sortie confirmed that they did not fly below their 'fight floor' of 5000ft; it is likely that the nature of the high energy manoeuvres caused the mode C to drop out on the second aircraft as well as causing an incorrect indication of the first aircraft's altitude. It is the view of the WSO and the Wing FSO that a recovery from a pure vertical BFM manoeuvre below 700ft amsl would be an extremely dangerous and eye-opening event for the aircrew concerned. Moreover, such an event would be a gross violation of the training rules for BFM and, had it happened as described, would have been highlighted throughout the Wing. We are of the opinion that the SK76 pilot's report was a misperception of the actual occurrence; F15 aircrew use the breakout of the canopy as a rough reference for about 5000-6000ft slant range sight picture which correlates with the relative altitude separation between the SK76 and the F15 during its recovery at 5000ft amsl.

Summary

An Airprox was reported by the pilot of an SK76, in Class G airspace, when the crew became concerned about the proximity of two F15s operating in, and in the vicinity of, D323C. The SK76 crew were being provided with an Offshore Deconfliction Service and reported to Anglia Radar that they were happy to provide their own deconfliction from the F15s.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the aircraft pilots, transcripts of the relevant RT frequencies, radar photographs/video recordings, a report from the air traffic controller involved and reports from the appropriate ATC and operating authorities.

[2] Rules of the Air 2007, Rule 8, Avoiding Aerial Collisions
[3] Basic Fighter Manoeuvres
[4] Weapon Systems Operator

The lead F15's Mode C read-out indicated that it had remained at or above 5000ft throughout and the Board wondered if it was possible that the second F15 had been inadvertently flown below its declared base operating altitude and down to 700ft or below. Board members, including pilots and WSOs who had experience operating a number of different fast-jet types, explained that a high-energy dive below 700ft whilst carrying out BFM would have been a highly dangerous and frightening experience for both members of the crew involved, and would have been viewed as an extremely serious professional error. Furthermore, given that the F15s were carrying out a sortie to qualify crew-members as BFM instructors, the Board members agreed that such a transgression would have been highly unlikely to have gone unnoticed or unreported.

On the other hand, the SK76 crew were used to seeing this sort of BFM activity above the North Sea; they had been monitoring the F15s throughout, and they felt threatened enough to descend their helicopter as a defensive action, although there were no warnings or alerts from their TCAS. The Board noted that being able to see the F15 canopy distinctly from the rest of the aircraft was a visual cue used by F15 crews as a reference for 5000-6000ft range and wondered if perhaps the SK76 pilots had experienced an optical illusion that made the fast-jets appear closer or lower than they were. Members discussed the possibilities: aircraft that are well lit (as in this case with no cloud and just some haze) can often appear closer than they are, and low-lying haze can create the illusion of a higher false-horizon that could also have lead to the SK76 pilots misjudging the altitude of the F15s. Whilst all of these, and other effects, were possible, there was not sufficient evidence to be certain if all, or any, of them were involved on this occasion.

Ultimately, the Board noted that the SK76 crew were experienced aviators, and the Board agreed that their report represented their honest perception of the events. However, the radar evidence and lack of TCAS alerts indicate that it was likely that this occurrence had more of a Human Factors root resulting from a powerful visual illusion rather than an actual Airprox event. Nevertheless, no matter how unlikely the Board thought it might be, they could not positively discount the possibility that the second F-15 had flown below 5000ft given that there was no height readout on its radar recording. In the end, after much discussion, the Board decided that this was best described as a sighting report; given the greatly differing perspectives from the SK76 and F15 crews, the Board decided that it was not possible to positively determine the degree of risk and assessed it as a Category D.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A sighting report.

Degree of Risk: D

ERC Score[5]: Not scorable

[5] Although the Event Risk Classification (ERC) trial had been formally terminated for future development at the time of the Board, for data continuity and consistency purposes, Director UKAB and the UKAB Secretariat provided a shadow assessment of ERC.