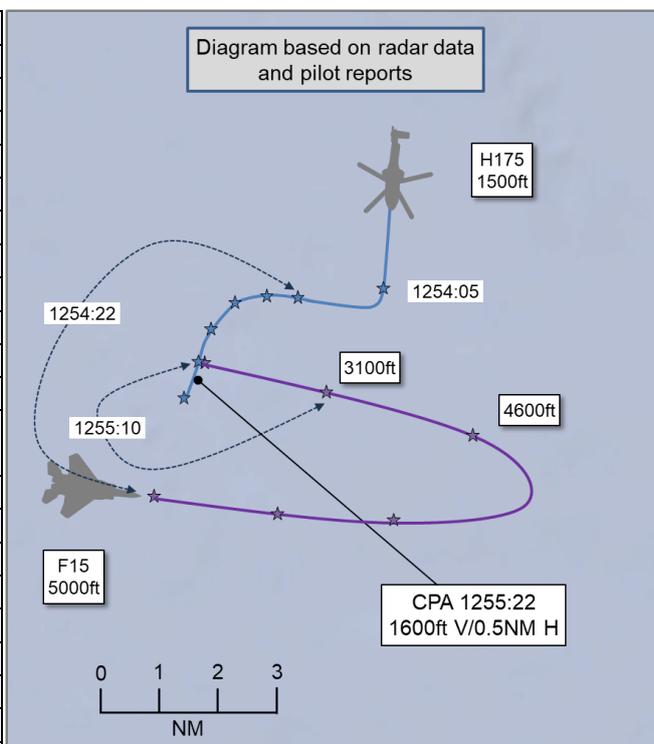


AIRPROX REPORT No 2023175

Date: 09 Aug 2023 Time: 1255Z Position: 5339N 00124E Location: Below EGD323

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	H175	F15
Operator	Civ Comm	Foreign Mil
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	VFR
Service	Offshore Deconfliction	In contact with
Provider	Anglia Radar	Anglia Radar
Altitude/FL	1300ft	2900ft
Transponder	A, C, S+	A, C, S
Reported		
Colours	Red/White/Blue	Grey
Lighting	Strobe, Beacon, Navigation	Navigation
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1500ft	3500ft
Altimeter	QNH (1012hPa)	RPS
Heading	185°	270°
Speed	140kt	'450+kt'
ACAS/TAS	TCAS II	Other
Alert	RA	Information
Separation at CPA		
Reported	NK V/NK H	'Well clear' V/>5NM H
Recorded	1600ft V/0.5NM H	



THE H175 PILOT reports that on return from the [departure point] heading south - two fast-jet contacts had been reported to them, one at 3500ft about 10NM away and one with no altitude information 20NM away. The H175 pilot elected to descend from 3000ft to 1500ft to provide some separation. Anglia Radar then gave them a heading of 280° [they recall] to avoid a possible conflict. While turning right, the H175 pilot [recalls that] they did question this heading as they had believed it might have turned them towards the traffic. Anglia Radar confirmed the heading would take them behind the fast-jet traffic. On this heading the H175 pilot reports that they had gained visual contact with an F15 which passed down their left-hand side, well clear. Anglia Radar then gave the H175 pilot 'own navigation' direct back to [destination airfield]. At this point, the F15 had carried out a left-hand turn and started converging with them from their 7 o'clock position. ACAS armed in response to a TA, coupled in response to an RA and [they] descended. At this point visual contact had been lost with the fast-jet as they had been descending and it was behind and above them. Anglia Radar was informed "TCAS RA descending", ACAS then indicated clear of conflict, and Anglia had been informed that the H175 had been "clear of conflict and returning to 1500ft." As previously mentioned, it is difficult to judge how close the F15 had been to them, as it had passed behind and above at its closest point. The H175 pilot wished to thank Anglia Radar for best efforts in keeping them clear of this traffic.

The pilot assessed the risk of collision as 'Medium'.

THE F15 PILOT reports that they had been operating an F15 within the lateral bounds of EGD323C [they recall]. The scenario required that [F15 callsign] descend and operate in the open FIR below the Danger Area. On descending from FL150, [F15 callsign] contacted Anglia Radar as detailed in the USAF operating instructions for the area. Traffic Information had been passed to them on the relevant [traffic] under a service from Anglia and the F15 pilot requested the squawks of these aircraft to enter into their systems to gain extra validation of the Traffic Information. The F15 pilot had used this sensor

data to identify the traffic and maintain sensor contact using their onboard systems. The display can be used by the pilot in a similar fashion to an ACAS traffic display. The F15 pilot maintained at least 5NM horizontally, when co-alt and sufficient vertical separation when closer. The crew does not recall having seen any specific helicopter out of the window that caused any concern during the flight. During the flight the crew operated between FL150 & 2000ft altitude.

The pilot assessed the risk of collision as 'None'.

THE ANGLIA RADAR CONTROLLER reports that they had been plugged-in as the Anglia [Radar] controller with 2 helicopters routeing south under the 323 Danger Area complex. [F15 callsign] called up requesting information on traffic [transiting] under the danger area and had also requested their squawks. The H175 had been routeing from [departure base] to [destination airfield] at 2500ft and had been kept updated on the traffic in the danger area above them [D323] which had been looking to fly low-level and the H175 pilot had chosen to descend to 1500ft and initially requested a turn east, but as this had meant it would put the military traffic behind them, the controller had advised that they should continue south for a moment and then [subsequently] provided avoiding action onto a heading of 270°. The H175 pilot queried if this would put them into the face of the military traffic and had been advised that they would pass just north of it. The H175 pilot had gained visual contact just as a military aircraft had also reported visual. The military aircraft had quickly turned west again towards the H175 and the H175 pilot had received a TCAS RA and descended. Once clear, the H175 pilot reported that they had been climbing back to 1500ft.

Factual Background

The weather at Norwich was recorded as follows:

```
METAR COR EGSB 091250Z 27010KT 230V310 9999 FEW043 21/11 Q1018 NOSIG=
```

Analysis and Investigation

USAFE

Background

The F15 formation had been tasked as adversary air in support of intercept training with other military aircraft in the EGD323 complex. Part of the scenario had required the F15 pilot to descend and operate below the vertical boundaries of the D323 complex in the open FIR. The F15 pilot briefed and consulted the USAF operating instructions that had been developed to increase situational awareness of helicopter operations when operating in this area. These operating instructions had been developed during airspace user working groups in conjunction with Anglia Radar, helicopter operators and the RAF Safety Centre. This liaison is ongoing to ensure continued engagement and improvement.

The F15 pilot called Anglia Radar on descent from FL150 and requested TI to deconflict themselves from any other operations. After being passed TI, the crew had gone further, requesting the squawks of the conflicting aircraft so that they could attribute these to the traffic depicted on their sensor display. The pilot reports that they maintained the track ID of these targets during their low-level operations in order to remain well clear of the traffic. The crew had decided to remain outside 5NM of the traffic at the same level and ensure they were deconflicted vertically within this. Although the pilot did not recall seeing any specific traffic of concern they were happy that their sensor data had been providing them situational awareness in addition to their lookout. As the pilot had been operating tactically, they had also been carrying out associated tasks within the cockpit. The F15 has a HOTAS (Hands on Throttle and Stick) control system and HUD to increase the capacity for the pilots to maintain look out.

USAFE reviewed radar replay footage of the occurrence. The F15 pilot had passed the H175 on 2 occasions, firstly routeing eastbound and then again in the turn back westbound. The second pass had been closer than the first and it is believed, after consulting with the pilot of the H175, that it had

been at this point that the TCAS RA had occurred. Measurements were taken from the recordings that were reviewed and at the closest point the F15 had been within 0.2NM horizontally and 2200ft higher than the H175. It is relevant to note that during the turn the altitude readout of the F15 scrambled several times (on the radar interface used it had shown 'ALT XXX'). This is a common occurrence when aircraft are manoeuvring, especially during fast-jet operations.

It is unclear whether the crew had indeed been under a Traffic Service or Radar Identified at the time of the occurrence. It is clear however that the F15 pilot had established contact with, and the Anglia Radar Controller passed TI on, traffic that had been relevant to the F15 pilot.

NATS INVESTIGATION

The pilot of the H175 had been operating in the Anglia Radar sector and in receipt of an Offshore Deconfliction Service. The controller passed Traffic Information and avoidance advice against an unknown fast-jet displaying 7001 SSR Code, later identified as [F15 callsign]. The pilot of the H175 subsequently received a TCAS RA and elected to file an Airprox on the encounter. All actions taken by the Anglia Radar controller were timely and appropriate.

The airspace in which the Airprox occurred is Class G but lies below D323E, which had been active at the time with a promulgated base level of FL050.

Sequence of events

1237:19 – The pilot of the F15 contacted the Anglia Radar controller (ANG) reporting that they had been *“a three ship of F15 currently operating 323 Delta and Echo. Be advised we are going to drop into the low altitude structure, we are going to be hanging out just to the north of HTZ Golf. We will maintain 4500ft and above.”*

ANG: *“[F15 callsign] Roger. I've got two aircraft in or underneath 323 Delta and Echo at the moment. They are 2500ft, helicopters, southbound.”*

[F15 callsign]: *“[F15 callsign] copied all. We'd like to hear their squawk.”*

ANG: *“OK, one squawking 4373, the other one is 4717 at the moment.”*

[F15 callsign]: *“[F15 callsign], copied all, thanks.”*

1240: Multiple aircraft displaying 7002 and 046x series SSR codes had been active in the D323 complex with 323A to E (inclusive) all being promulgated as active.

1242:11 – [F15 callsign]: *“Anglia Radar, [F15 callsign] will be entering the low-level [unintelligible] now.”*

1243:10 – The H175 had been southbound maintaining 2500ft and in receipt of an Offshore Deconfliction Service. ANG passed Traffic Information to the pilot of the H175 on two contacts to the left of their 12 o'clock at 15NM range, the first contact had not been displaying a Mode C, the second at FL120 descending. These aircraft had then turned east away from the projected track of the H175.

1243:40 - An aircraft displaying 7002 (identified as [F15 callsign] by Mode S data) changed from a PSR-only contact to displaying SSR with Mode C indicating 3100ft. At this time the aircraft had been 28NM west of the H175 and manoeuvring.



1244:11 – The F15 rolled out onto a track of 070°. ANG connected the H175 and the F15 using the RDP BRM function which indicated that the F15 callsign had been on a bearing of 278° at 24.9NM from the H175. ANG had repeatedly moved the SSR label blocks of the manoeuvring 7002 contacts in order to maintain a clear view of the data.

1245:01 – ANG: “[H175 callsign] one aircraft on your left hand side now, 10 o'clock 13 miles, just turning back, coming towards you, no Mode Charlie. There's a further one on your right hand side, keeping clear at the moment, but it is indicating 3500ft, so that's 4 o'clock about 16 miles away.”
 [H175 callsign]: “Roger copied, looking out, nothing visual at the moment, [H175 callsign].”
 ANG: “[H175 callsign] Roger.”

1247:00
 ANG: “[H175 callsign] one fast moving aircraft behind you at the moment, it's 5 o'clock 13 miles indicating altitude 4000ft.”
 [H175 callsign]: “Copied [H175 callsign].”



1248:02 – ANG: “[H175 callsign] aircraft behind you now 6 o'clock 10 miles indicating altitude 3000ft.” This contact turned south towards the H175 but then climbed to FL110.
 [H175 callsign]: “Roger copied that. We might take a descent to 1500ft if possible.”
 ANG: “[H175 callsign] affirm, descend to altitude 1500ft. That aircraft has climbed now, it is high level.”
 [H175 callsign]: “Copied, descending to 1500ft, it's below MSA with the windfarm but we are Victor Mike Charlie.”

ANG: “[H175 callsign] *Roger, affirm. I think that’s wise, that aircraft has descended quite rapidly as well now, so it’s on the left hand side 7 o’clock 11 miles indicating FL75 at the moment.*”
 [H175 callsign]: “*Copied, we’ll keep our eyes out [H175 callsign].*”

1252:20

The H175 pilot was now maintaining 1500ft.

ANG: “[H175 callsign] *traffic on your right-hand side now, fast moving coming towards you, 2 o’clock 20 miles indicating 3500ft descending.*”

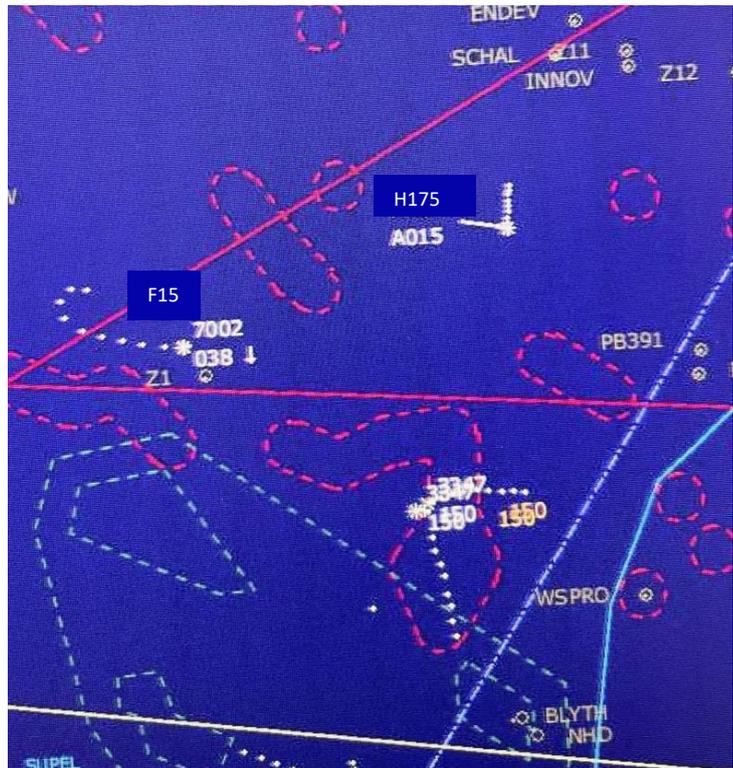
[H175 callsign]: “*Copied that traffic, would a left-hand 30 degree turn help?*”

ANG: “[H175 callsign] *as you wish, but at the moment you can just continue as you wish but it is descending passing 3000ft. If a right turn helps you could turn right heading 270°.*”

[H175 callsign]: “*We’ll continue on this heading for the moment [H175 callsign]. Just confirm it’s in our 3 o’clock, or 2 o’clock now?*”

ANG: “[H175 callsign] *2 o’clock range 14 miles indicating 3000ft now.*”

[H175 callsign]: “*Copied [H175 callsign].*”



The 7002 contact then turned to the east.

1253:28 - ANG: “[H175 callsign] *that traffic still tracking eastbound it’s in your 2 o’clock range 10 miles indicating 3500ft.*” The H175 pilot acknowledged this call.

1253:42 - ANG: “[H175 callsign] *avoiding action turn right heading 280°.*”

The conflicting traffic had been 8.26NM to the southwest of the H175 and 2000ft above it.

[H175 callsign]: “*Right 280°, does that take us towards the contact?*”

ANG: “*It should take you down left side of the contact.*”



1254:06 – Unknown aircraft: “[F15 callsign] *visual with the helicopter off in the...[unintelligible].*”

1254:16 – [H175 callsign]: “*Anglia Radar [H175 callsign] visual with that traffic. I think they communicated they were visual with us also.*”

ANG: “[H175 callsign] *affirm, that’s the one. Own navigation [destination airfield], passing south of you by three miles.*”

1254:58 – The 7002 contact made a left turn when 3.3NM east-southeast of the H175 when indicating 4700ft.

1255:05

ANG: “[H175 callsign] that traffic is coming back towards you now from the east, so is about two miles to the east now indicating 3000ft about to go overhead.”

[H175 callsign]: “Roger copied, TCAS RA descending.” 7002 contact was 1.25NM east and 1475ft above the H175.

[H175 callsign]: “Roger copied, TCAS RA descending.” 7002 contact was 1.25NM east and 1475ft above [H175 callsign].



1155:22 CPA – approximately 0.5NM/1600ft.

1255:46 – [H175 callsign]: “Anglia Radar, [H175 callsign] we are clear of contact now climbing back to 1500ft.”

ANG: “Just confirm that was a TCAS RA and you were visual as well.”

[H175 callsign]: “Affirm TCAS RA and we were visual, not sure they were visual with us.”

Pilot feedback

The USAF ATC Liaison Officer provided the following feedback:

The aircraft involved had [possibly] been the number two ship in the [F15 formation callsign] formation. The crew had been operating at medium level within the D323 complex but identified a need to descend to low-level as part of their exercise. One pilot had contacted Anglia Radar in order to make the controller aware of their presence and to obtain information on traffic in their vicinity, although this had not constituted requesting a service from Anglia. The controller had provided them with two SSR codes which they 'tagged' on their display as contacts to be aware of, planning to remain clear of them. The 180° turn from east to west that resulted in the TCAS RA being received by the pilot of the H175 had been part of their planned training profile and had not been flown in order to intercept the H175. The pilot had been satisfied there had been adequate vertical deconfliction distance between the two aircraft.

Conclusions

The USAFE aircraft (believed to be part of [F15 formation callsign]) had been operating autonomously but the crew of the F15 had made reasonable attempts to obtain real-time Traffic Information from Anglia Radar, stopping short of requesting a service. Having been given information on the two contacts that were present at the time, they had tagged them on their displays to ensure they did not conflict with the helicopters.

The training sortie being conducted by the crews had required them to make a turn back towards the H175, but this had not been for the purpose of intercepting or deliberately targeting the helicopter. From the ATC perspective, ANG provided appropriate Traffic Information and avoidance advice which had allowed the pilot of the H175 to initially visually acquire the F15 (and there is some evidence to suggest the F15 pilot may have been visual with the H175). However the rapid 180° turn and close proximity to the H175 at that time had not allowed visual contact to be regained once they had been back on their own navigation for [destination airfield]. The crew of the H175 had received a TCAS RA against the F15 with the pilot also having elected to file an Airprox. At the closest point of approach the aircraft had been approximately 1NM apart laterally with 1800ft vertical distance between them.

UKAB Secretariat

The H175 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.¹ If the incident geometry is considered as converging then the F15 pilot was required to give way to the H175.²

Comments

USAFE

During this occurrence both pilots acted proactively to maintain situational awareness of each other in addition to the Traffic Information issued by the controller in a difficult and rapidly changing situation. In the Spring of 2023, in recognition of 2 highly diverse types of activity requiring the regular use of the open FIR in this area, a working group has been established that includes UK & US Military working closely with Anglia ATC and helicopter operators in the southern North Sea area. This working group has been very successful in opening up lines of dialogue and information sharing between the operators. As a result of ATC, the operators of the helicopter and the USAF working together on this group all three parties were able to carry out their investigation into this occurrence in parallel and share findings early to resolve any issues found. The USAF electronic flight bag for the area has been reviewed and is suitable for the operations in the area. Crews receive a periodic brief of the nature of oil and gas operations in the southern North Sea so that they have a thorough understanding of what to expect and how they should operate. USAF also provides regular updates to Anglia ATC as to the types of operations they may see.

USAF crews are cognisant of the perceived risk when operating high-energy manoeuvres in the vicinity of commercial air traffic due to TCAS parameters.

Summary

An Airprox was reported when an H175 and an F15 flew into proximity beneath EGD323 at 1255Z on Wednesday 9th August 2023. The H175 pilot was operating under IFR in VMC and in receipt of an Offshore Deconfliction Service from Anglia Radar, the F15 pilot was operating under VFR in VMC and was in contact with Anglia Radar but not under a formal ATS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

¹ (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

² (UK) SERA.3210 Right-of-way (c)(2) Converging. MAA RA 2307 paragraph 12.

Information available consisted of reports from both pilots, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate operating authorities. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

The Board first considered the actions of the pilot of the H175. Members noted that they had been in receipt of an Offshore Deconfliction Service and had been operating under IFR but in VMC. It was agreed that the pilot had had situational awareness of the presence of the F15 due to the comprehensive Traffic Information that had been passed to them by the Anglia Radar controller. The pilot of the H175 had also been alerted to a potential conflict by a Resolution Advisory (RA) from their TCAS. Members appreciated that the pilot of the H175 had been concerned by the proximity of the F15 as it had moved towards their 6 o'clock position.

Turning their attention to the actions of the pilot of the F15, members noted the nature of their exercise, and the efforts expended to ensure they had had identity squawks for the traffic operating in the open FIR below their booked flying area (D323), commending them for maintaining ongoing RT with Anglia Radar and operating under VFR in VMC when established within the vicinity of the H175. Members noted that the pilot of the F15 had utilised onboard equipment to track the H175 and had been comfortable that they had had good situational awareness throughout the event, maintaining adequate lateral and/or vertical separation from the H175.

Summarising their deliberations, members were in agreement that the Anglia Radar controller had provided sufficient Traffic Information to the pilot of the H175 so that they had maintained situational awareness of the F15. It was further agreed that the pilot of the F15 had acquired the H175 in plenty of time to have considered a safe course of action. As such, members were satisfied that normal safety standards had pertained and that there had been no risk of collision. Risk Category E was assigned. Members agreed on the following contributory factors:

CF1: The H175 pilot was concerned by the proximity of the F15.

CF2: The H175 pilot received a TCAS RA warning.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2023175				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Flight Elements				
• Situational Awareness of the Conflicting Aircraft and Action				
1	Human Factors	• Unnecessary Action	Events involving flight crew performing an action that was not required	Pilot was concerned by the proximity of the other aircraft
• Electronic Warning System Operation and Compliance				
2	Contextual	• ACAS/TCAS RA	An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system resolution advisory warning triggered	

Degree of Risk: E.

Safety Barrier Assessment³

³ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that all barriers had been fully effective.

Airprox Barrier Assessment: 2023175		Outside Controlled Airspace						
Barrier	Provision	Application	Effectiveness					
			Barrier Weighting					
			0%	5%	10%	15%	20%	
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✓					
	Manning & Equipment	✓	✓					
	Situational Awareness of the Confliction & Action	✓	✓					
	Electronic Warning System Operation and Compliance	✓	✓					
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✓					
	Tactical Planning and Execution	✓	✓					
	Situational Awareness of the Conflicting Aircraft & Action	✓	✓					
	Electronic Warning System Operation and Compliance	✓	✓					
	See & Avoid	✓	✓					
Key:			<u>Full</u>	<u>Partial</u>	<u>None</u>	<u>Not Present/Not Assessable</u>	<u>Not Used</u>	
Provision	✓	●	✗	●				
Application	✓	●	✗	●			○	
Effectiveness	■	■	■	■			□	