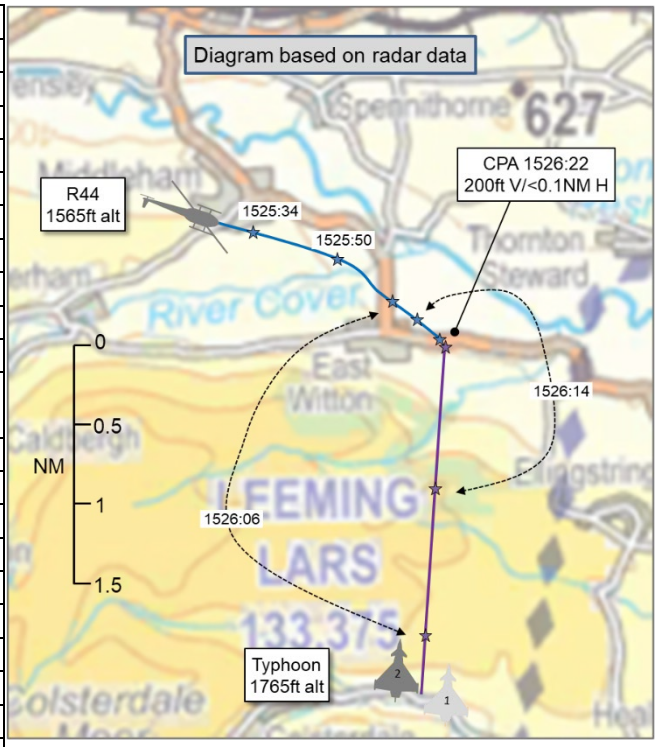
AIRPROX REPORT No 2024265

Date: 17 Oct 2024 Time: 1526Z Position: 5416N 00146W Location: IVO East Witton

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	R44	Typhoon
Operator	Civ Helo	HQ Air (Ops)
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	Listening Out
Provider	Leeming Zone	LL Common
Altitude/FL	1565ft	1765ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Grey with red stripe	Grey
Lighting	Nav, strobes	NR
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1700ft	1500ft
Altimeter	NR	NR
Heading	090°	005°
Speed	90kt	420kt
ACAS/TAS	Not fitted	Not fitted
Alert	N/A	None
Separation at CPA		
Reported	75ft V/100m H	200ft V/NR H
Recorded	200ft V/<0.1NM H	



THE R44 PILOT reports that they were transiting northbound to Wensleydale and before they descended into it they gained visual with a single [Typhoon]. Being aware of military fast jets, the R44 pilot had asked Leeming if there were any more movements in that area. They had said there was nothing further to report. The descent into Wensleydale had been fine and they had continued the flight. It was not until they were at Middleham that Leeming [notified them of] an aircraft [to their] right. In that split second of processing the R/T transmission the R44 pilot had looked to their right to see two fast jets on an immediate collision course. The R44 pilot's immediate concern was not just the collision it was wake turbulence as they were in a small helicopter that could have been fatal had they not immediately reacted by lowering the collective and [taking] a 90° turn to the south. The pilot reports that they didn't feel any wake turbulence but put that down to their immediate reaction. The rest of the flight had been uneventful. They flew back to [destination airfield] with their passenger highly shaken by the incident.

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

THE TYPHOON PILOT reports that [formation C/S] had been in receipt of a Traffic Service from Leeming Approach for their entry to low-level approximately 8 miles southwest of Leeming. Following cloud break with Leeming App, with no reported traffic, [formation C/S] switched to enroute at 1525:00. At 1525:40, the formation leader made a call on low-level common frequency stating that the formation was entering low-level at the Appleby valley at 500ft MSD. At this time the formation was 4-5NM south of the Appleby valley entry. Whilst flying north prior to reaching the Appleby valley, a lead change was made with the No.2 pilot taking over the tactical lead. As the No.2 moved from fighting wing to overtake the leader on the left, at 1526:20, the No.2 pilot saw a small civilian helicopter in their 11 o'clock, around 200ft below. The estimated range was between 1 and 2NM. The Typhoon formation was between 1200ft and 1500ft AGL. The formation No.2 pilot manoeuvred right to increase separation with the

helicopter and to signal that they were visual. After the manoeuvre away, the formation then turned left to follow the valley west. This incident occurred mid-afternoon in autumn skies, largely broken/overcast. The helicopter appeared to be a dark blue colour and was not seen whilst the formation was descending and reforming, despite radar sanitisation, no track was detected by either formation member. Against a very dark background below the horizon and with a lower line of sight rate across the ground, [the helicopter] was not visible. It was not until the formation No.2 pilot came closer to the level of the helicopter that it was acquired visually as it moved up toward the horizon line. Whilst the formation No.2 pilot moved to take the lead, their lookout was divided between maintaining separation from the formation No.1 on their right hand side, and clearing ahead and left. The formation No.2 pilot did not assess there to be a collision risk but manoeuvred away to maintain as much separation as possible. The formation No.1 pilot saw the helicopter when the formation No.2 pilot had initiated their wing flash.

The pilot perceived the severity of the incident as 'Low'.

THE LEEMING ZONE CONTROLLER reports that they had returned to work and had been asked to complete a DASOR because a civilian helicopter that they had been working at the time had filed an Airprox regarding a pair of Typhoons. What [the controller] recalls from the event is as follows: they remember the Approach controller working the Typhoons and sending them enroute once they became VMC below. The controller had been working a civilian helicopter to the west of Leeming. They remember calling the Typhoons to the helicopter pilot once there had been a [potential] risk of collision, as the helicopter pilot had been under a Basic Service. The helicopter pilot had then called visual with the pair of Typhoons and went enroute shortly afterwards.

The controller perceived the severity of the incident as 'Low'.

THE LEEMING APPROACH CONTROLLER reports that they were informed that an Airprox had [been reported] on 17 Oct 24 whilst they had been on console as the Radar Approach (RA) controller. They did recollect the incident well as the formation, no longer on their frequency, tracked towards a GA aircraft under the control of Leeming Zone. The Approach controller had taken a handover of the Typhoon formation for low-level to the west of Leeming. At approximately 15NM to the southwest, [formation C/S] stated that they were VMC and happy to go enroute. The Approach controller passed the RPS for the hour, stated that they could either contact [Leeming] or Swanwick(Mil) for their RTB transit and allowed them to change enroute, tracking west (approximately 280°) towards their low-level entry point. An R44 was due-north of the formation by approximately 7NM tracking 100°. The Approach controller did not pass Traffic Information to the formation as their speed, track and diverging heading indicated that Traffic Information would have been irrelevant. The Approach controller then watched the formation carry out a sharp 90° turn to the north towards the R44 (also being worked by Leeming) now approximately 5NM away. Becoming extremely concerned with the track, level and proximity, the Approach controller transmitted blind, three times, to re-establish comms with the formation as they had tracked towards it at the same level. The Approach controller pointed out the issue to the Supervisor who instructed the Zone controller to call the Typhoons to the R44 pilot, resulting in them becoming visual with the formation. To [the Approach controller's] recollection, no Airprox was declared on frequency by the R44 pilot.

The controller perceived the severity of the incident as 'Medium'.

THE LEEMING SUPERVISOR reports that the civil aircraft had been working RAF Leeming Zone at the time of the reported Airprox with the pair of Typhoons being worked by Leeming Approach. The Typhoons were performing a low-level let down with the Approach controller. They stated that they were VMC and happy to go enroute. The Leeming Approach controller had then sent them enroute. Shortly after this, the Approach controller witnessed the aircraft make a sharp turn in the direction of the civil aircraft working with Zone. There were a number of blind calls put out [on the Approach frequency] to get in touch with the Typhoons with no luck.

Factual Background

The weather at Leeming was recorded as follows:

METAR EGXE 171520Z 18009KT 9999 BKN030 16/10 Q1008 NOSIG RMK BLU BLU=

Analysis and Investigation

Military ATM

Utilising occurrence reports and information from the local investigations, outlined below are the key events that preceded the Airprox. Where available they are supported by screenshots to indicate the positions of the relevant aircraft at each stage. Screenshots are taken from NATS radar recordings and therefore may not represent the actual radar presentation of the R44 and Typhoon available to the Leeming controllers.

Sequence of Events

At 1516:28, the R44 pilot contacted Leeming Zone requesting a Basic Service which was issued by the Leeming Zone controller. At 1522:27, the Typhoon formation leader contacted Leeming Approach whilst established at FL100, heading westbound and requesting a Traffic Service for a low-level entry. The Leeming Approach controller identified the Typhoon formation, issued a Traffic Service and then instructed the formation to descend on a heading of 290° to height 2500ft on Leeming QFE 1003hPa and report VMC below. Whilst in the descent, the Typhoon formation leader informed the Leeming Approach controller of their intentions "*we are gonna go up to the A6 pass and ah back round*" and an agreement regarding a contact frequency for low-level exit was agreed.

At 1524:42, the Typhoon formation leader reported VMC below and was instructed to "*squawk conspicuity radar service terminated change enroute*" by the Leeming Approach controller at 1524:48. Immediately after going enroute the Typhoon formation commenced a 90° right turn onto a northbound heading. The Leeming Approach controller observed the turn and attempted to contact the Typhoon formation leader at 1525:27 to inform them of the R44 which had previously been determined as a non-factor given its relative position to the Typhoon formation's heading.

At 1525:40, the Typhoon formation leader made their initial broadcast on [the] Low-Level Common [frequency]. Unable to contact the Typhoon formation, the Leeming Approach controller, via the Leeming Supervisor, informed the Leeming Zone controller of the Typhoon formation's position. At 1526:10, the Leeming Zone controller provided Traffic Information to the R44 [pilot] on the Typhoon formation "*traffic believed to be you has traffic south 2 miles tracking north indicating similar level climbing, pair of Typhoons*". The Traffic Information and R44 pilot visually acquiring the Typhoon formation occurred concurrently.

Local BM Investigation(s)

RAF Leeming conducted a local investigation following the event to identify the ATS-related causal/aggravating factors. The investigation found that both the Leeming Approach controller and Zone controller had provided standard Traffic Information throughout in accordance with the type of service provided. The Leeming Zone controller had not been required to monitor the R44 but, when informed by the Leeming Supervisor of the Typhoon formation, had provided standard Traffic Information. The Leeming Approach controller's assessment that the Typhoon formation did not require Traffic Information was deemed suitable based upon the relative positions and headings at the point of decision.

2 Gp BM Analysis

The actions of both the Leeming Approach controller and Zone controller were standard throughout, providing Traffic Information where able with justified decision-making processes.

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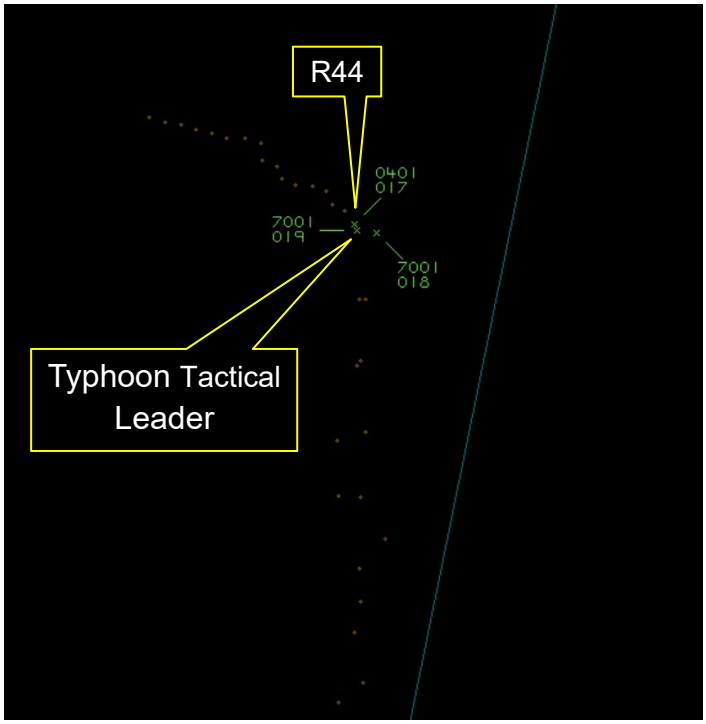


Figure 1: CPA 1526:22 200ft V/<0.1NM H

The R44 and Typhoon 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 R44 pilot was required to give way to the Typhoon.[2]

Comments

HQ Air Command

The Typhoon [pilots] were utilising Leeming Approach to maintain their obligations under IFR when descending through cloud and had then switched to Low Level (LL) Common for de-confliction with other aircraft in the UK Low Flying System. The Leeming Approach controller had no expectation of a conflict between the Typhoons and R44 due to their westerly track and the description of their route, hence no Traffic Information (TI) was given. Shortly after switching to LL Common, the formation turned north to pass approximately 8NM west of Leeming. Requesting a Lower Airspace Radar Service (LARS) would have been a better solution to enhance SA (whilst operating under VFR). The comms procedure described in the AIP and UK Military Low Flying Handbook states that obtaining a LARS should be prioritised over operating on LL Common and Leeming was the appropriate unit here. It is encouraging to see civilian use of LARS, although the Leeming Zone controller went beyond their duties by providing TI on a Basic Service. Traffic Service should ensure appropriate TI is passed. The Typhoon radar did not detect the R44 and, in the absence of a collision warning system, visual lookout provided the final MAC barrier. The visual detection range only allowed a late avoidance manoeuvre such that the R44 pilot was justifiably concerned about wake turbulence.

Summary

An Airprox was reported when an R44 and a Typhoon flew into proximity in the vicinity of East Witton at 1526Z on Thursday 17th October 2024. The R44 pilot was operating under VFR in VMC in receipt of

[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.

a Basic Service from Leeming Zone and the Typhoon pilot was operating under VFR in VMC and not in receipt of a Flight Information Service.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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 firstly considered the report from the R44 pilot, noting that they had been in receipt of a Basic Service from Leeming Zone and had been previously alerted to other low-flying military aircraft in their area, leading them to have sought reassurance for their onward flight. The pilot reports having progressed eastwards and, coincidental with receiving Traffic Information on a pair of Typhoons descending into low-level, had visually acquired them and had immediately turned and descended to increase separation as they had been concerned by their proximity (**CF6**) and had deemed there to have been a high risk of collision. Members accepted that fast-jet aircraft in this environment can appear to be a high threat and acknowledged the actions taken to alleviate that concern. The Board discussed the absence of electronic conspicuity (EC) equipment onboard the R44 and wished to remind all aircraft owners and operators that an active and compatible EC unit can raise the situational awareness of all those similarly equipped in the local area and reduce the likelihood of such close encounters.

In discussing the role played by the Typhoon pilot, members acknowledged the nature of the flight and the effect the weather can have on pre-planned events. The Board recognised the positive use of a Traffic Service from Leeming Approach to enable their descent into low-level and desire to switch to the LL Common frequency for the low-level portion of their flight, but felt that, having declared their preferred trajectory to have been westwards and having then elected to turn north, they could have reverted to Leeming for a LARS (**CF4**) or to notify them of their amended plan (**CF3**). Members felt that this could have given the opportunity for the provision of earlier Traffic Information to be available for the R44 pilot. Ultimately, the descent on a northerly track whilst out of active radio contact with Leeming had led to a lack of timely situational awareness for both pilots. In this case, the R44 pilot had gained situational awareness of the presence of the Typhoons at a late stage and the Typhoon pilot, having been unable to register the R44 via their onboard radar and with no active flight information service, had had no situational awareness of the presence of the R44 (**CF5**).

Members then reviewed the contribution by the Leeming Zone and Approach controllers in this situation. They noted that, although the R44 and Typhoon pilots had been talking to different elements of the Leeming service provider, there had been no immediate requirement to provide Traffic Information to the R44 pilot regarding the low-level entry of the Typhoons as their predicted paths had indicated no confliction. Members felt that, although that had been the case, it may still have been prudent to alert the Typhoon pilot to the presence of the R44 in its path along Wensleydale as they had switched to LL Common. On recognising the changed flightpath of the Typhoons, the Board agreed that the Leeming Zone controller had gleaned only late situational awareness of the raised risk of confliction (**CF2**) and, with the Approach controller having been unable to contact the Typhoon pilot, the Zone controller had issued late Traffic Information (in the context of the rate of track closure – members acknowledged that the Traffic Information could not have been passed any earlier) (**CF1**) to the R44 pilot regarding the Typhoons.

Concluding their discussion, members noted that the R44 pilot reports having gained visual contact with the Typhoons coincidental with Traffic Information on the descending formation and that they had executed a turn and descent as they had deemed a high risk of collision. The Typhoon pilot reports as having seen the R44 at a distance of 1-2NM and judged the collision risk as low, manoeuvring away to generate greater separation. Members therefore felt that, although safety had been degraded, there had been no risk of collision and assigned Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024265			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Human Factors	• ANS Traffic Information Provision	Provision of ANS traffic information	TI not provided, inaccurate, inadequate, or late
2	Contextual	• Traffic Management Information Action	An event involving traffic management information actions	The ground element had only generic, late, no or inaccurate Situational Awareness
	Flight Elements			
	• Tactical Planning and Execution			
3	Human Factors	• Accuracy of Communication	Events involving flight crew using inaccurate communication - wrong or incomplete information provided	Ineffective communication of intentions
4	Human Factors	• Communications by Flight Crew with ANS	An event related to the communications between the flight crew and the air navigation service.	Pilot did not request appropriate ATS service or communicate with appropriate provider
	• Situational Awareness of the Conflicting Aircraft and Action			
5	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
	• See and Avoid			
6	Human Factors	• Perception of Visual Information	Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: C.

Safety Barrier Assessment[3]

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Ground Elements:

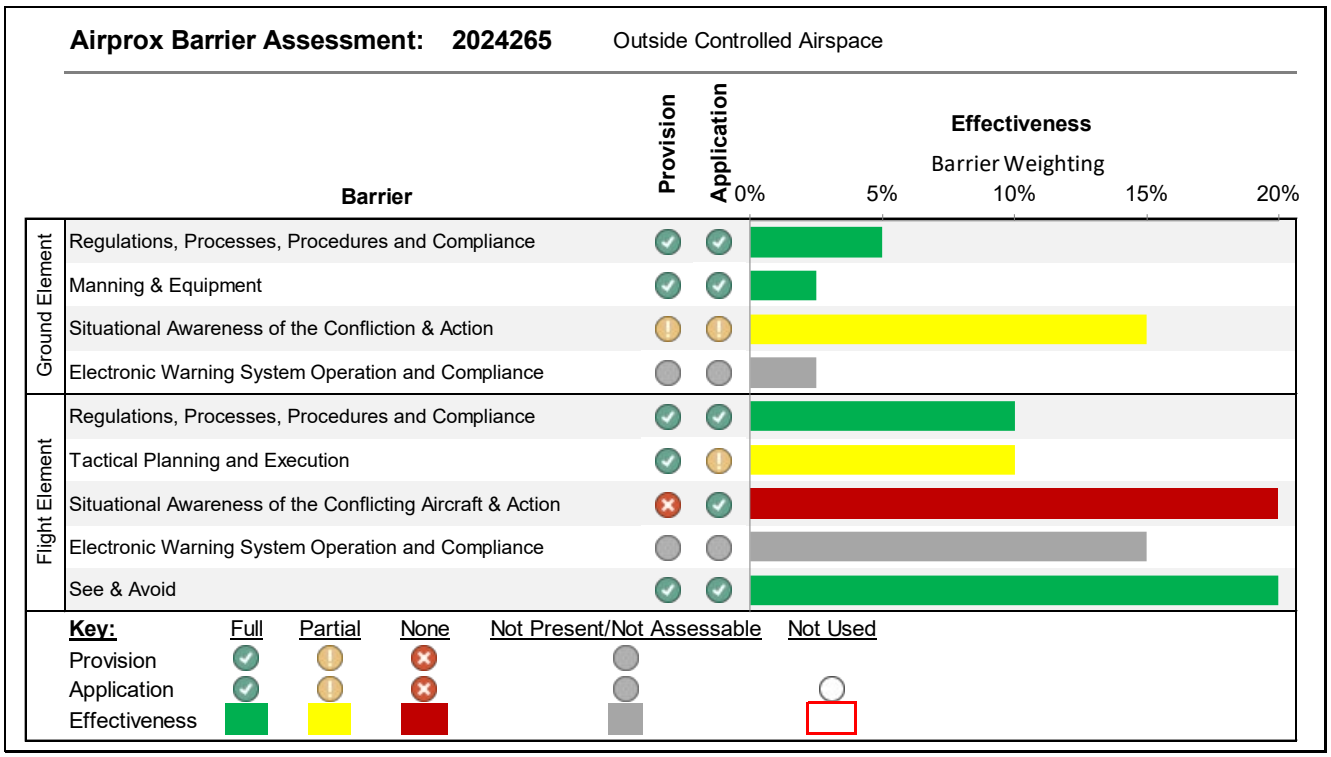
Situational Awareness of the Confliction and Action were assessed as **partially effective** because the conflict was identified late (as the Typhoons turned towards the R44) and allowed the passing of Traffic Information only at a late stage.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the Typhoon pilot could have utilised a radar service for the initial portion of their low-level route and alerted the controller as to their intention to route north on LL entry.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the R44 pilot achieved only late situational awareness of the presence of the Typhoon and the Typhoon pilot had no situational awareness of the presence of the R44.

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


Airprox Barrier Assessment: 2024265
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:
Full
Partial
None
Not Present/Not Assessable
Not Used
Provision
Application
Effectiveness