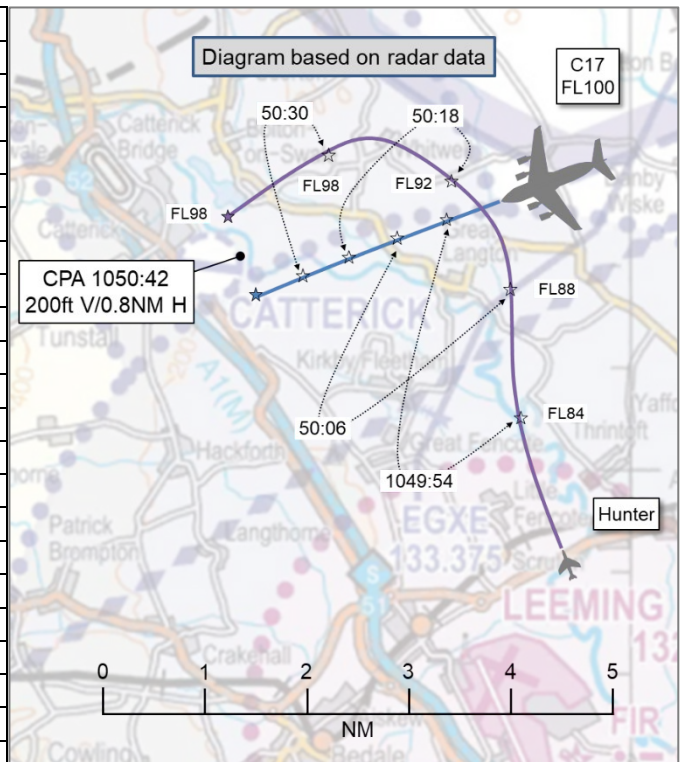


AIRPROX REPORT No 2024121

Date: 25 Apr 2024 Time: 1051Z Position: 5422N 00136W Location: Catterick

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C17	Hawker Hunter
Operator	HQ Air (Ops)	Civ Comm
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Traffic	Traffic
Provider	Leeming Approach	Leeming Radar
Altitude/FL	FL100	FL098
Transponder	A, C, S+	A, C, S
Reported		
Colours	Grey	Grey/green
Lighting	'all normal lights'	Strobe, nav
Conditions	VMC	NR
Visibility	>10km	NR
Altitude/FL	FL100	NR
Altimeter	SPS	NR
Heading	250°	NR
Speed	130kt	NR
ACAS/TAS	TCAS II	TAS
Alert	RA	NR
Separation at CPA		
Reported	NR V/1NM H	NR V/>1NM H
Recorded	200ft V/0.8NM H	



THE C17 PILOT reports running in for a simulated airdrop. With 30sec to run to the simulated release, Leeming ATC asked if they were content to be embellished by a single Hunter. Because they were in a focussed period of flight, at a lower speed than the Hunter could maintain at FL100, they replied "negative". Approximately 20sec later they received a TCAS TA and then an RA. The Loadmasters became visual with the Hunter aircraft through the open ramp as it was manoeuvred through their level. It was visually judged to be about 1NM rear of the aircraft and the crew did not feel threatened. The Hunter was manoeuvred across the back of the aircraft and into the 3 o'clock position where the co-pilot became visual with it. Because they had declined the offer of embellishment, the TCAS was still in TA/RA mode and the TA warning became an RA as the Hunter pilot manoeuvred around the back of the aircraft. In their low energy state, with crew on the ramp lip and visual with the Hunter, they deemed the safest course of action to be to maintain a predictable course for the Hunter pilot to manoeuvre away from them, as they did. The practice airdrop profile was briefed to ATC both during prior telephone coordination and whilst on-frequency. At the time of the occurrence, this was their first pass at FL100 and they had not yet entered the racetrack pattern. Hopefully this serves as a reminder to ATC to pass this as relevant information and/or to make the decision themselves without a further call (and thus time delay) being required to the drop aircraft. The Hunter pilot's range/heading description tallies with their observations and, although they did not perceive any risk of collision, the closure rate/geometry triggered the TCAS TA/RA that mandates this reporting. In any normal circumstances they would be happy to accept embellishment, but at such a low energy state, and in a high workload phase of flight, the crew declined and raised this report due to the nature of the TCAS RA and for ATC and Hunter education as to such a profile being unsuitable for embellishment.

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

THE HUNTER PILOT reports they were aware and told by ATC about the C17 flying in the area, but not that they were exercising practice drops. They set up an intercept and asked ATC to check for

clearance by the C17 crew, if they agreed to be intercepted. During the waiting time they continued on an intercept track. When left abeam the C17, nose on at an estimated 4 miles, they realised that it was ramp open and slow. With no answer yet from ATC, they decided to float to the other side. They crossed the stern at an estimated 1 mile and continued to a parallel course at an estimated distance of 1.5-2 miles. During that manoeuvre they got the call that the crew was busy practising and they broke off to the right. It did not look like a deconfliction problem had occurred. ATC provided proper Traffic Service and communication was always positive.

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

THE LEEMING APPROACH CONTROLLER reports controlling the C17 in the Leeming overhead at FL080, which was conducting circular orbits of about 5DME radius. Additionally, they were also controlling a pair of Typhoons 30NM to the east of Leeming. The Typhoons had reported 5min to termination of their sortie and intended return to Lossiemouth, which was then prenoted to Swanwick North. At that time [C17 C/S] was clear of all traffic with Tutors and the Hunter well below on what they believed to be a visual recovery. Shortly after, they were aware of the Hunter climbing rapidly to the north of Leeming toward the C17 which was called as 'north 2NM similar height/level' with the request to embellish the C17 which was declined by the C17 crew.

THE LEEMING RADAR CONTROLLER did not submit a report.

THE LEEMING SUPERVISOR reports that due to the elapsed time between occurrence and notification they could not recall any details beyond those already given by the controller.

Factual Background

The weather at Leeming was recorded as follows:

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METAR EGXE 251050Z 32007KT 9999 FEW020 BKN040 07/02 Q1003 NOSIG RMK BLU BLU=
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Analysis and Investigation

Military ATM

An Airprox occurred on 25 Apr 24, 5 miles north of RAF Leeming at approximately 1050 UTC. The C17 crew was conducting a simulated airdrop sortie, flying a slow speed profile with the rear ramp open and in receipt of a Traffic Service from Leeming Approach. The Hunter pilot was conducting general handling in the same area and in receipt of a Traffic Service from Leeming Radar.

Utilising occurrence reports and information from the local investigation, 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 do not represent the radar presentation of the C17 and Hunter available to the Leeming controllers and Supervisor.

The Airprox was [reported some] 6 weeks after the occurrence and unit radar and voice recordings were unavailable upon Airprox classification.

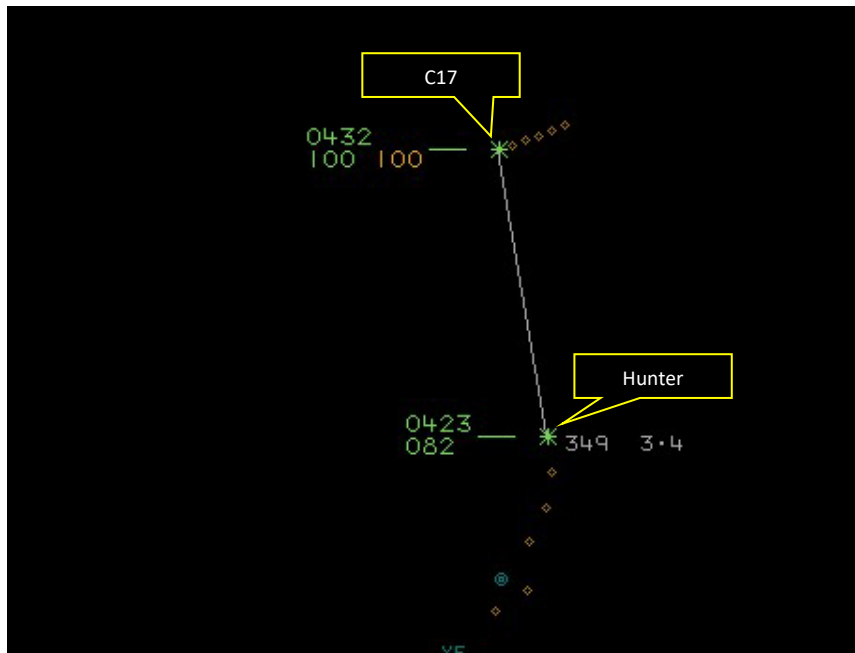


Figure 1. (1049:45) The Hunter turned towards the C17.

At 1049:45, the Hunter pilot turned and climbed towards the C17 whilst requesting, via the Leeming Radar controller, to 'embellish' the C17. The request was passed from the Leeming Radar controller responsible for the Hunter to the Leeming Approach controller responsible for the C17. The C17 pilot subsequently denied the request and the Leeming Approach controller was in the process of passing the denial to the Leeming Radar controller to inform the Hunter pilot. During the period that the request was being actioned by the Leeming controllers the Hunter pilot continued to maintain their interception profile before passing astern of the C17, where it was sighted by the Loadmaster.

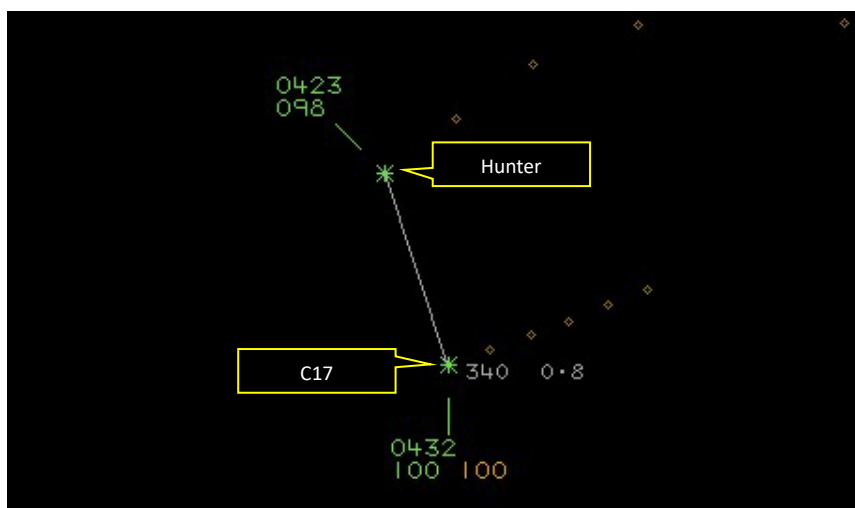


Figure 2. (1050:43) CPA.

CPA occurred at 1050:43 and was recorded as 0.8NM and 200ft separation.

Following initial review, it was deemed that no BM investigation was required by Leeming ATC on the basis that the controller actions were entirely within the ATS provision requirements. The C17 investigation was therefore identified as the lead investigation.

The 6-week delay in [reporting this occurrence as an] Airprox meant that voice recordings were unavailable. This prevented accurately identifying the point at which the Hunter pilot's request to embellish was made. Best judgement from correlating the radar data would suggest that 45sec elapsed between the Hunter [pilot]'s request and the TCAS RA with subsequent Airprox report. This period presented insufficient time to relay the response back to the Hunter pilot as there was a

requirement for the message to be passed via multiple controllers. Whilst no Traffic Information was passed, the nature of the Hunter [pilot] being visual throughout negated any requirement for Traffic Information regarding the C17. Additionally the C17 pilot was not passed Traffic Information on the Hunter as the Hunter did not present a risk of collision given both its position behind and visual nature. No further BM factors were identified.

UKAB Secretariat

The C17 and Hunter 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

Comments

Hunter Operating Company sortie authoriser

The Hunter pilot is a very experienced test pilot, primarily flying Typhoon. They are also currently involved in testing the A400M cargo drop capability so are very aware of the complexity and workload involved in military transport para-drop operations. Had ATC been aware of the C17 para-drop activities, they would have been able to give an immediate 'negative' to the embellishment request. If the C17 flight profile required sanitised airspace it would perhaps be better not conducted in Class G airspace or issue a NOTAM highlighting the activity. Triggering the C17 TCAS clearly caused unwanted distraction to the C17 crew whilst task-focused and slow. The Hunter pilot was visual with the C17 throughout and stayed well clear so there was no risk of collision, however, all [company] pilots have been briefed to stay well clear of transport aircraft until embellishment requests have been approved.

HQ Air Command

Any intercept training involving UK military aircraft should be conducted in accordance with UK Air-to-air Combat Training Rules (ATRs) 2024 (known as Air-to-Air Training Rules 2020, at the time of the incident). This covers all regulatory aspects, such as the requirement to pre-brief the intercept training, and for the crews to be appropriately qualified and authorised for these activities. It also defines minimum separation criteria and many other limitations, including written authority from platform Aviation Duty Holders to conduct the training. Despite using the term EMBELLISH (as defined by the Manual of Military Air Traffic Management), an inconsistency of understanding has emerged over which parts of ATRs cover Visual Identification (VID) training, and the requirements prior to flight. There is reference from both pilots that, had the request been approved, the intercept could have taken place. This occurrence has prompted a review of regulation surrounding VID training. Once complete, further clarity should emerge on how unbriefed VID training can be conducted. In this instance it was entirely appropriate for the C17 crew to deny the request due to the task being conducted. The benefit of UKAB oversight is that a review will follow; a positive outcome which should enhance training opportunities in a safe environment

Summary

An Airprox was reported when a C17 and a Hawker Hunter flew into proximity near Catterick at 1051Z on Thursday 25th April 2024. Both pilots were operating under VFR in VMC in receipt of a Traffic Service, the C17 pilot from Leeming Approach and the Hunter pilot from Leeming Radar.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, a report from one of 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.

¹ MAA RA 2307 paragraphs 1 and 2.

The Board agreed that it appeared the Hunter pilot had continued their intercept profile despite not being cleared to do so and perhaps not fully aware of the rules regarding 'embellish' and/or VID. Members acknowledged the ruleset ambiguity referred to in the HQ Air Command comment and were heartened that a review of regulation was to take place. In the event, and although the proximity of the Hunter activated the C17 TCAS RA, the pilots and crew involved had been visual with each other and the Hunter pilot had maintained sufficient separation such that there was no risk of collision, Risk E. The following contributory factors were found to be applicable:

- CF1:** The rules for 'embellish' were not followed.
- CF2:** The Hunter pilot continued on an intercept profile without permission to 'embellish'.
- CF3:** The 'embellish' action was not planned and briefed prior to flight.
- CF4:** The C17 crew received a TCAS RA.
- CF5:** The Hunter pilot flew close enough to the C17 to cause its crew concern.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2024121				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Flight Elements				
• Regulations, Processes, Procedures and Compliance				
1	Human Factors	• Use of policy/Procedures	Events involving the use of the relevant policy or procedures by flight crew	Regulations and/or procedures not complied with
• Tactical Planning and Execution				
2	Human Factors	• Insufficient Decision/Plan	Events involving flight crew not making a sufficiently detailed decision or plan to meet the needs of the situation	Inadequate plan adaption
3	Human Factors	• Pre-flight briefing and flight preparation	An event involving incorrect, poor or insufficient pre-flight briefing	
• Electronic Warning System Operation and Compliance				
4	Contextual	• ACAS/TCAS RA	An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system resolution advisory warning triggered	
• See and Avoid				
5	Human Factors	• Incorrect Action Selection	Events involving flight crew performing or choosing the wrong course of action	Pilot flew close enough to cause concern

Degree of Risk: E.

Safety Barrier Assessment²

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

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the Hunter pilot did not arrange the C17 'embellishment' iaw UK Air-to-Air Combat Training Rules.

² The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

Tactical Planning and Execution was assessed as **partially effective** because the Hunter pilot continued on their intercept profile without having permission to embellish the C17.

Airprox Barrier Assessment: 2024121		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 Conflicion & 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								