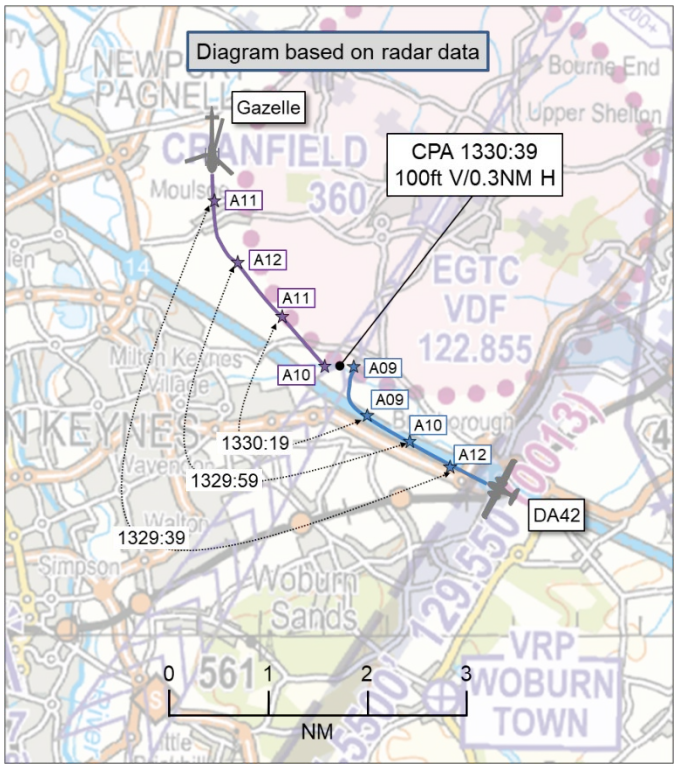
AIRPROX REPORT No 2025143

Date: 08 Jul 2025 Time: 1331Z Position: 5202N 00039W Location: ivo Cranfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DA42	Gazelle
Operator	Civ FW	Civ Helo
Airspace	Cranfield ATZ	London FIR
Class	G	G
Rules	VFR	VFR
Service	ACS	ACS
Provider	Cranfield Tower	Cranfield Tower
Altitude	900ft	1000ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White	Red
Lighting	Strbs, nav,ldg,taxi	Tail & main strbs.
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	700ft	~200ft
Altimeter	QNH	QNH (1015hPa)
Heading	300°	090°
Speed	95kt	80kt
ACAS/TAS	Not fitted	SkyEcho
Alert	N/A	None
Separation at CPA		
Reported	0ft V/100m H	NK V/ 1NM H
Recorded	100ft V/0.3NM H	



THE DA42 PILOT reports they were conducting a CPL test on a candidate and using Cranfield for circuits. The arrival had been from the south and an orbit had been taken by the candidate prior to commencing the first approach. They asked the candidate to go around on the first approach to complete part of the requirements for the test schedule. While downwind right-hand for RW03, they were aware of the number of aircraft in the circuit and local area and asked the candidate to tell them how many aircraft they were aware of. The [candidate] correctly identified all the aircraft. While on downwind, the Tower controller asked them to orbit while dealing with other aircraft. The pilot of the helicopter was heard misinterpreting instructions and the controller confirming that the pilot had understood the instructions. They [the examiner] had a conversation with the candidate highlighting that the helicopter pilot was a potential threat and a cockpit discussion was carried out regarding management of that threat. They [the DA42 pilot] were asked to continue on right-base and report on final. While on right-base they were aware that the helicopter pilot was not following instructions. The [DA42 pilot] added a transmission on the radio to state that they were on right-base overhead the motorway to confirm exactly their position. The Tower controller asked the helicopter [pilot] if they were visual with [the DA42]. As they [the DA42 pilot] were in the descent below the helicopter and already positioning onto final, the turn was continued while they were observing the path of the helicopter. The option of initiating a go-around had already been discussed but the safest option was to diverge and turn towards final. They remained visual and it was clear it would pass behind. Although close, separation was maintained.

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

THE GAZELLE PILOT reports that they were unaware of an Airprox on their arrival to Cranfield. They were under ATC control and were advised to head on base leg for the dual carriageway which is the VRP for the final leg turning point. They advised the aircraft was in front of them. They confirmed visual with the aircraft to ATC whilst still on base leg, with the aircraft in question on final, and then joined final

leg behind the aircraft as instructed. They would say that they had approximately no less than 1NM clearance, they reduced speed to give the aircraft time to land ahead of them and then landed without issue and asked the ATC if they could taxi for fuel.

THE CRANFIELD CONTROLLER reports that [the pilot of] an inbound Gazelle failed to comply or deviated from multiple ATC clearances/instructions, including but not limited to: routeing towards the wrong runway in use, an incorrect join, lack of orbit when requested, failure to space appropriately according to the landing sequence and landing without a clearance.

Factual Background

The weather at Cranfield Airport was recorded as follows:

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METAR EGTC 081320Z 28011KT CAVOK 21/07 Q1018
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Analysis and Investigation

Cranfield Airport

For this investigation report the FPS was checked, R/T recordings listened to, digital Tower recordings viewed and they discussed the ATCO's account of events.

[The pilot of the Gazelle] made their initial call to Cranfield Approach at 1322. They were informed that the Tower was busy and instructed to remain in the local area. Following this [the Gazelle pilot] reported 3NM southeast of Olney VRP, inbound. [The Approach controller] re-iterated the instruction to remain outside the ATZ which [the Gazelle pilot] acknowledged.

The runway in use was 03. At 1324, [the Approach controller] had spotted a helicopter that appeared to be positioning for right-base, RW21 and queried the position of [the Gazelle], asking [the pilot] if they were *'crossing the climbout of RW03'*. [The Gazelle pilot] responded with *'No, I think we're on RW21.'* [The Approach controller] confirmed the runway in use (03) and again instructed the [Gazelle pilot] to remain outside the ATZ.

At 1326, a position report was sought from the aircraft by [the Approach controller], [the pilot] reported 1NM northwest of the CIT NDB. [The Approach controller] instructed [the Gazelle pilot] to route towards the field and join right-hand downwind RW03. [The pilot] readback *'joining downwind, right turn 03'* and was then instructed to contact Cranfield Tower.

At 1327, [the Tower controller] re-iterated the previously given joining instructions and obtained a readback from [the pilot of the Gazelle]. However, [the pilot] incorrectly read back *'report final'*. Tower corrected them, informing them that their next reporting point was to be downwind. Tower informed them of their position in the traffic sequence (number 4) and of the traffic they were to follow (DA42).

At 1328 [the Gazelle pilot] was instructed to report ready for base. [The pilot] requested this was repeated. The instruction was repeated by [the Tower controller] and then incorrectly read back as *'turning left base'*. The instruction was re-iterated for a third time and [the pilot of the Gazelle] was again informed of the position of the DA42 they were to follow.

Upon reporting ready for base, [the Gazelle pilot] was instructed to make one right-hand orbit to deconflict from the DA42, no response was received. At 1330, the ATCO established [that the Gazelle pilot] was not visual with the DA42 and instructed them to extend downwind to the motorway. [The Gazelle pilot] reported '*just above'* the motorway. At 1331 [the pilot of the Gazelle] reported visual with the DA42. The DA42 pilot stated on frequency *'that was close'* and then shortly after '[they have] *just gone straight behind us'.*

Shortly afterwards, [the Gazelle] was positioned short final as the DA42 was in the touch and go roll. No final report was made and as such no landing clearance was obtained, although the ATCO

deemed it safer to allow the aircraft to continue and was content by this point that separation was adequate.

Findings: Despite initial instructions (twice) to remain outside the ATZ, [the Gazelle pilot] was likely positioning without clearance for a join on the incorrect RW21 at the time the APP ATCO established their position. This was 'caught' and appropriately mitigated. Upon receipt of joining instructions, [the Gazelle pilot] then joined the incorrect side of the circuit for the correct runway, though there were no direct safety implications. [The pilot] was then instructed to orbit right and no response was received or sought. [The Gazelle pilot] continued on left base, having been made aware several times of the position of the conflicting traffic, turning behind the DA42 such that the crew believed appropriate safety margins had been eroded. [The pilot of the Gazelle] omitted their final report and landed RW03 without clearance. Upon landing, [the pilot] reported that they were '*not familiar*' with Cranfield and would need additional instructions to park. Throughout the incident, the Tower frequency and ATZ were busy, with upwards of 3 aircraft in the visual circuit, training instrument approaches and multiple ground conflictions. There were several instances of crossed transmissions.

The ATCO did not obtain a readback or acknowledgement from the instruction to orbit, though it is recognised that the frequency and traffic situation were busy and complex at the time of the event. A report over the motorway from [the pilot of the Gazelle] appeared to satisfy the ATCO as to the spacing between [the Gazelle] and the DA42, although it is possible the DA42 was positioned on a longer final than initially anticipated.

The pilot in command of [the Gazelle] appeared to have briefed themselves for RW21 and acted on this, despite being instructed to remain outside the ATZ on multiple occasions. The join, when cleared, was incorrect and displayed a lack of understanding of the instruction given. Upon joining, they placed themselves into conflict with a DA42 in the traffic circuit despite multiple methods attempted to deconflict by the ATCO.

The SATCO sent a standards reminder to ATCOs regarding obtaining read-backs and ATCOs are to be issued mandatory training on the event.

CAA ATSI

The comprehensive report from Cranfield suggests that the pilot of [the Gazelle] failed to comply with ATC instructions. ATSI has nothing to add.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and both aircraft were positively identified using Mode S data. The DA42 was seen to join right-hand downwind for RW03, and the Gazelle on a left-hand downwind for RW03. The 2 aircraft were seen converging from opposite base-leg positions (Figure 1).

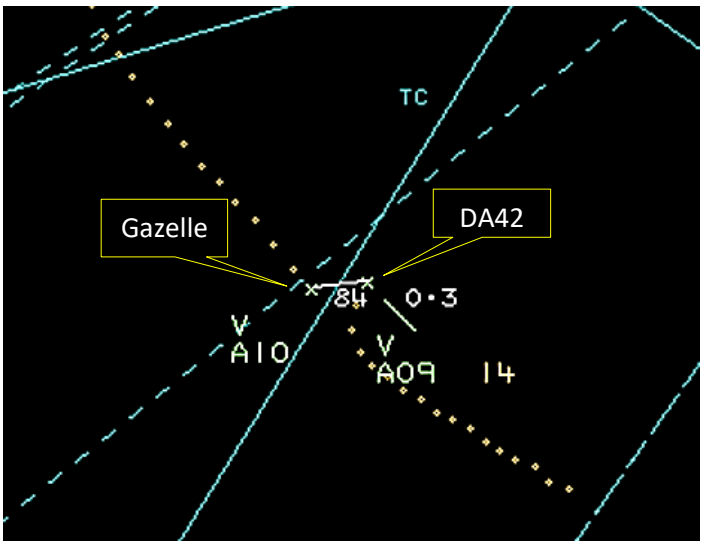


Figure 1- Time 1330:39

Analysis of aircraft tracking sources detected both aircraft using MLAT data, confirming their tracks and positions. The DA42 was seen to have orbited downwind before continuing towards a right-base for RW03, and the Gazelle was seen to join from the northwest to make a non-standard join for a left-hand downwind position for RW03 (Figure 2).

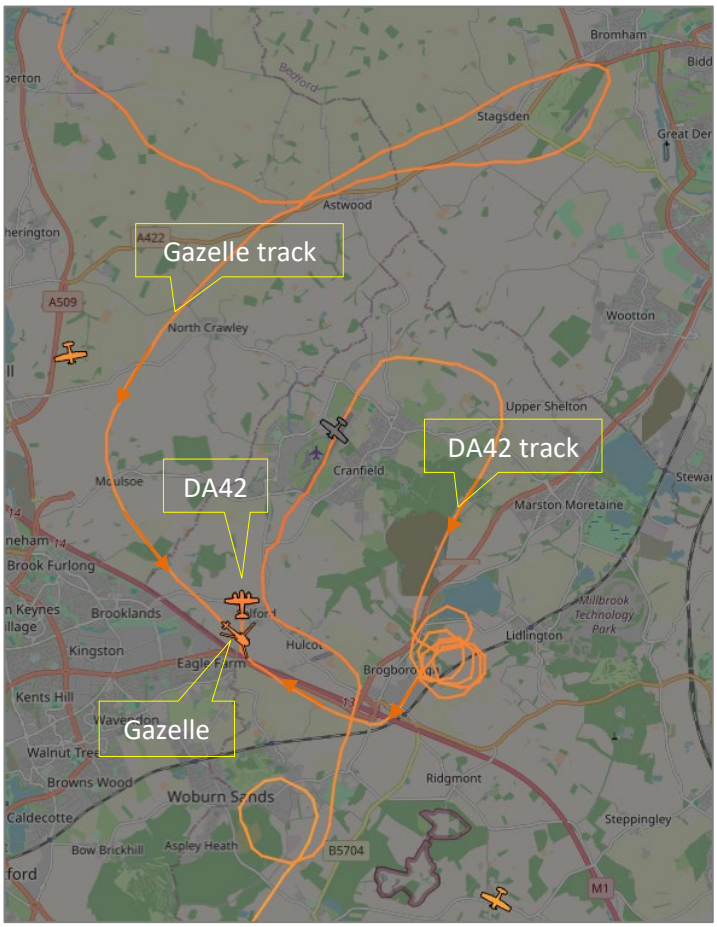


Figure 2 – Time 1330:40 Aircraft positions and tracks.

CPA was assessed to have occurred at 1330:39 as the Gazelle passed behind the DA42 turning onto the final approach for RW03, with 0.3NM lateral and 100ft vertical separation.

The DA42 and Gazelle 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] An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation.[2]

Summary

An Airprox was reported when a DA42 and a Gazelle flew into proximity in the vicinity of Cranfield at 1331Z on Tuesday 8th July 2025. Both pilots were operating under VFR in VMC in receipt of an ACS from Cranfield Tower.

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, a report from the air traffic controller involved and a report from the appropriate operating authority. 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 looked at the actions of the DA42 pilot and noted that they had been conducting a CPL test. The Board agreed that the pilot had been able to adequately monitor the RTF to form a mental model of the Gazelle's presence and potential position and had formed a Threat and Error Management (TEM) plan. The Board noted that the DA42 pilot had manoeuvred themselves onto the final approach ahead of the Gazelle in preference to going around, stating *'that was close'.* The Board wondered why the DA42 pilot did not go around anyway, but members agreed that the pilot had had full situational awareness and had been concerned about the proximity of the Gazelle (**CF7**).

The Board then considered the actions of the Gazelle pilot and noted that they had had an incorrect mental model of the Cranfield circuit pattern, having first positioned to approach the opposite direction runway. The Board noted that the pilot, having altered course from RW21, had turned onto the deadside of the RW03 circuit pattern but, despite having been instructed to join right-hand downwind by both the Approach and Tower controllers and responding with *'joining downwind, right turn 03',* the Gazelle pilot had joined left-hand downwind. Members agreed that the pilot had ineffectively communicated their intentions with their response (**CF1**), had made an incorrect execution of the downwind join (**CF2**) and had not conformed with the pattern of traffic already formed (**CF3**). The Board noted that when the Gazelle pilot had turned on to a left base for RW03, the pilot had been requested by the controller to orbit right for spacing as they were number 4 to land after the DA42; however, the Gazelle pilot had not responded and had continued on their course. Members agreed that the Gazelle pilot had neither followed ATC instructions (**CF4**) nor assimilated the conflict information of the opposite direction DA42 in a right-hand circuit pattern (**CF5**). The Board further noted that the pilot had had no information or alert from the electronic conspicuity (EC) equipment fitted in the Gazelle and members agreed that the Gazelle's EC equipment had been unable to detect the emissions from the DA42 (**CF6**).

Turning their attention to the actions of the Cranfield controller the Board noted that the controller had managed to mitigate a combination of errors experienced as a result of the Gazelle pilot's incorrect join and members agreed that the controller had maintained a high level of situational awareness in doing so.

In determining the risk factor, the Board noted that the DA42 pilot had been fully prepared with their Threat and Error Management plan, and had seen the Gazelle in time to have passed ahead of it, while the Gazelle pilot described that they had seen the DA42 and slowed down to remain clear of and behind it. Members agreed that, although safety had been degraded, there had been no risk of collision and, as such, assigned a Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2025143			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Flight Elements			
	• Tactical Planning and Execution			
1	Human Factors	• Accuracy of Communication	Events involving flight crew using inaccurate communication - wrong or incomplete information provided	Ineffective communication of intentions
2	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
3	Human Factors	• Monitoring of Environment	Events involving flight crew not to appropriately monitoring the environment	Did not avoid/conform with the pattern of traffic already formed
	• Situational Awareness of the Conflicting Aircraft and Action			

4	Human Factors	• Flight crew response to communications	An event related to the flight crew taking the incorrect action following communication	
5	Human Factors	• Understanding/ Comprehension	Events involving flight crew that did not understand or comprehend a situation or instruction	Pilot did not assimilate conflict information
	• Electronic Warning System Operation and Compliance			
6	Technical	• ACAS/TCAS System Failure	An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations	Incompatible CWS equipment
	• See and Avoid			
7	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]

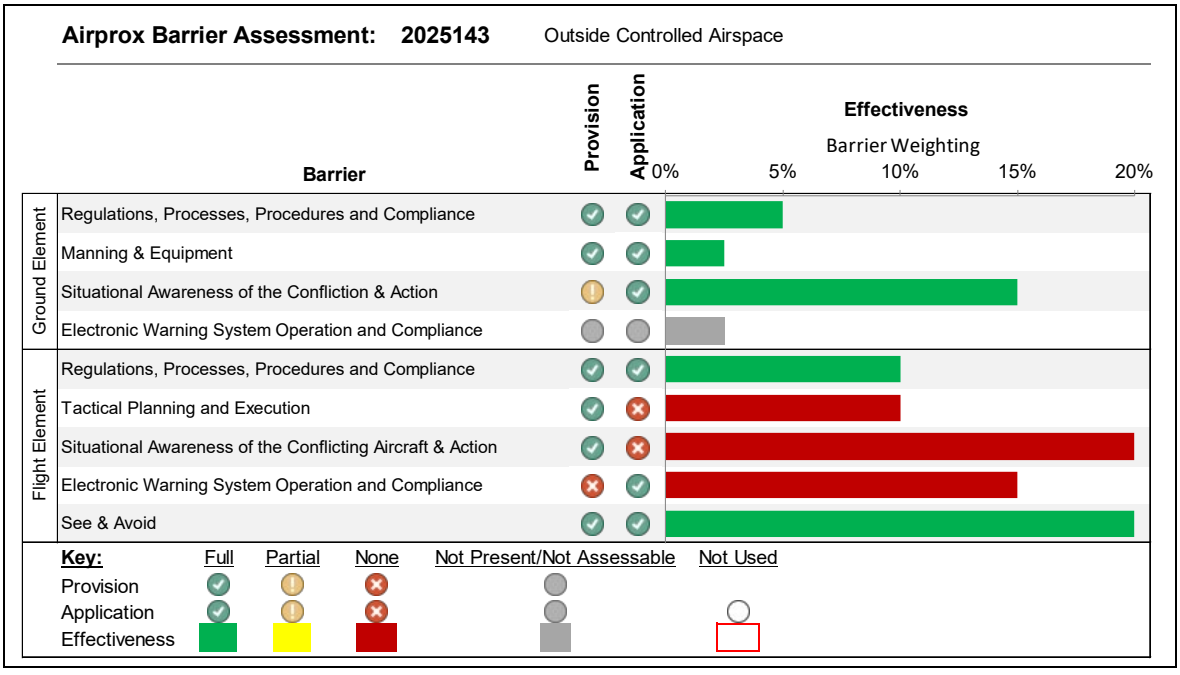
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Elements:

Tactical Planning and Execution was assessed as **ineffective** because the Gazelle pilot did not conform with the circuit pattern of traffic already formed in the circuit having incorrectly executed the join.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the Gazelle pilot either did not respond or responded incorrectly to ATC instructions and had not assimilated the potential conflict with the DA42.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the electronic conspicuity equipment fitted in the Gazelle had been unable to detect the transmissions from the DA42.



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