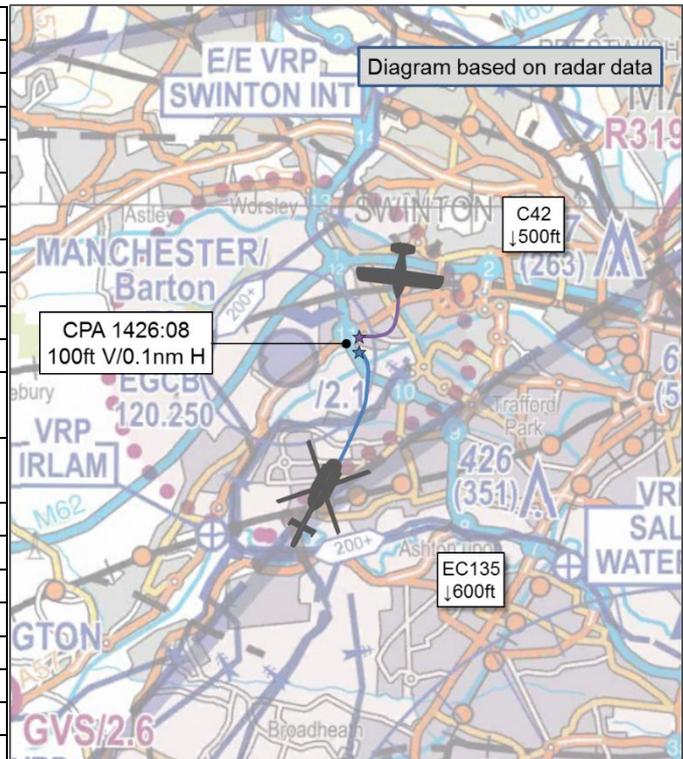


**AIRPROX REPORT No 2019035**

Date: 23 Feb 2019 Time: 1426Z Position: 5328N 00222W Location: Manchester Barton

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	EC135	Ikarus C42
Operator	HEMS	Civ FW
Airspace	Barton ATZ	Barton ATZ
Class	G	G
Rules	VFR	VFR
Service	AFIS	AFIS
Provider	Barton	Barton
Altitude/FL	600ft	500ft
Transponder	A, C, S	A, C, S
<b>Reported</b>		
Colours	Yellow, Blue	White, Red, Silver
Lighting	Nav, Landing, HISL, Searchlight	Landing
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	600ft	600ft
Altimeter	NK	QFE (1028hPa)
Heading	070°	260°
Speed	60kt	60kt
ACAS/TAS	TAS	Not fitted
Alert	None	N/A
<b>Separation</b>		
Reported	0ft V/200m H	150ft V/50m H
Recorded	100ft V/0.1nm H	



**THE EC135 PILOT** reports that he had lifted from Stoke Hospital after picking up the medical crew. They routed west of Knutsford, in accordance with the Manchester ATC clearance. When just south-west of Knutsford, ambulance control contacted them to advise of a possible tasking, so he called Barton on his second box to ask for a rotors-running refuel. Shortly afterwards he cleared the Manchester airspace and asked for the joining details at Barton. RW26 was in use and he was advised that both the fixed-wing and helicopter circuits were active. Due to the surface wind he elected to make an approach to RW26 rather than the Heliport FATO. Barton requested that he report entering the ATZ, which he did and then called left-base for RW26. Barton advised that there was one aircraft on finals, one right-base and a helicopter for HTA North. He was visual with the aircraft on finals and the helicopter, but could not see the one on right-base. At this point the frequency became busy and he had a TAS traffic alert advising of an aircraft high, 11 o'clock, which he identified as an aircraft routing overhead to the south. He had not heard a finals call from the fixed-wing on right-base so he continued on finals. He was still not visual with the right-base aircraft and was waiting for a gap in the RT to call finals, when ATC asked whether he was visual with the microlight on final. He asked whether it was in front or behind because he did not have visual contact, but no reply was heard. At this moment the rear crew member stated that there was an aircraft right 4 o'clock, the pilot looked and saw the aircraft in the 4 o'clock slightly lower and at an estimated range of 200m. He elected to go-around to the south and believed the microlight also went around. He then positioned for a cross-wind landing at the heliport due to the increased activity at the airport.

He assessed the risk of collision as 'Medium'.

**THE C42 PILOT** reports that he was conducting a circuit training sortie with a student. RW26R was in use and he became aware of an air ambulance helicopter joining from the south. A few minutes later

the helicopter pilot called to say he was joining left-base. The C42 pilot was already established on right-base and in the approach configuration, and he could see the helicopter in his 12 o'clock and slightly higher. The FISO passed Traffic Information to the helimed on the C42 and another aircraft, and this was acknowledged. As the student turned onto final approach, the instructor could see the helicopter also turning left above them onto final approach. He lost sight of the helicopter for a few seconds and regained visual contact out of the cabin roof window, it was 100-150ft above them and slightly left. He was concerned that the pilot had not seen them so he took control and initiated a climb to the right, away from the helimed and advised on the radio of their intention to go around onto the live side, which is non-standard (to go deadside would have put them closer to, and beneath the helicopter). The FISO passed Traffic Information on another helicopter positioning for RW14. He could then see the helimed turning south away from the runway so he repositioned back towards the runway and carried out a go-around at about 500ft along the runway centreline. There was no further conflict.

He assessed the risk of collision as 'Medium'.

**THE BARTON AFISO** reports that the C42 was conducting a circuit detail and the EC135 was joining left-base after reporting inbound 5nm south at 1000ft. Traffic Information was passed on an EV97 on final and the C42 on right-base. The EV97 landed on RW26R but then stopped on RW26L. He then noticed the EC135 and C42 in proximity on final, the C42 went around on the live-side due to the EC135. Traffic Information was then passed to the EC135 on the C42 and to the C42 on another helicopter. The EC135 pilot reported going around to the south and the C42 repositioned overhead RW26R for the go-around. The EV97 was asked to move onto taxiway Bravo to hold. The EC135 made an approach to the heliport to the south and the C42 continued in the circuit. There were a number of aircraft on frequency at the time and poor RT compounded the incident.

**THE BARTON ASSISTANT AFISO** reports that he was the assistant AFISO, but was preparing to take over from the AFISO at 1430hrs. The EC135 pilot had called on frequency earlier to ask for a rotors running refuel because he was likely to be re-tasked. As the assistant, he alerted the RFFS crew and organised for an operations member of staff to attend the refuel point. After which he attempted to visually acquire the helicopter from the VCR window. He saw it joining left base. At this time the frequency was busy with numerous aircraft with poor RT, who would not read back taxi instructions, also an aircraft had just landed and stopped on the runway without vacating. He pointed this out to the AFISO just as the C42 had turned final. He then turned to check on the position of the EC135 and saw it had turned into close proximity with the C42, which had already turned live-side to avoid and begun to climb. The EC135 then turned left as the C42 continued to climb on runway heading.

## Factual Background

The weather at Manchester was recorded as follows:

METAR COR EGCC 231420Z AUTO 19008KT 150V220 9999 NCD 16/06 Q1030 NOSIG=

## Analysis and Investigation

### UKAB Secretariat

Figures 1-3 are screenshots taken from the NATS radar, which is not available to the Barton AFISO. Figure 1 shows the EC135 as it approaches the airfield from the south; the C42 is on right base. Figure 2 shows the EC135 as it turns onto left base and CPA is at 1426:08, Figure 3.

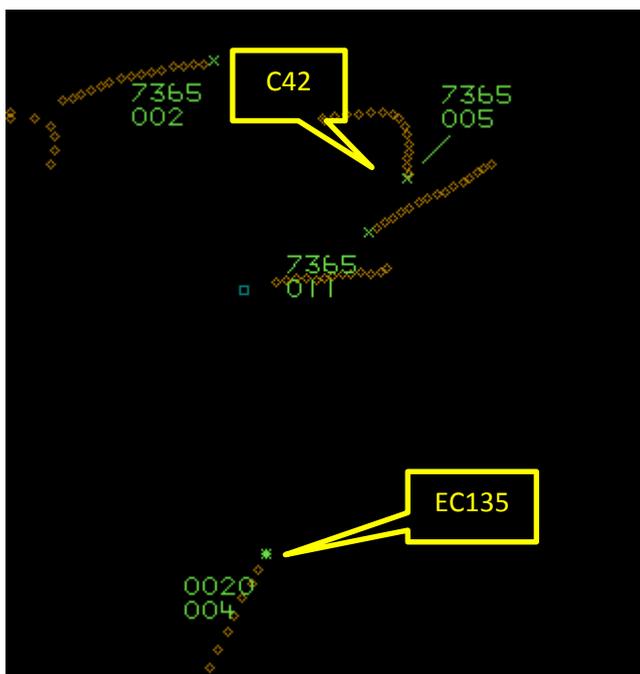


Figure 1: 1424:50

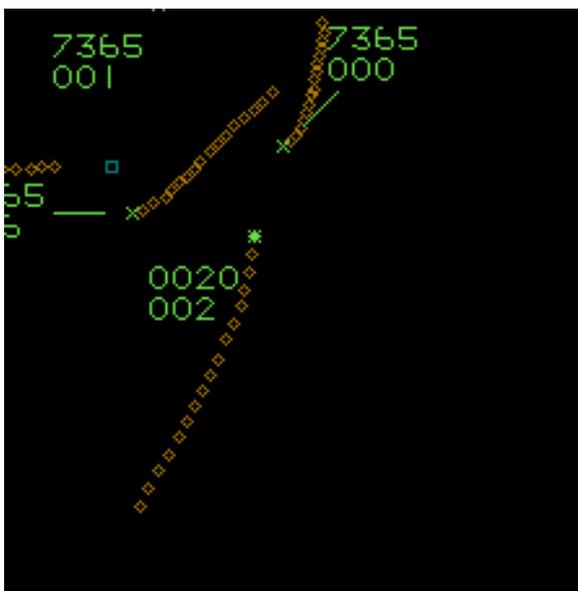


Figure 2 :1425:53

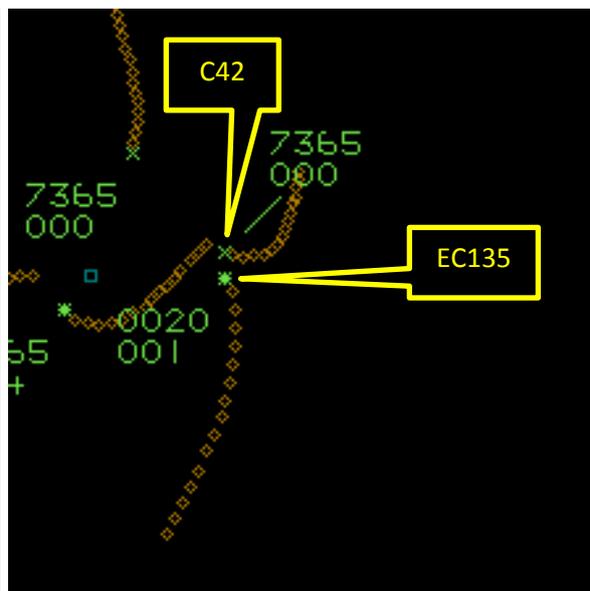


Figure 3: 1426:08

The EC135 and C42 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard<sup>1</sup>. If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right<sup>2</sup>. 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<sup>3</sup>.

## Summary

An Airprox was reported when an EC135 and a C42 flew into proximity at 1426hrs in the Barton visual circuit on Saturday 23<sup>rd</sup> February 2019. Both pilots were operating under VFR in VMC, and both in receipt of an AFIS from Barton.

<sup>1</sup> SERA.3205 Proximity.

<sup>2</sup> SERA.3210 Right-of-way (c)(1) Approaching head-on.

<sup>3</sup> 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 the pilots of both aircraft radar photographs/video recordings and reports from the AFISOs involved. 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 EC135 pilot and agreed that he was probably task-focused as he approached the airfield, thinking ahead to the next tasking, the rotors running refuel and then searching for the aircraft above that gave the TAS indication (**CF8**). However, he had been told about the traffic in the visual circuit with which he was required to integrate (**CF3, CF4, CF5**) and, as he approached the visual circuit on left-base, he knew there was an aircraft on right-base but was not visual with it. The RT was busy so he couldn't ask the FISO of its position, and members felt that it had been unwise for him to continue to join the circuit at this stage. Helicopter members confirmed that he could have slowed down or stopped at this point to allow himself more time to take stock of the circuit traffic and ensure that he integrated with the C42. There followed a long discussion about whether it could be considered that the EC135 pilot had had sufficient situational awareness on the C42, with the Board eventually agreeing that he had had at least enough situational awareness to make a decision about whether to continue or not. Members speculated that the EC135 pilot probably hadn't assimilated that the C42 was going to be a conflict, even though he knew it was on right-base, but, nonetheless, it was for him to integrate behind the C42 (**CF6, CF9**). The Board would have expected that the EC135 TAS would have provided an alert to the EC135 pilot (it was serviceable, had alerted for another aircraft and the C42's transponder was working), but for some reason it had not given a warning to the crew, or they had not heard it (**CF10**). In the end, the crew did not see the C42 until it was behind them and so the Board agreed that this had effectively been a non-sighting by them, because they had not seen the other aircraft in time to take any action (**CF11**).

For his part, the C42 was already established in the visual circuit and was right-base when the pilot heard the EC135 call left-base. He reported visual with the EC135 in his 12 o'clock which although could be considered a late-sighting (**CF12**), still gave an opportunity to take action. Although he could rightly expect the EC135 pilot to integrate with him, the Board thought he would have been better placed by defensively going around earlier rather than allowing the situation to develop to the point where the EC135 overflew them (**CF7**). Although members acknowledged that it was important to allow the student the chance to make his own decision prior to taking control, they felt that this situation was allowed to progress too far before any action was taken (**CF13**).

Turning to the actions of the AFISO, the Board noted that the busy RT and the distraction with the EV97 on an active runway (**CF2**) meant that neither the AFISO nor the assistant saw the two aircraft fly into proximity (**CF1**). Although as AFISOs they were not required to sequence the circuit traffic (it was for the pilots to deconflict themselves, and AFISOs cannot issue instructions to the pilots in the air), the Board thought that with 2 aircraft in opposite directions as one joined base-leg, there had been an opportunity to anticipate the situation developing and, if they had been looking in that direction they probably could have been able to give a warning to the pilots.

Finally the Board assessed the risk. Noting that the EC135 pilot did not see the C42 until after CPA, and that the C42 pilot had effectively lost sight of the EC135 as they closed towards each other, the Board agreed that although the action taken by the C42 pilot at the last minute had probably materially increased the separation, safety had been much reduced below the norm. As a result, the Board assessed the risk as Category B.

## PART C: ASSESSMENT OF CAUSE AND RISK

### Contributory Factors:

CF	Factor	Description	Amplification
<b>Ground Elements</b>			
<b>• Situational Awareness and Action</b>			
1	Human Factors	• Conflict Detection - Not Detected	
2	Human Factors	• Distraction - Job Related	
<b>Flight Elements</b>			
<b>• Regulations, Processes, Procedures and Compliance</b>			
3	Human Factors	• Flight Crew ATM Procedure Deviation	Regulations/procedures not complied with
<b>• Tactical Planning and Execution</b>			
4	Human Factors	• Action Performed Incorrectly	Incorrect or ineffective execution
5	Human Factors	• Aircraft Navigation	Did not avoid/conform with the pattern of traffic already formed
<b>• Situational Awareness of the Conflicting Aircraft and Action</b>			
6	Human Factors	• Understanding/Comprehension	Pilot did not assimilate conflict information
7	Human Factors	• Lack of Action	Pilot flew into conflict despite Situational Awareness
8	Human Factors	• Distraction - Job Related	Pilot was distracted by other tasks
9	Human Factors	• Monitoring of Other Aircraft	Pilot did not sufficiently integrate with the other aircraft
<b>• Electronic Warning System Operation and Compliance</b>			
10	Human Factors	• Interpretation of Automation or Flight Deck Information	CWS alert expected but none reported
<b>• See and Avoid</b>			
11	Human Factors	• Monitoring of Other Aircraft	Non-sighting by one or both pilots
12	Human Factors	• Monitoring of Other Aircraft	Late-sighting by one or both pilots
13	Human Factors	• Lack of Action	Pilot flew into conflict

Degree of Risk: B.

### Safety Barrier Assessment<sup>4</sup>

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 Conflicting Aircraft and Action** were assessed as **ineffective** because the AFISO did not see the conflict and therefore couldn't help to resolve it.

<sup>4</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

**Flight Elements:**

**Regulations, Processes, Procedures and Compliance** were assessed as **ineffective** because the EC135 pilot did not integrate with the C42 already established in the circuit.

**Tactical Planning and Execution** was assessed as **partially effective** because the EC135 pilot didn't adapt his plan to join left-base to fit in with the C42.

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **partially effective** because although both pilots knew about each other, neither took effective action to resolve the conflict.

**Electronic Warning System Operation and Compliance** were assessed as **ineffective** because the TAS on the EC135 either did not alert, or was not assimilated by the pilot.

**See and Avoid** were assessed as **partially effective** because the EC135 crew did not see the C42 until after CPA and, although the C42 pilot was visual with the EC135 until the latter stages, he did not take early action to resolve the conflict.

