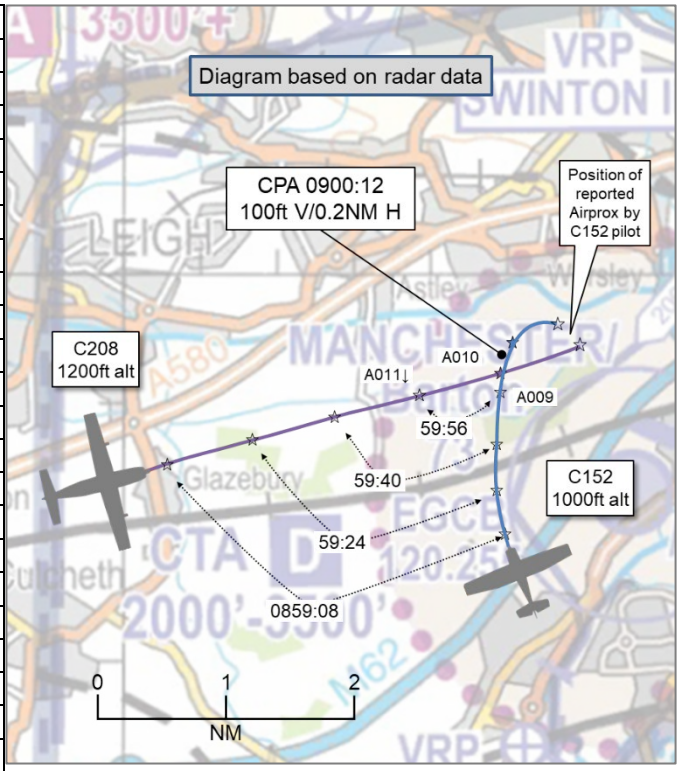
AIRPROX REPORT No 2021178

Date: 11 Sep 2021 Time: 0900Z Position: 5329N 00225W Location: Barton ATZ

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C152	C208
Operator	Civ FW	Civ FW
Airspace	Barton ATZ	Barton ATZ
Class	G	G
Rules	VFR	VFR
Service	AFIS	None
Provider	Barton Info	None
Altitude/FL	900ft	1100ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White	White, blue, red
Lighting	Full	Beacon, landing
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1000ft	1050ft
Altimeter	QNH (1015hPa)	QNH (NK hPa)
Heading	NK	075°
Speed	90kt	135kt
ACAS/TAS	Not fitted	TCAS I
Alert	N/A	None
Separation at CPA		
Reported	0ft V/50m H	0ft V/1.5NM H
Recorded	100ft V/0.2NM H	



THE C152 PILOT reports that they were flying downwind on a circuit detail at Barton. The C208 [pilot] joined behind them, having made a late radio call. The C208 pilot proceeded to undercut them at a much greater speed, with very limited separation.

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

THE C208 PILOT reports that, [in their opinion], there was no Airprox. The small Cessna was observed climbing out on crosswind when they thought that the [the C152 was] supposed to be in the circuit for RW26 at Barton. They were joining downwind-right for RW26. They were level at circuit height and the other aircraft passed well in front of them, right-to-left, and headed north (away from the circuit). They checked their [GPS] track log and, from that, they believe that it is clear that their circuit was as wide as possible, while remaining in the Barton ATZ, and that anything further out than them would have been outside the ATZ. [The C208] is TCAS equipped and no warnings were issued. They believe that it is possible that the other pilot thought that their aircraft was a C172 and mistook the size of the C208 for a much closer, smaller aircraft. Continuing in the circuit, there was a microlight ahead which was number 1. Barton Information informed them of the traffic and they acknowledged, "Number 2". Since they were a lot faster than the microlight, the [microlight] pilot very considerately went around and let them land.

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

THE BARTON DUTY AFISO reports that at the time of arrival of [the C208] there were three aircraft already in the circuit, [an Ikarus microlight] (ADS-B equipped), [an Autogyro] (not ADS-B equipped) and [the C152] (not ADS-B equipped). They first noticed [the C208] approximately six miles west of the airfield as it was showing, along with [the Ikarus], on their Flight Information Display (FID), which is part of the Airspace4All GA Airfield ATS ADS-B Traffic Display Trial. They anticipated that [the C208 pilot] may be joining downwind, so they began looking at where the other circuit traffic was at the time, to

anticipate how [the C208 pilot] would fit in. As [the C208 pilot] was approaching the Barton ATZ they were aware that, if they did not establish two-way communication soon, they would infringe the Barton ATZ. The AFISO attempted to contact the aircraft's pilot twice and on the second attempt, the pilot replied, and so they were able to pass airfield information immediately, just before [the C208] entered the ATZ [they thought]. They were now visible with it from the VCR. They prioritised this over giving the Barton squawk [to the C208 pilot] and not replying to an aircraft changing frequency. The [C208 pilot] appeared to be positioning downwind, they began to pass relevant Traffic Information, obtained by looking out from the VCR and by using the FID. [The C152] was crosswind and [Ikarus] was downwind. The pilot of [the C208] advised that they were visual with, and had passed, [the C152] on the inside, [C152 pilot] advised they were visual with [the C208]. These two aircraft were now both positioned downwind, with [the Ikarus] ahead of them both and [the autogyro] upwind or turning crosswind. [The C208 pilot] landed on RW26L at 0903z, [the C152 pilot] landed on Runway RW26L at 0909z

Factual Background

The weather at Manchester Airport was recorded as follows:

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METAR EGCC 110920Z AUTO 27010KT 9999 SCT017 BKN023 18/14 Q1015 TEMPO BKN014
METAR EGCC 110850Z AUTO 26009KT 9999 SCT015 BKN019 17/14 Q1015 TEMPO BKN014
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Analysis and Investigation

CAA ATSI

An Airprox occurred in the visual circuit at Barton Aerodrome. The runway in use was RW26 left, and the circuit direction was right-hand. The published fixed wing circuit height is 1000ft QFE. The published joining procedure is a standard overhead join.

The C152 pilot reported that they were on a circuit detail and were downwind at the time of the Airprox. The pilot was in receipt of an AFIS from the Barton FISO.

The C208 pilot reported that they were joining the RW26 right-hand visual circuit, at circuit height at the time of the Airprox.

ATSI were in receipt of reports from the pilots of both aircraft and an initial occurrence report from the Barton FISO. The Area Radar and Barton RTF recordings were reviewed for the relevant period. The RTF loading was low in the lead-up to the event. The screenshots in this report are taken from the Area Radar and the aircraft levels are displayed as Flight Levels, the QNH entered into the Area Radar Display Processor was 1017hPa, a difference of 108ft. The Barton FISO was utilising a Flight Information Display System (FIDS) as part of a trial, the FIDS is limited to the display of ADS-B enabled aircraft only.

The Barton FISO reported that there were 3 aircraft in the visual circuit prior to the C208 pilot joining the circuit, only one of which was ADS-B capable. The C152 was not ADS-B capable and was not displayed on the FIDS. The C208 was ADS-B capable and was displayed on the FIDS. The Barton ATZ dimensions are 2.0NM and 2000ft AAL.

At **0834.00** the C152 pilot got airborne from RW26L, for right hand circuits, with a QFE of 1013hPa having been read back by the pilot.

At **0858.30** the C152 pilot reported going around, this was acknowledged by the FISO (Figure 1).

Figure 1 – 08:58.30 (C208 was 3.5NM from the ATZ boundary)

At **0859:58** the C208 pilot was continuing to join downwind with the C152 on the crosswind leg (Figure 2).

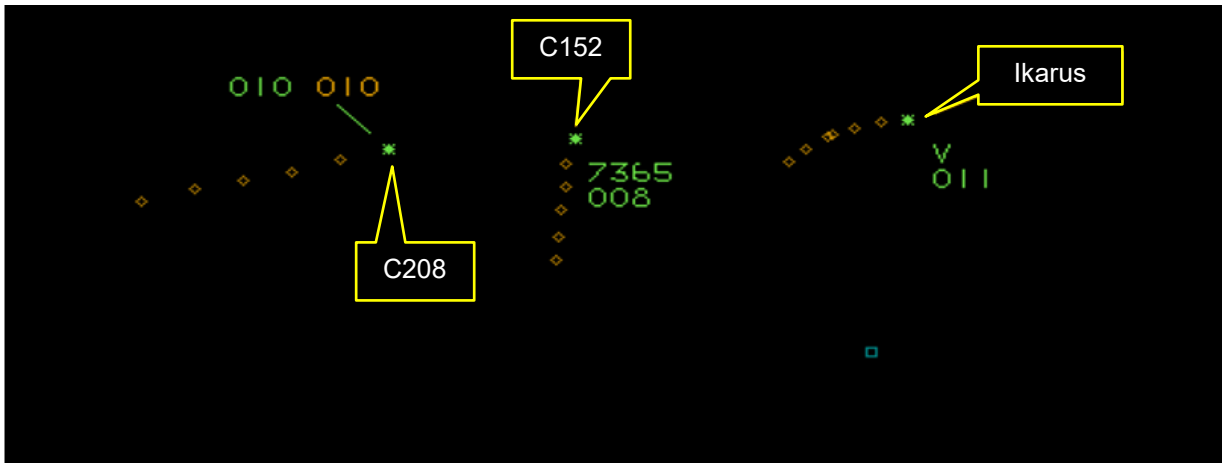

Figure 2 – 0859.58 (C208 1.9NM from the Aerodrome and was inside the ATZ)

At **0900:12** CPA occurred, with the two aircraft separated by 0.2NM laterally and 100ft vertically (Figure 3).

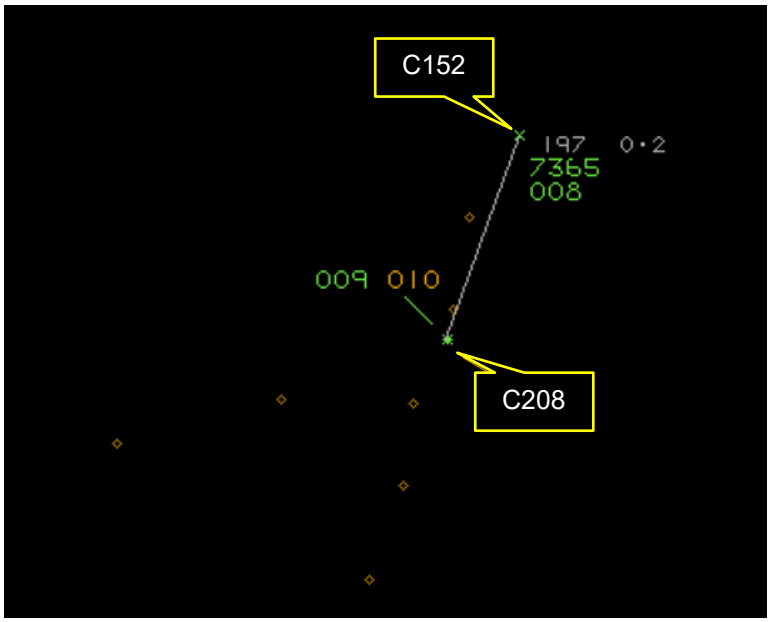

Figure 3 – CPA (C152 turned downwind 1.5NM from the Aerodrome)

At **0900.40** the FISO made a blind call to the pilot of the C208 asking if they were on frequency. There was no response from the pilot. The FISO then received a lengthy call from the pilot of an unrelated aircraft, explaining their plans upon leaving the Barton frequency. The FISO did not respond to this call but went straight back to trying to establish contact with the C208 pilot by repeating the previous blind call, there was then a pause of a few seconds before the pilot responded at **0901:20** with "*Barton good morning (abbreviated callsign)"*. The FISO responded,"*RW26 left, circuit right-hand, QFE 1013*." The pilot advised that the transmission had been stepped on by Liverpool ATC and requested a repeat of the QFE, the FISO responded with, "*1013 and the traffic ahead of you is an Ikarus microlight I believe, correction, a Cessna just turning downwind*". The pilot responded, "*we have the traffic in sight, we're well inside it, for 26, 1013 set*." The FISO passed further traffic on the Ikarus advising that it was late downwind. The pilot responded, "*we're looking for that and we're well ahead of the 152 now."*

Relevant AIP entries for Barton are;

2 FIXED WINGED.
a. Fixed winged circuit height is 1000 FT (Barton QFE).
b. Fixed winged standard join is overhead at 1700 FT Barton QFE. Pilots must inform ATS if performing a non-standard join prior to entering the ATZ.
c. Variations on circuit direction are permitted for training, weather or operational requirements providing the ATS is informed of the pilot's intentions.
d. Circuit directions: Runways 14, 20, 26L, 26R - RH; Runways 02, 08L, 08R and 32 - LH.

The FIDS was displaying an incomplete traffic picture to the FISO, with only one of the three circuit aircraft and the C208 displayed. The C152 was not displayed. The C208 pilot entered the ATZ before establishing two-way RT contact with the FISO. Two-way contact was not established by the C208 pilot until after the Airprox had occurred and the C208 had passed the midpoint downwind. The C208 pilot did not join the circuit via the AIP published standard procedure i.e., an overhead join. The late call from the C208 pilot resulted in the FISO not being able to warn the C208 pilot of the presence of the C152 or any of the other circuit traffic. The late call from the C208 pilot also resulted in the FISO being unable to establish the intentions of the C208 pilot, which would have enabled effective Traffic Information to have been passed to the C152 pilot.

In conclusion, the two-way RTF communication between the C208 pilot and the FISO was not established until after the Airprox had occurred, despite the best efforts of the FISO in trying to establish whether the pilot was listening-out on the Barton frequency.

Barton is reminded of its obligations under Regulation (EU) 376/2014 as retained (and amended in UK domestic law) under the European Union (Withdrawal) Act 2018, Article 4, paragraphs 6(d) and 7, to submit a mandatory occurrence report, within 72 hours of when they are first made aware of an occurrence, and to conduct an analysis of the occurrence, in order to identify any safety hazards, followed by submission of follow up reports, in accordance with the 30 day and 3 month timescales contained in Article 11 of the regulation.

UKAB Secretariat

Analysis of the NATS radar replay showed that the 2 aircraft came into proximity on 2 occasions during this encounter. The recorded CPA is taken to be the moment where the risk of collision was deemed to be higher. After the recorded CPA, the two aircraft crossed and the separation increased for a short time until they again converged on the downwind leg. Here, the separation reduced to match that of the recorded CPA. However, the higher groundspeed of the C208 meant that, at this point, the risk of collision was likely reduced. The C152 pilot reports sighting the C208 on their downwind leg as the C208 pilot reportedly 'undercut' them. This position is assessed to be 16sec after the recorded CPA and occurred at 0900:28.

The C152 and C208 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] If the aerodrome provides a flight information service the commander must obtain information from the flight information centre to enable the flight to be conducted safely within the aerodrome traffic zone.[3]

Summary

An Airprox was reported when a C152 and a C208 flew into proximity at Barton at 0900Z on Saturday 11th September 2021. Both pilots were operating under VFR in VMC, the C152 pilot was in receipt of a AFIS from Barton, the C208 pilot was not in receipt of an ATS.

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.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided a combination of written contributions and dial-in/VTC comments.

The Board first discussed the actions of the C152 pilot who had been conducting circuits at the time of the event. The C152 pilot had been climbing on the crosswind leg of the circuit whilst the C208 pilot had been joining on the downwind leg and members felt that, as the C208 had been higher and slightly behind the C152, it would have been obscured from the view of the C152 pilot due to their aircraft's high-wing (**CF13**). The Board agreed that this had probably resulted in the C152 pilot not seeing the C208 at the time of the Airprox (**CF11**). The Board concluded that, after the C152 pilot had turned downwind, they had become visual with the C208 on their right-hand side and their proximity had been such that it had caused them concern (**CF10**). Members also noted that the C152 pilot had had no prior situational awareness regarding the position of the C208 and that this had also been contributory to the Airprox (**CF8**).

The Board next considered the actions of the C208 pilot and noted that they had entered the ATZ prior to establishing contact with the Barton AFISO (**CF1, CF3, CF4**). The Board agreed that the C208 pilot had joined the pattern on the downwind leg having not completed an overhead join, in accordance with the Barton joining instructions detailed in the UK AIP[4] (**CF2**). Although the C208 pilot had observed the C152 on crosswind leg, the Board agreed that they had assumed that the C152 had been departing the circuit to the north (**CF8, CF12**), and as such did not conform with the pattern of traffic that had already been established (**CF6**). The Board noted that the C208 had a TAS device fitted however there had been no report of an alert being generated when one might have been expected and that this had also contributed to the Airprox (**CF9**). Members agreed that the Barton AFISO's initial call to the C208 pilot had not been answered (**CF7**) and that the C208 pilot had initiated communications with the AFISO only after they had established on the downwind leg and had passed the C152, which had been too late for the AFISO to pass information to the C208 pilot regarding the C152 pilot's intentions to remain in the circuit (**CF5**).

The Board then briefly considered the actions of the AFISO and members quickly agreed that they had done as much as they had been able to do, given the late contact with the C208 pilot, to prevent the event from happening.

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.
[3] The Rules of the Air Regulations 2015, Section 3, Article 11(4).
[4] UK AIP Part 3 AD2 EGCB AD2.22 Para2(b).

Finally, the Board considered the risk involved in this Airprox. Both aircraft were displayed on the NATS radar replay from which the CPA had been measured. The Board noted that the C152 pilot had not had visual contact the C208 prior to the event and that they had assessed the risk of collision as "medium", and that the C208 pilot had had visual contact with the C152 prior to the event, and was satisfied with the separation between the aircraft. The Board therefore concluded that there had been no risk of collision but that safety had been reduced. Consequently, the Board assigned a Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021178			
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	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
3	Human Factors	• Airspace Infringement	An event involving an infringement / unauthorized penetration of a controlled or restricted airspace.	E.g. ATZ or Controlled Airspace
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
5	Human Factors	• Late Decision/Plan	Events involving flight crew making a decision too late to meet the needs of the situation	
6	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			
7	Human Factors	• Monitoring of Communications	Events involving flight crew that did not appropriately monitor communications	
8	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
	• Electronic Warning System Operation and Compliance			
9	Human Factors	• Response to Warning System	An event involving the incorrect response of flight crew following the operation of an aircraft warning system	CWS misinterpreted, not optimally actioned or CWS alert expected but none reported
	• See and Avoid			
10	Human Factors	• Incorrect Action Selection	Events involving flight crew performing or choosing the wrong course of action	Pilot flew close enough to cause concern
11	Human Factors	• Monitoring of Other Aircraft	Events involving flight crew not fully monitoring another aircraft	Non-sighting or effectively a non-sighting by one or both pilots
12	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	
13	Contextual	• Visual Impairment	Events involving impairment due to an inability to see properly	One or both aircraft were obscured from the other

Degree of Risk: C

Safety Barrier Assessment[5]

[5] 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 the key factors had been that:

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the C208 pilot did not obtain the necessary information from the AFISO prior to entering the ATZ and then did not integrate with the pattern of traffic that had already formed.

Tactical Planning and Execution was assessed as **ineffective** because communication between the C208 pilot and the AFISO occurred late and the standard circuit join was not carried out.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had any knowledge regarding the presence of the other aircraft prior to sighting it.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the TCAS I equipment on the C208 did not detect the presence of the transponding C152.