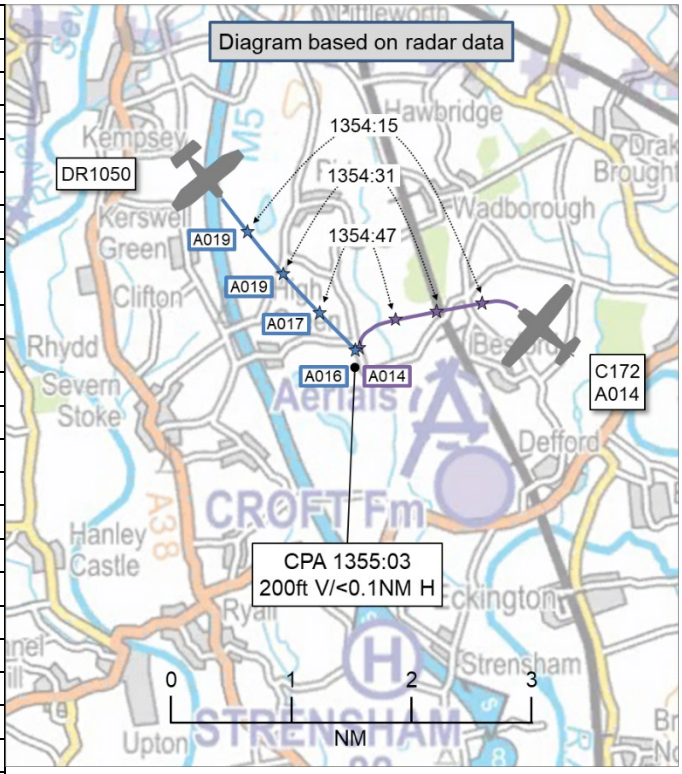
AIRPROX REPORT No 2022238

Date: 08 Oct 2022 Time: 1355Z Position: 5206N 00210W Location: 1.5NM NW Croft Farm

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DR1050	C172
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	NK
Service	Listening Out	NK
Provider	Safetycom	NK
Altitude/FL	1600ft	1400ft
Transponder	A, C	A, C, S
Reported		
Colours	Blue, white	NR
Lighting	Nil	NR
Conditions	VMC	NR
Visibility	>10km	NR
Altitude/FL	1500ft	NR
Altimeter	QFE (1021hPa)	NR
Heading	130°	NR
Speed	100kt	NR
ACAS/TAS	SkyEcho	NR
Alert	None	NR
Separation at CPA		
Reported	100ft V/50m H	NR V/NR H
Recorded	200ft V/<0.1NM H	



THE DR1050 PILOT reports that they had been on a VFR flight from [departure airfield]. The weather conditions were excellent, with light winds, scattered CU with a base of approximately 3500ft, and very good visibility. They were approaching Defford Croft Farm airfield from the northwest. They were squawking 7000 with Mode C and transmitting ADS-B out via [an EC device] with traffic displayed via an iPad using RunwayHD. They had been maintaining a listening watch on Gloster Approach to increase traffic awareness, but did not call for service as they do not have radar. They could see no conflicting traffic showing on [their EC device] and heard no traffic which could have been a threat. Passing south of Worcester, they performed their initial approach checks, set the QFE and commenced a descent at 500fpm. Passing 2000ft, they changed to Safetycom on 135.480Mhz and announced that they were joining for RW27 at Defford. This would have involved a descent to be at 1000ft QFE overhead and then positioning cross-wind to join the left-hand, downwind leg. As they passed 1500ft, they looked left and saw a Cessna 152 aircraft [they recall] in their 9 o'clock at the same level heading directly towards them. There was no time to react and it passed behind them and slightly below. They believe that there was a very real risk of collision. They believe that if [the other aircraft] had been displaying some sort of Electronic Conspicuity, the risk would have been mitigated by aiding an earlier visual contact.

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

THE C172 PILOT declined to submit a report.

Factual Background

The weather at Gloucestershire was recorded as follows:

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METAR EGBJ 081350Z 20004KT 100V340 9999 FEW032 17/09 Q1024
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Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was undertaken. The DR1050 was observed on radar and could be identified from the reported position and pilot's narrative. The C172 could be positively identified from Mode S data. The DR1050 and C172 were observed on radar to have been at FL013 and FL011 respectively. The QNH recorded at Gloucestershire airport had been recorded as 1024hPa a few minutes earlier, therefore the altitudes of the aircraft had been approximately 1600ft and 1400ft respectively. The diagram was constructed and the CPA assessed from the radar data.

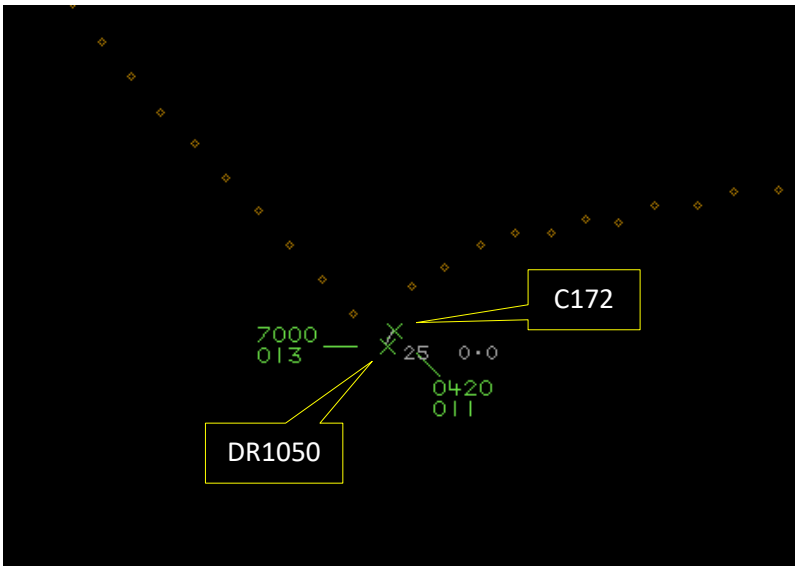


Figure 1 – CPA at 1355:03

The squawk displayed by the C172 (0420) is listed with the description that it may be used for 'Coventry conspicuity'. The controller at Coventry confirmed that they had had no radio contact with the pilot of the C172 on the day of the incident.

The DR1050 and C172 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 C172 pilot was required to give way to the DR1050.[2] 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.[3]

Summary

An Airprox was reported when a DR1050 and a C172 flew into proximity 1.5NM northwest of Croft Farm at 1355Z on Saturday 8th October 2022. The DR1050 pilot had been operating under VFR in VMC not in receipt of an ATS. It could not be determined whether the C172 pilot had been in receipt of an ATS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of a report from the DR1050 pilot and radar photographs/video recordings. 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 considered the actions of the pilot of the C172 and members were most disappointed that they had not engaged with the UKAB Secretariat and had declined the request to provide details

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3210 Right-of-way (c)(2) Converging.
[3] (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

of their flight. Notwithstanding, the probable intentions of the pilot were discussed and members wondered whether there had been an intention to join the circuit to land at Croft Farm. Members heard from the UKAB Secretariat that the pilot was observed on the NATS radar replay to have flown around Croft Farm but had continued their flight to the southeast. Having been observed on radar to be transponding a Coventry conspicuity squawk, and to have apparently not had an intention to land at Croft Farm, members surmised that the pilot of the C172 may have tuned their radio to the Coventry frequency and had not been listening on the SafetyCom frequency.

It was further surmised that the pilot of the C172 had probably not sighted the DR1050 early. Had that been the case, or had the pilot of the C172 have had any situational awareness of the DR1050 approaching from the northwest (**CF1**), the pilot of the C172 may have become aware that their position would have put them in conflict with the pattern of traffic that would subsequently form at Croft Farm. Members could not determine whether the pilot of the C172 had sighted the DR1050 at all or had attempted to avoid the conflict.

Turning their attention to the pilot of the DR1050, members applauded the actions taken to gather situational awareness during the approach to Croft Farm. Some members suggested that an overhead join may have provided an additional opportunity to look out for traffic in the vicinity but other members commented that all reasonable steps to approach the airfield safely for a direct-join had been taken. Nevertheless, members were in agreement that the pilot of the DR1050 had not sighted the C172 until it had passed behind them and slightly below and that that effectively constituted a non-sighting (**CF3**).

It was noted that the EC equipment fitted to the DR1050 had not provided an alert to the presence of the C172 but members could not determine whether an alert would have been expected or if there had been no compatibility between the EC equipment of the two aircraft (**CF2**).

When determining the risk of collision, members concluded that the separation of the aircraft at the point of CPA had reduced safety margins to much below the norm and that neither pilot had seen the other aircraft in time to have taken avoiding action. Safety had not been assured and there had been a risk of collision (**CF4**). As such, the Board assigned Risk Category B to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022238			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Flight Elements			
	• Situational Awareness of the Conflicting Aircraft and Action			
1	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			
2	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			
3	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
	• Outcome Events			
4	Contextual	• Near Airborne Collision with Aircraft	An event involving a near collision by an aircraft with an aircraft, balloon, dirigible or other piloted air vehicles	

Degree of Risk: B

Safety Barrier Assessment[4]

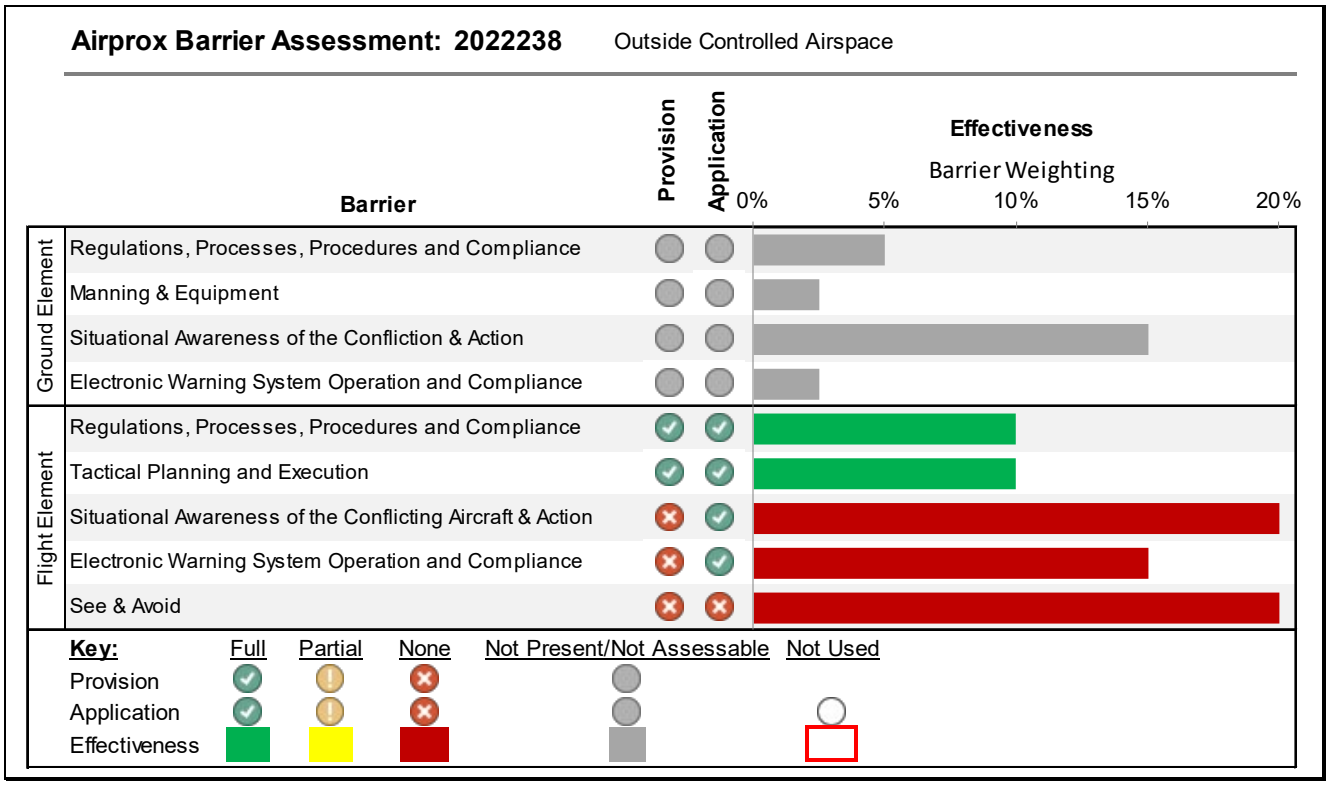
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the pilot of the DR1050 had not had situational awareness of the C172 until it had been visually acquired.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC equipment fitted to the DR1050 had not detected the presence of the C172.

See and Avoid were assessed as **ineffective** because the pilot of the DR1050 had not seen the C172 in time to have taken effective avoiding action.



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