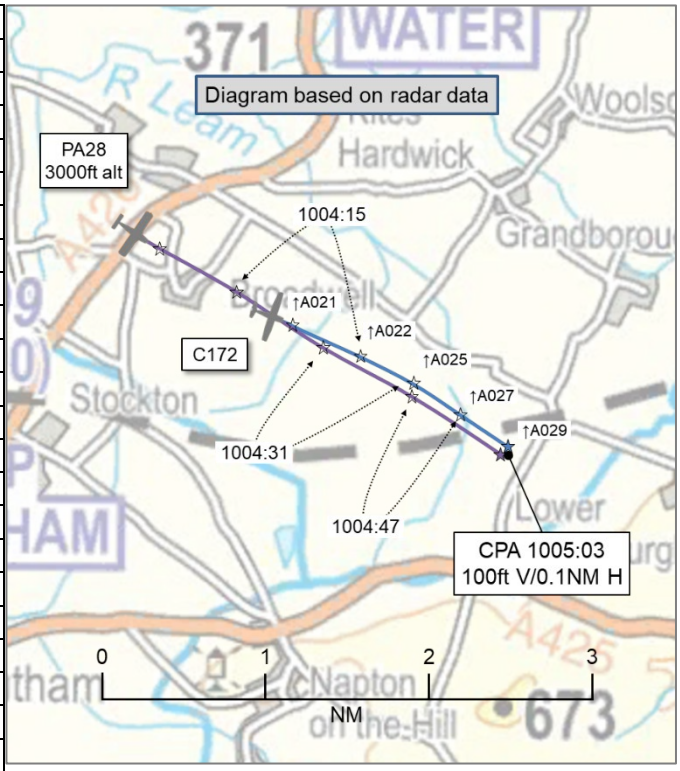
AIRPROX REPORT No 2022073

Date: 06 May 2022 Time: 1005Z Position: 5216N 00117W Location: 4NM W Daventry

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C172	PA28
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	Traffic
Provider	Coventry Info	Birmingham Radar
Altitude/FL	2900ft	3000ft
Transponder	A, C, S	A, C, S+
Reported		
Colours	Blue, White	White, Blue
Lighting	"IFR fit"	Strobe, Nav
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	3000ft	3000ft
Altimeter	QNH (1025hPa)	QNH (NK hPa)
Heading	120°	130°
Speed	100kt	130kt
ACAS/TAS	Not fitted	SkyEcho
Alert	N/A	None
Separation at CPA		
Reported	0ft V/10m H	20ft V/100m H
Recorded	100ft V/0.1NM H	



THE C172 PILOT reports they were at 3000ft on QNH, straight and level on an instructional flight. The pilot-in-command (PIC) occupied the right-hand seat. The PIC then noticed [the PA28] appear from the rear of the aircraft at the same level, on the same heading. [The PA28] overtook them with less than 10m clearance from the wingtip at exactly the same level. [The PA28] was travelling significantly faster than them, they estimate that it was at least 30kt quicker. They feel that [the PA28 pilot] was overtaking them but with insufficient clearance. They have no doubt that if they had turned to the right they would have definitely collided with [the PA28]. As [the PA28] was approaching from directly behind, neither they nor their student would have had any chance to spot the aircraft if looking-out prior to a turn.

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

THE PA28 PILOT reports that this flight was the first leg of 3 that day. The aircraft was carrying themselves and 2 other qualified pilots who were each due to fly one of the next 2 legs. This leg would take them through [controlled airspace] for which they subsequently obtained a crossing clearance. [The C172] was first sighted when they were almost abeam it, at a slightly lower altitude. All 3 on-board pilots were looking-out at the time and all agreed that the relative position of [the C172] would have made an early sighting impossible as it would have been obscured from view by the engine cowling. They were receiving a Traffic Service from Birmingham Radar at the time, [and believe that] the ATCO failed to warn them of the traffic, which would presumably have shown on their radar screen. They chose not to report this at the time as they were now clear of the threat. They were also operating an Electronic Conspicuity device which was linked to 3 separate iPads, all using SkyDemon, and also a dedicated cockpit display unit. None of these showed the presence of [the C172] at any time. As their departure airfield has no operational radar, the only agency capable of providing a service in the area is Birmingham. [They are unsure] what else they could have done to have mitigated the collision risk further, but [opined that] if all GA aircraft were to equip with suitable EC equipment then this would help massively.

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

THE COVENTRY DUTY MANAGER reports that the AFISO at the time does not recall either aircraft reporting an Airprox for the time in question over the radio, and they received no notification by telephone call either. There is also no mention of this occurring in the watch log.

Having checked through the [flight progress] strips for that day [the C172] got airborne at 0957**,** and had booked out for a local flight towards the southeast. [The PA28] got airborne one minute later, at 0958, and was routing towards [the southeast]. From the marking on the strips, [the C172 pilot] was on a Basic Service. The strip markings for [the PA28] suggest that the pilot had not requested a Basic Service and changed to Birmingham Radar.

THE BIRMINGHAM RADAR CONTROLLER reports that they have been requested to make a report regarding an Airprox reported on the 6th of May 2022 as the event took place either during or just after they received a handover of the Radar position. They have watched the [radar] recording for the event, as they have no recollection of it from over 2 months ago.[1] As the Airprox was not reported to them they did not file an MOR on the day. The tapes show that they took over the Radar position, and shortly afterwards identified and worked [the PA28], on a reduced Traffic Service. They gave Traffic Information on two aircraft at similar levels in the vicinity of Draycote Water (both on 0420 Coventry conspicuity squawks). They can only assume one of these aircraft was [the C172] as it's not possible to check Mode-S information on the [radar recording]. [The PA28 pilot] acknowledged the Traffic Information and no mention was made of an Airprox by this pilot. At no point did [the C172 pilot] call them for a service.

Factual Background

The weather at Birmingham was recorded as follows:

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METAR EGBB 060950Z 26009KT 220V300 9999 SCT022 16/11 Q1025
METAR EGBB 061020Z 26010KT 210V290 9999 SCT024 16/10 Q1025
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Analysis and Investigation

Birmingham ATC investigation

Birmingham ATC established a timeline for this event and concluded that [the PA28 pilot] requested a Traffic Service, and was issued a reduced Traffic Service due controller workload, Traffic Information was passed on 2 aircraft in close proximity. No further comments were made by any pilots referring to an Airprox.

CAA ATSI

The C172 pilot had departed Coventry on an instructional flight in the local area, with the PIC occupying the right-hand seat of the aircraft. The pilot was in receipt of a Basic Service from the Coventry AFISO at the time of the Airprox.

The PA28 pilot had departed Coventry immediately after the C172 and was routing to [destination airfield]. There were 3 qualified pilots on board the aircraft. The PIC was receiving a reduced Traffic Service from Birmingham Radar at the time of the Airprox.

ATSI had access to reports from the pilots of both aircraft, the Coventry AFISO and the Birmingham Radar controller. A Birmingham unit investigation report was made available.

The Coventry and Birmingham RTF recordings were reviewed for the relevant period, however the time stamp on the Coventry recording was inaccurate (ahead of the event by approximately 5min) and as such all times relating to transmissions made to and from the Coventry AFISO in this report

[1] Birmingham Radar was first informed of the event on 24th May however the report submitted was from the wrong controller, which was not detected until 15th July at which point a report from the correct controller was requested.

are approximate and have been calculated from the airborne times of the aircraft, as provided by Coventry, and the timing of the subsequent RT call from the PA28 pilot to the Birmingham Radar controller. The Birmingham Radar frequency was busy in the run-up to the event and a controller handover took place immediately after the initial contact call from the PA28 pilot. In the interest of brevity, only the RTF from the two aircraft involved has been included within this report, the time stamp of the Birmingham Radar recording was accurate and so times relating to transmissions made on this frequency have been taken directly from the recording.

The Area Radar was reviewed for the relevant period. Screenshots within this report have been taken from the Area Radar recording and are not necessarily indicative of what the Birmingham Radar controller was seeing on their display at the time of the event.

The start time for the following transmissions are approximate, the intervals between transmissions are accurate.

At ~0954:10 the C172 pilot reported ready for departure. The Coventry AFISO instructed the pilot to, "*hold position at Bravo one and squawk 0420, after departure remain outside and below controlled airspace*." There was no readback from the pilot at this point.

At ~0954:33 the PA28 pilot reported ready for departure. The Coventry AFISO responded, "[callsign], *hold position at Kilo, squawk 0420, after departure remain outside controlled airspace*." There was a complete and accurate readback by the pilot.

At ~0954:45 the C172 pilot read back their departure instructions. The AFISO advised that a backtrack of the RW was required and instructed the pilot to report lined-up.

At ~0955:26 the PA28 pilot was asked if they required a backtrack of the RW and the pilot responded, "*negative*." The pilot was instructed to hold position.

At ~0956:40 the C172 pilot was given take-off at their discretion from RW23.

At ~0957:35 the PA28 pilot was instructed to report lined-up RW23.

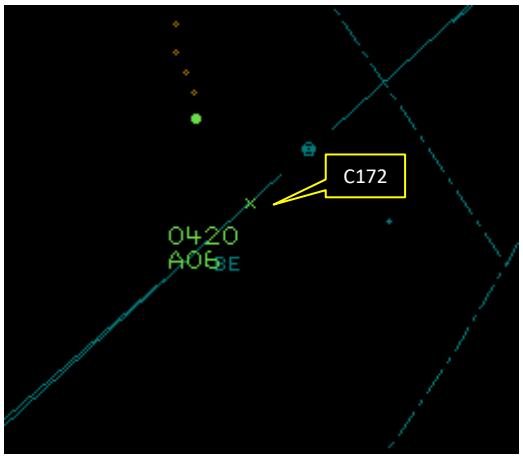

Figure 1 – 0958:24 C172 first observed to be airborne

At ~0958:15 the PA28 pilot reported lined-up and the AFISO responded, "[callsign]*, the PA28, sorry the C172 turning crosswind is departing to the southeast, RW23 Surface Wind 230 degrees 14 knots, take off at your discretion."* The pilot responded, "*take-off* [callsign]."

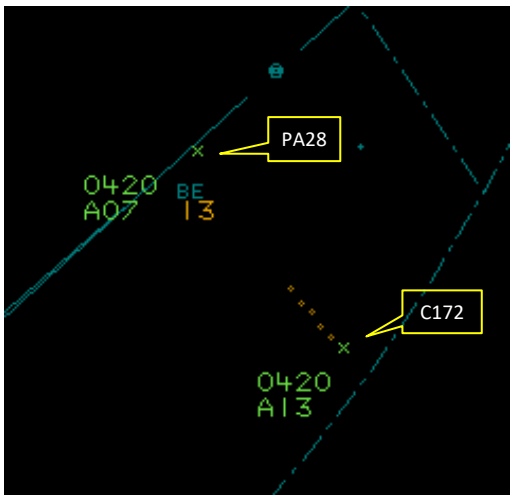

Figure 2 – 1000.00 PA28 first observed to be airborne

At 1001:12, as the PA28 cleared the ATZ, its groundspeed was recorded as 122kt whilst the groundspeed of the C172 was 101kt. Lateral separation was 2NM.

At ~1001:56 the PA28 pilot advised the AFISO that they were clear of the ATZ and changing to Birmingham on 123.980MHz. The AFISO acknowledged and instructed the pilot to squawk conspicuity and contact Birmingham.

At ~1002:28 the Coventry AFISO advised the C172 pilot that it would be a Basic Service as they left the ATZ and passed Traffic Information, "*I have one other reported traffic, C172, the recently departed C172 the local area.*"

At 1002:50 the PA28 pilot made initial contact with the Birmingham Radar controller. "*Birmingham Radar hello,* [callsign]*Traffic Service please*." The controller responded, "[callsign] *morning, squawk 0405.*"

At 1002:50 the PA28 passed 2300ft with a ground speed of 104kt and the C172 had a ground speed of 88kt as it passed 1500ft. Lateral separation was 1.4NM.

At 1003:20 there was a change of Birmingham Radar controller and the controller passed Traffic Information to an inbound helicopter pilot.

At 1004:00 the new Radar controller asked the PA28 pilot to pass their message. The pilot responded, "*Hello* [callsign] *PA28 uniform from Coventry to [destination airfield], passing er just about to maintain 3000 feet QNH 1024, Traffic Service please*." The controller responded, "[callsign] *the QNH 1025 say again your altitude*." The pilot advised that they were at 3000ft. (Figure 3).

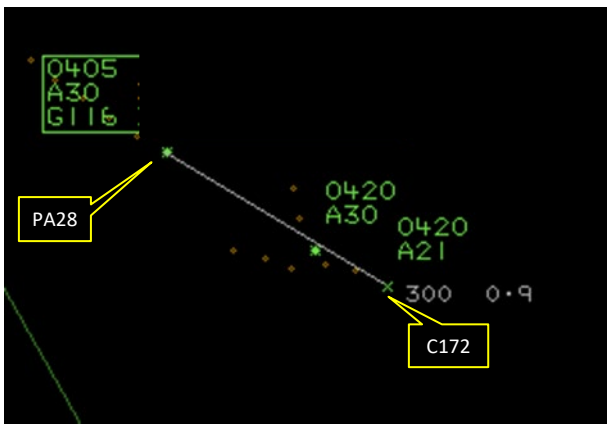

Figure 3 – 1004:00

The controller turned their attention to the helicopter flight entering controlled airspace and placed them under a Radar Control Service, for an RNP approach to RW33.

At 1004:40 the controller advised the PA28 pilot that it would be a reduced Traffic Service with reduced Traffic Information due to controller workload. The controller then passed Traffic Information, "*you do have traffic, similar track to yourself, one is half a mile ahead of you, one is half a mile south of you, both tracking southeast, one indicates 400 feet below, the other same level*." The pilot responded, *"*[callsign] *the one at the same level is in sight and Traffic Service reduced* [callsign] *thanks.*" Figure 4.

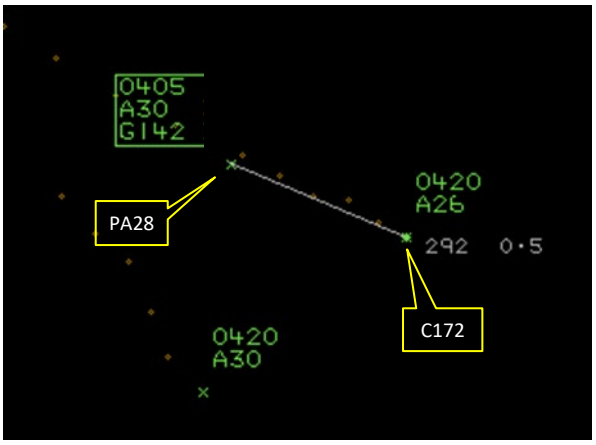

Figure 4 - 1004:40

The controller turned their attention to other traffic in receipt of a reduced Traffic Service and passed Traffic Information to them on unrelated traffic. Followed by returning to the pilot of the helicopter flight and providing initial instructions and missed approach information for the RNP approach. These RTF exchanges ended at 1005:55.

At 1004:52 the PA28 was level at 3000ft with a groundspeed 146kt, the C172 was climbing through 2700ft with a groundspeed to 81kt. Lateral separation was 0.2NM.

CPA occurred at 1005:02 with the aircraft separated by 0.1NM laterally and 100ft vertically, Figure 5.

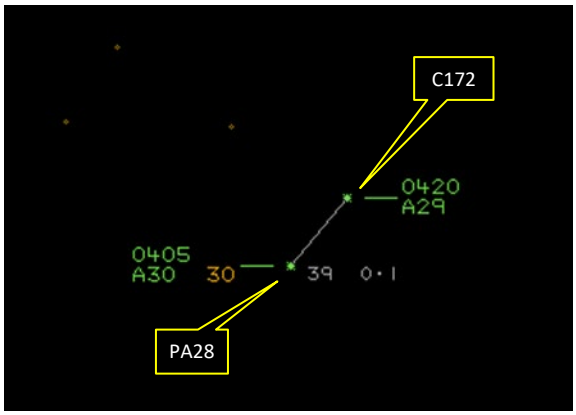

Figure 5 - 1005:02 CPA

Both aircraft had departed from Coventry within approximately a minute and a half of each other and were tracking in the same direction. The C172 departed first followed by the PA28.

The Coventry AFISO passed Traffic Information to the PA28 pilot advising them that the C172 turning crosswind ahead of them was departing in the same direction. The Traffic Information was not acknowledged by the PA28 pilot.

When the PA28 pilot made their initial RT call and request for a Traffic Service to the Birmingham Radar controller at 1002:50 they were allocated a squawk by the outgoing controller. The pilot was not informed that they were identified at this stage. No agreement was reached regarding the type of service to be provided prior to handing over the operational position to the incoming Radar controller. The PA28 was an indicated 1.4NM behind the C172 and 800ft above it at this point.

When the incoming Birmingham Radar controller established the flight details of the PA28 pilot at 1004:00, they did not inform the pilot that they were identified or agree the type of service. After confirming the level of the PA28 the controller immediately shifted their attention to an inbound helicopter pilot looking for an instrument approach. The PA28 was an indicated 0.9NM behind the C172 and 900ft above it at this point.

When the service agreement between the incoming Radar controller and the PA28 pilot was reached at 1004:40, the pilot was informed that it would be a reduced Traffic Service due to controller workload, and Traffic Information was passed on the C172. The Traffic Information passed was, "*you do have traffic, similar track to yourself, one is half a mile ahead of you, one is half a mile south of you, both tracking southeast, one indicates 400 feet below, the other same level*." The pilot responded, *"*[callsign] *the one at the same level is in sight and Traffic Service is reduced* [callsign] *thanks.*" The pilot did not report having the C172 in sight at this point and the attention of the controller was then diverted to another aircraft in receipt of a reduced Traffic Service and back to the inbound helicopter for the instrument approach.

It could not be ascertained what information had been included in the controller handover, and whether the incoming controller believed that the PA28 had already been identified and a service agreement reached between the pilot and the outgoing Radar controller, or whether they believed that Traffic Information had already been passed to the PA28 pilot by the outgoing controller.

Except for the initial stages of climb-out from Coventry, the PA28 was observed to be travelling faster than the C172 and was steadily catching it up. Ten seconds prior to CPA, the PA28 was observed to be travelling at an indicated groundspeed of 146kt, the C172 was 0.2NM ahead of them at this point, indicating a groundspeed of 81kt. The PA28 subsequently passed down the starboard side of the C172 with an indicated lateral clearance of 0.1NM.

When the PA28 pilot was lined-up ready for departure the Coventry AFISO warned them that the C172 was ahead of them on the same track. This warning was not acknowledged by the pilot at the time, and the narrative within the report submitted by the PA28 pilot, i.e. the presence of the C172 came as a surprise, could potentially indicate that they had either not heard or not assimilated the Traffic Information passed.

There was a significant delay between the time of the initial RT call from the PA28 pilot to the outgoing Birmingham Radar controller and the reduced Traffic Service being agreed between the incoming controller and the pilot. This, together with the controller workload and the requirement to prioritise instrument approach traffic, is likely to have contributed to the subsequent Traffic Information being received late.

UKAB Secretariat

The C172 and PA28 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[2] If the incident geometry is considered as overtaking then the C172 pilot had right of way and the PA28 pilot was required to keep out of the way of the other aircraft by altering course to the right.[3]

[2] (UK) SERA.3205 Proximity.
[3] (UK) SERA.3210 Right-of-way (c)(3) Overtaking.

Summary

An Airprox was reported when a C172 and a PA28 flew into proximity 4NM west of Daventry at 1005Z on Friday 6th May 2022. Both pilots were operating under VFR in VMC, the C172 pilot in receipt of a Basic Service from Coventry Information and the PA28 pilot in receipt of a reduced Traffic Service from Birmingham Radar.

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 and the AFISO 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.

The Board first considered the actions of the C172 pilot and noted that, although they had been manoeuvring on the ground at the same time as the PA28 and would have had an awareness of it at that time, because they had become airborne ahead of the PA28, their awareness of it would have diminished and so, at the point of the Airprox, they would have had none (**CF5**). Considering the geometry of the event, members agreed that, as it had been both above and behind C172, the PA28 would have been obscured from the view of the C172 pilot (**CF9**), and that they had only become visual with it at a point when it had been too late for avoiding action to materially increase separation (**CF8**). The Board also wished to highlight that pilots should always report an Airprox event as soon as possible on the radio to the agency with which they are communicating, or the next agency they speak to.

Next, the Board considered the actions of the PA28 pilot and members noted that they had been given Traffic Information regarding the C172 on two occasions. Firstly, the Coventry AFISO had passed Traffic Information whilst on the ground, which members agreed had not been assimilated by the PA28 pilot (**CF6**), and subsequently by the Birmingham Radar controller, which also included Traffic Information on another aircraft and, as the pilot had only become visual with one of the aircraft, there had been an opportunity to request additional information on the other – which had been the C172 – but the pilot had not requested this information (**CF4**). Members were encouraged that the PA28 pilot had been carrying EC equipment, however, their equipment had been incompatible with the equipment carried on the C172 (**CF7**). There followed a short discussion regarding the possible threats when operating with other qualified pilots on the aircraft and members agreed that, on occasion, there can be an assumption that such pilots can be perceived to provide an additional layer of safety. However, The Board wished to remind pilots that they should be no less diligent in their work cycle because of this. Again considering the geometry of the event, members agreed that the C172 would have been obscured from the view of the PA28 pilot (**CF9**) which had contributed to them also becoming visual with it at a point when it had been too late for avoiding action to materially increase separation (**CF8**). A GA pilot member stated that good practice during the cruise and/or climb is to weave to facilitate effective lookout in the area ahead and below the aircraft.

The Board then examined the involvement of the ground elements, firstly the Coventry AFISO, and members agreed that they had provided appropriate Traffic Information to the PA28 pilot. Members next discussed the involvement of the Birmingham Radar controller, and a Civilian ATC member commented that the controller had been busy and, as such, had identified the potential conflict late (**CF2**) which had contributed to them passing Traffic Information to the PA28 at a later than optimum time (**CF1**). Members also discussed the STCA system employed by Birmingham Radar and determined that, as the C172 had not been operating with a Birmingham-issued transponder code, the event had been outside the select frame for system operation (**CF3**).

Finally, in assessing the risk of collision, the Board considered that the C172 pilot had not had any prior situational awareness regarding the presence of the PA28 and that the PA28 pilot had not assimilated the conflict information regarding the C172. Neither pilot had become visual with the other aircraft early enough to have enabled them to have taken any avoiding action to materially increase separation. Therefore, the Board concluded that providence had played a major part in events, that the separation

that had existed had been fortuitous and the bare minimum, and that there had been a serious risk of collision (**CF10**). As such, the Board assigned a Risk Category A to this Airprox.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022073			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Human Factors	• ANS Traffic Information Provision	Provision of ANS traffic information	TI not provided, inaccurate, inadequate, or late
2	Human Factors	• Conflict Detection - Detected Late	An event involving the late detection of a conflict between aircraft	
	• Electronic Warning System Operation and Compliance			
3	Technical	• Conflict Alert System Failure	Conflict Alert System did not function as expected	The Conflict Alert system did not function or was not utilised in this situation
	Flight Elements			
	• Situational Awareness of the Conflicting Aircraft and Action			
4	Human Factors	• Lack of Communication	Events involving flight crew that did not communicate enough - not enough communication	Pilot did not request additional information
5	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
6	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			
7	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			
8	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
9	Contextual	• Visual Impairment	Events involving impairment due to an inability to see properly	One or both aircraft were obscured from the other
	• Outcome Events			
10	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: A

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:

Ground Elements:

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

Situational Awareness of the Confliction and Action were assessed as **partially effective** because the conflict had been detected late by the controller which had led to the later than optimum passing of Traffic Information.

Electronic Warning System Operation and Compliance were assessed as **not used** because the transponder code displayed by the C172 is not within the select frame for the Birmingham Radar system.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the C172 pilot had not had any prior awareness of the presence of the PA28 and the PA28 pilot had not assimilated the Traffic Information they had received regarding the C172.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC device that had been carried by the PA28 pilot had been incompatible with the equipment carried on the C172.

See and Avoid were assessed as **ineffective** because the view of the other aircraft for both pilots had been obscured and both pilots had only become visual with the other aircraft at a point when it had been too late to be able to take effective avoiding action.