AIRPROX REPORT No 2021043

Date: 20 Apr 2021 Time: 1056Z Position: 5216N 00111W Location: Daventry

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DA40	C182
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	Basic
Provider	Oxford Radar	Oxford Radar
Altitude/FL	A024	A025
Transponder	A, C, S	A, C, S
Reported		
Colours	White	White/red
Lighting	Position, strobe, navigation	'Standard'
Conditions	VMC	VMC
Visibility	>10km	5-10km
Altitude/FL	2500ft	2500ft
Altimeter	QNH (1018hPa)	QNH
Heading	216°	335°
Speed	120kt	NK
ACAS/TAS	Not fitted	Not fitted
Separation		
Reported	0ft V/100m H	100-200ft V/200m H
Recorded	100ft V/<0.1NM H	

THE DA40 PILOT reports undertaking a dual navigation exercise via Chipping Norton, Evesham, Daventry and Chipping Norton. Shortly after turning SW from Daventry, their student called out loud "*Traffic*!". They looked in the direction the student was looking – to their left - and spotted a Cessna on a collision course and in very close proximity. They were just to the right of the Cessna's path so the pilot opted to dive. If they had turned level in in any direction, they would have remained in the Cessna's path and collided. Just after they dived, the Cessna broke hard right and passed just above and behind them. The pilot levelled off 200ft lower at 2300ft and immediately reported a near miss to Oxford Radar and asked if they could identify the other aircraft, which they did. They also reported the aircraft at 2500ft.

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

THE C182 PILOT reports being on a leg from the DTY VOR to Rugby on a heading of 335° with their halfway point being the north-west of Daventry (town). As they approached their halfway point, they conducted a lookout scan before starting their mid-point checks. It was very hazy, but they saw no traffic and proceeded to begin their cruise checks. They checked all the instruments and matched up their location with their map, all the while continuing to look out of the aircraft and seeing nothing. They then continued on their heading, trying to keep a good lookout due to the haze. About 15sec later they saw, almost out of nowhere, a white DA40 descending at their 3/4 o'clock with a horizontal distance of about 200m and they instantly initiated a climb. The other aircraft was travelling on a south-westerly track. They kept the aircraft in sight at all times during the manoeuvre and it passed just behind but under them. They lost sight of it for a second as it was in their 6 o'clock as that was a blind spot for them, but they were not anticipating seeing it again in their 7 or 8 o'clock, which they did after a couple of seconds. They then levelled off as there were a couple of clouds about 500ft above them, which they were very conscious of, and they had suitable separation from the traffic. They regathered themselves and continued to finish the remainder of their flight.

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

THE OXFORD RADAR CONTROLLER reports working in medium intensity providing ATS to a mix of IFR and VFR aircraft. Both aircraft were under a Basic Service well to the north of Oxford. Both aircraft were scanned shortly before the event and were not in planform conflict; [the C182] heading north and [the DA40] tracking east. [The C182]'s track would pass behind [the DA40]. Their attention was drawn to the south and east of Oxford where they had aircraft under a TS and undertaking liaison with Benson and Oxford Tower. Workload at this point was high. [The DA40 pilot] then reported that they had had an Airprox several minutes earlier and asked if there was traffic in the vicinity of Daventry. A response was given and advised that it was a C182 (now 10NM north of Daventry). [The C182 pilot] was advised that they were potentially involved in an Airprox to which the pilot responded that they were visual with the DA40 throughout.

Factual Background

The weather at Birmingham Airport was recorded as follows:

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METAR EGBB 201050Z VRB03KT CAVOK 15/03 Q1018=
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Analysis and Investigation

London Oxford Airport Investigation [RTF transcriptions removed]

This Airprox occurred during medium traffic levels. The Oxford Radar controller was operating without the aid of RAD2 on frequency 125.090. [The DA40] got airborne from Oxford at 1021, the FPS denoted that the aircraft was planned to route on a local VFR flight to the northwest. At 1023, the pilot of [the DA40] first came on the radar frequency.

The aircraft was observed to continue to track to the northwest and at 1026 the Oxford Radar controller advised, "*[DA40 c/s], no level restriction*", which was acknowledged and read back by the pilot.

[The C182] (student pilot) got airborne from Oxford at 1035, the FPS denoted that the aircraft was planned to route on a local flight to the northwest. At 10:35, the Oxford Tower relayed to the Oxford Radar controller the [C182 c/s]'s airborne time, together with a note that the pilot was "*routing via Westcott*". [The C182 pilot] first called on the Oxford Radar frequency at 1036.

The two aircraft continued to operate under a Basic Service whilst the Oxford Radar controller handled a varied mixture of IFR and VFR aircraft. The CPA between the two aircraft occurred north of DTY at 1056. Prior to the Airprox, [the DA40] had been operating on a consistent track which was predominantly easterly, at time 1055 the aircraft was observed to make a hard right turn onto a southerly track bringing it into conflict with the C182 which, in turn, had been on a consistent north-north-westerly track.

Both aircraft had been operating under a Basic Service at the time of this Airprox. It should therefore be remembered that, as per CAP774, the pilot should not expect any form of Traffic Information from a controller under this service and that whether Traffic Information has been provided or not, the pilot remains responsible for collision avoidance without assistance from the controller. The two aircraft had both departed from Oxford on diverging tracks from the aerodrome and had also been airborne some 20+ minutes before the CPA, the Oxford controller had not received any significant position/levels updates from either pilot in the time leading up to the Airprox and so could not realistically be expected to know that the aircraft at the time were flying in such close proximity to each other and thus even generic Traffic Information would have been difficult to pass appropriately. Likewise, even though the controller had access to surveillance-derived information, it was noted again that both aircraft were operating under a Basic Service and thus the controller was not required to identify or monitor the flight. The CPA occurred whilst the Oxford Radar controller was in the process of identifying another aircraft with the intention of providing said aircraft with a Traffic Service, therefore it is understandable why the controller did not spot the confliction. It was also

noted from the replay that a short interval before the Airprox was reported the controller's electronic marker (mouse cursor) was observed scanning over [the C182] and at the time there was no perceived conflict, it was the sudden and unannounced right turn from [the DA40] that put the two aircraft into conflict. [A local flying school] was contacted in reference to this Airprox, and they clarified however that their fleet of C182s are not fitted with any form of alerting or avoidance system.

CAA ATSI

The DA40 pilot was on a dual navigation exercise via Chipping Norton, Evesham, Daventry, Chipping Norton, and was in receipt of a Basic Service from Oxford Radar at the time of the Airprox. The C182 student pilot was flying a leg of their local sortie, from Daventry VOR to Rugby, and was also in receipt of a Basic Service from Oxford at the time of the Airprox.

The Oxford Radar controller reported that they had been operating medium intensity traffic and providing ATC services to a mix of IFR and VFR traffic. They went on to explain that both aircraft were scanned shortly before the Airprox and were not considered to be on conflicting tracks at the time. They said that their attention was then drawn to the south and east of Oxford, where they had an aircraft on a Traffic Service, and that they undertook liaison calls with Benson Radar, and the Oxford Tower controller. They described their workload as high, at the point where the DA40 pilot reported the Airprox.

The ATS Investigator had access to the initial report by the Oxford controller, reports from the pilots of both aircraft, and the Oxford RTF and the Area Radar recordings for the period leading up to the event. Screenshots in this report have been taken from the area radar recording and are not indicative of what the Oxford controller was viewing on their radar display at the time of the event. The RTF was relatively busy in the lead up to the Airprox. In the interest of brevity, only the RTF from the two aircraft involved has been included within this report.

At **1023:50** the DA40 pilot was transferred from the Tower frequency to the Radar frequency, and the pilot advised the controller that they were departing to the northwest, level 1600ft. A Basic Service was agreed, and the controller asked the pilot what level they required. The pilot responded with 3500ft. The controller issued a level restriction of not above altitude 2500ft initially, due to opposite direction traffic at 3500ft. The level restriction was read back correctly by the pilot. The controller turned their attention to other traffic.

At **1026:00** the controller advised the pilot of the DA40 that there was now no restriction on their level, and the pilot acknowledged. The controller turned their attention to other aircraft.

At **1036:40** the pilot of the C182 was transferred from the Tower frequency to the Radar frequency, and the pilot advised the controller that they had copied information Oscar, QNH 1018, were maintaining 2000ft, and requested a Basic Service. A Basic Service was agreed, and the controller advised the pilot that there was no level restriction as they departed to the east. The pilot acknowledged that there was no level restriction. The controller turned their attention to other aircraft.

Between **1049:40** and **1050:03** the controller was engaged in a telephone call with Benson ATC regarding unrelated traffic. The controller then turned their attention to an inbound aircraft. Between **1052:20** and **1052:25** the controller was engaged in a telephone call with the Tower controller regarding unrelated traffic. The controller then engaged in a lengthy RTF exchange with the pilot of a transit aircraft, requesting a Basic Service. Between **1053:50** and **1053:57** the controller was engaged in a further telephone call with the Tower controller regarding unrelated traffic. The controller then engaged in a lengthy RTF exchange with the pilot of a transit aircraft, requesting a Traffic Service.

At **1054:40** the controller passed Traffic Information to an aircraft in receipt of a Traffic Service. Between **1055:16** and **1055:19** the controller was engaged in a further telephone call with the Tower controller regarding unrelated traffic.

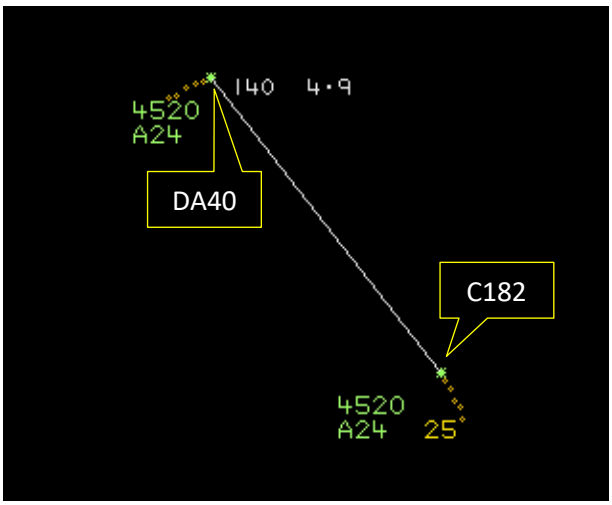


Figure 1 – 1054:31

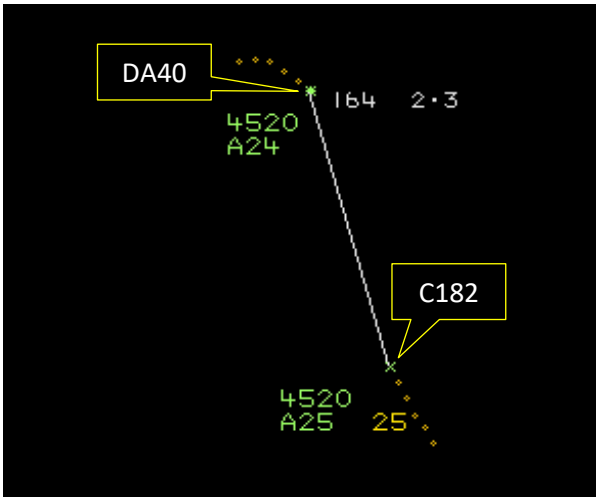


Figure 2 – 1055:30

At **1056:00** the controller responded to an RTF call from instrument training traffic, transferred from the Tower frequency to the Radar frequency after the go-around, and a Traffic Service was agreed. At **1056:02** CPA occurred, with the aircraft separated by 0.0NM laterally and 100ft vertically (Figure 4).

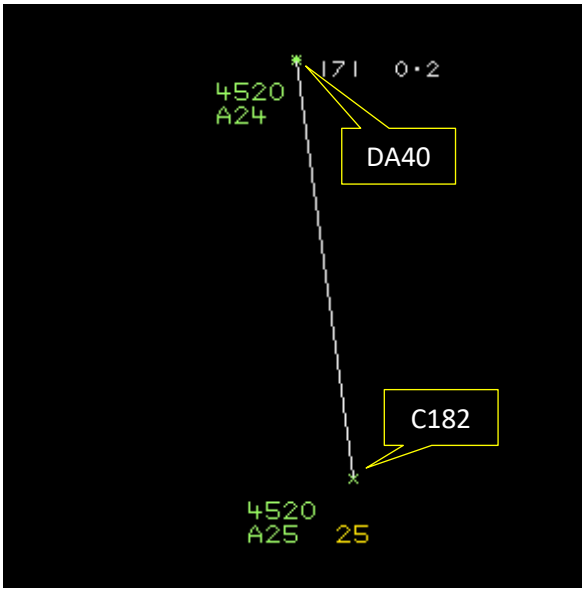


Figure 3 – 1055:59

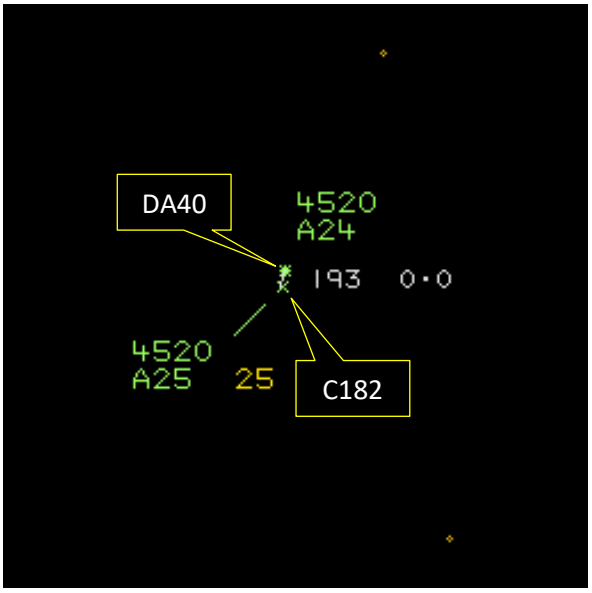


Figure 4 – 1056:02 – CPA

Between **1056:10** and **1057:20** the controller turned their attention to unrelated aircraft. At **1057:30** the DA40 pilot advised the controller that they thought they'd had an Airprox, just south of Daventry, and asked the controller if they had any aircraft transponding just to the north of their position. The controller asked if the RTF call had come from the DA40 pilot, and the pilot confirmed that it had. The controller responded with, "*traffic north of you, a Cessna 182, indicating 200 feet above*". The pilot responded, "*that'll be the one*" and asked if the aircraft was transponding Mode S. The controller responded, "*affirm, they are transponding*". The pilot asked the controller, "*could you make a note please*". The controller responded, "*roger*". The controller turned their attention to other aircraft.

At **1058:20** the controller called the C182 pilot and told them that the DA40 pilot believed that they had encountered an Airprox with their aircraft, 4 or 5min previously. The pilot advised that they had been visual with the traffic, and the controller acknowledged.

The Airprox occurred 28NM to the north of Oxford Airport. This would have been at the extremity of the controller display.

In the lead-up to the Airprox, the controller was providing ATC services to several VFR inbound, outbound and transit aircraft, instrument training traffic, and other aircraft that were in receipt of a Traffic Service. The traffic situation required the controller to engage in a number of liaison calls with the Tower controller.

At **1054:31** the two aircraft were 4.9NM apart, with the C182 predicted to pass well behind the DA40 (Figure 1). Nine seconds later, the controller passed Traffic Information to an aircraft on a Traffic Service, engaged in a telephone conversation with the Tower controller, and responded to an RTF call from an aircraft in the instrument training pattern. During this period, the DA40 pilot had turned onto a southerly heading, and this took the aircraft into direct confliction with the C182.

Under the terms of a Basic Service the controller was not required to monitor the flight of the DA40 or the C182. At the time of the Airprox, the controller was required to focus their attention on traffic in receipt of a higher level of service than that being provided to the DA40 and C182, and to liaise with the Tower controller to achieve the safe integration of inbound, outbound and training traffic.

UKAB Secretariat

The DA40 and C182 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 C182 pilot was required to give way to the DA40.[2]

Summary

An Airprox was reported when a DA40 and a C182 flew into proximity over Daventry at 1056Z on Tuesday 20th April 2021. Both pilots were operating under VFR in VMC and both pilots were in receipt of a Basic Service from Oxford Radar.

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 reports from the appropriate ATC/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 considered the actions of the DA40 and Cessna 182 pilots and heard from a GA pilot member that this incident highlighted the need to continuously clear one's flight path, both before and during any significant turn. The Board noted that both pilots had agreed a Basic Service with the Oxford Radar controller and some members wondered whether the pilots would have been better served requesting a surveillance-based Air Traffic Service. Notwithstanding the controller had scanned the aircraft on their display shortly before the DA40 pilot had commenced their right-hand turn, a Traffic Service – had one been available – may have led the controller to devote more attention to these 2 aircraft. Furthermore, under a Traffic Service a pilot is required to alert the controller if they wish to make a significant change of heading, height or general area of operation:

When operating under their own navigation, pilots may alter course as required; however, unless safety is likely to be compromised, pilots shall not change their general route or manoeuvring area without first advising and obtaining a response from the controller.[3]

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3210 Right-of-way (c)(2) Converging.
[3] CAP 774, para 3.9.

Members felt that an alert of heading change from the DA40 pilot to the controller may have provided the opportunity for the controller to pass Traffic Information on the C182 and *vice versa*. Furthermore, the Board also considered that it would have been advantageous for the pilot of the C182 – flying solo – to have sought a higher level of Service to assist with their detection of other aircraft. As it was, with no Traffic Information being forthcoming and with neither aircraft flitted with supplementary means of electronic conspicuity, the Board agreed that neither pilot had had any situational awareness of the presence of the other aircraft (**CF2**). This had left both pilots relying on the See and Avoid barrier and the Board found that neither pilot had seen the other aircraft with sufficient time to make a controlled adjustment to their flightpath to maintain safe separation i.e. it had been a late sighting on the part of both pilots (**CF3**).

Turning to the actions of the Oxford Radar controller, the Board agreed that they had rightly prioritised the provision of a higher level of Service to other aircraft and that, therefore, there was little more that they could have done to prevent the Airprox. The controller had scanned the aircraft shortly before the DA40 pilot had commenced their turn and this had more than fulfilled their obligations under the terms of a Basic Service (where the controller is not required to monitor the aircraft (**CF1**)). A controller member suggested that, even if the DA40 pilot had informed the controller of their intention to turn to the south, this may not have been sufficient to draw the controller's attention back to the 2 aircraft under a Basic Service. Moreover, the member cautioned against pilots updating controllers of their heading and level under a Basic Service, as this may lead to congestion on the RT. The Board agreed that this could be a risk, but also felt that if conditions permit then keeping a controller updated on their heading and level should assist the controller in maintaining their overall situational awareness of aircraft to which they are providing an Air Traffic Service.

Finally, the Board considered the risk involved in this Airprox. Members quickly agreed that this had been a risk-bearing encounter in that a risk of collision had existed (**CF4**). Members discussed whether the separation at CPA had been entirely by chance or if one or both of the pilots had influenced the separation in some way. After further discussion the Board agreed that the C182 pilot had seen the DA40 at a point where it had been too late for them to take any meaningful action to increase separation; however, members felt that the swift actions of the DA40 pilot on sighting the C182 had been sufficient to mitigate the immediate collision risk. Accordingly, the Board assigned a Risk Category B to this Airprox.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021043			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Contextual	• ANS Flight Information Provision	Provision of ANS flight information	The ATCO/FISO was not required to monitor the flight under a Basic Service
	Flight Elements			
	• Situational Awareness of the Conflicting Aircraft and Action			
2	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late or only generic, Situational Awareness
	• See and Avoid			
3	Human Factors	• Identification/Recognition	Events involving flight crew not fully identifying or recognising the reality of a situation	Late 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:

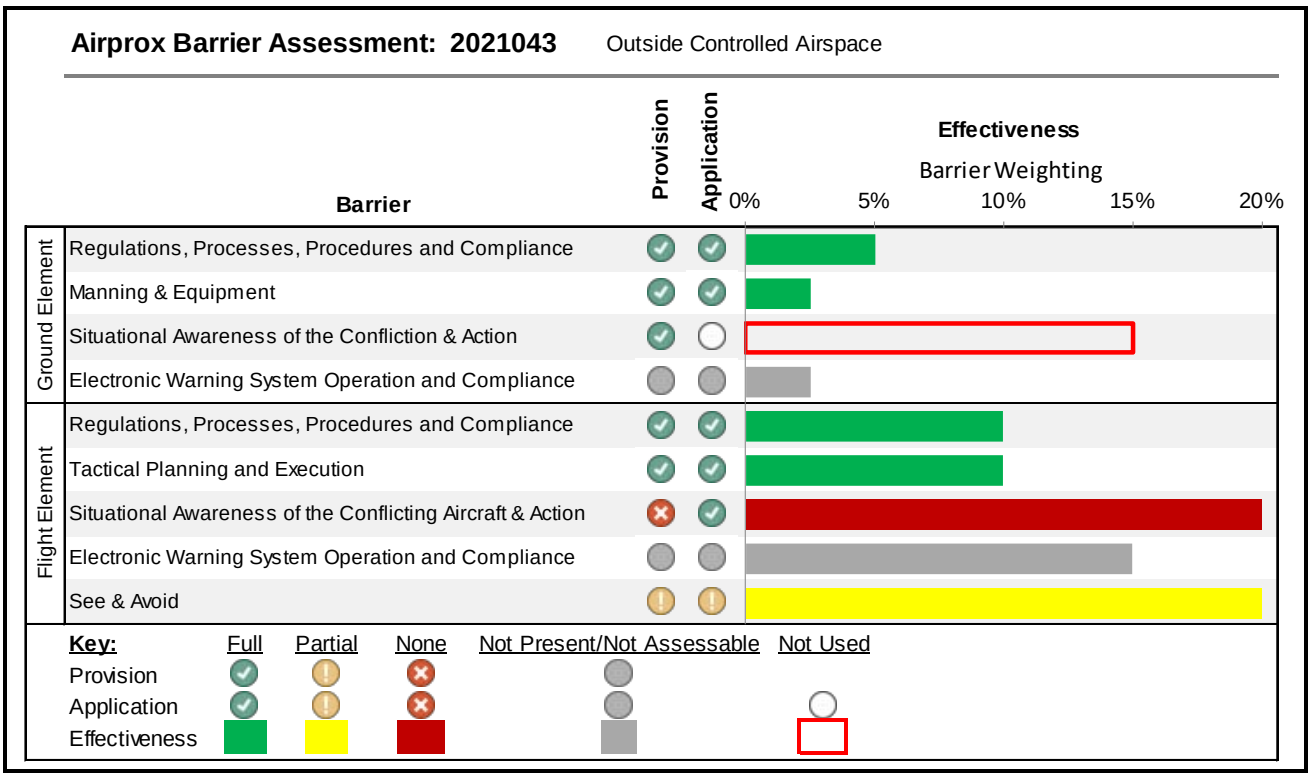
Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **not used** because the Oxford Radar controller was not required to monitor either aircraft under the terms of a Basic Service.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had any situational awareness of the presence of the other aircraft.

See and Avoid were assessed as **partially effective** because the pilots of both aircraft only saw the other aircraft at a late stage and each of them had to initiate emergency 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.