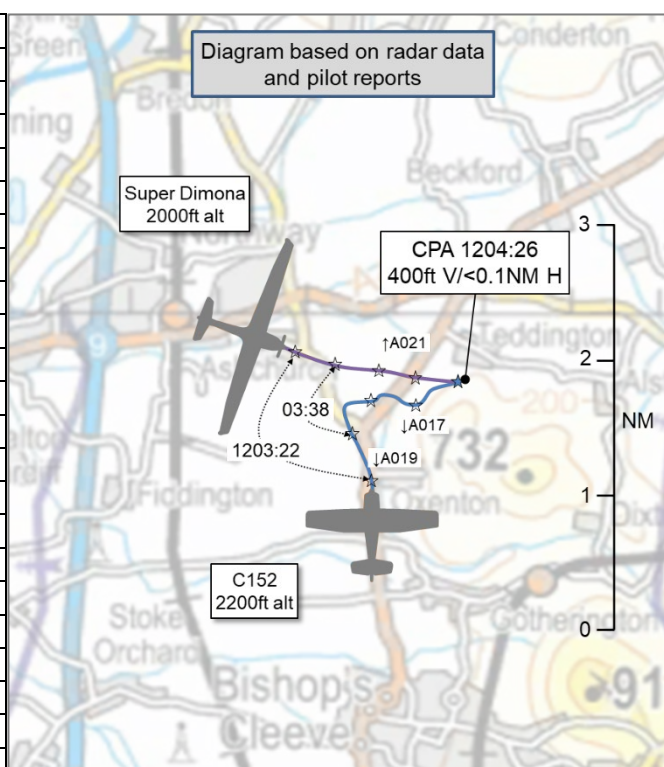


## AIRPROX REPORT No 2021094

Date: 26 Jun 2021 Time: 1204Z Position: 5159N 00203W Location: 5NM N of Cheltenham

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	C152	Diamond HK36
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	None <sup>1</sup>
Provider	Gloster Approach	(Gloster Approach)
Altitude/FL	1700ft	2100ft
Transponder	A, C	A, C, S
<b>Reported</b>		
Colours	White, grey	White
Lighting	Tail beacon	Strobe
Conditions	VMC	VMC
Visibility	>10km	NR
Altitude/FL	2300ft	NR
Altimeter	QNH (1018hPa)	NR
Heading	090°	NR
Speed	90kt	NR
ACAS/TAS	Not fitted	Unknown
<b>Separation</b>		
Reported	30ft V/12-15m H	Not Seen
Recorded	400ft V/<0.1NM H	



**THE C152 PILOT** reports conducting a PPL training flight with low/mid-hours student (not yet solo). There was good visibility below cloud, but the cloudbase had been 1600ft earlier in the day, gradually rising as the day progressed. At the time of briefing, the cloudbase (from ATIS information F) was scattered at 2300ft and wind 060°/12kt. The student was in the advanced stages of circuit training, but with an inability to get a circuit 'slot' and significant crosswind on RW09, they decided to teach 'compass errors and compass turns'. After take-off, they climbed to 2000ft QNH to the north of Gloucestershire Airport. After levelling off, they asked the student to climb to 2300ft on the Gloucestershire QNH (as the cloudbase in the area was approximately 3000ft by this time) to avoid an 'even number' altitude to reduce the risk of conflict, as they knew that they would be doing lots of manoeuvring and concentrating on the compass for much of the time. They had flown a series of power descents to accelerate the aircraft and reduced power climbs to slow the aircraft, so that the student could witness the acceleration/deceleration errors on the compass. These were all conducted on a northerly heading to show the sensitivity in that axis. They were in control of the aircraft at this stage and regained their selected altitude (2300ft) still on a northerly heading and then turned right onto 090° to commence the turning exercises. As they rolled-out on east, they checked back to the compass and as they did so they observed another aircraft positioned on their left hand side, slightly higher and about 30ft away on a parallel heading to theirs. They immediately turned right and descended. Due to the urgency of the action, they were unable to note any registration mark, but were able to identify the aircraft as a DA40 with wheel spats (they thought). The other aircraft would not have been visible to them when they commenced their turn from north onto east, as it would have been above the wing and behind; from the other aircraft perspective, their aircraft would have been masked by the low wing and the engine cowling. They used the incident as a training lesson for the student on keeping a good look out, blind spots and TEM.

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

<sup>1</sup> The Super Dimona pilot was in the process of establishing contact with Gloster Approach at the time the Airprox occurred.

**THE SUPER DIMONA PILOT** reports undertaking a practise cross-country flight with turning points at Tewkesbury and Moreton-in-Marsh. The cloudbase was approximately 2400ft and the horizontal visibility was good. They were receiving a Basic Service from Oxford Radar until they reached their turning point at Tewkesbury. This service was then terminated and a free-call to Gloster Approach was made. No mention of conflicting traffic was received from the Oxford controller. According to the reported time of the incident, they may have been distracted with a free-call to Gloster Approach, as they were unsure of the message from Oxford Radar, wrote down the frequency change, checked the frequency on the map before the call and made mistakes in their unplanned call to Gloster Approach; they requested and received a Basic Service. They did not see the C152 and were unaware of an Airprox incident.

**THE GLOSTER APPROACH CONTROLLER** reports that it was brought to their attention that an Airprox was filed by the commander of [the C152] against an aircraft which appeared to be a DA40. No report was made on the frequency about the intention to file an Airprox.

## Factual Background

The weather at Gloucestershire Airport was recorded as follows:

```
METAR EGBJ 261150Z 09010KT 9999 SCT025 20/11 Q1018=
METAR COR EGBJ 261220Z 08010KT 9999 SCT030 20/10 Q1017=
```

## Analysis and Investigation

### Gloucestershire Airport Air Traffic Services

[The C152 pilot] had departed Gloucestershire Airport to the north on a local flight and had been placed on a Basic Service at 1158. At 1204, [the Super Dimona pilot] contacted Gloster Approach. The pilot's original call was somewhat lacking in information and the APP ATCO had to make multiple transmissions to glean the required details in order to provide a Basic Service. The pilot reported that they were routing via Tewkesbury at an altitude of 1900ft. They were placed on a Basic Service and instructed to report north-east abeam. Less than a minute later, they reported at Tewkesbury routeing [eastbound]. The next call from either pilot was not until 1218, with [the C152 pilot] requesting a QDM and subsequently [the Super Dimona pilot] changing to [the frequency of their destination] which was acknowledged. No report was made by either pilot on the RT about an Airprox or after the aircraft landed.

There was no report made on the RT, the APP ATCO would not have known where the C152 was as it was local flying and the [Super Dimona pilot's] first call was already pretty much overhead Tewkesbury. The radar is also only being used as an ATM and therefore it would have been unlikely the ATCO would have seen either contact on the radar display. There are no ATCO contributory factors from what can be gleaned from the recordings and the ATCO debrief.

### UKAB Secretariat

An analysis of the NATS radar replay was conducted, which showed the Super Dimona tracking in an easterly direction at an altitude of 2000-2100ft and the C152 manoeuvring between 2200ft and 1700ft. During the moments leading up to, and including, the Airprox, the Super Dimona was displaying a transponder code listed as an Oxford Approach Basic Service code. The RTF recordings from Gloster Approach were checked and, at 1204:00, the Super Dimona pilot initiated contact with Gloster Approach with the aim of agreeing a Basic Service with the controller; after a protracted exchange, a Basic Service was agreed with the Gloster Approach controller at 1204:55.

At 1203:38, the Super Dimona passed in front of the C152 at a range of 0.5NM and 100ft above (see Figure 1). The C152 turned to the east at 1203:50 and flew a track approximately parallel to, but converging with, that of the Super Dimona up until CPA, which occurred at 1204:26 (see Figure 2).

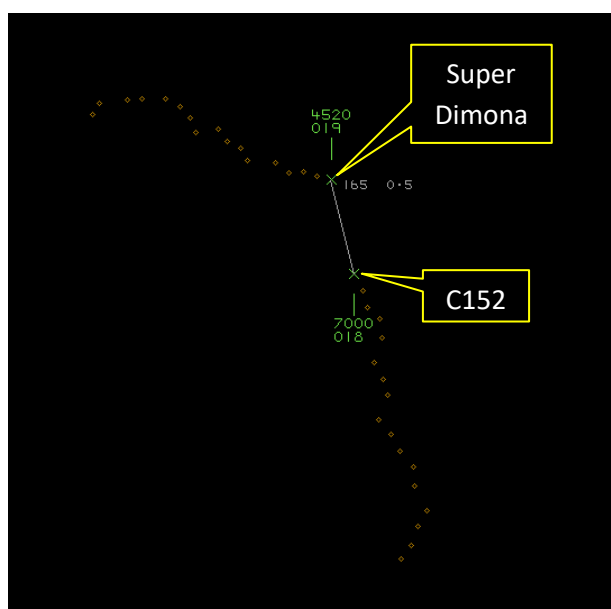


Figure 1 – 1203:38

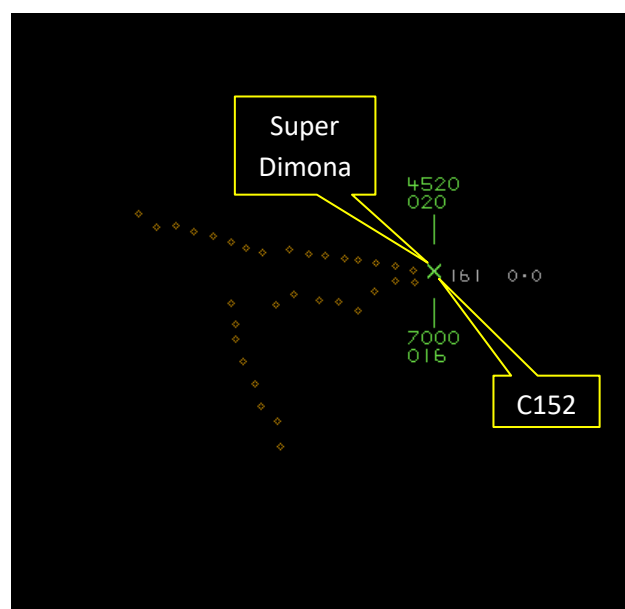


Figure 2 – 1204:26 – CPA

The C152 and Super Dimona 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>2</sup> If the incident geometry is considered as converging then the Super Dimona pilot was required to give way to the C152.<sup>3</sup>

## Summary

An Airprox was reported when a C152 and a Diamond Super Dimona motor-glider flew into proximity 5NM N of Cheltenham at 1204Z on Saturday 26<sup>th</sup> June 2021. Both pilots were operating under VFR in VMC, the C152 pilot in receipt of a Basic Service from Gloster Approach and the Super Dimona pilot in the process of agreeing a Basic Service with Gloster Approach.

## 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 a report from the appropriate operating authority. 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 C152 pilot and noted that, whilst it had been they that had filed the Airprox report, no mention of an Airprox had been made on the Gloster Approach frequency. The Board wished to highlight to pilots the importance of reporting an Airprox on frequency, because this allows controllers to take the required action immediately and preserve any necessary data. Members noted that the C152 had not been fitted with any equipment capable of detecting the presence of the Super Dimona and that there had been no Traffic Information from the Gloster Approach controller; therefore, the Board agreed that the C152 had not had any situational awareness of the presence of the Super Dimona (**CF2**). This had left the C152 pilot relying on their lookout for the detection of other aircraft. The Board discussed the 'Compass Errors and Compass Turns' exercise and heard from a GA pilot member with an instructional qualification that this exercise can necessarily be quite focussed on the magnetic compass (to demonstrate the effects of turning, acceleration etc). The Board felt that the need to monitor the magnetic compass during their flight had naturally decreased the amount of time that the Cessna 152 pilot had been able to conduct their lookout, and that this had been contributory to the Airprox (**CF3**). Members then discussed at length the moment that the C152 pilot had sighted the Super Dimona. There was a significant difference between the C152 pilot's estimation of vertical separation and that measured on the NATS radar replay. Some members

<sup>2</sup> (UK) SERA.3205 Proximity.

<sup>3</sup> (UK) SERA.3210 Right-of-way (c)(2) Converging.

wondered if the C152 pilot had spotted the Super Dimona shortly after making their turn onto an easterly heading, when the vertical separation had been recorded at 100-200ft. However, the Board discounted this because the radar recording showed the C152 still tracking towards the Super Dimona as the recorded vertical separation increased, which did not correspond with the C152 pilot's report that they had immediately turned right and descended on sighting the other aircraft. Ultimately, the Board could not reconcile the difference between the recorded and reported vertical separation and, whilst known radar and transponder tolerances may account for some of the difference, it could not explain such a disparity. The Board therefore concluded that the point at which the C152 pilot had sighted the Super Dimona had been the same as the recorded CPA, and so had been too late to materially affect the separation (**CF4**).

Turning to the actions of the Super Dimona pilot, the Board noted that they had been in receipt of an ATS from Oxford Radar up until they made their initial call to Gloster Approach, but the Super Dimona pilot did not report having received any Traffic Information from the Oxford Approach controller. Indeed, the Super Dimona pilot had been operating, in the Board's view, either at or beyond the practical limits of Oxford Radar coverage and had been in receipt of a Basic Service, so they would have been unlikely to have received any Traffic Information anyway. The Board also noted that the Super Dimona pilot had not reported whether or not they had been carrying any additional electronic conspicuity equipment and so concluded that they had not had any situational awareness of the presence of the C152 (**CF2**). Members noted that the Super Dimona pilot had been making initial contact with the Gloster Approach controller at the time of the Airprox and, given the protracted nature of the radio call, considered that this had distracted the Super Dimona pilot from their lookout (**CF3**), and agreed that the Super Dimona pilot had not seen the C152 at all (**CF4**).

The Board then considered the actions of the Gloster Approach controller and quickly agreed that there was little that they could have done to prevent the Airprox occurring. Members agreed that, under the terms of a Basic Service, the controller had not been required to monitor the C152 (**CF1**) and also that they had only just received the initial contact message from the Super Dimona pilot and so had not been in a position to understand the whereabouts of that aircraft.

Finally, the Board considered the risk involved in this event. Members took into account the recorded separation as measured on the NATS radar replay and the C152 pilot's estimated separation and assessment of collision risk (the C152 pilot had assessed the risk as 'high'). Whilst it was clear from the radar recordings and the C152 pilot's account that the horizontal separation had been minimal, once again the discrepancy between measured and reported vertical separation presented a problem for the Board to reconcile. Some members suggested that the risk be categorised according to the pilot's report alone, while others suggested that this was only a estimate and that the recoded data should form the basis for the risk categorisation. Furthermore, some members also felt that the aspect ratio of the Super Dimona may have led the C152 pilot to assess a reduced separation – the C152 pilot identified the aircraft as a DA40, which has a wingspan of half that of a Super Dimona. After further discussion, and acknowledgement that the C152 pilot may have been startled by the presence of the Super Dimona and therefore underestimated the separation distance, the Board agreed that there had been no risk of collision but that safety had been reduced below that which would normally be acceptable for operations in Class G airspace. Accordingly, the Board assigned a Risk Category C to this event.

## **PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**

### Contributory Factors:

2021094				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
<b>Ground Elements</b>				
• 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
<b>Flight Elements</b>				
• 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	• Distraction - Job Related	Events where flight crew are distracted for job related reasons	
4	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

Degree of Risk: C

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:

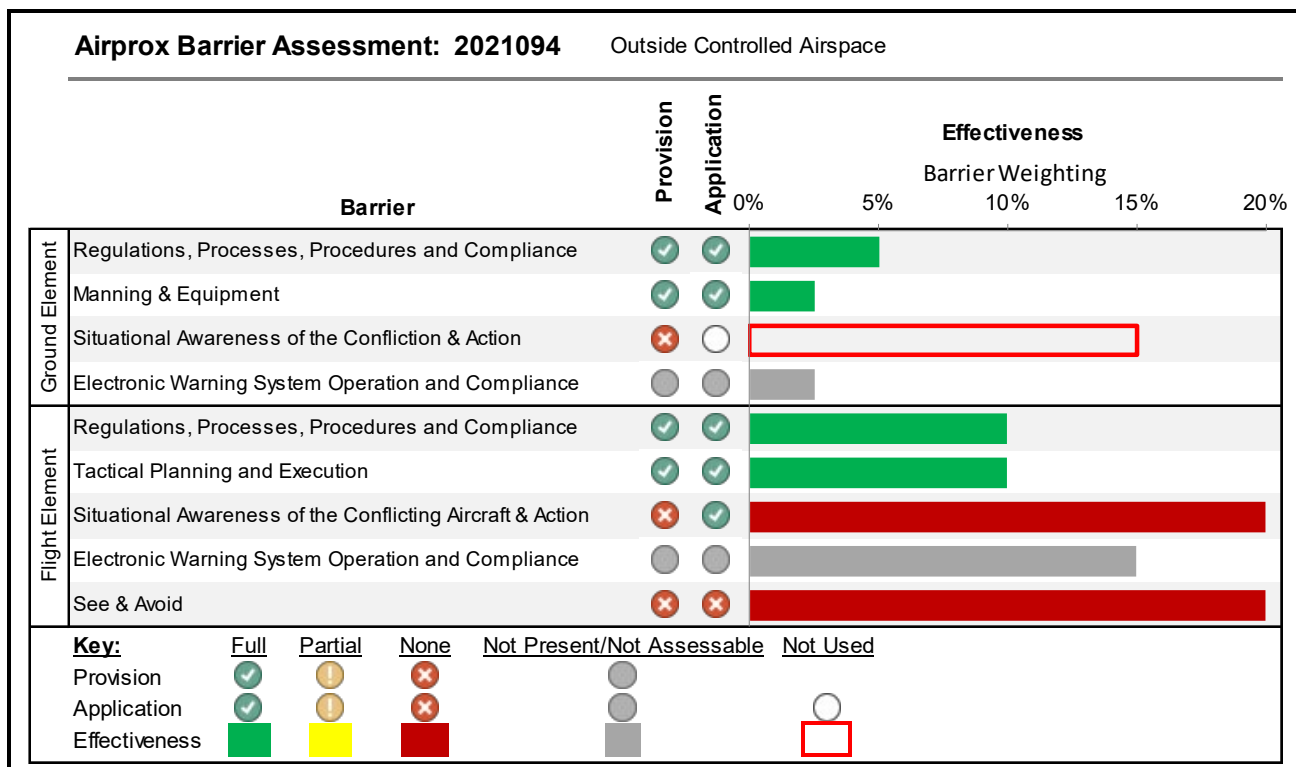
**Ground Elements:**

**Situational Awareness of the Confliction and Action** were assessed as **not used** because the Gloster Approach controller was not required to monitor the flight of the C152 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 prior warning of the presence of the other aircraft.

**See and Avoid** were assessed as **ineffective** because neither pilot saw the other aircraft in time to materially affect the separation.



<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](#).