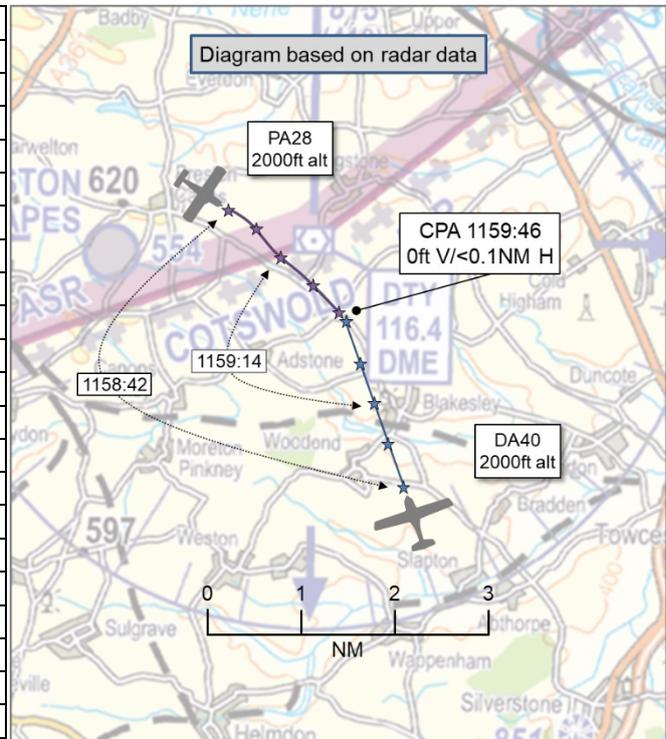


**AIRPROX REPORT No 2023106**

Date: 03 Jun 2023 Time: 1200Z Position: 5209N 00106W Location: 1NM SSE DTY VOR/DME

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	DA40	PA28
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	Listening Out
Provider	Oxford/Kidlington	Turweston Radio
Altitude/FL	2000ft	2000ft
Transponder	A, C, S+	A, C, S+
<b>Reported</b>		
Colours	White	White and Blue
Lighting	Yes	Strobe and Nav
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	2400ft	2300ft
Altimeter	QNH (1024hPa)	QNH
Heading	350°	NR
Speed	120kt	105kt
ACAS/TAS	Not fitted	TAS
Alert	N/A	None
<b>Separation at CPA</b>		
Reported	'Little'	50ft V/300ft H
Recorded	0ft V/<0.1NM H	



**THE DA40 PILOT** reports approaching DTY (Daventry VOR/DME) at 2400ft on the 160R inbound with 3 POB on an IFT 5 sortie; an avoidance manoeuvre (pitch up and right) had been initiated by the instructor when they noticed converging traffic at the same altitude coming towards them from the overhead of the DTY VOR/DME, from their 11 o'clock. They recall it to have been a PA28, possibly [aircraft registration]. They report avoiding the second aircraft by 'a few hundred feet'. The DA40 pilot reports being in receipt of a Basic Service from Oxford/Kidlington with no warning given. The pilot recalls that their Instructor and back seater were already engaged in very active lookout but still noted that the second aircraft had been avoided at the last second as it appeared from behind the nose of their aircraft. No avoidance action by that aircraft had been seen by the occupants of the DA40.

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

**THE PA28 PILOT** reports that they were checking out an avionics software update prior to a flight planned for the following day. They had just completed a turn at the DTY VOR/DME and were heading back to [destination airfield] for a re-join when the traffic had been seen. The PA28 pilot reports that they did not get the opportunity to see the registration or type of the other aircraft.

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

**THE OXFORD CONTROLLER** reports that the DA40 pilot had been operating under a Basic Service to the north of [destination airfield]. They recall passing some Traffic Information to the pilot about another unknown aircraft but got no response from the DA40 pilot. They have no recollection of the Airprox in question as they did not see it occur and it had not been brought to their attention over the RT or via telephone when the pilot had landed.

**THE TURWESTON AGO** - Despite significant effort from the UKAB Secretariat, it has not been possible to gain a report from the Turweston Air Ground Operator.

## Factual Background

The weather at Cranfield was recorded as follows:

031150Z 05012KT 020V080 9999 SCT027 17/11 Q1024=

## Analysis and Investigation

### Oxford Safety Investigation

The CPA occurred at 1159:46, approximately 2NM south of the DTY VOR/DME. The situation display showed the returns of the DA40 and an aircraft on a 7000 squawk merge, with both Mode C readouts indicating A023. No communication on this occurrence had been relayed via the RT, and the ATC watch logs likewise do not reference it.

At the time of this occurrence the Oxford Radar controller had been working in light-to-medium traffic levels and had recently been providing radar vectors to an inbound, IFR, PA30; the controller had also been engaged in co-ordination with the Oxford Tower controller immediately prior to the CPA.

Upon the unit becoming aware of the Airprox, the controller recalled having had numerous aircraft operating on a Basic Service throughout the day but had no recollection of an incident, and nothing had been reported via RT or afterwards via landline. The DA40 pilot had been operating under a Basic Service at the time of the Airprox and, with that in mind, in accordance with CAP774 the pilot should not have expected any form of Traffic Information from a controller and that whether Traffic Information had been provided or not, the pilot remained responsible for collision avoidance. Likewise, even though the controller had access to surveillance-derived information it should be noted again that the DA40 pilot had been operating under a Basic Service and thus the controller had not been required to identify nor monitor the aircraft's flight.

It had been noteworthy that on reviewing the radar replay, the Oxford Radar controller had in fact passed Traffic Information to the crew of the DA40 4min before the CPA of the Airprox in question; the controller having reported on a completely different aircraft which met with no response from the crew of the DA40. This did, however, leave the Oxford safety investigator content that the controller in question had been aware of their responsibility under "Duty of Care" if they see a potential collision risk.

It would appear this Airprox occurred between the DA40 and an aircraft which, at the time, had been unknown to the Oxford Radar controller. The DA40 pilot had been operating under a Basic Service at the time and therefore the controller had not been required to identify this aircraft, monitor the flight or provide Traffic Information. This event had occurred in Class G airspace where ultimately, regardless of the ATS being provided, the pilots are responsible for collision avoidance.

The unknown aircraft pilot had not been in contact with Oxford ATC. The Oxford Radar controller had been engaged with operational phone calls at the time of the CPA. The incident occurred in a position that would be at the extremity of the controller's situation display.

## UKAB Secretariat

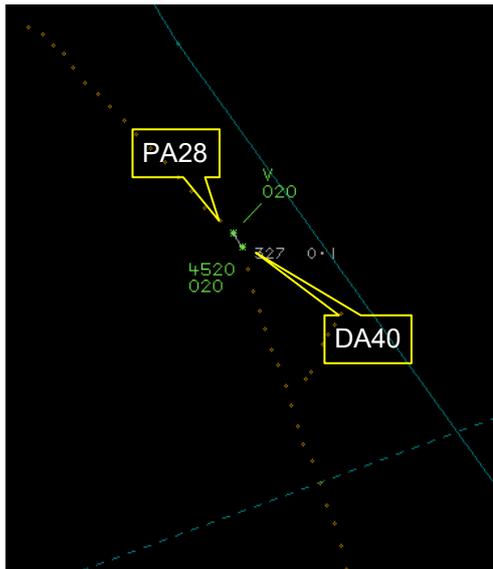


Figure1: CPA – (minus) 1sec.



Figure 2: CPA + 3secs

CPA at 1159:46 0ft V/<0.1NM H

The DA40 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.<sup>1</sup> If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.<sup>2</sup>

## Summary

An Airprox was reported when a DA40 and a PA28 flew into proximity 1NM SSE of the Daventry (DTY) VOR/DME at 1200Z on Saturday 3<sup>rd</sup> of June 2023. Both pilots were operating under VFR in VMC, the DA40 pilot in receipt of a Basic Service from Oxford Approach and the PA28 pilot listening out on the Turweston Radio frequency.

## **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 discussed the event setting; they observed that navigational beacons, such as DTY in this case, are 'magnets' for aircraft both as navigational turning points and as training tools for those involved in relevant activity. Members stressed the need for pilots involved in such activity to keep a good lookout and, where possible, avoid overflight at round numbers in altitude to reduce the likelihood of encountering traffic at the same altitude.

Members then considered the issue of ATC service provision, noting that the PA28 pilot had been monitoring the Turweston frequency, and highlighting the limited value of such a service particularly when distant from that site. They wondered whether a Traffic Service from Oxford might have been a better option, accepting that at that range (from Oxford) and altitude even that may have been of limited value in this case.

Members discussed the actions of the DA40 pilot, noting that they had been operating as VFR traffic and in receipt of a Basic Service whilst conducting Instrument Flight Training. Whilst perfectly entitled to do so, some members wondered whether it would have been more advantageous for the flight to

<sup>1</sup> (UK) SERA.3205 Proximity..

<sup>2</sup> (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.

have been undertaken at a greater altitude and with a radar surveillance-based ATS, such as a Traffic Service. They opined that the Oxford controller had done as much as could have been expected under a Basic Service and at the limits of their situational display (**CF1**).

Members also discussed the lack of interaction between onboard Electronic Warning Systems, noting positively that both aircraft had been equipped with fully operational Mode S transponders, and that the PA28 had been equipped with a TAS unit, however, it had not alerted to the presence of the DA40 (**CF3**). The Board stressed that the carriage and use of interoperable conspicuity equipment is a key factor in the early identification of conflicting traffic in the operating area. Members also recalled the current CAA programme of rebate support for those wishing to commit to the use of such equipment and actively encouraged pilots to take advantage of that facility.<sup>3</sup>

Ultimately, Board members noted the lack of situational awareness available to the two pilots in this case (**CF2**), recognising that with both pilots achieving only very late sightings of the other, the last moment manoeuvre by the DA40 probably avoided a more serious outcome (**CF4**).

When assessing the risk, members considered the reports from both pilots, the radar replay and the Oxford safety investigation. They noted that the separation between the two aircraft had been much reduced and had been described by both pilots as a last moment sighting with only the DA40 pilot having the time to react and that both pilots considered the risk of collision as 'High'. Members agreed that safety had not been assured and accordingly, assigned a Risk Category B to this Airprox (**CF5**).

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

### Contributory Factors:

	2023106			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
<b>Ground Elements</b>				
<b>• Situational Awareness and Action</b>				
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>				
<b>• Situational Awareness of the Conflicting Aircraft and Action</b>				
2	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
<b>• Electronic Warning System Operation and Compliance</b>				
3	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
<b>• See and Avoid</b>				
4	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
<b>• Outcome Events</b>				
5	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	

<sup>3</sup>Information on the CAA electronic conspicuity rebate scheme available at: <https://www.caa.co.uk/general-aviation/aircraft-ownership-and-maintenance/electronic-conspicuity-devices/>

**Degree of Risk:** B.

**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 Oxford controller, offering a Basic Service to the DA40 pilot, was not required to monitor the flight.

**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.

**Electronic Warning System Operation and Compliance** were assessed as **ineffective** because, although the PA28 was equipped with a TAS, it had not detected any signal from the DA40, and the DA40 carried no additional EC equipment which might have detected signals from the PA28.

**See and Avoid** were assessed as **partially effective** because the pilots of both the DA40 and the PA28 managed only (very) late sightings of the other aircraft and only the DA40 pilot reports having manoeuvred to avoid a collision.

Airprox Barrier Assessment: 2023106		Outside Controlled Airspace		Effectiveness				
Barrier		Provision	Application	Barrier Weighting				
				0%	5%	10%	15%	20%
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✓					
	Manning & Equipment	✓	✓					
	Situational Awareness of the Confliction & Action	✓	○					
	Electronic Warning System Operation and Compliance	●	●					
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✓					
	Tactical Planning and Execution	✓	✓					
	Situational Awareness of the Conflicting Aircraft & Action	✗	✓					
	Electronic Warning System Operation and Compliance	⚠	✗					
	See & Avoid	⚠	⚠					
<b>Key:</b>		Full	Partial	None	Not Present/Not Assessable	Not Used		
Provision	✓	⚠	✗	●	○			
Application	✓	⚠	✗	●	○			
Effectiveness								

<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](#).