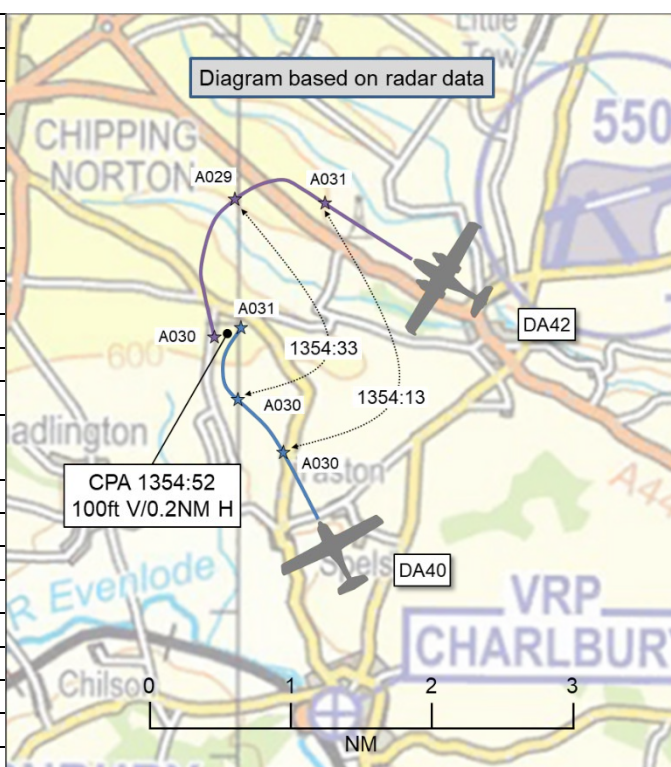


**AIRPROX REPORT No 2022166**

Date: 04 Aug 2022 Time: 1355Z Position: 5155N 00130W Location: 2NM SE Chipping Norton

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	DA40	DA42
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	Traffic
Provider	Oxford Radar	Oxford Radar
Altitude/FL	3100ft	3000ft
Transponder	A, C, S+	A, C, S+
<b>Reported</b>		
Colours	White	White
Lighting	Landing, taxi, position, strobes	Landing, position, strobes
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	3000ft	NK
Altimeter	QNH (1016hPa)	QNH (NK hPa)
Heading	340°	NK
Speed	100kt	NK
ACAS/TAS	Not fitted	TAS
Alert	N/A	None
<b>Separation at CPA</b>		
Reported	<100ft V/<100m H	NK V/NK H
Recorded	100ft V/0.2NM H	



**THE DA40 PILOT** reports that they had departed [departure airfield] and their next waypoint was Charlbury VRP. [They were aware that] a DA42 had carried out a low approach to Oxford RW01 and was heading out to the northwest. They believe that [the DA42 pilot] switched to Radar and was in receipt of a Traffic Service. After going past Charlbury, and switching over to Oxford Radar with a Basic Service, they noticed the twin-engine aircraft moving significantly faster than them, about 3NM off their right wing and overtaking. Coming up to Chipping Norton, they glanced down at their chart to positively identify the town as they were about to start a Navex, and when they looked up they saw [the DA42] in a hard, steep left turn, turning straight for them. They pushed the stick away and to the right to descend underneath all the while [the DA42] carried on turning towards them. They were close enough that they could read [identifying markings] on the side. [The DA42] eventually turned to their right in the same manner as before (with steep turns), and then continued on their original course to the northwest. Having brought the aircraft back to straight-and-level, they requested the DA42's details from Radar, specifically asking for the registration. No extra words were said by [the DA42 pilot] until they requested a frequency change to Gloster Approach. The DA40 pilot opined that the DA42 pilot was looking to manoeuvre over [a noteworthy property].

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

**THE DA42 PILOT** reports that this flight was a routine CPL progress test flown in VMC under VFR. The flight started and finished at [airfield] with circuits flown at Oxford. They cannot make any specific comments regarding this event as they were unaware of anything that happened on this flight that could be regarded as an Airprox event. However, they recalled that once they had completed the circuits at Oxford, there were large numbers of aircraft flying locally and, for a period of time, being in receipt of a Traffic Service from Oxford Radar. They also recalled having visually acquired multiple contacts and

taken their own [avoiding] action against those aircraft. The DA42 pilot opined that “*This was very much a normal day in terms of traffic density in what is a very busy section of Open FIR Class G*”.

**THE OXFORD RADAR CONTROLLER** reports that no record of an occurrence was recorded in the ATC watch log nor had a report been raised by any ATCO.

From what they remember of the incident, one of the aircraft was on a Traffic Service (TS) heading northwest at 3000ft and they think that the other aircraft was on a Basic Service (BS) south of it and behind, indicating 3000ft. They didn't initially pass Traffic Information (TI) as they didn't think there was going to be any conflict, but then the first aircraft started turning back towards the second one so they then passed TI to the first on the second, and duty-of-care TI to the second on the first. They can't recollect what was said by the pilots except that a little later on, the aircraft on the Basic Service [DA40] asked for the registration of the one on the Traffic Service [DA42].

## Factual Background

The weather at Oxford was recorded as follows:

METAR EGTK 041350Z 28008KT 240V320 9999 FEW048 22/07 Q1016

## Analysis and Investigation

### Oxford Airport Unit

[The DA40 pilot] made first-contact on the Oxford Radar frequency at 1350 and the following exchange occurred:

1349:40 DA40: “*Oxford Radar, this is [DA40 callsign], request Basic Service*”.

OXF RAD: “[DA40 callsign], *Oxford Radar, Basic Service, no level restriction*”.

1349:50 DA40: “*Basic Service, [DA40 callsign]*”.

At time 1350, the Oxford Radar controller received the following from the Oxford Tower controller, “[the DA42], *did a touch-and-go at four-nine now leaving the circuit to the north-west*” which was acknowledged by the Oxford Radar controller.

At 1351, [the DA42 pilot] made first-contact with the Oxford Radar controller and the following exchange occurred:

1351:10 DA42: “*Oxford Radar, [DA42 callsign], two-thousand feet, request traffic service*”.

OXF RAD: “[DA42 callsign], *Oxford Radar, squawk four-five-zero-four*”

DA42: “*Four-five-zero-four, [DA42 callsign]*”.

1351:50 OXF RAD: “[DA42 callsign], *identified, traffic service, what's your requested level?*”

DA42: “*Erm, we'll be general handling as we track to the west between altitude two and four thousand feet, [DA42 callsign]*.”

OXF RAD: “[DA42 callsign], *roger, responsible for your own terrain clearance below altitude two-thousand-three-hundred feet.*”

At that point in time, [the DA40] was in [the DA42]'s 9 o'clock position at approximately 2NM range with the aircraft flying on similar but slowly converging tracks, west-northwest bound. [The DA40] Mode C indicated 3000ft and [the DA42] Mode C indicated 2100ft.

At 1353, [the DA42] Mode C readout appeared to level at 3000ft, [the DA40]'s Mode C indication remained at 3000ft. By 1354, [the DA40] had turned onto a more northwesterly heading, converging with [the DA42].

At 1354:20, the Oxford Radar controller passed the following message; “[DA42 callsign], *traffic south of you by one mile, northbound, indicating three-thousand feet*”. This Traffic Information was passed

as [the DA42] commenced a left turn, seemingly into conflict with [the DA40]. The pilot responded with; “[DA42 callsign]”, followed immediately at 1354:30 by, “[DA42 callsign], traffic in sight”. Following this, the Oxford Radar controller identified [the DA40] via Mode S and the following exchange occurred:

1354:40 OXF RAD: “[DA40 callsign], Basic Service but you’ve got traffic just north of you, similar altitude, manoeuvring, keep a good lookout.”

[DA40]: “Yep, visual, he’s turning towards me, [DA40 callsign]”.

The CPA occurred at 1354:[52], with the contacts merging, Mode C of [the DA40] indicating 3000-3100ft and the Mode C of [the DA42] indicating 3000ft. It appears (although is difficult to confirm) that the pilot of [the DA40] turned right in an attempt to avoid. Both aircraft then tracked north-westbound.

At 1356, [the DA40 pilot] asked the controller, “just wanted to get the registration of er of that traffic that was very, very close to me”, the controller responded, “[DA42 registration]” which was acknowledged by the pilot of [the DA40].

On the build-up to this Airprox, the Oxford Radar controller had been operating without the aid of a RAD2/DIR. The ATC watch-log showed that the RAD2 position was opened at 1355 (at approximately the time the Airprox had occurred). Traffic levels were deemed to be medium but the FIR had been busy with multiple unknown non-transponding aircraft and aircraft operating on VFR conspicuity squawks. [The DA40 pilot] was allocated a Basic Service as requested by the pilot and issued with “no level restriction”. When [the DA42 pilot] first made contact with the Oxford Radar controller, a Traffic Service was provided as requested by the pilot. At the time the aircraft was identified and provided with said service, [the DA40] was in [the DA42]’s, 9 o’clock position at approximately 2NM. This would be considered to be relevant traffic in accordance with CAP774 guidance which specifies:

Traffic Information. 3.5. “Traffic is normally considered to be relevant when, in the judgement of the controller, the conflicting aircraft’s observed flight profile indicates that it will pass within 3NM and, where level information is available, 3000ft of the aircraft in receipt of the Traffic Service or its level-band if manoeuvring within a level block.”

These two aircraft were operating within these specified parameters. Traffic Information was eventually passed, however, far later than the CAP774 requirements that specify:

Traffic Information. 3.5. “Controllers shall aim to pass information on relevant traffic before the conflicting aircraft is within 5NM, in order to give the pilot sufficient time to meet his collision avoidance responsibilities and to allow for an update in traffic information if considered necessary.”

The controller did report within their statement that they “*didn’t initially pass TI as I didn’t think there was going to be any conflict but then the first aircraft started turning back towards the second*”. This is arguably in accordance with CAP774 which specifies that:

Traffic Information. 3.5. “However, controllers may also use their judgment to decide on occasions when such traffic is not relevant.”

This discretion is generally considered more akin to “passing behind or within the parameters but diverging” and these two aircraft were both general handing, at similar levels, and could have turned to create a conflict at any time (which is ultimately what occurred).

On discussions with available Unit Assessors it was agreed that Traffic Information should have been passed to [the pilot of the DA42] sooner than it was, ideally when the Traffic Service was first established and updated as necessary thereafter. It was noted that on [the pilot of the DA42] receiving the Traffic Information from the Oxford Radar controller the pilot did report “traffic in sight”, this was approximately one mile from the CPA. The controller was also proactive in firstly identifying,

then passing Traffic Information to [the pilot of the DA40]. Although operating under a Basic Service, the controller was diligent in their duty-of-care, noting the CAP774 guidance that:

Traffic Information. 2.7. “A controller with access to surveillance-derived information shall avoid the routine provision of traffic information on specific aircraft but may use that information to provide a more detailed warning to the pilot. 2.8. If a controller/ FISO considers that a definite risk of collision exists, a warning shall be issued to the pilot (SERA.9005(b)(2) and GM1 SERA.9005(b)(2)).”

After the Traffic Information had been passed to [the DA40 pilot], they were also clearly visual with this aircraft reporting, “*Yep, visual, he’s turning towards me.*”

The provision of Traffic Information passed to the DA42 was later than would have been expected. Traffic Information was eventually passed to [the pilots of] both aircraft and both [pilots] reported each other in sight. This occurred in Class G airspace where ultimately, regardless of the ATS being provided, the pilots are responsible for collision avoidance.

### UKAB Secretariat

An analysis of the NATS radar replay was undertaken and both aircraft could be positively identified from Mode S data (see Figure 1). The diagram was constructed and the CPA measured from the radar replay (see Figure 2).

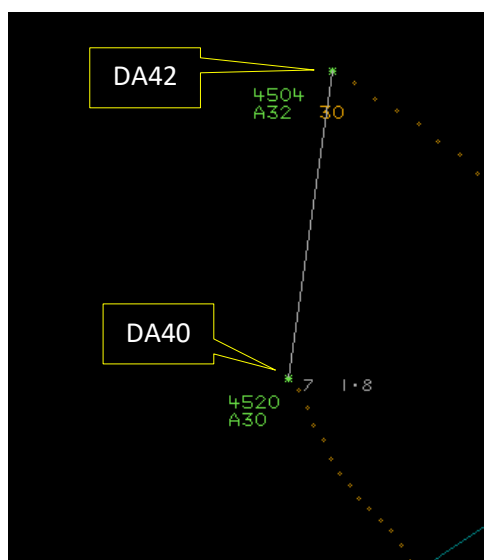


Figure 1 - 1354

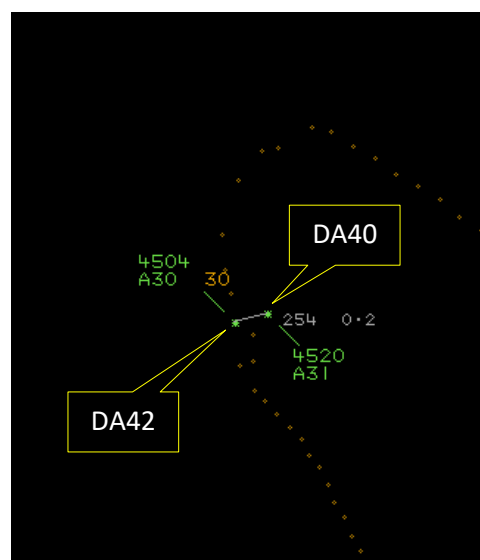


Figure 2 - CPA at 1354:52

The DA40 and DA42 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 DA42 flew into proximity 2NM southeast of Chipping Norton at 1355Z on Thursday 4<sup>th</sup> August 2022. Both pilots were operating under VFR in VMC, the DA40 pilot in receipt of a Basic Service from Oxford Radar and the DA42 pilot in receipt of a Traffic Service from Oxford 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 involved and reports from the appropriate operating authorities. Relevant

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

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

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 DA40. Members wondered why the pilot had elected for a Basic Service when a Traffic Service may have been more suitable. Notwithstanding that, it was noted that the pilot of the DA40 had had awareness of the DA42 routeing in a similar direction and that it had been visually acquired. Members acknowledged that there would have been a 'startle factor' for the pilot to have looked up from an in-cockpit check and to have seen the DA42 in a turn towards them. The controller had passed Traffic Information on the DA42 to the pilot of the DA40 and, despite the late situational awareness that this had provided (**CF5**), the pilot of the DA40 had sighted the DA42 in time for effective avoiding action which had increased separation. Nevertheless, members agreed that the pilot of the DA40 had been concerned by the proximity of the DA42 (**CF8**).

Turning their attention to the actions of the pilot of the DA42, members agreed that, having requested a Traffic Service, it would have been helpful for the pilot to have relayed to the controller their intention to change course significantly; indeed, under a Traffic Service, pilots '...shall not change their general route or manoeuvring area without first advising and obtaining a response from the controller'.<sup>3</sup> Members wished to emphasise the importance of an effective lookout before commencing a turn.

The discussion then turned to the Traffic Information that had been passed to the pilot of the DA42. It was agreed that it would have provided some situational awareness regarding the DA40, albeit later than would have been expected (**CF5**). After further discussion, members wondered why the pilot of the DA42 had continued to turn towards the DA40 after the Traffic Information had been passed and the pilot had acknowledged that the DA40 had been sighted. It was concluded that the pilot of the DA42 had not adapted their dynamic plan (**CF3**) despite situational awareness (**CF4**) and had flown close enough to the DA40 to have caused concern (**CF7**).

In consideration of the performance of the electronic conspicuity equipment involved in this event, members were disappointed that the TAS fitted to the DA42 had not provided an alert to the presence of the DA40 when an alert would have been expected (**CF6**).

The Board next considered the actions of the Oxford Radar controller. The Oxford Unit investigation had concluded that Traffic Information had been passed to the pilots involved later than would have been expected, and members concurred (**CF2**). Referring to the guidance provided in CAP774,<sup>3</sup> members agreed that it would have been reasonable to have expected that relevant Traffic Information be passed on the establishment of the Traffic Service in this instance (**CF1**). However, members were in agreement that Traffic Information on the DA40 had been passed to the pilot of the DA42 moments after their turn had been initiated. Members acknowledged that the controller had also diligently passed Traffic Information to the pilot of the DA40 as a duty-of-care.

When determining the risk, the Board concluded that, whilst safety had been degraded, there had been no risk of collision. As such, the Board assigned a Risk Category C to this event.

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

### Contributory Factors:

	2022166			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
	<b>Ground Elements</b>			
	<b>• Regulations, Processes, Procedures and Compliance</b>			
1	Human Factors	• ATM Regulatory Deviation	An event involving a deviation from an Air Traffic Management Regulation.	Regulations and/or procedures not fully complied with
	<b>• Situational Awareness and Action</b>			
2	Human Factors	• ANS Traffic Information Provision	Provision of ANS traffic information	TI not provided, inaccurate, inadequate, or late

<sup>3</sup> [https://publicapps.caa.co.uk/docs/33/CAP774\\_UK%20FIS\\_Edition%204.pdf](https://publicapps.caa.co.uk/docs/33/CAP774_UK%20FIS_Edition%204.pdf)

Flight Elements				
• Tactical Planning and Execution				
3	Human Factors	• Insufficient Decision/Plan	Events involving flight crew not making a sufficiently detailed decision or plan to meet the needs of the situation	Inadequate plan adaption
• Situational Awareness of the Conflicting Aircraft and Action				
4	Human Factors	• Lack of Action	Events involving flight crew not taking any action at all when they should have done so	Pilot flew close enough to cause concern despite Situational Awareness
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
• Electronic Warning System Operation and Compliance				
6	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
• See and Avoid				
7	Human Factors	• Incorrect Action Selection	Events involving flight crew performing or choosing the wrong course of action	Pilot flew close enough to cause concern
8	Human Factors	• Perception of Visual Information		Pilot was concerned by the proximity of the other aircraft

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:**

**Regulations, Processes, Procedures and Compliance** were assessed as **partially effective** because relevant Traffic Information was passed late to the pilot of the DA42, and not on establishment of a Traffic Service.

**Situational Awareness of the Confliction and Action** were assessed as **partially effective** because Traffic Information on the DA40 was passed to the pilot of the DA42 later than would have been expected given the proximity of the aircraft.

#### **Flight Elements:**

**Tactical Planning and Execution** was assessed as **partially effective** because the pilot of the DA42, having indicated that they had visually acquired the DA40, had not adapted their dynamic plan sufficiently.

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **partially effective** because each pilot had been passed late Traffic Information on the other.

**Electronic Warning System Operation and Compliance** were assessed as **ineffective** because the EC device fitted to the DA42 would have been expected to have detected the presence of the DA40 but no alert was reported. The DA40 was not equipped with any additional EC device.

<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](#).

<b>Airprox Barrier Assessment: 2022166</b>		Outside Controlled Airspace						
<b>Barrier</b>		<b>Provision</b>	<b>Application</b>	<b>Effectiveness</b>				
				<b>Barrier Weighting</b>				
				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>		<u>Full</u>	<u>Partial</u>	<u>None</u>	<u>Not Present/Not Assessable</u>	<u>Not Used</u>		
Provision	✓	⚠	✗	⊘				
Application	✓	⚠	✗	⊘		⊘		
Effectiveness								