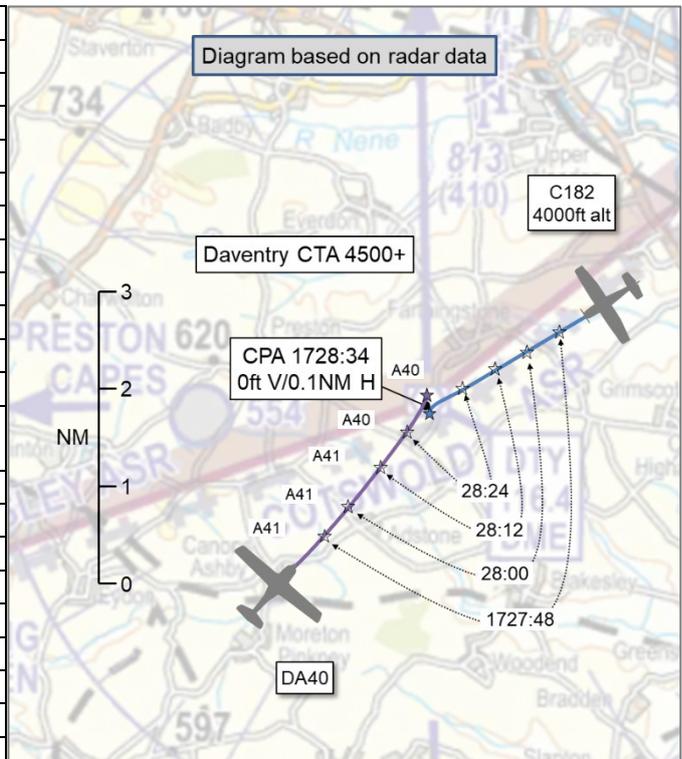


AIRPROX REPORT No 2021184

Date: 16 Sep 2021 Time: 1729Z Position: 5211N 00107W Location: DTY VOR

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C182	DA40
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	VFR
Service	None	Basic
Provider	N/A	Oxford
Altitude/FL	4000ft	4000ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White, blue	White
Lighting	Strobes, anti-coll, nav	Beacon, anti-coll, nav
Conditions	VMC	VMC
Visibility	5-10km	>10km
Altitude/FL	4000ft	3500ft
Altimeter	QNH (1016hPa)	NK
Heading	NK	NK
Speed	130kt	120kt
ACAS/TAS	Not fitted	Not fitted
Separation at CPA		
Reported	0ft V/200m H	200ft V/400m H
Recorded	0ft V/0.1NM (185m) H ¹	



THE C182 INSTRUCTOR reports conducting an instrument training sortie. Flight conditions were poor on the westbound diversion due to the low sun creating a strong glare in the haze. Although METARs reported CAVOK, they estimated the into-sun visibility as 5km. The student was wearing a view limiting device and the aircraft was not equipped with a ‘traffic information system’. Due to this, the instructor was focused mostly on visual lookout. Oxford was operating without radar and Brize LARS was closed, preventing the instructor from requesting a Traffic Service which they would have opted for otherwise. In addition to this, Oxford Airport closed at 1730Z for 30min. Strangely, they could not recall if the event happened just before or just after Oxford Approach closed, but to their best recollection it was just after because they were preparing to call the next station and hence they were not in receipt of an ATS and still on the Approach frequency. The instructor gave the student an inbound radial to DTY to intercept and the intention was that this would be followed by an outbound radial interception. When close to DTY, the instructor noticed a DA40 at the same altitude, opposite direction, left-to-right at an estimated distance of ¼ mile. This was the first sighting, possibly due to the sun’s glare. They immediately took control and made a climbing left turn to increase separation and avoid crossing the other aircraft’s flight path, which passed on the right.

The pilot assessed the risk of collision as ‘Medium’.

THE DA40 INSTRUCTOR reports cruising at 3500ft, they recalled, under IFR. While listening out on the radio and discussing how to conduct the flight with the student, and in between lookout, they missed the aircraft from the right until it was close. They had requested a Traffic Service but were only given a Basic Service due to [controller] workload.

The pilot assessed the risk of collision as ‘Medium’.

¹ Between radar sweeps.

THE OXFORD CONTROLLER reports that they had been working as the APS ATCO for 2 hours when this incident occurred and was in the process of trying to close the position in order to take a 30 minute break before having to plug in for another 2 hours due to staffing issues. They had no recollection of the event because it wasn't reported on frequency.

Factual Background

The weather at Oxford was recorded as follows:

```
METAR EGTK 161750Z NIL=
METAR EGTK 161720Z 23003KT 9999 BKN049 20/13 Q1016=
```

The following NOTAM, amongst others, was issued for Oxford:

```
L4081/21 NOTAMN
Q) EGTG/QFALC/IV/NB0/A /000/999/5150N00119W005
A) EGTK B) 2109161730 C) 2109161800
E) AD CLOSED
```

Analysis and Investigation

CAA ATSI

At 17:17.10 the DA40 pilot called the Oxford Radar controller and requested a Traffic Service at 2500ft. The controller advised that a Traffic service was not available, that this would be a Basic Service and that there was no level restriction. The pilot read back, "copied, Basic Service." The pilot was instructed to squawk 4520.

At 17:21.20 the C182 pilot called the Oxford Radar controller, with information Kilo, QNH1016 and requested a Traffic Service. The controller advised that it would be a Basic Service only. The pilot responded, "Basic Service roger, we're squawking 4520." The controller reminded the pilot that the airfield would be closing in 9 minutes, for a 30-minute controller break. The pilot acknowledged the reminder.

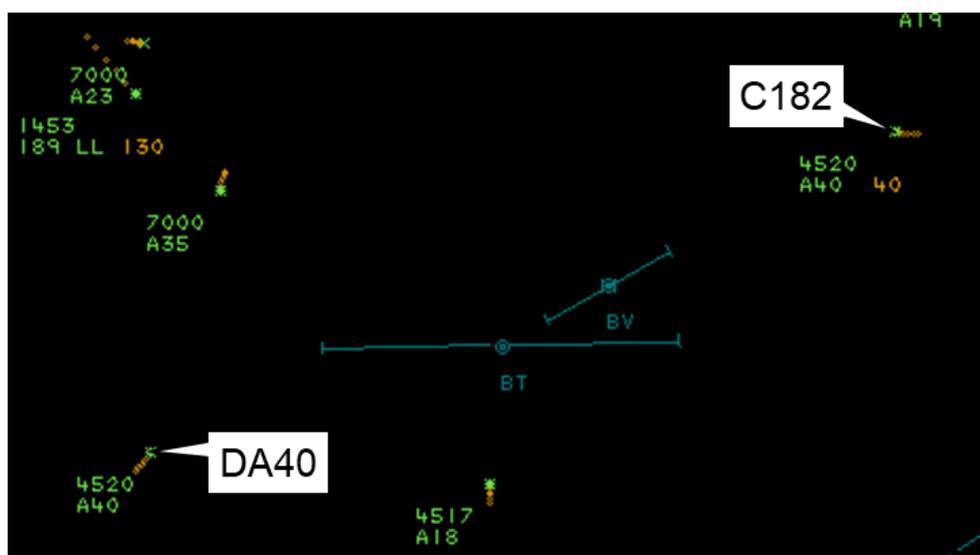


Figure 1 – 17:21.20

Between 17:25.00 – 17:25.50 the controller dealt with the initial RT call from a departing aircraft routing via DTY, and an aircraft leaving the frequency.

Between 17:26.20 - 17:26.50 the pilot of an inbound helicopter made their initial RT call to the controller, and the controller told the pilot to standby. The controller turned their attention to the

departure via DTY and instructed the pilot to call London Control. The pilot of another unrelated aircraft requested a frequency change, and this was approved.

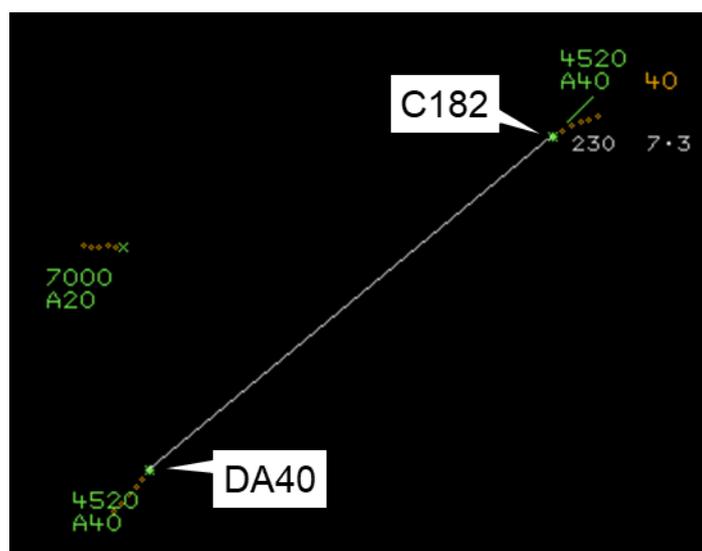


Figure 2 - 17:26.50

Between 17:27.00 - 17:28.00 the controller returned to the pilot of the inbound helicopter and the pilot advised them of their ETA for Oxford. The controller advised the pilot of the imminent closure of the airfield in 3 minutes time, and the pilot advised that they could be at the airfield in 4 minutes. The pilot was instructed to standby. A few seconds later the controller instructed the pilot to squawk 4520, provided the QNH of 1016, and a Basic Service was agreed. The controller asked the pilot for best possible speed inbound, and the pilot agreed.

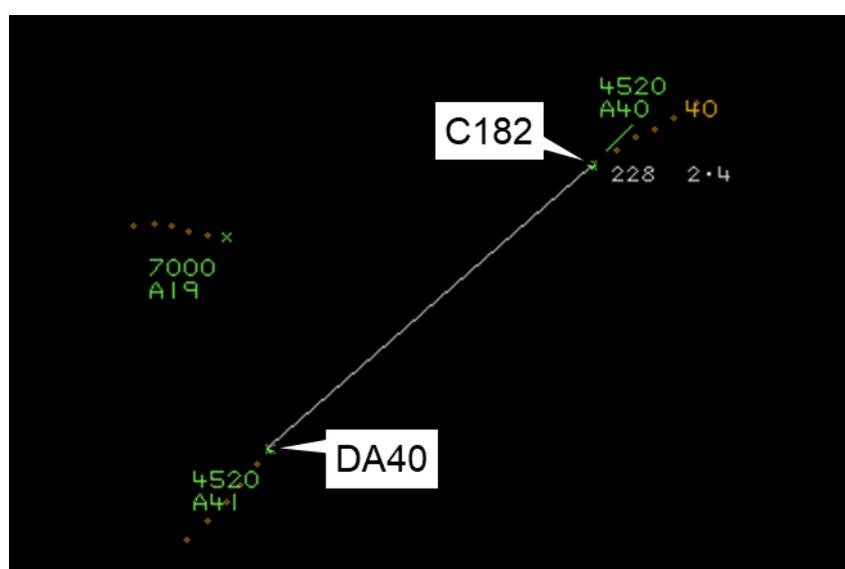


Figure 3 - 17:28.00

Between 17:28.00 - 17:28.40 the C182 pilot advised the controller that they would be looking to come back inbound once the airfield reopened and asked, for training purposes, if it would be acceptable for them to circle around the area 5min prior to re-opening. The controller advised that they didn't mind what the pilot did during the closure period but to be aware that there would be no monitoring available for the 30-minute period. The pilot acknowledged.

CPA occurred at 17:28.31 with both aircraft indicating altitude 4000ft and 0.2NM between the two aircraft.

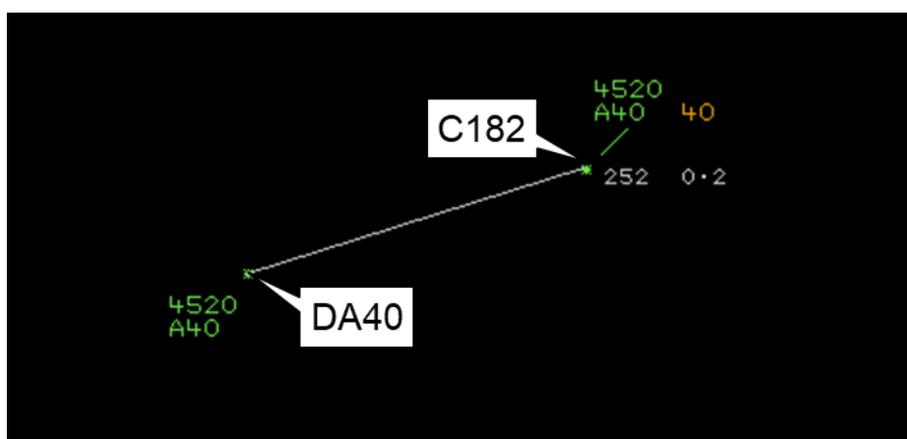


Figure 4 – 17:28.31 CPA

At 17:29.30 the inbound helicopter pilot was transferred to the TWR frequency.

At 17:29.50 the Radar controller made a general broadcast that the airfield was now closed for 30 minutes.

Analysis

When the DA40 pilot made initial contact with the controller, they advised that they were at altitude 2500ft and a Basic Service was agreed. The pilot subsequently climbed to an indicated FL40. Whilst the pilot is not required to report level changes to the controller under the terms of a Basic Service, it is useful information for the controller to have, in terms of annotating the aircraft altitude on the flight progress strip, and this potentially acting as a prompt for the controller that they have 2 aircraft operating at the same level.

When the C182 pilot made initial contact with the controller they did not advise the controller of the level or level band that they planned to operate at or within. Again, it is not a requirement for the pilot to pass this information to the controller under the terms of a Basic Service, but it is useful as described above.

The pilots of both aircraft were being provided with a Basic Service at the time of the Airprox and as such the controller was not required to monitor the flight.

CAP 774 states:

'If a controller/ FISO considers that a definite risk of collision exists, a warning shall be issued to the pilot ((UK) SERA.9005(b)(2) and GM1 (UK) SERA.9005(b)(2))'

And

'Whether traffic information has been provided or not, the pilot remains responsible for collision avoidance without assistance from the controller'

Conclusion

The RTF loading increased significantly in the few minutes leading up to the Airprox, and the content of the calls were primarily based around the imminent closure of the service, to facilitate a controller SRATCOH break (due to reduced staffing levels). This may potentially have contributed to the controller not identifying that a risk of collision existed between the C182 and the DA40.

UKAB Secretariat

The C182 and DA40 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

² (UK) SERA.3205 Proximity.

considered as head-on or nearly so then both pilots were required to turn to the right.³ If the incident geometry is considered as converging then the DA40 pilot was required to give way to the C182.⁴

Regulation effective at the date of the Airprox states that the purpose of the Scheme for Regulation of Air Traffic Controllers' Hours (SRATCOH)⁵ is as follows:

The purpose of SRATCOH is to ensure, so far as is reasonably possible, that controller fatigue does not endanger aircraft and thereby to assist controllers to provide a safe and effective service. In all cases the management of controller rostering should be sympathetic to this purpose and where there is any doubt as to the application of these regulations guidance should be sought from the appropriate Principal Inspector (ATM).

The section titled 'Breaks in Operational Duty' states:

No operational duty shall exceed a period of two hours without there being taken during, or at the end of, that period a break or breaks totalling not less than 30 minutes during which period a controller does not exercise the privileges of their licence.

[UKAB Note: The regulations concerning SRATCOH have since been updated⁶]

Oxford Airport Investigation

Following receipt of notification of the Airprox which occurred some days after the event, the initial investigation was undertaken. The Watch logs were reviewed but there was no record of an Airprox in them, the controller involved was on leave and out of the country. The RTF recording and the surveillance were reviewed and the controller was interviewed on return from leave.

Background

Oxford Airport had not been made aware of an Airprox that was alleged to have occurred on 16 September 2021. The first Oxford was made aware of the incident was when an email arrived from the Airprox Board Reference: 2021184 on 5 October 2021. On initial check of the Watch Logs, nothing had been reported to Oxford. In addition, the controller who had been on duty in radar was abroad on annual leave and was not due to return until 14 October 2021; this return was further delayed owing to illness.

Once the controller was back on duty, an interview took place and the controller was asked to complete a report on Centrik (a tool used for Safety Reporting). It was evident that there was no recollection of this incident but the situation regarding the period which led to a Scheme for the Regulation of Air Traffic Controllers' Hours (SRATCOH) breach was recalled as the controller made a comment within the Centrik report Section 'ATS Other details' under 'Reporter's Suggestions for Mitigation or Corrective Action:' "Don't make ATCOs work to the extreme limits in busy traffic situations when short staffed and without appropriate admin support". Management do not make controllers work to extreme limits. It is an internal Watch decision for time on console and breaks throughout the day to meet SRATCOH and where Oxford traffic levels were considered to be too high restrictions could have been placed to reduce the traffic. Unfortunately, Oxford has no control over aircraft contacting Oxford Radar nor delayed inbound aircraft (which could have been told to hold off) or of a shortage of controllers due to sickness that has to be managed. [It was] believe[d] that the correct decision was made to accept [an] S76 despite the impact being a SRATCOH breach for the Tower controller, where fatigue was not an issue, of 4 minutes.

The Airprox Board, Oxford CAA Inspector, and the Airprox Inspector were advised of the situation regarding the incident and the non-availability of the controller, and their initial questions, where an

³ (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.

⁴ (UK) SERA.3210 Right-of-way (c)(2) Converging.

⁵ CAP670 Air Traffic Services Safety Requirements, Third Issue, Amendment 1/2019, 1 June 2019, Effective 1 August 2019, Part D Human Resources, Part 2.

⁶ Supplementary Amendment CAP670 Air Traffic Services Safety Requirements, issued 22nd February 2022 and ORS9 Decision 6.

answer was available, answered. In addition, the media concerning the incident was impounded and, as requested, forwarded to the 'ATS Investigator, Transcription Unit'.

Initial UA/UTO Review

The events were reviewed via veristore with a brief listen to the VCS conversations and RTF and a review of the surveillance recording.

At the time of the Airprox, radar was still open but was in the process of closing (radar was closed at 17:30). An IFR departure had just been transferred to London and [S76 C/S] had just called inbound; [S76 C/S] would not arrive in time for the planned closure of radar. [C182 C/S] then called with a message and the Oxford Radar controller was having an RTF exchange with that aircraft around the reported time of the Airprox; the veristore recording showed that at the time of the RTF exchange with [C182 C/S] that there was opposite direction aircraft at the same level of 4,000ft. No Traffic Information was passed but this is not required under a Basic Service, the aircraft may not have been identified. There was also another aircraft showing in the vicinity at 2000ft.

From the recording, the UA could not understand why the SERA requirement "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))." was not met in this instance owing to the proximity of the aircraft as the surveillance recording clearly showed there was a conflict; therefore, the UA had an initial concern over Provisional Inability. The controller was planned to return to duty following leave on Sunday 14th October 2021 however this was delayed owing to illness. Once the controller returned to duty, it was explained that both aircraft were on a Basic Service and had not been identified and owing to other priorities to do with preparation for the SRATCOH closure, the situation had not been observed by the controller nor was the Airprox reported by the aircraft pilot.

There were a lot of Human Factors at play as both the Oxford Radar and Tower controllers were concerned about breaching SRATCOH with the late arrival of [S76 C/S] just prior to the planned closure time. The breaching of SRATCOH by a few minutes should not cause such angst unless there were definite fatigue issues which were not evident from the SRG1410 report.

USO Investigation

This Airprox occurred during medium traffic levels. The Oxford Radar controller was operating without the aid of RAD2 on frequency 125.090. Due to staffing issues there was a planned/NOTAM'd aerodrome closure between 17:30 and 18:00 UTC to allow for a controller SRATCOH break.

[DA40 C/S] was conducting a VFR flight from Oxford to Oxford and operating under a Basic Service from Oxford Radar (See Attachment: DA40 FPS).

#777	Thu 16/09:APC (ACR_1 161648)								
	IFR VER	DA40/L			315		NX/27	TS	89
1644	17 13	DA40 C/S	DTY		2.5			RW:	
issue/1			EGTK					Q:	

DA40 FPS

At time 17:27 UTC the following exchange occurred between [DA40 C/S] and the Oxford Radar controller:

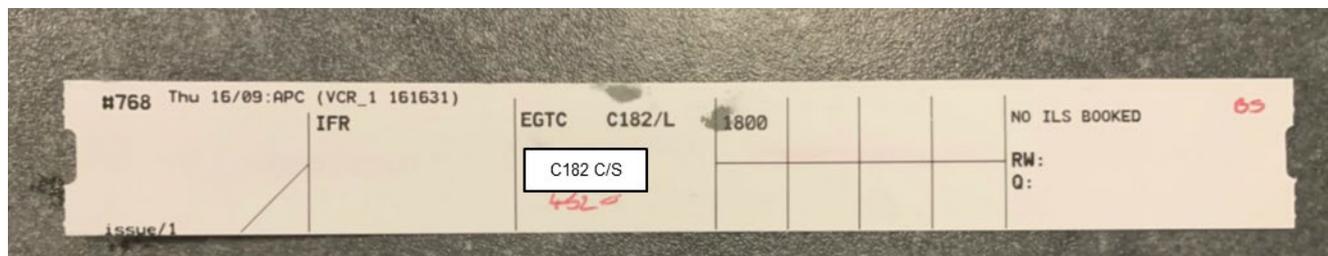
17:27: DA40: Er, [DA40 C/S] request frequency change to er East Midlands radar one-two-three er correction one-three-four-decimal-one-eight-zero

17:27: OXF RAD: [DA40 C/S], squawk conspicuity, free-call East Midlands

17:27: DA40: Squawk conspicuity, free-call East Mids, [DA40 C/S]

The radar replay shows that despite the pilot reading back, “squawk conspicuity”, the aircraft continued to squawk the Oxford conspicuity code of 4520.

[C182 C/S] was booked in IFR from Cranfield (See Attachment: C182 FPS) and first made contact with Oxford radar at 17:21 UTC whereby the following exchange occurred:



C182 FPS

17:21: C182: Oxford Radar, hello, [C182 C/S], information Kilo, Q-N-H One-Zero-One-Six, request traffic service

17:21: OXF RAD: [C182 C/S], Oxford Radar, good evening, negative traffic service, it's a basic service only

17:21: C182: Basic Service then, [C182 C/S], we're squawking four-five-two-zero

17:21: OXF RAD: Roger and just a reminder that the airfield is closing in nine minutes time for a thirty-minute break for a controller break. That's nine minutes time.

17:21: C182: Roger, that's copied, [C182 C/S]

The two aircraft can be seen from the Radar Replay to continue on converging tracks (seemingly tracking towards the DTY VOR) with both Mode C readouts indicating 4000ft. Just prior to the CPA the following exchange occurred between [C182 C/S] and the Oxford Radar controller:

17:28: C182: And Oxford Approach, [C182 C/S]

17:28: OXF RAD: [C182 C/S], pass your message

17:28: C182: [C182 C/S] [INAUDIBLE], looking to come back inbound once you reopen, would you be happy with us circling around five miles just prior to reopening?

17:28: OXF RAD: [C182 C/S], I really don't mind what you do, there won't be any monitoring at all though.

17:28: C182: Roger, [C182 C/S]

The CPA occurred at approximately 17:29 over the DTY VOR (See Attachment: C182 vs DA40 CPA).



C182 vs DA40 CPA

The Airprox was not reported by either pilot via RTF and the unit first became aware of it some weeks later at the request of the UK Airprox board.

Analysis

As can be seen from the above, [DA40 C/S] had not been in receipt of a service from Oxford Radar at the time of the Airprox. The pilot had previously been in receipt of a Basic Service from Oxford Radar but had left the frequency two minutes prior to the CPA. The pilot had reported changing frequency to East Midlands but at the time of the CPA was still squawking the Oxford conspicuity squawk of 4520 despite acknowledging an instruction from Oxford ATC to “squawk conspicuity” on leaving the Oxford Radar frequency.

[C182 C/S] first came onto the Oxford Radar frequency at time 17:21 UTC, the PIC initially requested a traffic service from Oxford Radar. This was declined by the Oxford Radar controller, instead the pilot was allocated a basic service (which was read back by the pilot) and reminded that the aerodrome was scheduled to close at 17:30 for 30 minutes to allow for a controller break.

When this controller was questioned by a UA/UTO post event as to why a Traffic Service was declined they replied stating that several aircraft called for a Traffic Service but were denied in order to ease the cessation of ATS services for the SRATCOH break.

It was, however, similarly noted the request for Traffic Service came at time 17:21 UTC. As per the Oxford Airport entry in the UK AIP, radar services are only provided between 07:00-17:00 UTC (UK

Likewise traffic information in general terms was not passed, in consultation with UA's it was agreed that traffic information in general terms may have been helpful in this instance, especially considering there were at least two other aircraft in the vicinity of DTY surrounding this time period. This was reiterated (albeit aligned to gliding activity) in the Oxford UA bulletin 2021-02 (GEN 2021/024), "where a controller/FISO has information that indicates that there is aerial activity in a particular location that may affect a flight, in so far as it is practical, they should provide traffic information in general terms to assist with the pilot's situational awareness. This will not normally be updated by the controller/FISO unless the situation has changed markedly, or the pilot requests an update." (CAP774, Chapter 2)

Conclusion

On the 16th September, 2021 an Airprox occurred between a DA40 and a C182, the C182 was in receipt of a Basic Service from Oxford Radar and the DA40 had recently left the Oxford Radar frequency but had been in receipt of a Basic Service from the Oxford Radar Controller. This occurred in Class G airspace where ultimately, regardless of the ATS being provided, the pilots are responsible for collision avoidance. 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.

PROBLEM STATEMENT:

Two aircraft flew in such proximity that a pilot on board felt safety of the aircraft involved may have been compromised. Airprox occurrences have the potential to lead to a MAC and subsequent loss of life.

DIRECT CAUSE:

Aircraft operated in such proximity to each other as to create the collision hazard.

CAUSAL FACTORS:

Flight instruction was taking place on board aircraft and thus attention was shared between this and maintaining an adequate lookout.

A Traffic Service was unavailable from Oxford Radar despite being requested by the pilot of the C182.

Significant pressure on controller to close the control position/aerodrome in order to remain SRATCOH compliant.

High traffic levels experienced in the time immediately preceding planned aerodrome closure/distraction surrounding an inbound S76 who planned to land during a planned aerodrome closure.

CONTRIBUTING FACTORS:

Due reduced staffing levels, the Oxford Radar controller was operating up to the maximum two hour limit permissible under SRATCOH regulations.

Distraction of pending aerodrome closures.

The DA40 was not in receipt of a service from Oxford at the time of the Airprox.

No TAS fitted within either aircraft limiting pilots SA.

Relatively busy FIR – At the point of the CPA between these two aircraft at 4000ft there was a third contact in the vicinity also, albeit indicating 1900ft squawking 7000.

ROOT CAUSE STATEMENT:

Situational awareness downgraded to the point whereby sighting of conflicting aircraft was so late that an Airprox occurred.

Comments

AOPA

It is heartening to see the pilots requesting an appropriate service. Although refused, it would be considered advisable to give altitude and heading changes to ATC especially during instrument training. Pilots are advised when refused an ATC service to complete an online FCS 1522.

It is unfortunate that in a bid to achieve safety (SRATCOH), a safety event occurred.

Summary

An Airprox was reported when a Cessna C182 and a Diamond DA40 flew into proximity at the Daventry VOR at 1729Z on Thursday 16th September 2021. Both pilots were operating under IFR in VMC, the C182 pilot not in receipt of a FIS and the DA40 pilot in receipt of a Basic Service from Oxford.

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 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.

Members first discussed the ground elements of the Airprox and noted that illness had imposed a staffing restriction on the Oxford controllers [CF1]. Given that they are required under regulation to limit working hours, the controller had no choice but to close the position and so could not offer the requested Traffic Service [CF3]. Whilst this removed a valuable barrier to MAC, or indeed Airprox, both pilots were operating in Class G airspace, which does not require a surveillance-based service or in fact any service at all. The Board noted that this underlined the premiss of safe operation in Class G being an effective lookout. In the event, the controller was not required to monitor the aircrafts' flight paths [CF2] and the Board thought it unfortunate but understandable that their converging flight paths were missed due to the workload imposed by late traffic and closing the position.

Turning to the instructors' actions, it was evident that a combination of poor into-sun visibility and IF monitoring and teaching had resulted in a late sighting by the C182 instructor and a sighting at about CPA, effectively a non-sighting, by the DA40 instructor [CF6]. The Board noted that neither pilot had situational awareness of their converging flight paths [CF5] and noted that neither aircraft was equipped with an EC device; members felt that it would be appropriate for commercial flight schools to equip their aircraft with some form of EC. Finally, the Board noted that although the DA40 pilot reported being at 3500ft, the correct level for VFR flight on their heading, they were in fact at 4000ft, which put them in to conflict with the C182, flying at the correct level for IFR flight on their heading. Members felt that this action contributed to the Airprox and that had the DA40 pilot observed at least the spirit of the semi-circular rule the Airprox would not have occurred [CF4].

The Board then considered the risk of collision. Although both pilots reported their assessment of risk of collision as 'Medium', members felt that the combination of late sightings and the radar separation at CPA was such that safety had been much reduced [CF7]. Lastly, members commented that the Oxford safety investigation was comprehensive, thorough and unflinching and of great assistance to the analysis of the Airprox. The Board commended Oxford for the quality of their safety investigation report and hoped that other ANSPs would use it as a benchmark of quality.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021184			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification

Ground Elements				
• Manning and Equipment				
1	Organisational	• ATM Staffing and Scheduling	An event related to the planning and scheduling of ATM personnel	
• Situational Awareness and Action				
2	Contextual	• ANS Flight Information Provision	Provision of ANS flight information	The ATCO/FISO was not required to monitor the flight under a Basic Service
3	Contextual	• ATM Service Effects	An event affecting Air Traffic Management operations.	Controller not able to provide requested ATS
Flight Elements				
• Tactical Planning and Execution				
4	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
• Situational Awareness of the Conflicting Aircraft and Action				
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
• See and Avoid				
6	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				
7	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.

Recommendation: Nil.

Safety Barrier Assessment⁷

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Ground Elements:

Manning and Equipment were assessed as **partially effective** because the ATC staffing level was reduced due to illness.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **not used** because neither pilot was in receipt of a service that required the controller to monitor their position.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the DA40 pilot, operating under VFR, elected to transit at an inappropriate level for their heading.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot was aware of the proximity of the other aircraft until sighted.

⁷ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

See and Avoid were assessed as **partially effective** because the C182 pilot saw the DA40 late, but with sufficient time to be able to take emergency avoiding action, and the DA40 pilot only saw the C182 at about CPA, effectively a non-sighting.

Airprox Barrier Assessment: 2021184		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	⚠	⚠					
Key:		Full	Partial	None	Not Present/Not Assessable	Not Used		
Provision	✓	⚠	✗	⊖				
Application	✓	⚠	✗	⊖	○			
Effectiveness								