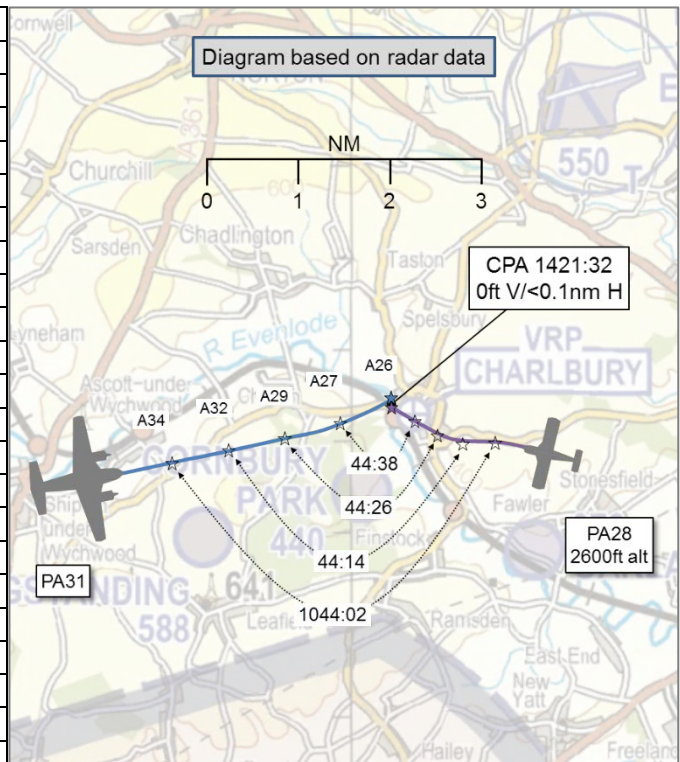


AIRPROX REPORT No 2019163

Date: 22 Jun 2019 Time: 1046Z Position: 5152N 00129W Location: 8nm NW Oxford airport

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	PA31	PA28
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Traffic	Basic
Provider	Oxford	Oxford
Altitude/FL	2600ft	2600ft
Transponder	A/C/S	A/C/S
Reported		Not reported
Colours	White/blue	
Lighting	Nav, tail beacon	
Conditions	VMC	
Visibility	>10km	
Altitude/FL	2700ft	
Altimeter	QNH	
Heading	090°	
Speed	160kt	
ACAS/TAS	Not fitted	Not fitted
Separation		
Reported	0ft V/600m H	NK
Recorded	0ft V/<0.1nm H	



THE PA31 PILOT reports that he received Traffic Information from Oxford Radar about opposite traffic while descending from 3000ft to 2300ft. He looked ahead but had no contact. He reported not in sight with the traffic. He received direction to turn 20° to the left (070°) he thought, in order to avoid and he turned immediately. The CM2 scanned the airspace ahead and both of them spotted conflicting traffic simultaneously well ahead in a left turn. Because he was prepared for a right turn but with no available distance, he turned his aircraft to the left to rollout northwest-bound.

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

THE PA28 INSTRUCTOR chose not to participate in the Airprox process.

THE OXFORD RADAR CONTROLLER reports that he was operating with high traffic intensity in good weather. The PA31 pilot was returning to Oxford from the west from a high-level survey flight in receipt of a Traffic Service. The PA28 pilot was departing to the west under a Basic Service. The PA31 pilot was recovering for a right-base join and Traffic Information was passed on the PA28 at a range of 6nm. Reciprocal Traffic Information was passed to the PA28 pilot on the PA31. As the situation developed and he assessed the respective rates of climb and descent from the Mode C of each aircraft, he identified a potential collision risk and, at a range of 3nm, he suggested a turn to the left for the PA31 pilot of 30°. The aircraft read back 20° but with 2.5nm between the aircraft he considered the need to reiterate the additional 10° was not relevant because the turn left would keep the PA31 clear of the PA28 which was right of it's 12 o'clock position. With about 1nm to run the PA28 pilot turned sharply to the right into a last-minute conflict with the PA31. In subsequent conversations with both pilots he discovered that the PA31 pilot saw the PA28 at the very last minute whilst already in the turn. The PA28 pilot confirmed that the instructor had the PA31 in sight and had informed the student (on a navigation exercise) not to turn at the nav-point. Sadly the student failed to comply and turned right into direct conflict with the PA31. When the controller asked the instructor how close it was, they replied pretty close. Neither aircraft were fitted with any form of ACAS. The event took place during a morning period

of sustained traffic loading with split radar tasks and only 2 radar controllers on duty. Following a period of poor weather, the day in question was the first good weekend flying day for several weeks and there was a surge in general aviation flying from both Oxford-based and transit aircraft. His colleague in radar had been validated just 2 days earlier and he was mindful of the risks associated with overloading this ab-initio radar controller in the unprecedented traffic levels. On the day in question, ATC handled circa 250 movements including 89 transits. The event took place during a period of a breach of the Regulation of Air Traffic Controllers Hours (SRATCOH), which has been filed separately, and a manning deficiency of 1 x ATCO and 1 x ATCA. A fatigue report had been filed within unit SMS reporting.

Factual Background

The weather at Oxford was recorded as follows:

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METAR EGTK 221020Z 17008KT 9999 FEW025 19/07 Q1021=
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Analysis and Investigation

CAA ATSI

The PA31, (transpondering 4510), was returning to Oxford from the west, VFR, after completion of a survey task and the pilot was in receipt of a Traffic Service from Oxford Radar. The PA28, (transpondering 4520), had departed Oxford, VFR, on a north-westerly track and the pilot was in receipt of a Basic Service, also from Oxford Radar.

The Oxford R/T was busy throughout the period leading up to the incident. The controller reported that the event occurred during a period where they had breached the 2-hour limit on their operational hours, and that they had done so due to concerns that the only other rostered Radar controller had qualified 2 days before and that they were concerned that this controller may become overloaded with what they described as unprecedented traffic levels. The controller reported that they had filed a fatigue report after the event.

In the interests of brevity only those aircraft having a direct effect on the Airprox event have been included in this report. All screenshots have been taken from the Area Radar and are not necessarily an accurate representation of what was observed on the Oxford Radar display.

At 1039:00, the PA31 pilot passed their details to the controller. The controller advised the pilot that they were identified, and a Traffic Service was agreed. The pilot was instructed to descend to altitude 5000ft, QNH 1021hPa and the controller asked what type of join the pilot would like. The pilot advised that they would like *“a righthand base for a visual RW19”*. The pilot was instructed to *“continue on your heading, standby for further descent”*. Ambiguity existed as to whether this meant that the pilot required an instrument approach, with a view to converting to a visual approach at a later stage, or whether the pilot wished a right base VFR join for RW19. However, the usual R/T exchange advising which type of instrument approach the pilot could expect to be vectored for did not take place and the pilot subsequently conducted a right-base VFR join.

After the above R/T exchange, the PA31 pilot was instructed to continue on their present heading and standby for further descent. This effectively locked the pilot on a heading.

At 1041:00, the PA31 pilot was instructed to descend to altitude 3000ft.

At 1041:30 (Figure 1), the PA28 pilot reported on the frequency and a Basic Service was agreed. Traffic Information was passed on an unrelated helicopter that planned to route through the overhead at 2000ft. The controller advised the PA28 pilot that they would pass well clear of this traffic and that there was no level restriction against this traffic. The pilot advised that they had copied the traffic and read back *“no level restriction”*.



Figure 1- 1041:30.

At 1043:50 (Figure 2), the PA31 pilot was instructed to descend to altitude 2300ft and the controller advised the pilot of “*traffic right one o’clock, range of six miles, tracking toward you, indicating 2700 feet*”. The pilot responded, “*traffic copied, descend to altitude 2300 feet*” and then advised that they had the field in sight. The controller then passed Traffic Information to the pilot of the PA28 advising them “*traffic five miles to your west routeing towards you passing through 3900 feet to descend below you is a PA31*”. The pilot responded that they were looking for the traffic.

With the PA31 pilot still locked on the same heading and now in conflict with the PA28, the pilot was given descent clearance to altitude 2300ft. This descent would take the aircraft through the level of the PA28 before the PA31 pilot had been made aware of the presence of the PA28 and the PA28 pilot made aware of the presence of the PA31.



Figure 2 – 1043:50.

At 1044:30 (Figure 3), the controller instructed the PA31 pilot “*turn left 30 degrees just to pass clear of the P28A*”. The pilot responded, “*left 20 degrees [C/S] we are negative on the traffic*”. The controller advised “*(unintelligible word) will keep you clear, he’s on your right*” The pilot responded, “*OK thanks*”. The controller expanded on the information and said, “*as he turns toward you*”. The instruction given to the PA31 pilot to turn left 30° to avoid the PA28 was at odds with action the pilots may find necessary to take under the Rules of the Air for the avoidance of collisions i.e. when traffic is head-on both pilots are required to alter course to the right.

The controller then asked the PA28 pilot, “*do you have the PA31 in sight, one mile to your west, 100 feet above*”. The PA28 pilot did not have time to respond before the PA31 pilot advised the controller that they had turned to the north to avoid the traffic and the controller advised the pilot that the PA28

had also turned to the north. The controller then asked the PA28 pilot again if they got the PA31 in sight and the pilot responded, “*yeah we got him, and we turned*”.

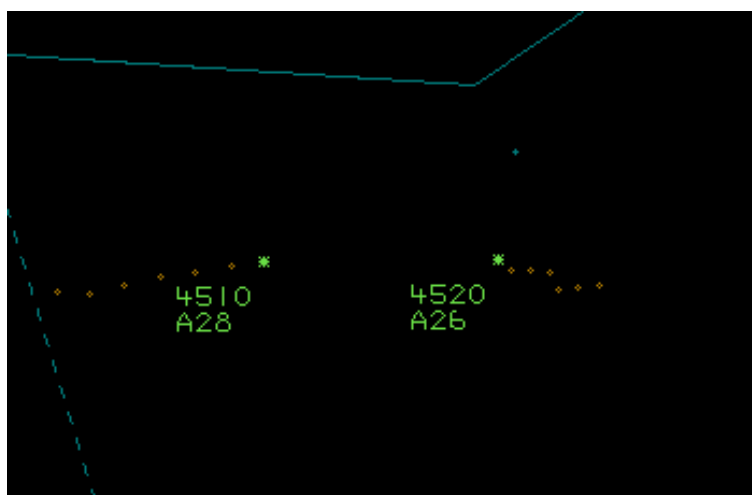


Figure 3 – 1044.30.

CPA took place at 1044:50 (Figure 4), with the aircraft separated by <math><0.1\text{nm}</math> laterally and 0ft vertically.

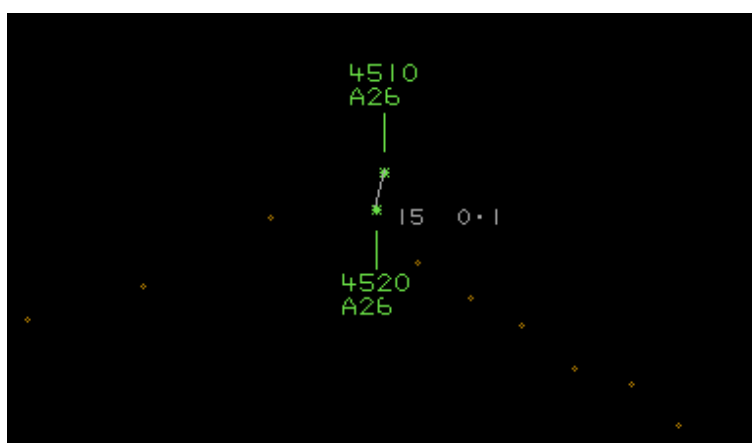


Figure 4 – 1044.50 CPA.

In summary, the controller locked the PA31 pilot on a heading that subsequently brought the aircraft into conflict with the PA28 and, subsequently, issued descent instructions that would result in the PA31 having to pass through the level of the PA28. The subsequent instruction to the PA31 pilot to turn left to avoid, further exacerbated the situation.

Oxford ATSU Investigation Report

Traffic was called in accordance with the requirements of a Traffic Service by the controller. When he perceived that a risk of collision still existed, he gave a turn to avoid. The controller acted appropriately under his duty of care and could not have predicted the actions of the PA28 pilot.

UKAB Secretariat

The PA31 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 hazard¹. If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right².

¹ SERA.3205 Proximity.

² SERA.3210 Right-of-way (c)(1) Approaching head-on.

Summary

An Airprox was reported when a PA31 and a PA28 flew into proximity to the West of Oxford at 1046hrs on Saturday 22nd June 2019. Both pilots were operating under VFR, the PA31 pilot in receipt of a Traffic Service and the PA28 pilot in receipt of a Basic Service, both from Oxford Radar.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots, the controllers, area radar and RTF recordings and reports from the appropriate ATC and 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.

The Board was disappointed that the PA28 pilot had chosen not to engage in the process because this meant that they could not allow for his perceptions when coming to their conclusions. Notwithstanding, members felt that there was sufficient information available from the other reports, including his reported comments to the controller subsequent to the Airprox, with which to come to a conclusion.

The Board first discussed the actions of the PA28 pilots. Although not filing a report, the PA28 pilot had discussed the incident with ATC subsequent to the Airprox and members noted that he had reportedly said that he had been carrying out a training flight, had been visual with the PA31 on his right ahead, and had instructed his student not to turn right at the upcoming nav-point. However, his student did not comply with this instruction and turned the aircraft right towards the PA31. GA members wondered why the instructor had not then taken over immediate control of the aircraft and stopped the aircraft turning (**CF6/CF7/CF8**). As a result, the Board considered that, despite the PA28 pilot having visual contact with the PA31, this lack of action had resulted in the aircraft flying into conflict with the PA31 (**CF9**).

Meanwhile, the PA31 pilot had advised the controller that he wanted a right-hand base for a visual approach to RW19 and was then instructed to continue on his present heading. Shortly afterwards he was instructed to descend to 3000ft and, about 2mins later, further descent was issued to 2300ft. Traffic Information was passed to the PA31 pilot about the PA28, being in his one o'clock at a range of 6nm tracking towards him at 2700ft. Reciprocal Traffic Information was then passed to the PA28 pilot, informing him that the PA31 was at 5nm, passing 3900ft and descending through his level. Having turned left through 20° on the advice of the controller, the PA31 pilot could reasonably have expected that the controller had applied sufficient separation and it was simply unfortunate that they had both been caught out by the PA28 pilot's turn towards the PA31. The Board noted that when aircraft are head on, then both pilots were required to turn right to avoid collisions; although understanding why the PA31 pilot had taken the left turn instructed by the controller because he did not have visual contact with the PA28, some members commented that he could have queried that instruction (**CF5**).

Turning to the actions of the Oxford Radar controller, the Board noted that he had reported that there had been a shortage of controllers rostered for the shift (**CF2**). It had been a busy period and, because the other Radar controller had only recently validated, he had not felt he could allow him to take over the traffic single-handed. Consequently, he had decided to continue in position beyond the time scheduled for a SRATCOH break (**CF1**), and some members wondered whether this had meant that the controller may not have been operating at peak performance. Although both aircraft were VFR at the time, the Board considered that the controller's decision to descend the PA31 pilot through the level of the PA28 at a range of about 6nm had contributed to the conflict (**CF4**). Shortly afterwards it appeared that the controller realised the close proximity of the two aircraft and decided to instruct the PA31 pilot to turn left 30°. Civil controllers considered that it was not a normal occurrence, when providing a Traffic Service, for a controller to pass an instruction to turn; usually a controller would only suggest appropriate action for the pilot to take. The controller had stated in his report that he had 'suggested' a left turn to the PA31 pilot and the Board wondered if that had been his intention but, due to the traffic situation and workload, he had transmitted the turn instruction unintentionally. Having passed the turn instruction he noted that the PA28 pilot had then unexpectedly turned right towards the PA31 and so the avoiding turn issued to the PA31 pilot did not resolve the confliction (**CF3**).

The Board then debated the risk within this incident. Some members commented that because both pilots had been aware of the presence of the other aircraft and had obtained visual contact, albeit at a late stage for the PA31 pilot, they considered that there had not been a risk of a collision. However, the majority of members considered that, although both were visual, the two aircraft had come within very close proximity to each other and that safety margins had, therefore, been much reduced below the norm. Accordingly, the Board assessed the risk as Category B.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2019163		i#proxairprox	
CF	Factor	Description	Amplification
Ground Elements			
• Regulations, Processes, Procedures and Compliance			
1	Human Factors	• ATM Regulatory Deviation	Regulations and/or procedures not complied with
• Manning and Equipment			
2	Organisational	• ATM Staffing and Scheduling	Sub-Optimal establishment or scheduling of staff
• Situational Awareness and Action			
3	Human Factors	• Conflict Resolution- Inadequate	
4	Human Factors	• Inappropriate Clearance	Controller instructions contributed to the conflict
Flight Elements			
• Regulations, Processes, Procedures and Compliance			
5	Human Factors	• Flight Crew ATM Procedure Deviation	Regulations/procedures not complied with
• Tactical Planning and Execution			
6	Human Factors	• Action Performed Incorrectly	Incorrect or ineffective execution
• Situational Awareness of the Conflicting Aircraft and Action			
7	Human Factors	• Lack of Action	Pilot flew into conflict despite Situational Awareness
8	Human Factors	• Mentoring	Sub-Optimal
• See and Avoid			
9	Human Factors	• Lack of Action	Pilot flew into conflict

Degree of Risk: B

Safety Barrier Assessment³

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 **ineffective** because the Oxford Radar controller issued the PA31 pilot with a heading which resulted in the aircraft routing towards the PA28 and then cleared the PA31 pilot to descend through the PA28's level.

³ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

Manning and Equipment were assessed as **ineffective** because the shift manning was suboptimal, resulting in a SRATCOH breach.

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the suggested avoiding action issued by the controller did not resolve the confliction because the PA28 pilot made an unexpected turn towards the revised track of the PA31.

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the PA28 student pilot commenced a turn although the instructor had instructed him to maintain heading. Also, the PA31 pilot turned to the left in accordance with the instruction issued by the controller although SERA.3210 states that a right turn is required when aircraft are head-on.

Tactical Planning and Execution was assessed as **partially effective** because it would appear that the PA28 student pilot made an unexpected turn and the instructor did not take effective action to address his student’s error.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the PA28 student pilot turned towards the PA31 despite the instructor telling him not to do so.

See and Avoid were assessed as **ineffective** because the PA31 pilot only saw the PA28 late, and the PA28 turned towards the PA31, despite the pilot being visually aware of its position.

