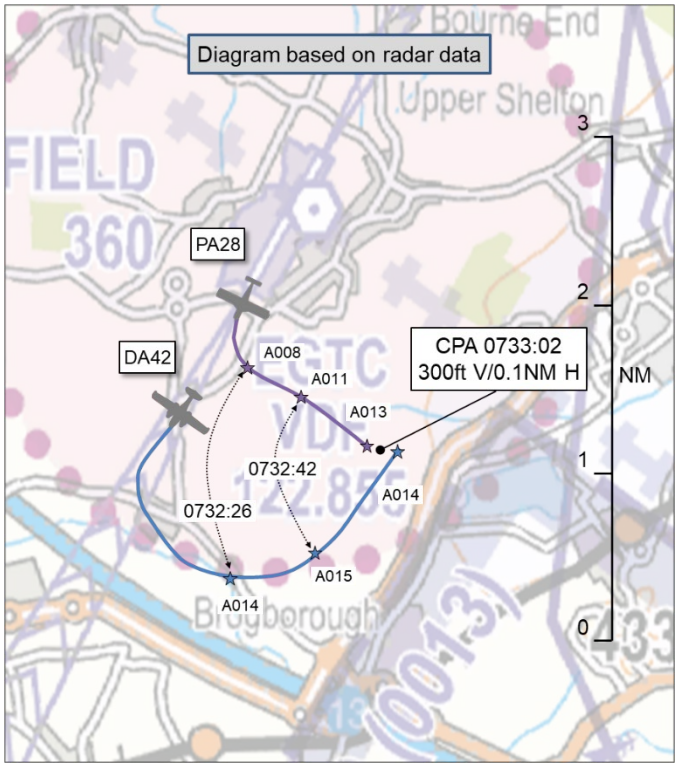
AIRPROX REPORT No 2024111

Date: 05 Jun 2024 Time: 0733Z Position: 5203N 00036W Location: Cranfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DA42	PA28
Operator	Civ FW	Civ FW
Airspace	Cranfield ATZ	Cranfield ATZ
Class	G	G
Rules	VFR	VFR
Service	ACS	ACS
Provider	Cranfield Tower	Cranfield Tower
Altitude/FL	1400ft	1300ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White	White and blue
Lighting	Landing, taxi, strobes and nav.	Anti-collision
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1400ft	"*Climbing*"
Altimeter	QNH (1013hPa)	NK
Heading	030°	210°
Speed	120kt	90kt
ACAS/TAS	Not fitted	Not fitted
Separation at CPA		
Reported	200ft V/0.25NM H	NK V/NK H
Recorded	300ft V/0.1NM H	



THE DA42 PILOT reports they were conducting a CPL profile flight with circuits at Cranfield. Having turned onto downwind left-hand for RW21, Cranfield Tower notified them of the departing traffic on crosswind. Once visual with the departing traffic and noting that the traffic was potentially climbing through their level and not altering course, they took control from the student and climbed to 1800ft until clear of the conflict.

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

THE PA28 PILOT reports that they did not feel that their aircraft passed dangerously close to any other aircraft. They apologised for not being able to pass any other details, but this Airprox was a bit of a surprise to them. At no point did they have to take any evasive action, nor were they aware of any other aircraft having to do the same. They did recall ATC informing them of an aircraft left downwind for RW21 whilst they were on the upwind leg.

THE CRANFIELD CONTROLLER reports that the [DA42 pilot] confirmed they would be filing an Airprox following a phone call with the instructor. [The DA42] was conducting circuit training at Cranfield in the left-hand circuit for RW21. [The PA28 pilot], holding at B1 ready for departure, was given information on [the DA42] on final and instructed to line up behind. [The PA28 pilot] was then passed further Traffic Information on [the DA42] on the upwind leg, stating that [the DA42] would be flying the left-hand fixed-wing circuit, and was then cleared for take-off. [The PA28 pilot] requested a left turn and again the [DA42] traffic and position was reiterated, and left turn approved. [The PA28] turned early left, inside [the DA42] which was about to turn left-hand downwind for RW21 and at about 500ft [the pilot] immediately requested a frequency change to Luton Radar. [The PA28 pilot] was instructed to remain on the frequency due to possible conflict with [the DA42]. Traffic Information was passed to [the DA42 pilot] on [the PA28]. [The DA42 pilot] reported visual. [The PA28] was observed to pass below and behind [the DA42], then a frequency change to Luton was approved. When [the DA42] was late downwind, they asked the instructor whether [the PA28] had passed comfortably below and behind.

[The DA42 pilot] stated they had to climb and manoeuvre to avoid. They (the controller) confirmed that they would file an MOR (as they were unsure why [the PA28] had flown outside the expected pattern and appeared to not comply with (UK)SERA 3205/3210). From their perspective as a controller, it felt as though despite [the PA28 pilot] being given clear information about the position and intentions of [the DA42] on 3 occasions, the information was ignored. They later spoke to the instructor of [the DA42] on the phone to debrief; they deemed there to have been a risk of collision, the instructor took control and climbed by around 400ft and that [the PA28] had been heading straight at them and did not appear to be deviating from that track. They agreed the best course of action would be for the instructor to file an Airprox report and for themself to file a supporting MOR.

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

Factual Background

The weather at Cranfield was recorded as follows:

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METAR EGTC 050720Z 24008KT CAVOK 10/06 Q1013=
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Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was made and both aircraft were positively identified using Mode S data. CPA was determined to have been at 0733:02 (Figure 1).

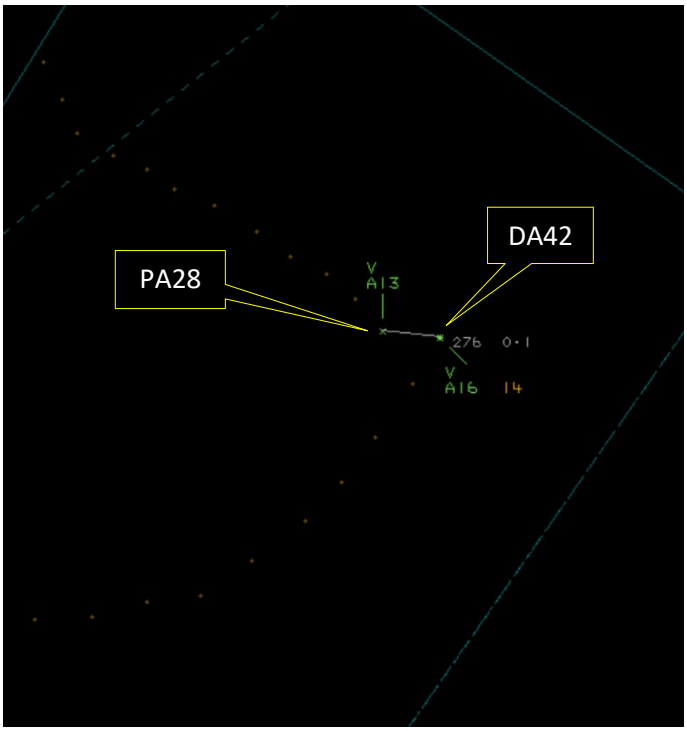


Figure 1 -Time 0733:02 separation at CPA 300ft and 0.1NM

The DA42 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.[1] An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation.[2]

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

Summary

An Airprox was reported when a DA42 and a PA28 flew into proximity in the Cranfield circuit at 0733Z on Wednesday 5th June 2024. Both pilots were operating under VFR in VMC, and both were in receipt of an ACS from Cranfield Tower.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings and a report from the air traffic controller involved. 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 looked at the actions of the DA42 pilot and members felt that they had performed their flight in the manner that had been expected of them. The Board noted that the DA42 pilot had been concerned by the PA28's proximity during its departure profile (**CF6**) and that they had reported making a brief climb to avoid it.

Turning their attention to the actions of the PA28 pilot, the Board wondered why the pilot had misjudged the position of the DA42 (**CF4**), especially after they had seen it depart and had received further information on its position as they had been given their own departure clearance. Members considered that maybe the PA28 pilot may have expected the DA42 to have been further downwind than it had been due to its speed, but felt that the Traffic Information passed had not implied that. It was also suggested that the PA28 pilot's lack of assimilation of the DA42's position had made it appear that they had been more focussed on departing and transferring to Luton Radar than concentrating on the potential threat that the DA42 had posed. Members noted that the pilot had requested a left turn, which had been approved, but that the execution of the left turn had been taken sufficiently early to have placed the PA28 in front of the DA42's downwind position (**CF2**) and thereby had not conformed with or avoided the pattern of traffic already formed in the circuit (**CF3**). The Board agreed that at this point the PA28 pilot had been unsighted on the DA42 (**CF6**).

Focussing on the actions of the Tower controller, the Board felt that the controller had made reasonable assumptions about the PA28's departure profile and the pilot maintaining visual contact with the DA42. Members noted that the PA28's left turn, although relatively early for the DA42's position, had been made at an otherwise reasonable altitude for the left-hand departure clearance. The Board noted that the controller had been concerned by the proximity of the PA28 to the DA42 (**CF1**) and had monitored the PA28, asking them to remain on frequency while in the ATZ, but had not actively controlled the situation. The Board felt the controller had had options, for example emphasising 'behind the DA42' on the wording of the departure or on seeing a potential conflict to have given the PA28 pilot specific instructions to temporarily maintain height, although they acknowledged that the controller had asked the DA42 pilot if they had been visual with the departing PA28. Members also felt that the controller could have requested that the PA28 pilot hold position and delay the departure to ensure that the 2 aircraft were laterally deconflicted.

On reaching a conclusion, the Board agreed that the DA42 pilot's awareness of the situation and visual contact with the PA28, as confirmed by the Tower controller, had allowed them to take necessary action in a timely manner and members acknowledged that the DA42 pilot had assessed the risk of collision as low. The Board therefore agreed that there had been no risk of collision; Risk Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024111			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			

	• Situational Awareness and Action			
1	Human Factors		Events involving an individual or a crew/ team acting on the basis of expectation or assumptions of a situation that is different from the reality	Concerned by the proximity of the aircraft
	Flight Elements			
	• Tactical Planning and Execution			
2	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
3	Human Factors	• Monitoring of Environment	Events involving flight crew not to appropriately monitoring the environment	Did not avoid/conform with the pattern of traffic already formed
	• Situational Awareness of the Conflicting Aircraft and Action			
4	Human Factors	• Understanding/ Comprehension	Events involving flight crew that did not understand or comprehend a situation or instruction	Pilot did not assimilate conflict information
	• See and Avoid			
5	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
6	Human Factors	• Perception of Visual Information	Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: C.

Safety Barrier Assessment[3]

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

Ground Elements:

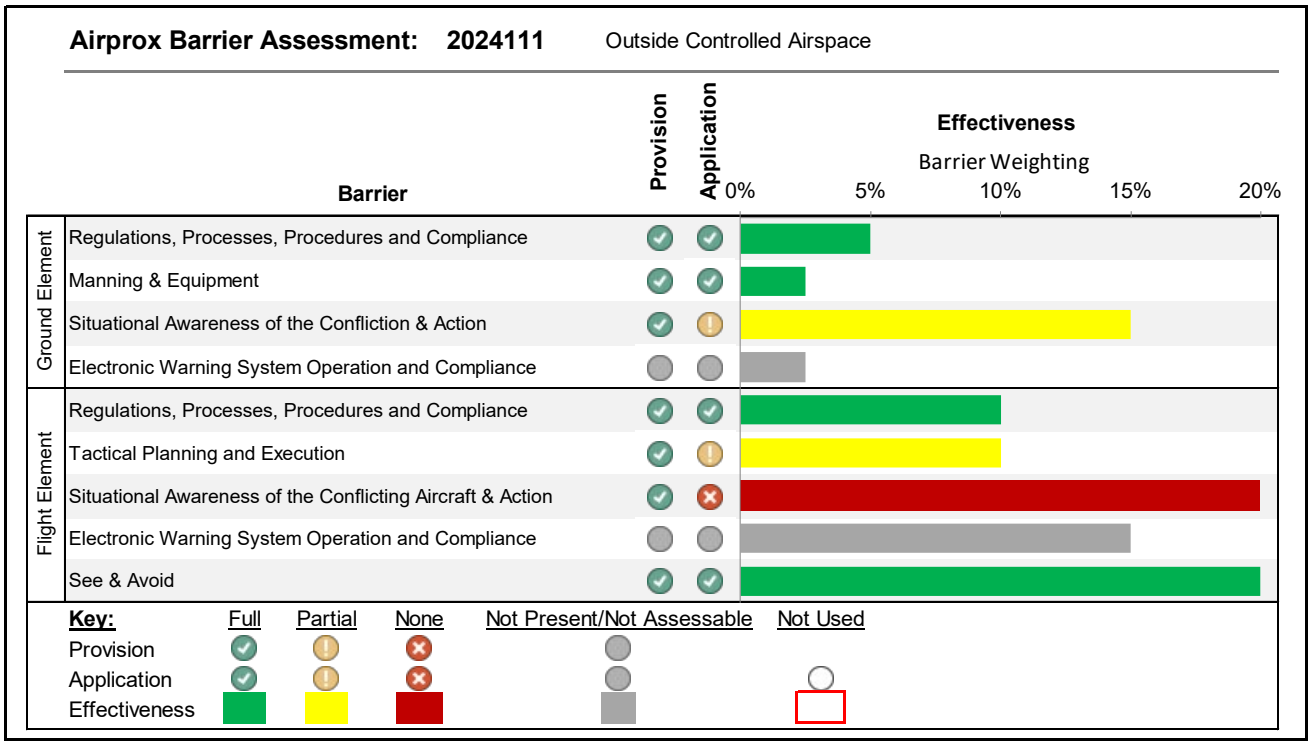
Situational Awareness of the Confliction and Action were assessed as **partially effective** because the Cranfield controller had reasonably assumed that the PA28 pilot would not turn into conflict with the DA42.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the PA28 pilot had made an early left turn on departure, and had not conformed with or avoided the established circuit pattern.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the PA28 pilot had misjudged the relative position of the DA42 during their climb-out.

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


Airprox Barrier Assessment: 2024111
Outside Controlled Airspace
Barrier
Provision
Application
Effectiveness
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