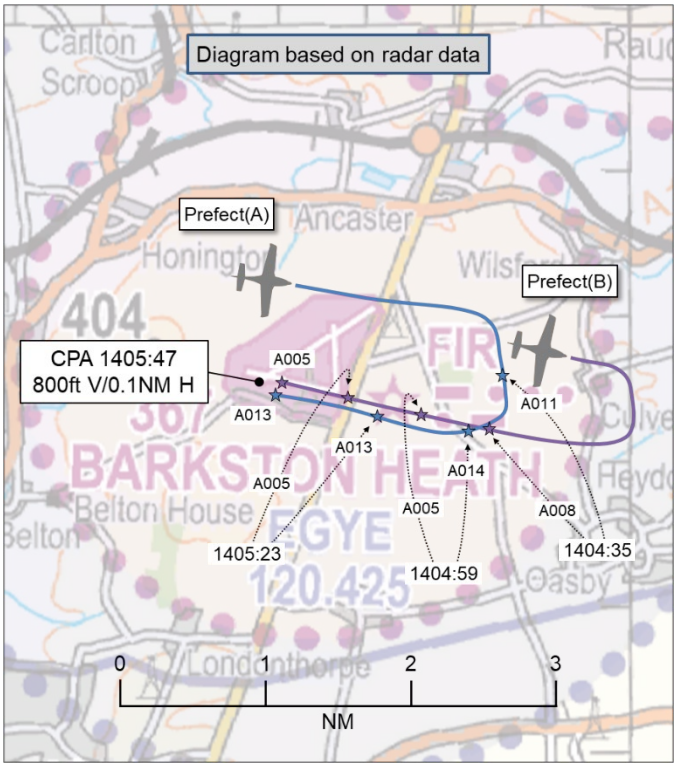
AIRPROX REPORT No 2024018

Date: 01 Feb 2024 Time: 1406Z Position: 5257N 00034W Location: Barkston Heath ATZ

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Prefect(A)	Prefect(B)
Operator	HQ Air (Trg)	HQ Air (Trg)
Airspace	Barkston Heath ATZ	Barkston Heath ATZ
Class	G	G
Rules	VFR	VFR
Service	ACS	ACS
Provider	Barkston Tower	Barkston Tower
Altitude/FL	1300ft	500ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Blue, white	NR
Lighting	Strobes	Strobes, nav
Conditions	VMC	VMC
Visibility	NR	NR
Altitude/FL	1000ft	300ft
Altimeter	NR	NR
Heading	NR	NR
Speed	120kt	120kt
ACAS/TAS	TCAS I, FLARM	TCAS I, FLARM
Alert	None	TA
Separation at CPA		
Reported	NR	NR
Recorded	800ft V/0.1NM H	



THE PREFECT(A) INSTRUCTOR reports that they were tasked to fly a dual-to-solo sortie. The runway in use at Barkston Heath was 28RH with the surface wind variable between 230° and 290° and around 15kt. The circuit was busy with a total of four Prefect aircraft in the circuit with another Prefect joining through Initial. With the traffic density in the circuit, they had gone around three times prior to this event.

Having rolled out onto final approach, the trainee elected to go around given the aircraft ahead was positioned on short final for a touch-and-go. Once the trainee had cleaned up and positioned the aircraft on the deadside, [the instructor] took control. With the aircraft level at 1000ft on the deadside and parallel to RW28RH, the trainee gained SA on the Prefect beneath them and to the right, climbing from a touch-and-go and said "*break left*" due to the close proximity of the Prefect. [The instructor] immediately turned left to increase separation, following which they then became visual with the aircraft. [The instructor] extended upwind prior to entering the circuit and landed from the next approach as the circuit was too busy and they were not achieving the sortie objectives.

On reflection, and being aware of the Prefect conducting a touch and go, they would have maintained visual contact by positioning further into the deadside area.

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

THE PREFECT(B) INSTRUCTOR reports that their MELIN [Multi-Engine Lead-In] trainee was in the initial climb phase of an upwind climbing turn from a touch-and-go on RW28RH. Having previously heard the pilot behind them on final approach transmitting "*Going around*", they were concerned that they had not attained visual. Their expectation was to get visual with the aircraft in their 9 o'clock high. They transmitted a radio call to Barkston Tower asking for the position of the aircraft on the go-around. They cannot remember the exact response from ATC other than to confirm that the aircraft was on the deadside. A second or two later, the TAS and [EC device] audio alerts began sounding in the cockpit. They instinctively looked up and were presented with a Prefect in a turn to the left. It appeared from

behind the canopy arch in their 11 o'clock position, passing from right-to-left directly above. They then transmitted to Barkston Tower that they had visual with the aircraft passing overhead.

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

THE BARKSTON TOWER CONTROLLER reports that they were the Air Controller with the Ground Movement Controller position manned. The visual circuit had been busy with 4-in as well as VFR departures, however, at the time of the report, there was only [Prefect(A)] and [Prefect(B)] in the circuit.

[The pilot of Prefect(A)] called downwind and was informed one ahead. [The pilot of Prefect(B)] was then cleared to touch-and-go, [The pilot of Prefect(A)] called 'final, gear down' and was instructed to 'continue number 2'. [The pilot of Prefect(A)] elected to go around having reported visual with [Prefect(B)].

[The pilot of Prefect(A)] then positioned on the deadside where [the Barkston Tower controller] lost sight of them as they flew above the tower. [The pilot of Prefect(B)] executed a touch-and-go and was climbing out on runway track when [Prefect(A)] appeared upwind. It appeared that the aircraft had drifted towards the climb-out lane but was still slightly south of it at circuit height. [The pilot of Prefect(B)] reported that they had lost sight of [Prefect(A)] and requested Traffic Information which was passed. [The pilot of Prefect(B)] turned crosswind and [the pilot of Prefect(A)] turned left, away from the climb-out lane.

From [the Barkston Tower controller's] perspective, the aircraft had a small amount of lateral separation and approximately 400-500ft of vertical separation.

The controller perceived the severity of the incident as 'Medium'.

Factual Background

The weather at Barkston Heath was recorded as follows:

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METAR EGYE 011350Z 26014KT CAVOK 08/03 Q1032 RMK BLU
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Analysis and Investigation

Military ATM

The ATC provision was in accordance with procedure throughout, with correct provision of circuit state and order. As the visual circuit is based on the fundament of aircrew assimilating awareness through position reporting and then achieving visual separation, the controller was required to do nothing further when the pilot of Prefect(A) conducted the go-around and positioned deadside. When requested by the pilot of Prefect(B) as they climbed out, the Traffic Information provided was accurate and aided the pilot of Prefect(B) to gain visual contact with Prefect(A).

UKAB Secretariat

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

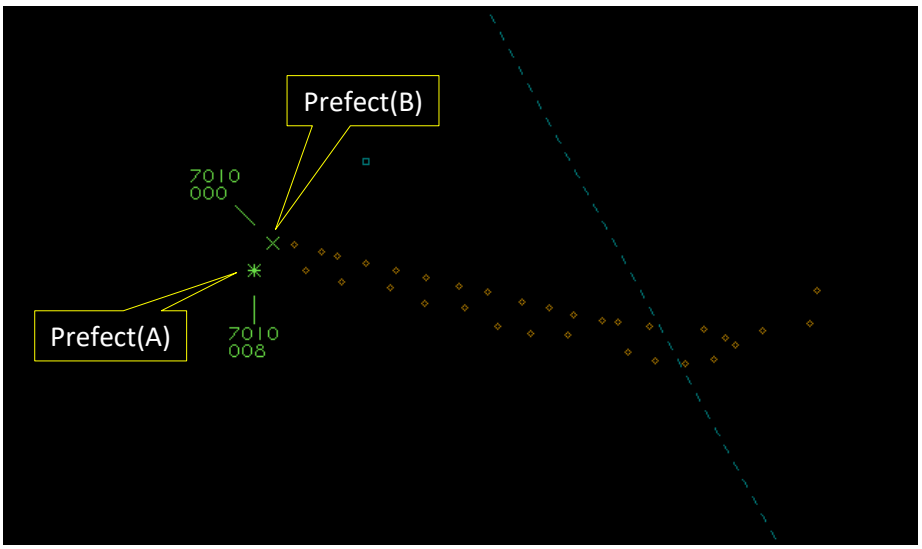


Figure 1 – CPA at 1405:47

The Prefect(A) and Prefect(B) 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]

Comments

HQ Air Command

This Airprox was subject to a local investigation. While there were no formal recommendations, the investigation identified a number of contributory factors which have been shared as learning points. The pilot of Prefect(A) correctly decided to go around on the deadside with Prefect(B) on short finals for a touch-and-go. However, positioned too close to the runway, lateral separation was reduced between the two aircraft, presenting a different flightpath than that expected by the pilot of Prefect(B) and making visual acquisition of B more difficult. Whilst there is no prescribed distance to position laterally from the runway on the deadside, flying with a reasonable buffer aids situational awareness with easier lookout, reduces surprise, builds in additional separation, gives a greater margin in case of drift, and creates a more comfortable circuit environment.

This incident also highlights the importance of flying accurate circuits and the risks posed by extending downwind; the pilot of Prefect(B) had extended which caused spacing problems for the pilot of Prefect(A) as they turned for finals. As busy training establishments, teaching in the Cranwell and Barkston circuit can be challenging, the Safe Circuits Briefing states that if it is too busy to achieve meaningful activity or is considered unsafe, then land.

Summary

An Airprox was reported when Prefect(A) and Prefect(B) flew into proximity in the Barkston Heath ATZ at 1406Z on Thursday 1st February 2024. Both pilots were operating under VFR in VMC, in receipt of an ACS from Barkston Heath Tower.

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 reports from the appropriate operating authorities. Relevant

[1] MAA RA 2307 paragraphs 1 and 2.
[2] MAA RA 2307 paragraph 17.

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 Prefect(B). Members noted that they had elected to extend the downwind leg of their circuit and that their track had taken them outside the ATZ. It was further noted that, during the execution of a touch-and-go, they had heard that the pilot in the following aircraft, Prefect(A), had commenced a go-around.

It was agreed by members that the pilot of Prefect(B) had had generic situational awareness of the presence of Prefect(A) in the circuit (**CF2**) but it was noted that, from the narrative report provided by the pilot of Prefect(B), they had not been able to sight Prefect(A) in the position in which they had expected it to have been. Members were therefore heartened by their decision to have requested its specific position from the Barkston Heath controller. It was noted that the pilot of Prefect(B) had subsequently received a Traffic Alert from their TCAS (**CF3**) and, almost immediately, had sighted Prefect(A) above them. It was noted by members that, although the pilot of Prefect(A) had been behind them in the circuit, their early go-around decision (and therefore greater speed within the circuit) had meant that they had drawn level with Prefect(B) although there had been several hundred feet of vertical separation. Members agreed that, whilst the pilot of Prefect(B) would not have been expected to have sighted Prefect(A) when it had been behind them, to have sighted it above them, at the moment of CPA, effectively constituted a non-sighting (**CF6**).

Members turned their attention to the actions of the pilot of Prefect(A). Having previously noted that the pilot of Prefect(B) had extended their circuit outside the ATZ, members next noted that the pilot of Prefect(A) had not extended their downwind leg in the same manner. Consequently, the pilot of Prefect(A) had found that the spacing between their aircraft and Prefect(B) had not been agreeable and had elected to conduct a go-around. Members applauded the decision to have increased separation between the aircraft and pondered the subsequent positioning of Prefect(A) on the deadside of the circuit. A member with particular knowledge of military operations explained that, although there is no prescribed lateral distance from the runway when positioning to the deadside, it would have been prudent to have positioned farther from the climb-out lane. Members were in agreement that the execution of that element of their circuit had not been effective (**CF1**).

Members noted that the EC equipment fitted to Prefect(A), which had been of the same configuration as that fitted to Prefect(B), had not detected the presence of Prefect(B) (**CF4**). Members agreed that the pilot of Prefect(A) had had generic situational awareness of Prefect(B) (**CF2**). Noting that the pilot of Prefect(A) had subsequently sighted Prefect(B) and had been concerned by its proximity (**CF7**), members applauded the positive action that had been taken to have increased separation between the aircraft. Nevertheless, members agreed that the pilot of Prefect(A) had sighted Prefect(B) late (**CF5**).

Turning their attention to the actions of the Barkston Heath controller, members noted that they had momentarily lost sight of Prefect(A) during the go-around. An advisor to the Board with particular knowledge of military ATC explained that a pilot operating from RW28RH would have passed directly above the Tower if positioned on the deadside. Notwithstanding, members noted that the Barkston Heath controller had regained visual acquisition of Prefect(A) in time to have passed Traffic Information to the pilot of Prefect(B) when it had been requested. Members agreed that there had been little else that they could have done to have assisted.

In conclusion, members agreed that both pilots had had generic, rather than specific, situational awareness of the presence of the other aircraft in the circuit. Members also agreed that the positioning of Prefect(A) on the deadside had meant that its pilot had been concerned by their proximity to Prefect(B) as it had climbed after a touch-and-go. Members also agreed that the positioning on the deadside had delayed the visual acquisition of Prefect(A) by the pilot of Prefect(B). Members felt that safety margins had been eroded but agreed that there had not been a risk of collision. As such, the Board assigned Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024018			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Flight Elements			
	• Tactical Planning and Execution			
1	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			
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
	• Electronic Warning System Operation and Compliance			
3	Contextual	• ACAS/TCAS TA	An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system traffic advisory warning triggered	
4	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			
5	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
6	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
7	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:

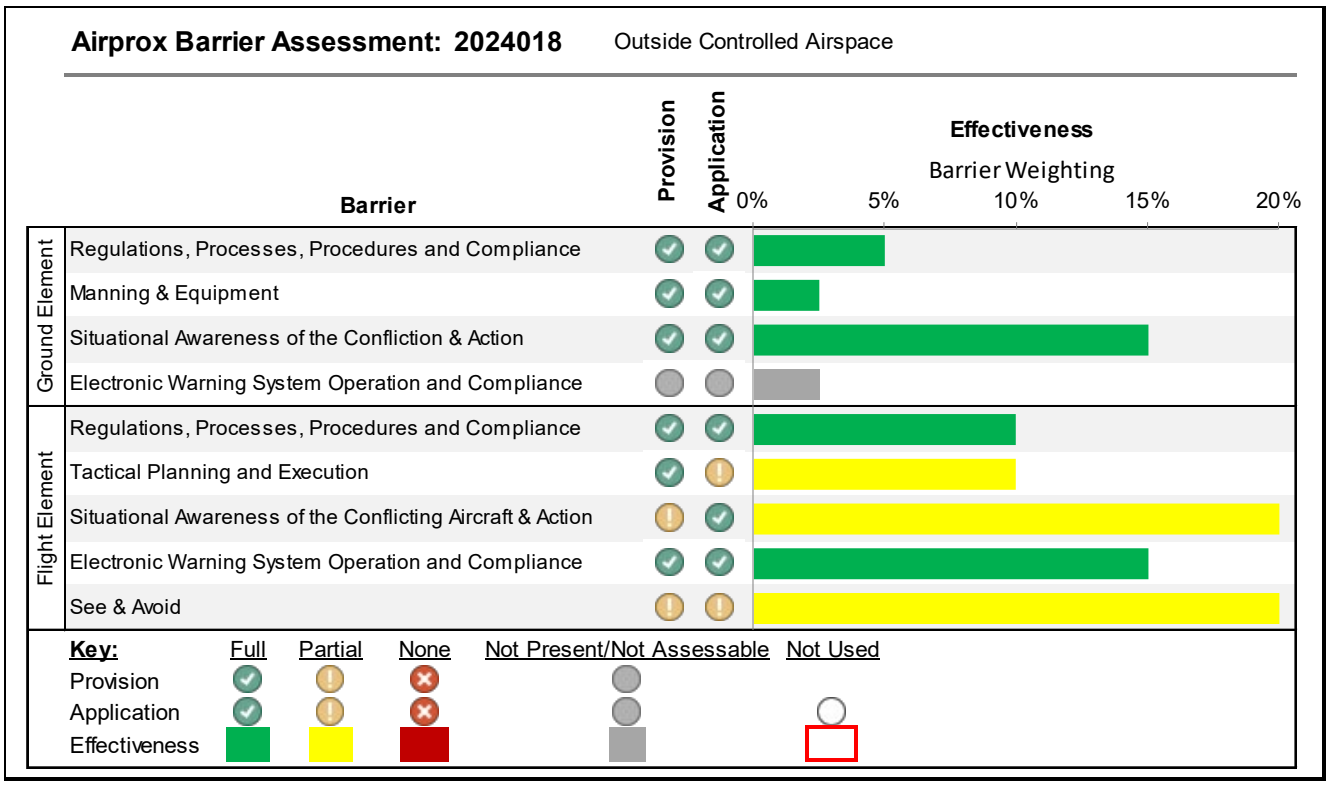
Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because it may have been prudent for the pilot of Prefect(A) to have positioned further to the deadside after their go-around.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because both pilots had generic situational awareness of the position of the other aircraft.

See and Avoid were assessed as **partially effective** because the pilot of Prefect(B) had not visually acquired Prefect(A) until the moment of CPA.

[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: 2024018
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