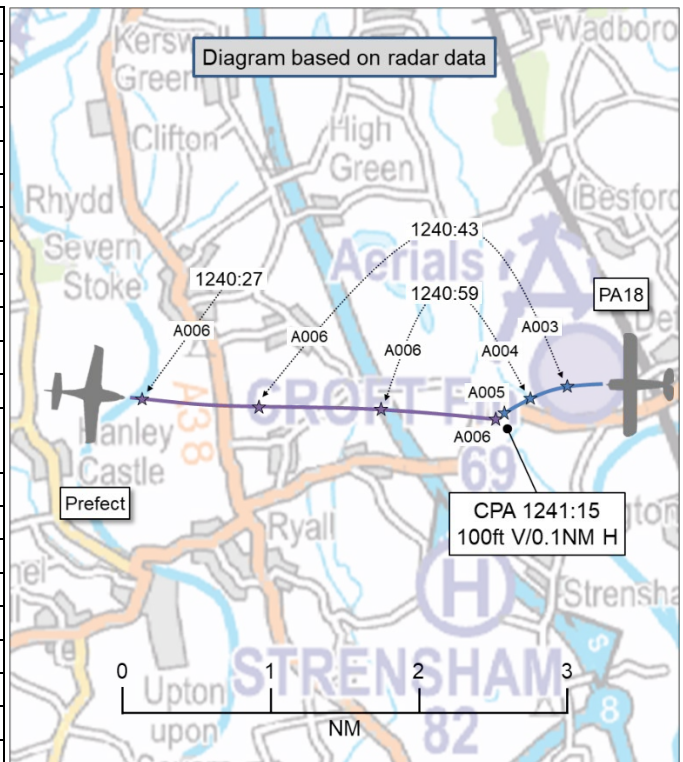


AIRPROX REPORT No 2023260

Date: 08 Dec 2023 Time: 1241Z Position: 5205N 00209W Location: 0.5NM SW Croft Farm

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	PA18	Prefect
Operator	Civ FW	HQ Air (Trg)
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Listening Out	Listening Out
Provider	SafetyCom	Low-Level Common
Altitude/FL	500ft	600ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Yellow	White
Lighting	None	Anti-col, taxi, landing, nav
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	500ft	700ft
Altimeter	QNH (1003hPa)	RPS (992hPa)
Heading	270°	090°
Speed	NK	160kt
ACAS/TAS	Not fitted	TCAS I, FLARM
Alert	N/A	None
Separation at CPA		
Reported	50ft V/0m H	200ft V/0.2NM H
Recorded	100ft V/0.1NM H	



THE PA18 PILOT reports that, on climb-out from a take-off from RW27 at Defford Croft Farm (marked on charts) they encountered a Prefect on the reciprocal runway heading at around 500ft. They lowered their nose (cutting off their climb-out) in order to pass below the other aircraft. [The pilot of the PA18 estimated that] they passed 50ft below [the Prefect] but it is very possible that it was more as these things always feel closer than they actually are. No avoiding action was seen to have been taken by the other pilot.

Despite [the PA18] being bright yellow, it was likely that they had been in [the Prefect pilot’s] blind spot as they were climbing after take-off. Whilst there had been greater than 10km visibility, there were a lot of isolated [pockets of] reduced visibility around and low sun. They do not recall seeing any conspicuity lighting on the Prefect [and suggested that] if it had had a bright landing light, they would have seen it sooner. [The pilot of the PA18] took-off with a little bit of fogging at the very top of the windscreen. It is possible this also obscured [the Prefect] but again, maybe not, as [the PA18] was in a steep climb attitude and [the Prefect] was in the middle-right of their view when they saw it. The PA18 was crabbed significantly to counter a crosswind on climb-out from RW27.

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

THE PREFECT PILOT reports that, whilst flying a low-level navigation exercise at approximately 700ft (500ft MSD) on an easterly heading, they noticed something yellow flash past, below the left-hand side (0.2NM and 2-300ft separation) of the aircraft with no associated TAS or [EC device] warning. On looking back, they observed a yellow aircraft flying away in the opposite (westerly) direction and assumed that it was probably a light aircraft getting airborne from a farm airstrip. [The pilot of the Prefect] had not been in receipt of a LARS, however they were listening out on UHF Guard and the VHF Low Level Common frequency 130.490MHz.

The pilot perceived the severity of the incident as 'Low'.

Factual Background

The weather at Gloucestershire was recorded as follows:

METAR EGBJ 081250Z 20011KT 180V240 9999 VCSH FEW015 SCT030 10/08 Q1003

The location of Croft Farm, as marked on a military low-flying chart, is shown in Figure 1.



Figure 1 – the location of Croft Farm

Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and both aircraft could be identified from Mode S data. The PA18 first appeared on the radar replay at 1239:11 (Figure 2). Both aircraft were depicted on the radar replay at Flight Levels and a suitable conversion factor was used to determine their altitude. The diagram was constructed and the separation at CPA determined from the radar data.

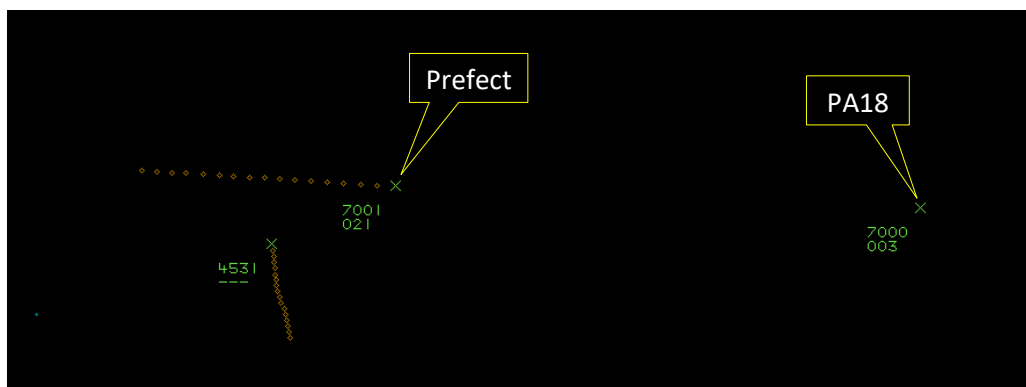


Figure 2 – 1239:11

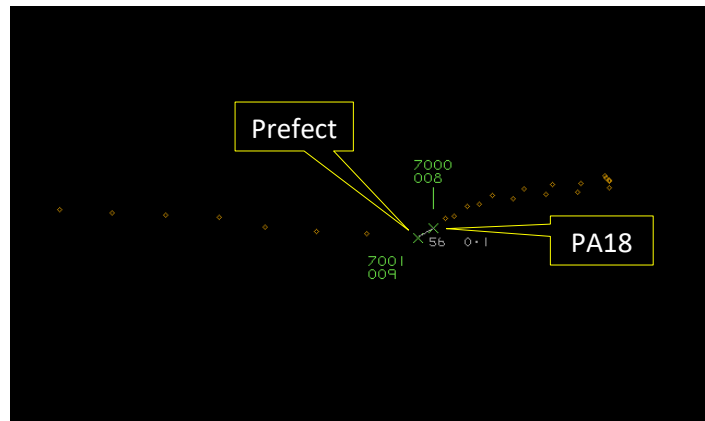


Figure 3 – CPA at 1241:15

The PA18 and Prefect 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 If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.² 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.³

Comments

HQ Air Command

This Airprox was subject to a local investigation which identified a number of contributory factors. The instructor had limited opportunity to work with the trainee on their route choice at the planning stage and a more appropriate routing away from Defford/Croft Farm would have been more suitable. At the time of the Airprox, the crew had prioritised lookout for a Chinook aircraft, which they were aware was operating in the vicinity. See-and-avoid functioned as the barrier to loss of safe separation with a good spot by the Piper pilot. The Prefect's electronic conspicuity equipment did not flag the GA traffic in this instance when it ought to have picked up the Piper's transponder. This is a good reminder that EC, whilst extremely useful to augment the see-and-avoid barrier, cannot be relied upon to alert 100% of the time. This area is also at the limits of both Shawbury and Brize's LARS areas and results in inherently poor R/T and radar detection when flying at low level with the Prefect crew monitoring the low-level common frequency in lieu of a LARS.

Summary

An Airprox was reported when a PA18 and a Prefect flew into proximity 0.5NM south-west of Croft Farm at 1241Z on Friday 8th December 2023. Both pilots were operating under VFR in VMC, the PA18 pilot listening-out on the SafetyCom frequency and the Prefect pilot listening-out on the Low-Level Common frequency.

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 appropriate operating authority. 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 considered the actions of the pilot of the Prefect. A member with particular knowledge of military flight planning explained that the student pilot had planned a route for a low-level navigation exercise. It was further explained that the Instructor had not guided the student pilot in the selection of

¹ (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

² (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on. MAA RA 2307 paragraph 13.

³ (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome. MAA RA 2307 paragraph 17.

the precise route on this occasion but had engaged in a leg-by-leg briefing with the student pilot and had pointed out the need for extra vigilance when passing small airfields.

Members noted that the pilot of the Prefect had been aware of a Chinook in the area and surmised that that may have introduced an element of distraction into the cockpit and, perhaps, that their lookout had been biased towards the acquisition of an airborne helicopter rather than scanning the ground for airfields and airfield traffic. Members noted that the EC equipment fitted to the Prefect would have been expected to have detected the transponder fitted to the PA18 but, in this instance, the pilot of the Prefect had not received an alert (CF6). However, given that their planned route had passed in close proximity to Croft Farm, members concluded that the pilot of the Prefect had held situational awareness of its location and, therefore, of the probability that pilots may have been operating there (CF5). Notwithstanding, members noted that the pilot of the Prefect had not visually acquired the PA18 until the moment of CPA and agreed that that had effectively constituted a non-sighting (CF8).

Members agreed that the pilot of the PA18 had been conducting a take-off in accordance with normal aviation practice and, as such, had effectively created a pattern of traffic at Croft Farm. Consequently, it was agreed that the pilot of the Prefect had not complied with the regulation to have either conformed with, or have avoided, the pattern of traffic in operation (CF1). Additionally, it was agreed that in the execution of their flight, the route selected by the Prefect pilot had not avoided the pattern of traffic and that they had come into conflict with the PA18 (CF2).

The Board next turned their attention to the actions of the pilot of the PA18. Members noted that without there having been a common radio frequency in use, and without the benefit of having had additional electronic conspicuity equipment fitted to their aircraft, the pilot of the PA18 had not gathered situational awareness of the presence of the Prefect until it had been visually acquired (CF5). Members wished to strongly encourage the fitment of additional EC equipment which, on this occasion, may have provided a timely alert to the presence of the Prefect. Nevertheless, members considered the timing of the event and noted that, although the Prefect had been sighted late (CF7) the pilot of the PA18 had reacted quickly and had initiated urgent avoiding action to increase separation between the aircraft.

The use of the VHF Low-Level Common and SafetyCom radio frequencies was pondered further. A member with particular knowledge of general-aviation operations pointed out that, anecdotally, use of the VHF Low-Level Common frequency had not been widely adopted by civilian pilots, particularly in more congested areas of UK airspace. Further, that the use of SafetyCom had been promoted for use at aerodromes where no other frequency had been allocated. Recalling the published procedure for the use of SafetyCom provided in CAP413, members noted that transmissions on the SafetyCom frequency should only be made within a range of 10NM of the aerodrome and below 2000ft above the aerodrome elevation. Members agreed that the selection of the SafetyCom frequency by the pilot of the PA18 had been appropriate. One member suggested that the VHF Low-Level Common frequency had been selected by the pilot of the Prefect in anticipation of encountering the Chinook along their route in the expectation that the pilot of the Chinook would also have selected that frequency.

In conclusion of their discussion, members summarised their thoughts. It was agreed that it had been imprudent for the pilot of the Prefect to have planned a route that had passed in such close proximity to Croft Farm airfield (CF3) and that the Prefect pilot's Instructor had not intervened sufficiently insofar as a more suitable route had not been selected (CF4). It was also agreed that the pilot of the Prefect had not sighted the PA18 until the moment of CPA. Members determined that the pilot of the PA18 had sighted the Prefect late and that there had been a risk of collision (CF9). Members agreed that it had been the quick reaction of the pilot of the PA18 to have taken urgent avoiding action that had increased separation at the last minute. As such the Board assigned Risk Category B to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2023260			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
	Flight Elements			

• Regulations, Processes, Procedures and Compliance				
1	Human Factors	• Use of policy/Procedures	Events involving the use of the relevant policy or procedures by flight crew	Regulations and/or procedures not complied with
• Tactical Planning and Execution				
2	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
3	Human Factors	• Pre-flight briefing and flight preparation	An event involving incorrect, poor or insufficient pre-flight briefing	
• Situational Awareness of the Conflicting Aircraft and Action				
4	Human Factors	• Mentoring	Events involving the mentoring of an individual	
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	• Identification/ Recognition	Events involving flight crew not fully identifying or recognising the reality of a situation	Late sighting by one or both pilots
8	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
• Outcome Events				
9	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.

Safety Barrier Assessment⁴

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

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the pilot of the Prefect had not complied with the regulation to have conformed with, or avoided, the pattern of traffic formed at Croft Farm airfield.

Tactical Planning and Execution was assessed as **partially effective** because the Prefect pilot's planned route had not avoided the pattern of traffic at Croft Farm airfield.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the pilot of the PA18 had not had situational awareness of the presence of the Prefect.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the TCAS fitted to the Prefect would have been expected to have detected the presence of the PA18 but an alert had not been reported.

See and Avoid were assessed as **partially effective** because the pilot of the Prefect had not sighted the PA18 until the moment of CPA.

⁴ 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: 2023260		Outside Controlled Airspace		Effectiveness				
Barrier		Provision	Application	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:		<u>Full</u>	<u>Partial</u>	<u>None</u>	<u>Not Present/Not Assessable</u>	<u>Not Used</u>		
Provision	✓	!	✗	○				
Application	✓	!	✗	○	○			
Effectiveness	■	■	■	■	□			