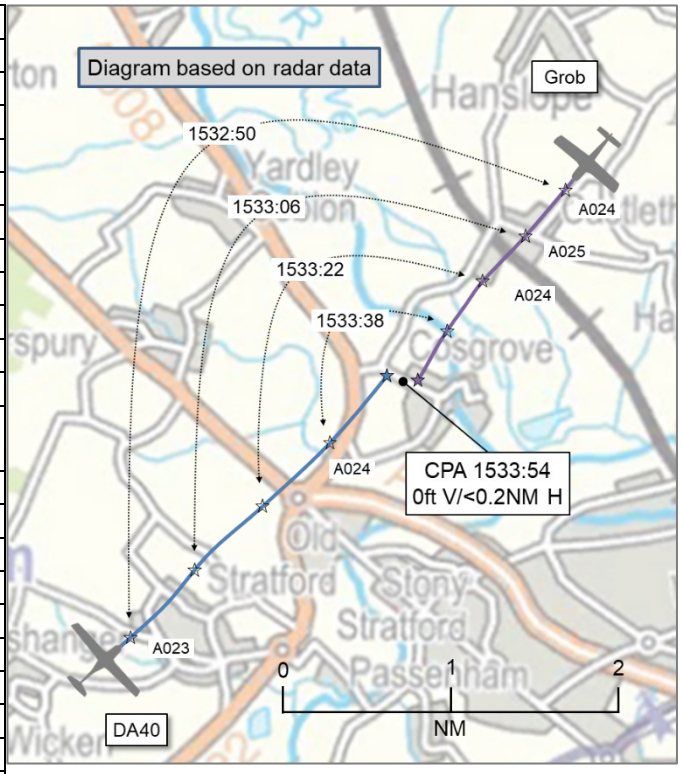
AIRPROX REPORT No 2022147

Date: 23 Jul 2022 Time: 1534Z Position: 5205N 00051W Location: 9NM W Cranfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DA40	Grob 109
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	None
Provider	Cranfield Approach	N/A
Altitude/FL	2400ft	2400ft
Transponder	A, C, S+	A, C, S
Reported		
Colours	White	White
Lighting	Strobes, Nav, Landing, Taxy	Strobes
Conditions	VMC	VMC
Visibility	>10km	NR
Altitude/FL	2400ft	NK
Altimeter	QNH (NK hPa)	QNH (NK hPa)
Heading	050°	NK
Speed	120kt	~85kt
ACAS/TAS	Not fitted	SkyEcho
Alert	N/A	None
Separation at CPA		
Reported	0ft V/200m H	Not seen
Recorded	0ft V/<0.2NM H	



THE DA40 STUDENT PILOT reports that the cloud was overcast at high level, meaning that the other aircraft was against a white background. It had thin wings and was painted white, making it very difficult to see. Additionally, the fact that it was straight ahead and opposite direction meant that there was no movement in their field of vision until it got as close as it did. It was their first solo navigation flight, and just prior to seeing the aircraft they had been briefly referencing their chart.

The DA40 student pilot added that both pilots made a very slight left turn. Although SERA states to turn right when head-on, because both were slightly to the right of each other and saw each other late, it made sense to turn left. They wouldn't have collided if they had both continued on track, but a slight instinctive left turn was made to ensure more separation. There would have been risk of collision if the standard right turn was made.

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

THE GROB 109 PILOT reports that they have been able to discuss this incident with their companion on the flight, who is a shareholder in the aircraft. [They opine that] this may be the most worrying kind of Airprox, as neither occupant has any recollection of seeing the passage of the DA40 referred to. They both have a recollection of listening to an aircraft - it may or may not have been the reporting DA40 - requesting passage through the overhead at Old Warden. They had given Old Warden a wide berth, routing to the north of Tempsford. Part of the purpose of their flight was to show their companion how to find Little Gransden, which is not an easy airfield to see. Aware that the aircraft they were hearing would, as a result of their call, not be routing overhead Old Warden but be passing somewhere or other in their vicinity, they both kept a lookout for it. Neither of them saw any aircraft to report but they have every wish to be as helpful as they can in this matter, as does their companion on the flight, but they saw nothing to report.

THE CRANFIELD APPROACH CONTROLLER reports that they have no recollection of an Airprox being called involving [the DA40].

Factual Background

The weather at Cranfield was recorded as follows:

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EGTC 231520Z 22014KT 9999 FEW039 SCT049 23/13 Q1017
EGTC 231550Z 23015KT 9999 FEW041 23/13 Q1017
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Analysis and Investigation

Cranfield Unit Investigation.

An investigation was carried out by the Cranfield ATSU, the output from which has been summarised below:

The SATCO checked flight progress strips and R/T recordings, a statement was sent to the SATCO and the Airprox Board by the ATCO.

[The ATCO stated]: They have no recollection of an Airprox being called. The student [DA40] pilot requested a Basic Service on the Approach frequency at 1529, which was issued by the ATCO. At 1534 [the DA40 pilot] reported on frequency that they had just *"come quite close"* to another aircraft that appeared to be a powered motor-glider, same level opposite direction. The ATCO responded that they had no aircraft on frequency of that description. R/T recordings for the 10min before and after the reported Airprox did not indicate any aircraft on frequency that were on a conflicting routing, or an aircraft type that matched the description made by the pilot.

Flight progress strips verified the report from the ATCO.

CAA ATSI

At 1457:00 the Grob pilot made initial contact with the Cranfield controller and advised that they were just on the edge of Milton Keynes, 5NM from Cranfield, on a navex, at 2100ft on QNH 1017hPa. The pilot requested transit through the Cranfield overhead. A Basic Service was agreed and the QNH of 1018hPa was passed. The ATZ transit was approved, and the pilot was instructed to report entering the ATZ.

At 1459:45 the Grob pilot advised the controller that they were just about to enter the ATZ at 2200ft on QNH 1018hPa. The controller approved the ATZ transit again and instructed the pilot to report overhead.

At 1507:40 the Grob pilot advised the controller that they were changing to the Old Warden frequency and the controller instructed the pilot to free-call en-route.

The Grob was subsequently observed on the radar replay to continue east-bound until reaching the vicinity of Little Gransden airfield, where it turned back west-bound, passed 6NM north of Cranfield before turning onto a south-westerly track, and subsequently came into confliction with the DA40. The pilot did not re-establish contact with Cranfield ATC on this leg of their navex.

At 1530:30 the student pilot of the DA40 called the Cranfield controller and requested a Basic Service. The controller asked the pilot to pass their message and there was no response. The controller tried again and at 1530:55 the pilot asked for a radio check, the controller responded with readability 5, and the pilot repeated their request for a Basic Service and advised that they were a DA40, were 5NM northeast of Bicester at 2400ft on QNH 1017hPa, and that they were routeing toward Buckingham, Olney and then Rushton. The controller requested details of the departure and destination aerodromes and the pilot confirmed these. A Basic Service was agreed and the QNH

1017hPa was confirmed. The pilot was instructed to report passing Olney. This full RTF exchange concluded at 1532:00, Figure 1.

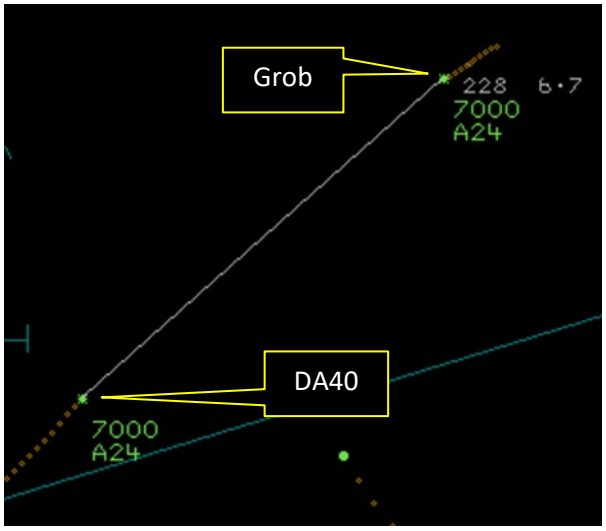


Figure 1 – 1532:00

CPA occurred at 1533:54, with the aircraft separated by 0.2NM laterally and indicating 0ft vertically, Figure 2.

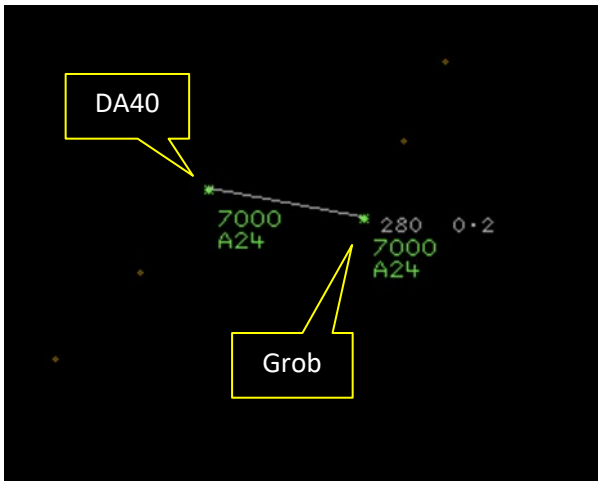


Figure 2 – 1533:57. CPA.

At 1534:15 the DA40 pilot advised the controller that they, *"came quite close to traffic there, there appears to be a powered motor glider, same level, opposite direction."* The controller responded, *"roger, no other traffic on this frequency that matches that description."* The pilot responded, *"roger."*

Analysis

The controller was operating without the benefit of a surveillance system and was reliant upon position reports from pilots to enable them to identify conflictions.

The Grob pilot contacted Cranfield on the east-bound leg of their navex and then went en-route, and their service was terminated. They did not re-establish RTF contact when they were on the west-bound return leg. The presence of the Grob was therefore unknown to the controller when the routeing of the DA40 pilot was established.

Conclusion

The controller was not aware of the presence of the Grob and as such was not able to pass Traffic Information to the DA40 pilot.

Cranfield is reminded of its obligations under Regulation (EU) 2017/373 of 1 March 2017 as retained (and amended in UK domestic law) under the European Union (Withdrawal) Act 2018 ATM/ANS.OR.A.065 paragraphs (a) through (e), with regards to the initial submission of a mandatory occurrence report and any follow up reports within the specified timescales as defined within Regulations (EU) 996/2010 and 376/2014.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and both aircraft were detected and identified using Mode S data. It could be seen that both aircraft had been relatively straight and level in the lead-up to the Airprox. Radar CPA occurred at 1533:54, measured at 0.2NM horizontally and 0ft vertically, Figure 3. However, on the next radar sweep at 1533:58, although the aircraft had passed, the separation was again recorded as 0.2NM horizontally and 0ft vertically, Figure 4. Therefore, actual CPA would have occurred between radar sweeps with a horizontal separation of less than 0.2NM.

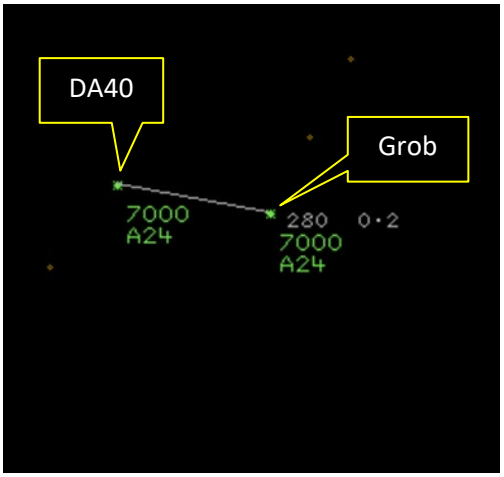


Figure 3 – 1533:54. Radar CPA.

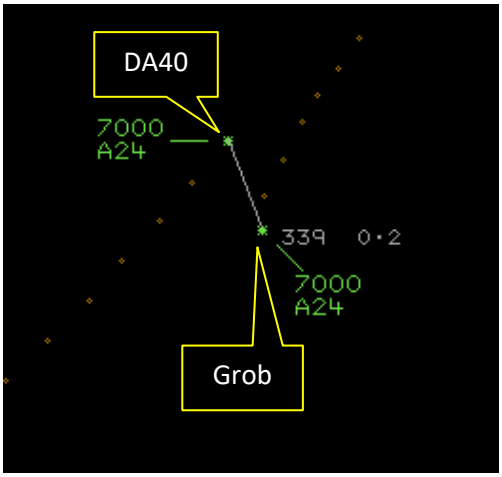


Figure 4 – 1533:58. One sweep later.

The DA40 and Grob 109 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] Nothing in (UK) SERA Regulation shall relieve the pilot-in-command of an aircraft from the responsibility of taking such action, including collision avoidance manoeuvres based on resolution advisories provided by ACAS equipment, as will best avert collision.[3]

Summary

An Airprox was reported when a DA40 and a Grob 109 flew into proximity 9NM west of Cranfield at 1534Z on Saturday 23rd July. Both pilots were operating under VFR in VMC, the DA40 pilot in receipt of a Basic Service from Cranfield Approach and the Grob 109 pilot not in receipt of an ATS.

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.

The Board first considered the actions of the DA40 pilot and was encouraged that, despite not having had any prior awareness of the presence of the Grob (**CF3**) the student pilot had been able to visually

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.
[3] (UK) SERA.3201 General.

acquire it and to consider the actions available to them. Although the DA40 pilot had been able to determine that the relative flight paths of the aircraft had been such that they would not have collided, including assessing that a right turn may have introduced a collision risk, the pilot had been concerned by the proximity of the Grob (**CF6**). Members discussed that the DA40 pilot had not had any EC equipment with them at the time and the Board wished to highlight to pilots that additional funding has been made available for electronic conspicuity devices through the CAA's Electronic Conspicuity Rebate Scheme, which has been extended until 31st March 2023.[4] Members added that, following an Airprox, pilots are advised to report the incident to the ATSU which they are in contact with, or, if not receiving a service at the time, the next ATSU they contact.

Next, members considered the actions of the Grob pilot and wondered why, having spoken to Cranfield when passing earlier in their flight, they had not done so again (**CF2**). A GA pilot member pointed out that the Airprox happened with 10NM of Cranfield and advice printed on VFR charts is to call any aerodrome marked with instrument approach feathers when passing within this distance. Members agreed that the Grob pilot had not had any awareness of the presence of the DA40 (**CF3**) and that they had not become visual with the DA40 at any point (**CF5**). Members also agreed that a call to Cranfield by the Grob pilot may have provided an opportunity for the pilots of both aircraft to have gained some awareness of the presence of the other. The Board noted that the Grob pilot had been carrying an EC device which should have been capable of detecting the presence of the DA40, however no alert had been reported by the Grob pilot (**CF4**).

The Board then turned its attention to the ground element involvement and quickly agreed that the Cranfield controller had not been required to monitor the DA40 pilot's flight under the Basic Service which they had been delivering (**CF1**). A civil ATC member stated that, as Cranfield is not surveillance-equipped, and they had not been contacted by the Grob pilot, they would have had no knowledge of its presence.

Finally, the Board considered the risk involved in this Airprox. Members discussed that the Grob pilot had not had any awareness of the presence of the DA40 and they had not become visual with it. However, the DA40 pilot, despite having no prior awareness of the presence of the Grob, had become visual with it early enough to allow them to monitor the situation and take some minor precautionary action. The Board concluded that there had been no risk of collision however, safety had been degraded. Consequently, the Board assigned a Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022147			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Contextual	• ANS Flight Information Provision	Provision of ANS flight information	The ATCO/FISO was not required to monitor the flight under a Basic Service
	Flight Elements			
	• Tactical Planning and Execution			
2	Human Factors	• Communications by Flight Crew with ANS	An event related to the communications between the flight crew and the air navigation service.	Pilot did not request appropriate ATS service or communicate with appropriate provider
	• Situational Awareness of the Conflicting Aircraft and Action			
3	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			
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

[4] Electronic conspicuity devices | Civil Aviation Authority (caa.co.uk)

	• 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[5]

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

Ground Elements:

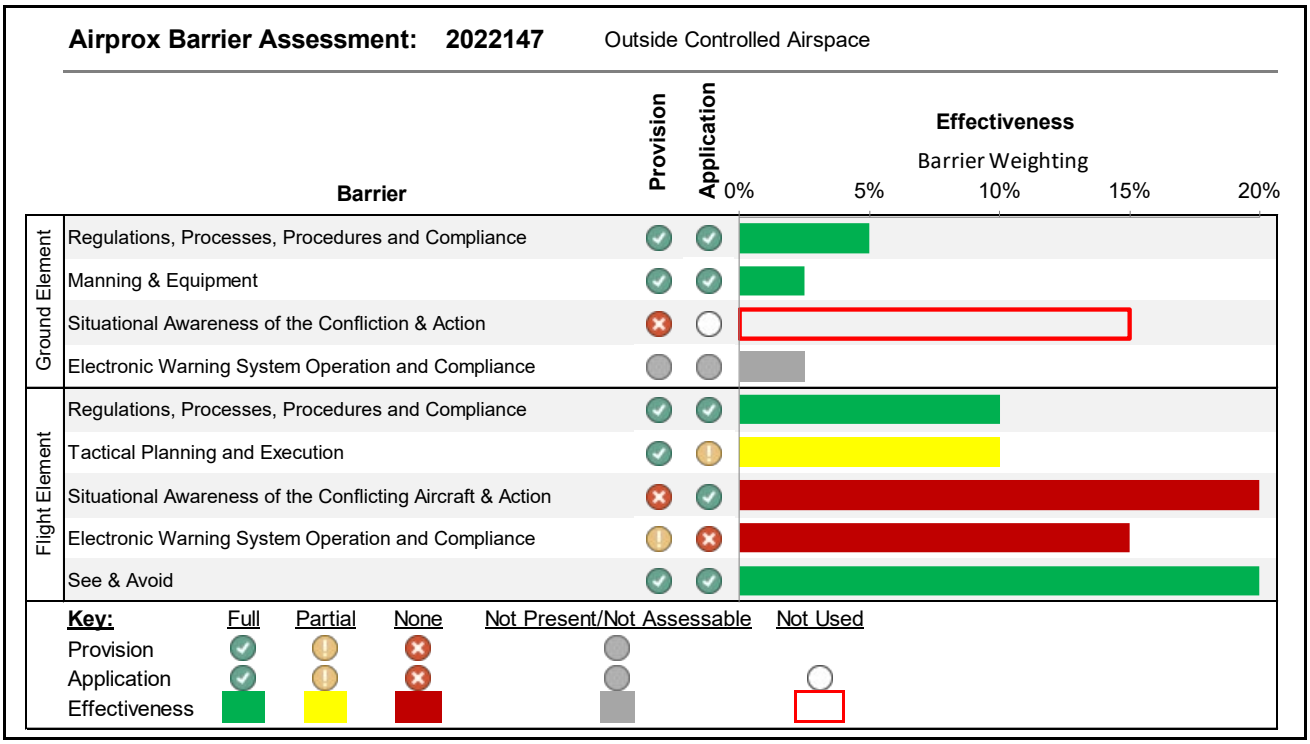
Situational Awareness of the Confliction and Action were assessed as **not used** because, when providing a Basic Service, the controller is not required to monitor the flight.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the Grob pilot had not made contact with Cranfield approach when operating within the vicinity of the airfield.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had any prior awareness of the presence of the other aircraft.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC equipment carried by the Grob pilot would have been expected to have alerted to the presence of the DA40 however no alert was reported.



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