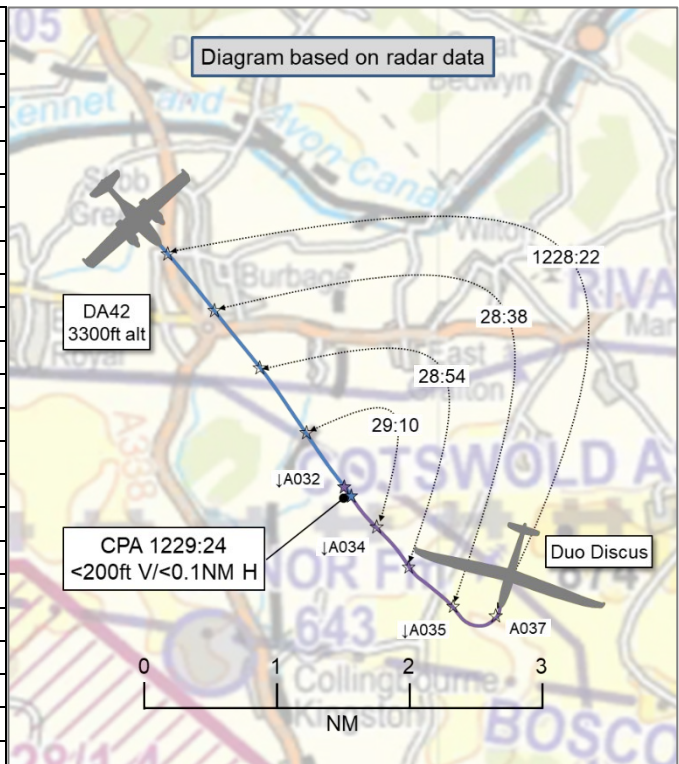


AIRPROX REPORT No 2021129

Date: 22 Jul 2021 Time: 1229Z Position: 5119N 00138W Location: 4NM WSW Rivar Hill GS

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DA42	Duo Discus
Operator	Civ Comm	Civ Gld
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	None
Altitude/FL	3200-3400ft	3400ft
Transponder	A, C, S	A, C, S
Reported		
Colours	NR	White
Lighting	NR	None
Conditions	NK	VMC
Visibility	NR	>10km
Altitude/FL	3400ft	3500ft
Altimeter	NK (NR hPa)	QNH (NK hPa)
Heading	NR	315°
Speed	140kt	70kt
ACAS/TAS	TAS	TAS
Alert	Information	None
Separation at CPA		
Reported	10m V/0m H	250ft V/50m H
Recorded	<200ft V/<0.1NM H	



THE DA42 PILOT reports being on recovery to [their destination airfield] when their [electronic conspicuity device], connected to the PM headset via Bluetooth, detected a contact. The warning was of a glider, straight ahead, co-level heading towards them. The glider was spotted nose-on at less than half a mile on a perfect collision course. The PM took control and called “I have control, avoiding”. The aircraft was aggressively bunted and separation of no more than 10m was achieved as the glider passed directly overhead.

The pilot did not make an assessment of the risk of collision.

THE DUO DISCUS GLIDER PILOT reports that they were on a cross-country flight from [their departure airfield] to Glastonbury via Avebury on the outbound journey and returned to [their departure airfield] via Calne on the return journey. Approximately 4NM SW of Rivar Hill glider site, having just left a thermal and entering an inter-thermal cruise at 70kt, at 3500ft QNH, a twin-engine aircraft was seen in close proximity to the glider, on a direct collision route. The pilot in command (and P2) of the glider saw the aircraft late, and the P1 took avoiding action by climbing (pulling up from the cruise) to create separation. The aircraft passed approximately 250ft below them and made no course or altitude deviation.

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

Factual Background

The weather at Boscombe Down was recorded as follows:

METAR EGDM 221220Z 13006KT 9999 FEW047 28/15 Q1022 NOSIG RMK BLU BLU=

Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was conducted. Both aircraft were detected by the NATS radars. At 1228:39, the Duo Discus glider pilot exited a thermal at an indicated altitude of 3500ft (FL033) and took up a north-easterly track towards the DA42. The DA42 pilot was tracking southeast bound towards the glider at an indicated altitude of 3300ft (FL031); the aircraft were separated by 200ft vertically and 2.7NM horizontally at this point (see Figure 1). Both aircraft then continued to track towards each other until CPA. The radar sweep immediately prior to radar CPA displayed a vertical separation of 0ft (see Figure 2), whereas the subsequent radar sweep displayed a vertical separation of 200ft but the aircraft tracks had already crossed (see Figure 3). Minimum separation is judged to have occurred between radar sweeps and is assessed as <200ft vertically and <0.1NM horizontally.

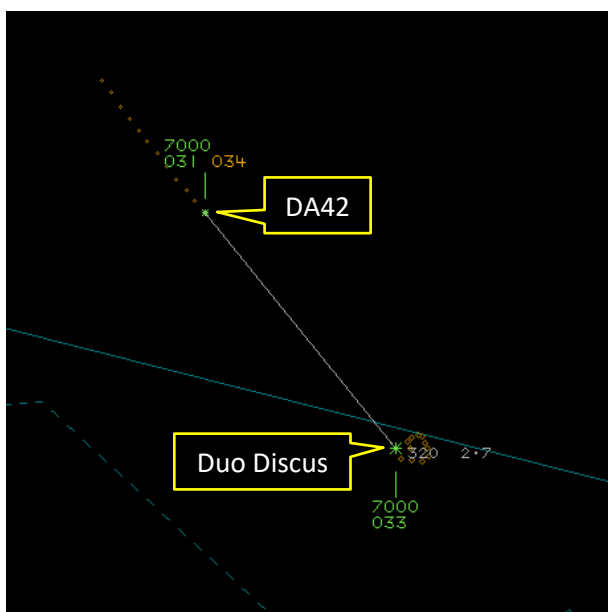


Figure 1 – 1228:39

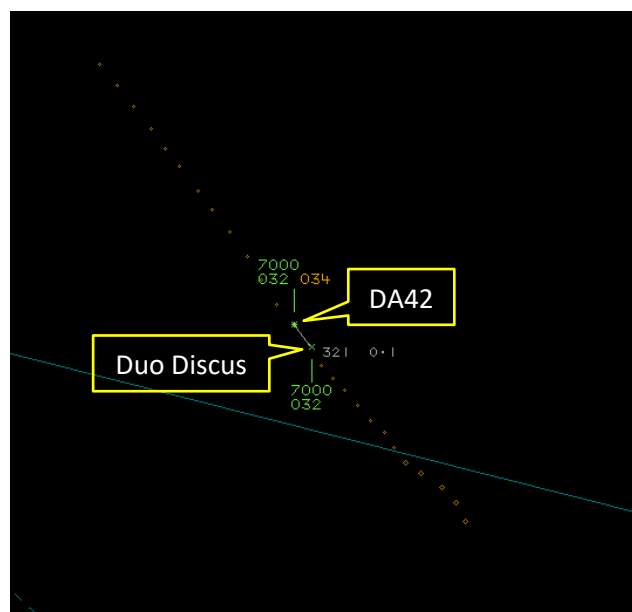


Figure 2 – 1229:23

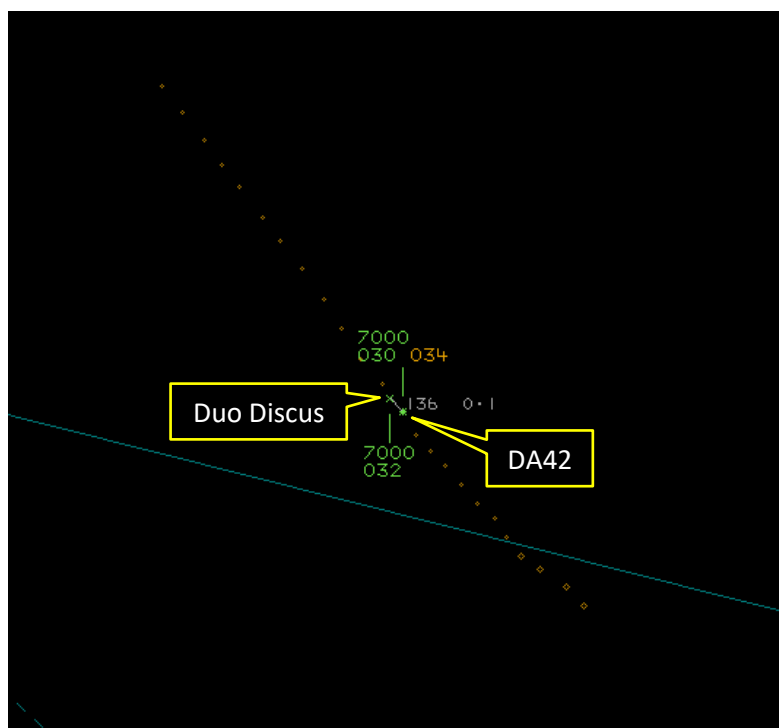


Figure 3 – 1229:27 – Radar CPA

The DA42 and Duo Discus glider 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

Comments

BGA

It is very good to read that the DA42 was using [an electronic conspicuity device], and that it was effective in this case. It is particularly difficult to see aircraft approaching head on, and it seems that without the EC warning there was a very real risk of collision in this case.

Summary

An Airprox was reported when a DA42 and a Duo Discus glider flew into proximity 4NM WSW of Rivar Hill glider site at 1229Z on Thursday 22nd July 2021. Both pilots were operating under VFR in VMC; neither pilot was 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.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided a combination of written contributions and dial-in/VTC comments.

The Board first discussed the actions of the DA42 pilot and heard from a GA pilot member that, in the area in which this Airprox took place, it can be difficult to secure an ATS. Members considered that either Brize Norton or Boscombe Down could theoretically provide an ATS in the vicinity of Rivar Hill, but acknowledged that this may be towards the limit of both units' radar coverage. However, the Board judged that the DA42 pilot may have been better served by at least trying to secure an ATS from a LARS provider and that the lack of an ATS had been contributory to the Airprox (**CF1**). Notwithstanding the lack of ATS, the Board was heartened to note that the DA42 pilot had been carrying an electronic conspicuity device to aid in the detection of other aircraft, but agreed that the warning that they had received from this device interacting with the device fitted to the Duo Discus (**CF3**) had been at a late stage and had therefore not provided the pilot with early enough situational awareness of the presence of the glider for them to avoid the Airprox (**CF2**). The Board agreed that this, in turn, had led to a late sighting of the glider by the DA42 pilot (**CF4**) and that they had had to take emergency avoiding action to prevent a possible collision.

Turning to the actions of the Duo Discus pilot, the Board heard from a glider pilot member that it is unusual for glider pilots to seek an ATS. In this case, the Board was heartened that the glider pilot had been utilising their transponder because this equipment not only assists controllers but also interacts with a number of other electronic conspicuity devices. That said, the Board also considered that, as for the DA42 pilot, since the Duo Discus pilot had activated their transponder then they may also have been better served by seeking an ATS from a local LARS provider (**CF1**). In the event, the Duo Discus pilot had been relying on their electronic conspicuity device to provide early warning of aircraft in proximity but they had not received any warning from this device (despite the device clearly interacting with the equipment on the DA42). Members therefore agreed that the Duo Discus pilot had not had any situational awareness of the presence of the DA42 (**CF2**) and that this had therefore left them relying on their lookout. The Board noted that the geometry of the encounter had been head-on, and that this

¹ (UK) SERA.3205 Proximity.

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

would have further reduced the visual conspicuity of the other aircraft, leading to a late sighting (**CF4**) and emergency avoiding action on the part of the Duo Discus pilot.

Finally, the Board considered the risk involved in this event. Members noted that the NATS radar replay showed the a head-on encounter where the tracks had crossed between radar sweeps and that the vertical separation at the time the tracks crossed had been between 0ft and 200ft. The Board also noted that the DA42 pilot had assessed the vertical separation as being in the order of 10m, but that the Duo Discus pilot had considered it to have been at around 250ft (although the glider pilot had considered the risk of collision to be 'high'). This led the Board to conclude that there had been a risk of collision in this encounter (**CF5**) and members went on to discuss whether the separation achieved had been influenced in any way by both pilots' actions; The Board was unanimous that the actions of both pilots had averted a likely collision and consequently assigned a Risk Category B to this Airprox.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2021129				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Flight Elements				
• Tactical Planning and Execution				
1	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				
2	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late or only generic, Situational Awareness
• Electronic Warning System Operation and Compliance				
3	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
• See and Avoid				
4	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
• Outcome Events				
5	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 Assessment³

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

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the Duo Discus pilot had no situational awareness of the presence of the DA42, and the DA42 pilot gained late situational awareness of the presence of the Duo Discus from their on-board electronic conspicuity equipment.

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

See and Avoid were assessed as **partially effective** because both pilots sighted the other aircraft late and had to take late/emergency avoiding action to ensure separation.

Airprox Barrier Assessment: 2021129		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:		<u>Full</u>	<u>Partial</u>	<u>None</u>	<u>Not Present/Not Assessable</u>	<u>Not Used</u>		
Provision	✓	⚠	✗	○				
Application	✓	⚠	✗	○				
Effectiveness	■	■	■	■	□			