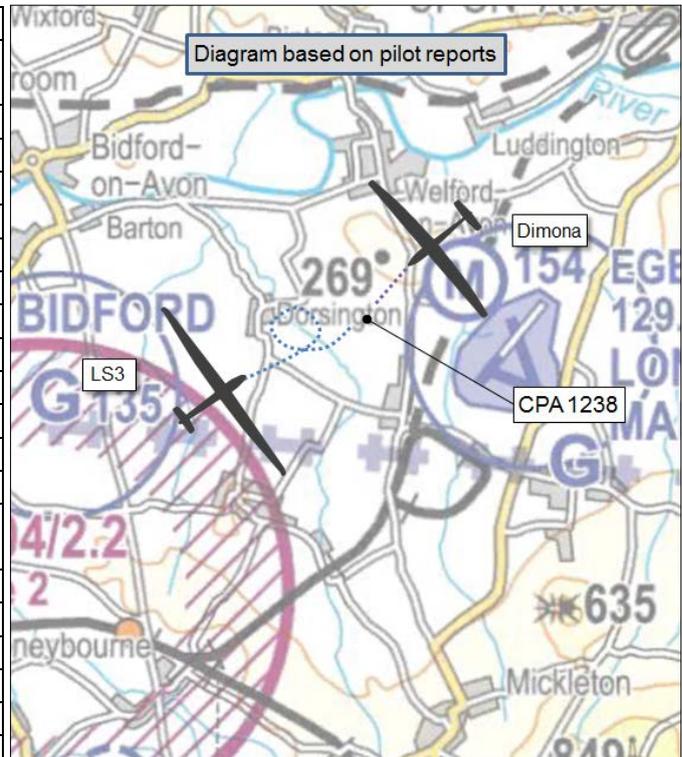


AIRPROX REPORT No 2016169

Date: 06 Aug 2016 Time: 1238Z Position: 5208N 00147W Location: 2nm E Bidford

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	LS3 glider	Dimona motorglider
Operator	Civ Club	Civ Club
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	None
Altitude/FL	NK	NK
Transponder	Not fitted	Off
Reported		
Colours	White	
Lighting	Nil	
Conditions	VMC	VMC
Visibility	>10km	10km
Altitude/FL	2600ft	Between 1500-2500ft
Altimeter	QFE	QFE
Heading	NA	NA
Speed	50kt	50kt
ACAS/TAS	FLARM	FLARM
Alert	Yes	Yes
Separation		
Reported	0ft V/<50m H	NK V/200m H
Recorded	NK	



THE LS3 PILOT reports that she had just released from the tow at 2000ft, when she saw two other gliders in front in a higher thermal. They were thermalling to the left, so she joined below and also thermalled left. She maintain good separation by being several hundred feet below and by keeping them in sight as far as possible. The FLARM was also alerting her to their position with green indicators. The cloud base was 4200ft and, as the gliders above neared this height, they left the thermal so that she was the only one left, climbing. There were no more indicators on the FLARM. On reaching about 2600ft, there was suddenly an audio alert and the FLARM lit up with multiple flashing red lights. The alert indicated that another aircraft was behind and at the same level but she was unable to see it. She continued to circle left and, as she came round 180°, the FLARM went off again; this time she could see a Dimona glider coming straight at her in her 12 o'clock. She dived below it and continued round, thinking at the time that it was passing through and simply hadn't seen her glider; however, as she came round again through another 180° the same thing happened. This time she noticed that the Dimona's engine was off because the propeller wasn't turning, so it was clearly trying to thermal with her. She believed it was thermalling in the opposite direction to her glider. She decided that the only safe course of action was to leave the thermal.

She assessed the risk of collision as 'High'.

THE DIMONA PILOT reports that at the time of the alleged Airprox he was within 1nm of Long Marston with the engine stowed; therefore, he was operating as a glider and following standard glider procedures. He joined the thermal in accordance with the BGA guidelines and was fully visual with the other glider at all times; his FLARM unit was alerting him to the presence of the other glider. Being so close to Long Marston, he was on their published frequency of 129.82, and at no point did the other pilot attempt to make contact on that frequency, or alert other Long Marston users of their presence in close proximity to the Long Marston circuit. He remarked that he was very surprised that

this was reported as an Airprox because, as far as he was concerned, they were both following standard glider thermalling procedures. He opined that it is perfectly normal for gliders to enter thermals with other gliders. The other pilot was aware of his presence due to FLARM and clearly aware of the identity of his aircraft, yet did not seek to inform him of the Airprox at the time. He only heard about it from the UKAB and noted that, had he been informed at the time, he could have downloaded his FLARM trace but unfortunately it automatically overwrites the trace after two weeks and so he wasn't able to. He has since been in contact with the CFI at Bidford gliding club and, during a face-to-face meeting, discussed how the two clubs could operate safely within such close proximity. It was agreed that, in future, Bidford gliders should broadcast on the Long Marston frequency when in the area.

He assessed the risk of collision as 'None'.

Factual Background

The weather at Coventry was recorded as follows:

METAR EGBE 061120Z 23007KT 180V280 9999 SCT040 22/13 Q1027

Analysis and Investigation

UKAB Secretariat

The LS3 and Dimona pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard¹. If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right². BGA protocol is that gliders already established in a thermal have the right of way [over those joining].³

Comments

BGA

BGA guidance is that a glider circling in a thermal has priority over one joining, and a joining glider should do so in a way that does not cause concern to gliders already established in the thermal.

[UKAB note: BGA protocol (see footnote 3) also states that joining gliders shall circle in the same direction as any gliders already established in the area of lift...and that the entry to the turn should be planned to...ensure no glider already turning will be required to manoeuvre to avoid the joining glider].

Summary

An Airprox was reported when an LS3 and a Dimona flew into proximity whilst both were thermalling at 1238 on Saturday 6th August 2016. Both pilots were operating under VFR in VMC, neither pilot was receiving an ATS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft.

The Board first looked at the actions of the LS3 pilot. Noting that she had been happy thermalling with other gliders but had become concerned by the Dimona pilot's flightpath on subsequently joining, members thought that she had ultimately acted appropriately by leaving the thermal when she felt her

¹ SERA.3205 Proximity.

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

³ <https://members.glliding.co.uk/library/safety/thermal-soaring-protocol/>

safety had been compromised; unsure of what the other pilot was going to do, clearing the area was the safest option. In this respect, the Board noted that the benefit of FLARM was clear to see, although not initially visual with the joining Dimona, the LS3 pilot did receive notification that it was there and, thus forewarned, was able to look for it pro-actively.

Turning to the Dimona pilot, it was clear from his report that he was not at all concerned by the incident. Although he maintained that he had joined in accordance with BGA guidelines, the BGA member noted that it was recommended that when joining thermals, pilots should do so in a position that meant the other pilot could see them at all times, and in the same direction as those already thermalling to ensure they were therefore not surprised by the sudden arrival of another aircraft. A discussion followed in which some members wondered whether a minimum height separation on joining a thermal could, or should, be applied. In response, those members with gliding experience explained that this was not always possible due to the nature of thermals and the different performances of gliders. Turning to risk appetite, some members opined that, to an extent, the glider community appeared to have normalised the risk of operating in close proximity to one another in thermals, and so frequently operated at the sort of proximity that pilots of powered aircraft would never do – especially when the capabilities of the other glider pilot could not be known. The Board also noted that this incident also highlighted the difference in perception of risk between what one pilot was comfortable with whilst the other was not. In this respect, the Board thought that all pilots would be well served by being alert to the fact that the risk appetite of others may not be the same as their own; they should therefore endeavour to ensure sufficient separation not only to provide a safe margin for any errors of their own but also to account for any sudden changes in flightpath from the other aircraft (whose pilot may not have seen them) and to avoid causing concern to the other pilot.

In assessing the effectiveness of the barriers associated with this incident, the Board concluded that the key factor had been that Situational Awareness had only been partially effective – the LS3 pilot was not aware of the Dimona's close proximity as it joined the thermal behind, and the Dimona pilot had not taken sufficient account of the LS3 pilot's potentially lower risk tolerance to his joining manoeuvre and subsequent thermalling activities.

In assessing the cause of the Airprox, the Board had some difficulty in reconciling the two reports. Ultimately, the differing perceptions of risk in the reports (with one pilot very concerned, and the other not at all concerned) was troubling, but without the FLARM trace of the Dimona, or a radar trace, it was impossible to know how close the two gliders had come. In the end, the Board agreed that it was for the Dimona pilot to join the thermal in such a way as to not cause concern to those already established in it, and they therefore assessed that the cause of the incident was that the Dimona pilot had flown close enough to cause the LS3 pilot concern. However, in assessing the risk the Board noted that the Dimona pilot had stated he was visual with the LS3 at all times, and so they quickly agreed that there was no risk of collision; Category C.

Noting that there seemed to be underlying issues with the two clubs operating in close proximity and attempting to use the same piece of airspace (over which neither had priority or ownership), the Board were heartened to hear that liaison had already taken place and that the two clubs had at least come to an agreement about which radio frequency to use. Being able to enquire about the intentions of the joining aircraft, and knowing that the pilot was visual, may well have put the LS3 pilot's mind at ease had it been available on this occasion.

PART C: ASSESSMENT OF CAUSE AND RISK

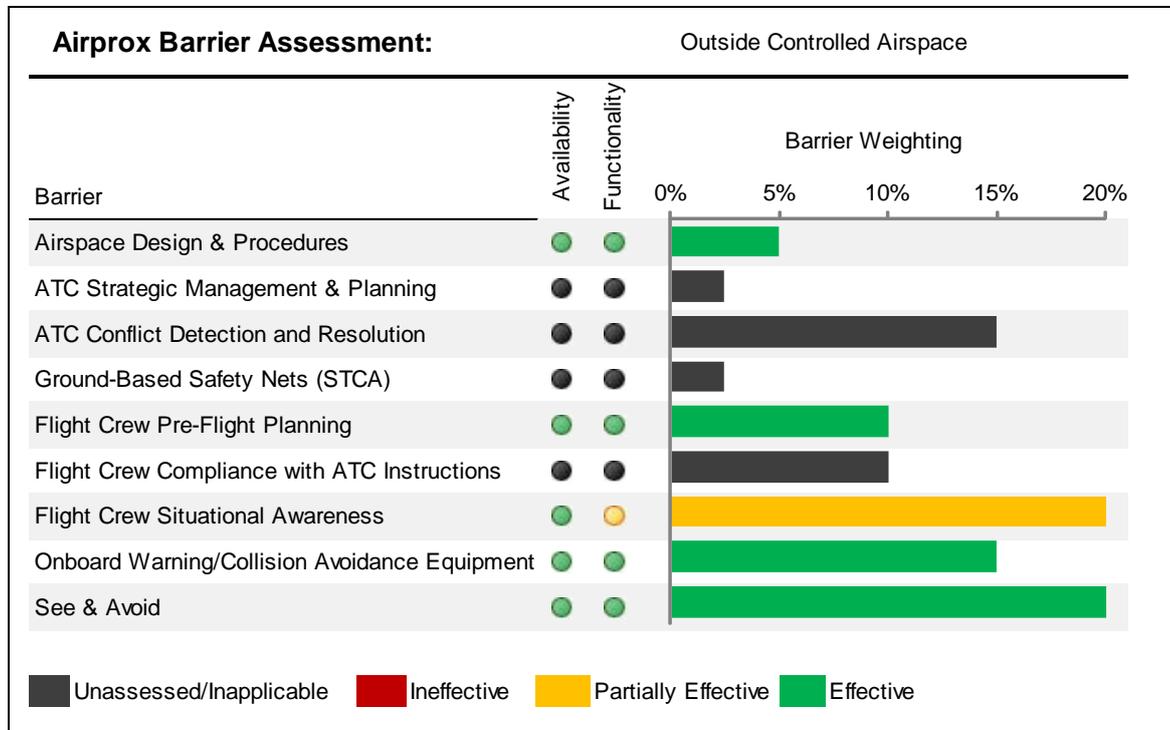
Cause: The Dimona pilot flew close enough to cause the LS3 pilot concern.

Degree of Risk: C.

Barrier assessment:

Modern safety management processes employ the concept of safety barriers that prevent contributory factors or human errors from developing into accidents. Based on work by EASA, CAA,

MAA and UKAB, the following table depicts the barriers associated with preventing mid-air-collisions. The length of each bar represents the barrier's weighting or importance (out of a total of 100%) for the type of airspace in which the Airprox occurred (i.e. Controlled Airspace or Uncontrolled Airspace).⁴ The colour of each bar represents the Board's assessment of the effectiveness of the associated barrier in this incident (either Fully Effective, Partially Effective, Ineffective, or Unassessed/Inapplicable). The chart thus illustrates which barriers were effective and how important they were in contributing to collision avoidance in this incident.



Barrier Effectiveness		Consequence		
		Non-functional	Partially Functional	Functional
Availability		1	2	3
Completely Unavailable	1	1	2	3
Partially Available	2	2	4	6
Available	3	3	6	9

Key:

- Effective
- Partially Effective (If the system was partially available but fully functional score availability as 2.5)
- Ineffective
- Unassessed/Inapplicable

⁴ Barrier weighting is subjective and is based on the judgement of a subject matter expert panel of aviators and air traffic controllers who conducted a workshop for the UKAB and CAA on barrier weighting in each designation of airspace.

Barrier	Availability			Functionality			Unassessable / Absent
	Fully (3)	Partially (2)	Not Available (1)	Fully (3)	Partially (2)	Non Functional (1)	
Airspace Design and Procedures	Appropriate airspace design and/or procedures were available	Airspace design and/or procedures were lacking in some respects	Airspace design and/or procedures were not appropriate	Airspace design and procedures functioned as intended	Airspace design and/or procedures did not function as intended in some respects	Airspace design and/or procedures did not function as intended	The Board either did not have sufficient information to assess the barrier or the barrier did not apply; e.g. TCAS not fitted to either aircraft or ATC Service not utilised. Note: The Board may comment on the benefits of this barrier if it had been available
ATC Strategic Management and Planning	ATM were able to man and forward plan to fully anticipate the specific scenario	ATM were only able to man or forward plan on a generic basis	ATM were not realistically able to man for or anticipate the scenario	ATM planning and manning functioned as intended	ATM planning and manning resulted in a reduction in overall capacity (e.g. bandboxed sectors during peak times)	ATM planning and manning were not effective	
ATC Conflict Detection and Resolution	ATS had fully serviceable equipment to provide full capability	ATS had a reduction in serviceable equipment that resulted in a minor loss of capability	ATS had a reduction in serviceable equipment that resulted in a major loss of capability	The controller recognised and dealt with the conflict in a timely and effective manner	The controller recognised the conflict but only partially resolved the situation	The controller was not aware of the conflict or his actions did not resolve the situation	
Ground-Based Safety Nets (STCA)	Appropriate electronic warning systems were available	Electronic warning systems is not optimally configured (e.g. too few/many alerts)	No electronic warning systems were available	Electronic warning systems functioned as intended, including outside alerting parameters, and actions were appropriate	Electronic warning systems functioned as intended but actions were not optimal	Electronic warning systems did not function as intended or information was not acted upon	
Flight Crew Pre-Flight Planning	Appropriate pre-flight operational management and planning facilities were deemed available	Limited or rudimentary pre-flight operational management and planning facilities were deemed available	Pre-flight operational management and planning facilities were not deemed available	Pre-flight preparation and planning were deemed comprehensive and appropriate	Pre-flight preparation and/or planning were deemed lacking in some respects	Pre-flight preparation and/or planning were deemed either absent or inadequate	
Flight Crew Compliance with Instructions	Specific instructions and/or procedures pertinent to the scenario were fully available	Instructions and/or procedures pertinent to the scenario were only partially available or were generic only	Instructions and/or procedures pertinent to the scenario were not available	Flight crew complied fully with ATC instructions and procedures in a timely and effective manner	Flight crew complied later than desirable or partially with ATC instructions and/or procedures	Flight crew did not comply with ATC instructions and/or procedures	
Flight Crew Situational Awareness	Specific situational awareness from either external or onboard systems was available	Only generic situational awareness was available to the Flight Crew	No systems were present to provide the Flight Crew with situational awareness relevant to the scenario	Flight Crew had appropriate awareness of specific aircraft and/or airspace in their vicinity	Flight Crew had awareness of general aircraft and/or airspace in their vicinity	Flight Crew were unaware of aircraft and/or airspace in their vicinity	
Onboard Warning/Collision Avoidance Equipment	Both aircraft were equipped with ACAS/TAS systems that were selected and serviceable	One aircraft was equipped with ACAS/TAS that was selected and serviceable and able to detect the other aircraft	One aircraft was equipped with ACAS/TAS that was selected and serviceable but unable to detect the other aircraft (e.g. other aircraft not transponding)	Equipment functioned correctly and at least one Flight Crew acted appropriately in a timely and effective manner	ACAS/TAS alerted late/ambiguously or Flight Crew delayed acting until closer than desirable	ACAS/TAS did not alert as expected, or Flight Crew did not act appropriately or at all	
See and Avoid	Both pilots were able to see the other aircraft (e.g. both clear of cloud)	One pilots visibility was uninhibited, one pilots visibility was impaired (e.g. one in cloud one clear of cloud)	Both aircraft were unable to see the other aircraft (e.g. both in cloud)	At least one pilot takes timely action/inaction	Both pilots or one pilot sees the other late and one or both are only able to take emergency avoiding action	Neither pilot sees each other in time to take action that materially affects the outcome (i.e. the non-sighting scenario)	