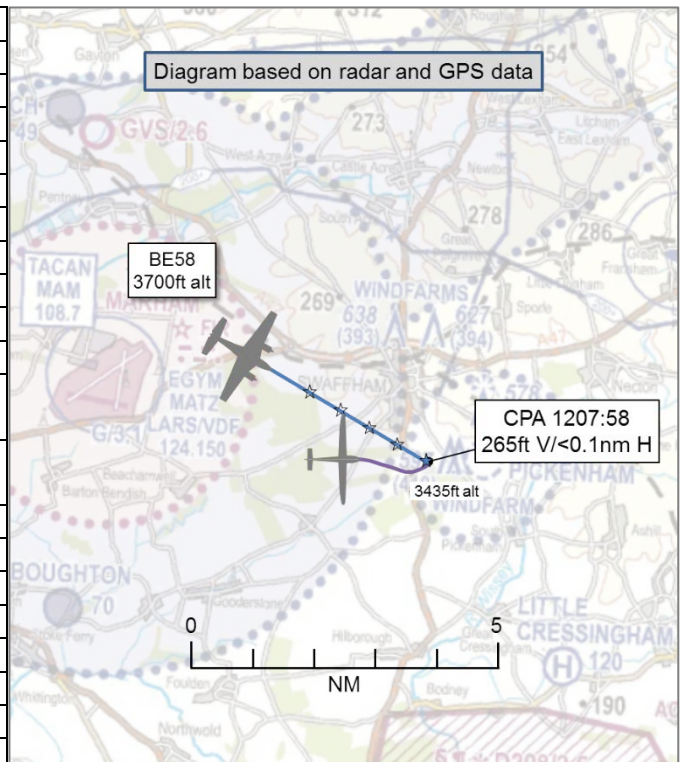


AIRPROX REPORT No 2019116

Date: 23 May 2019 Time: 1208Z Position: 5237N 00041E Location: 5nm E Marham

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Beech 58	Ventus glider
Operator	Civ FW	Civ Gld
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Traffic	None
Provider	Marham	(Marham ¹)
Altitude/FL	3700ft	3435ft
Transponder	A, C, S	Not fitted
Reported		
Colours	White, black, gold, grey	White
Lighting	Strobe, beacon, nav, landing	Not fitted
Conditions	VMC	VMC
Visibility	>20km	>15km
Altitude/FL	3500ft	3700ft
Altimeter	NK (1011hPa)	NK (NK hPa)
Heading	124°	100° - 70°
Speed	160kt	70kt
ACAS/TAS	TAS	FLARM
Alert	None	None
Separation		
Reported	50ft V/300m H	100ft V/0m H
Recorded	265ft V/<0.1nm H	



THE BE58 PILOT reports that he had just reduced speed in preparation for the descent into his destination and had reported this intention to the Marham controller. The controller passed him information regarding unknown traffic with no height information. Seconds later he saw a glider in the one-to-two o'clock position at a range of approximately 300m, slightly below his level and heading approximately north. He made a hard pull-up and applied full power. He did not see the glider again and assumed that it had passed beneath him. He advised the Marham controller of his avoidance climb. The glider pilot was also on the Marham frequency and reported that he had seen the Beech 58. The passenger in the right-hand seat did not see the glider.

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

THE VENTUS PILOT reports flying a cross-country task. Approaching Marham, he changed to their frequency to initially listen out to assess how busy they were. At around 11:55, he called Marham informing them of his approximate position and his intentions. He did not request a service. He was given 'permission' to enter the MATZ if required and to call on entry. He continued on track after climbing and around 12:04 again called Marham, giving his approximate position on the southern edge of their ATZ. At around 12:07:40 he had either just completed or was part way through a small course correction to the left when a twin-engine aircraft appeared from just behind and slightly above his left wing. He immediately pushed forward on the stick to dive, and within a couple seconds the twin passed over the top of him. It was close enough that he could easily read its registration. A short time later the pilot of the twin called Marham to say that he had just pulled up over a glider. The Ventus pilot then informed Marham that he was the glider that the twin had just missed. He did not recall the Marham controller make any comment. The Ventus pilot noted that prior to the incident he thought he had heard the pilot

¹ In contact with the Marham controller.

of the twin talking to Marham, along with other pilots, but had not picked up that it was coming in his direction. His thoughts at the time were that the only reason the pilot of the twin saw him was because of the slight turn he was making, so changing his perspective to the pilot of the twin. Without the slight change in direction, the Ventus pilot would not have seen the twin as it would have been approaching from too far behind his wing.

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

THE MARHAM CONTROLLER reports that he was controlling at the time of incident, bandboxing the Approach, Director and Zone positions and utilising frequencies 4, 5, 8 and 22. [UKAB note: these 'frequencies' refer to pre-coded selectors such that a controller can quickly select a frequency without needing to dial in the complete set of digits]. At the time, there were no aircraft expected or otherwise on frequencies 4, 5 or 8, therefore his workload and focus was primarily on frequency 22. During his appointed control slot, he was in contact with at most 12 speaking units, consisting of 8-9 gliders, some squawking, some not, and 3 fixed-wing single-engine aircraft, he believed 2 of which were identified under a Traffic Service. Due to the nature of controlling up to 9 gliders, most of which were without a transponder, with generally poor R/T, combined with inaccurate position reports, he ensured to keep his attention on known squawking traffic, especially due to several more non-speaking gliders shown on FLARM ivo Marham (inside 12nm from the overhead). During this time [one of the] fixed wing aircraft [in receipt of a Traffic Service] was travelling from east to west through the Marham overhead. Upon it approaching 2 miles north of the Wind Farms (8 miles east of Marham), he noticed a small primary contact, very similar to the wind farms but unfamiliar in its track, heading slowly north. He immediately called Traffic Information to the transit aircraft, 'Traffic 12 o'clock, 1 mile, crossing right left ahead, slow moving, no height information'. The pilot then responded saying (to the best of his memory) 'I have that traffic below'. The traffic that was called as traffic information then came on frequency saying (to the best of his memory) 'seen that aircraft above, close'. The controller acknowledged the transmissions and nothing further was transmitted on frequency relating to the incident. He immediately informed the supervisor and continued his shift without complication.

THE MARHAM SUPERVISOR reports that he was not present at the time of the Airprox. The controller subsequently notified the Supervisor of the incident and described the scenario to him as he did in his narrative; there was no mention of an Airprox being declared on frequency.

Factual Background

The weather at Marham was recorded as follows:

METAR EGYM 231150Z 25005KT 9999 FEW040 SCT250 18/08 Q1016 BLU NOSIG=

Analysis and Investigation

Military ATM

An Airprox occurred on 23 May 19 at approximately 1210 UTC, near North Pickenham between a BE58 and Ventus 2CT glider. The BE58 was receiving a Traffic Service from Marham Zone, the Ventus was speaking to Marham Zone but was not in receipt of an Air Traffic Service.

The BE58 was on a transit flight and had been handed over to Marham from RAF Waddington. Its pilot was in receipt of a Traffic Service which was reduced due to poor radar performance caused by radar suppression. The Ventus was on a local flight. The Ventus pilot had established communications with Marham Zone to ascertain how busy Marham was and, although no formal Air Traffic Service was agreed, had been given 'permission' to transit the Marham MATZ.

The Marham Zone controller was bandboxing the Approach, Director and Zone tasks due to no station-based military flying. At the time of the incident, the Marham Zone Controller was speaking to seven different aircraft including the two involved in the airprox. Due to the number of gliders in

the area, another Marham controller was observing FLARM data from an appropriate website and this was being used to supplement the information available to the Marham Zone Controller.

As the BE58 approached an area of windfarm radar clutter, the Marham Zone Controller passed traffic information on an unknown contact (the Ventus) and the BE58 reported descending to his destination. 19secs after the traffic information was passed the BE58 reported that it had just manoeuvred to avoid a glider and, on hearing this RT exchange, the Ventus reported that it had just had 'a close call' with a twin-engine aircraft.

The Marham Zone Controller was operating in challenging conditions and was supplementing their available surveillance information with FLARM derived information. A moderate-to-high intensity traffic loading, coupled with a suppressed radar and the incident occurring close to wind farm radar clutter, conspired to create a situation where traffic information could only be passed at one mile. Given these factors the Marham Zone Controller passed traffic information to the BE58 as soon as possible and therefore acted appropriately.

UKAB Secretariat

The Beech 58 and Ventus pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard². If the incident geometry is considered as converging then the Beech 58 pilot was required to give way to the Ventus³. If the incident geometry is considered as overtaking then the Ventus pilot had right of way and the Beech 58 pilot was required to keep out of the way of the other aircraft by altering course to the right⁴.

Comments

BGA

It's heartening to see gliders talking to Marham controllers and Marham making use of FLARM-derived data. It's unfortunate that despite everybody's best efforts the two aircraft came into proximity.

Summary

An Airprox was reported when a Beech 58 and a Ventus glider flew into proximity near Marham at 1208hrs on Thursday 23rd May 2019. Both pilots were operating under VFR in VMC, the Beech 58 pilot in receipt of a Traffic Service from Marham and the Ventus pilot listening out on the same Marham frequency.

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 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.

Members first discussed the Marham controller's actions and commended him both for discerning the Ventus primary only track in an area of known radar clutter and for acting promptly to provide what little warning he could to the BE58 pilot (**CF1**). Unfortunately, because the controller had late SA (**CF2**) he was therefore only able to pass Traffic Information to the BE58 pilot just before CPA (**CF3**). In turn, although he had previously been given generic information about gliders in the area, the BE58 pilot only had specific SA about the Ventus pilot's location at a very late stage, and then with no height information because the Ventus was not transponder-equipped (**CF4**).

² SERA.3205 Proximity.

³ SERA.3210 Right-of-way (c)(2) Converging.

⁴ SERA.3210 Right-of-way (c)(3) Overtaking.

For his part, the Ventus pilot was not in receipt of a service and therefore had no SA about the BE58 other than that which he might glean from the other pilot's radio transmissions (**CF4**). Although he had been aware that the BE58 was talking to Marham, he had not assimilated its track and could not be helped in this respect by the Marham controller because the latter had no specific information about the Ventus pilot's location and height. The Board commended the Ventus pilot for establishing contact with Marham and listening out on their frequency, and acknowledged that the task of soaring was such that maintaining detailed radio communications could be distracting; however, some members wondered whether there might have been opportunities for the Ventus pilot to periodically update the Marham controller as to his general location and height in order to improve the SA of the controller and other pilots on frequency. There was a balance to be made in doing so (continual updates were neither feasible nor desirable in general) but, when soaring close to busy airfields or within a MATZ, a periodic update as to one's activities might be a useful adjunct to bring into one's activity cycle.

Unfortunately, neither aircraft was fitted with a TAS that was compatible with the other aircraft and so neither system alerted. In the event, the BE58 pilot saw the Ventus at a late stage (**CF6**) and was able to take avoiding action, as did the Ventus pilot (**CF6**). The Board discussed the pilot's actions and separation at CPA and surmised that although both pilots had manoeuvred to increase separation at CPA, safety had nonetheless been much reduced below the norm.

Finally, members looked forward to a positive outcome to CAA and MAA efforts to review ATC use of 'unassured' data, such as FLARM information, as recommended in Airprox 2018266.

PART C: ASSESSMENT OF CAUSE AND RISK

Contributory Factors:

2019116			
CF	Factor	Description	Amplification
Ground Elements			
• Manning and Equipment			
1		• Any other event	Radar clutter from windfarm
• Situational Awareness and Action			
2	Contextual	• Situational Awareness and Sensory Events	Only generic, late or no Situational Awareness
3	Human Factors	• Conflict Detection - Detected Late	
Flight Elements			
• Situational Awareness of the Conflicting Aircraft and Action			
4	Contextual	• Situational Awareness and Sensory Events	Pilot had no, only generic, or late Situational Awareness
• Electronic Warning System Operation and Compliance			
5	Technical	• ACAS/TCAS System Failure	Incompatible CWS equipment
• See and Avoid			
6	Human Factors	• Monitoring of Other Aircraft	Late-sighting by one or both pilots

Degree of Risk: B.

Recommendation: Nil.

Safety Barrier Assessment⁵

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

Ground Elements:

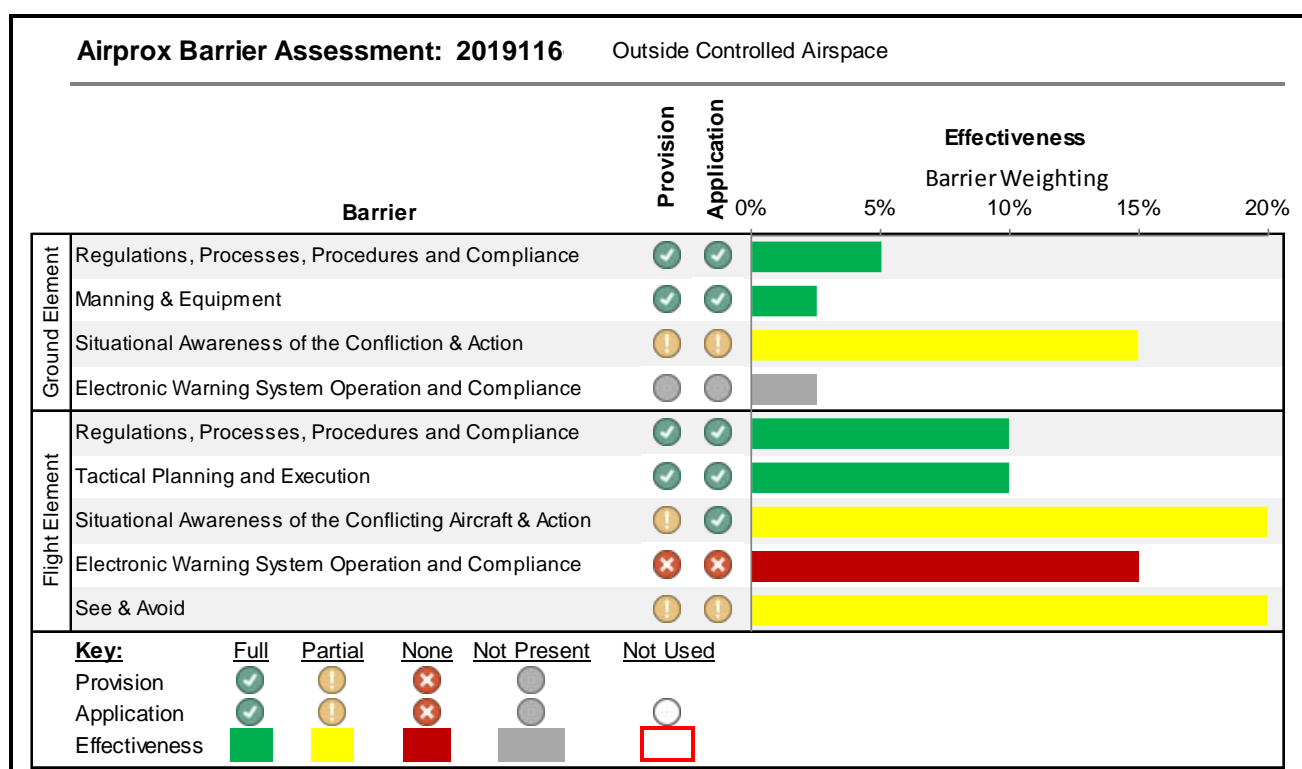
Situational Awareness of the Confliction and Action were assessed as **partially effective** because conditions were such that the Marham controller could not detect the confliction until at a late stage.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because although they had generic information about activity in the area, neither pilot was specifically aware of the other aircraft until at a late stage.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because neither aircraft's TAS was compatible with the other aircraft.

See and Avoid were assessed as **partially effective** because each pilot saw the other aircraft at a late stage and were only able to increase separation at CPA by a correspondingly small amount.



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