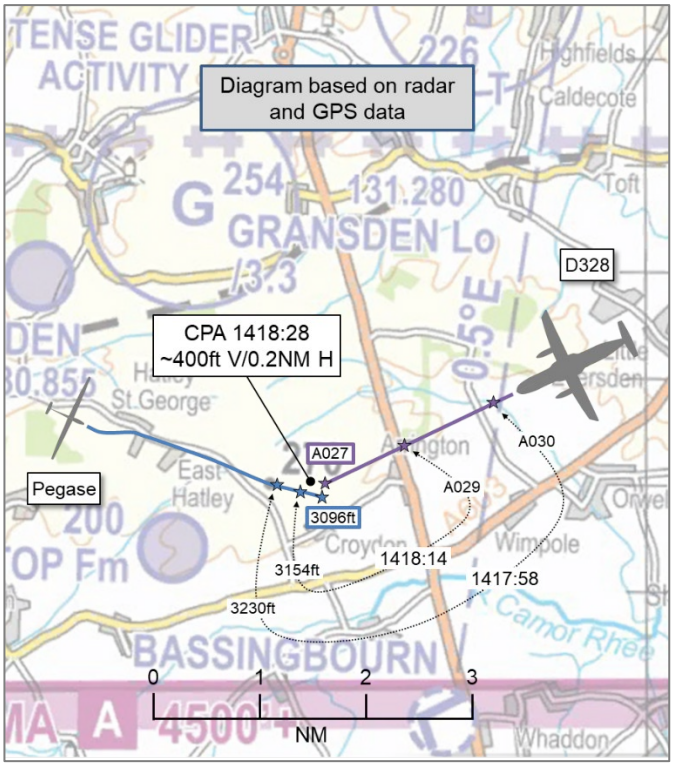
AIRPROX REPORT No 2023096

Date: 26 May 2023 Time: 1418Z Position: 5208N 00005W Location: 3NM SSE Gransden Lodge

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Pegase	D328
Operator	Civ Gld	CAT
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	IFR
Service	None	Procedural
Provider	N/A	Cambridge App
Altitude/FL	3096ft	2700ft
Transponder	Not fitted	A, C, S+
Reported		
Colours	White	White, blue
Lighting	None	Strobes, anti-col, nav, landing
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	3100ft	2500ft
Altimeter	QNH (1032hPa)	QNH
Heading	090°	270°
Speed	70kt	190kt
ACAS/TAS	FLARM	TCAS II
Alert	None	None
Separation at CPA		
Reported	300ft V/500m H	200ft V/0.25NM H
Recorded	~400ft V/0.2NM H	



THE PEGASE PILOT reports that visibility was slightly hazy. The closing speed must have been high given the near head-on situation. Their immediate turn to the right was the correct avoiding action. The jet aircraft appeared to continue in straight flight.

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

THE D328 PILOT reports that, as they were descending to 1700ft as part of the full procedure for an NDB approach for RW05 at Cambridge, a glider suddenly appeared in front of them at an altitude of approximately 2500ft. Cambridge Approach/Tower did inform them of glider activity beforehand and, with VMC prevailing, they were constantly keeping a lookout for other traffic around their position. The glider was at a slightly lower altitude and easy to miss. The glider pilot probably spotted [the D328] first and did a sharp right-turn to avoid. [The D328 pilot opines that] they would have passed each other if no alterations were made, but they understand why [the glider pilot manoeuvred], since the aircraft were not more than a couple of hundred feet apart. As the glider pilot was already actively avoiding them, they decided against also changing course to the right, since that would make them lose sight of the glider. They passed it and the rest of the approach went according to plan, with no further incidents.

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

THE CAMBRIDGE APPROACH CONTROLLER reports that the [pilot of the D328] was under a Procedural Service, and conducting an NDB approach to RW05, when they noticed a primary-only radar contact on the FID next to them in the VCR. They were aware of gliding activity throughout the day which had been proximate to the final approach track, and could see that, although there was no height information on the target, it could become laterally proximate. They reminded the [D328] pilot that they were operating 'non-radar' but believed that there was traffic in their vicinity. Approximately 30sec or so later, the [D328] pilot reported visual with a glider which passed approximately 100ft over

the top of their aircraft. The pilot did not seem fazed by this and did not report taking avoiding action or an Airprox on the frequency or by any other means after landing. They were subsequently informed that an Airprox had been filed. Unfortunately, on the date of the incident, radar services were not available at Cambridge, and had not been for approximately 2 weeks due to the installation of a new radar system, although they did have access to a FID during the period which was used on this occasion. The reduced provision of service was NOTAM'd accordingly.

Factual Background

The NOTAM regarding the provision of service at Cambridge:

A3669/23 NOTAMN
Q) EGTT/QPAAW/I /BO /A /000/999/5212N00011E005
A) EGSC B) 2305150830 C) PERM
E) SURVEILLANCE RADAR APPROACH RWY 05 AND RWY 23 WITHDRAWN.
UK AIP AD 2.EGSC-8-1 AND AD 2.EGSC-8-6 REFERS.

The weather at Cambridge was recorded as follows:

METAR EGSC 261420Z 08007KT 030V150 9999 FEW048 19/07 Q1032

Analysis and Investigation

CAA ATSI

The [Pegase] pilot reported that they were operating to the southwest of Cambridge, in communication with Gransden Lodge gliding club, and at an altitude of 3100ft on an easterly track at the time of the Airprox. The pilot reported sighting the D328 when it was 0.5NM away and 300ft below them.

The D328 pilot reported being inbound to Cambridge from the southeast for an NDB approach for RW05, and passing altitude 2500ft in the descent, on a westerly track, and in receipt of a Procedural Service from Cambridge Approach at the time of the Airprox. The pilot reported sighting the [Pegase] when it was 0.5NM away and 200 or 300ft below them, on a relative bearing of 340°.

The Cambridge Approach controller reported that the Cambridge radar system had been removed from service and was in the process of being replaced. The Aerodrome Traffic Monitor, which is normally fed from the radar system, was not available and a Flight Information Display System (FIDS) had been provided for the period of the radar unavailability. The FIDS was authorised for the following uses during this period, as outlined in a Unit Temporary Operating Instruction:

1. Flight path monitoring of aircraft on final approach
2. Flight path monitoring of other aircraft in the vicinity of the aerodrome
3. Providing navigation assistance to VFR flights
4. Enhancing the provision of Traffic Information

Screenshots within this report have been taken from the Area Radar recording and may not be representative of what the controller was seeing on the FIDS at the time.

At 1413:50, the D328 pilot made initial contact with the Cambridge controller and advised that they were descending to altitude 4000ft on QNH 1032hPa, inbound to the CAM and with information Lima. A Procedural Service was agreed, and the controller advised RW05 was in use and asked the pilot what type of approach they would like. The pilot responded that they'd like an NDB approach. The pilot was instructed to descend to altitude 3000ft and report their estimate for the CAM. The pilot read back the descent instruction and queried whether the controller was asking them to report passing the CAM. The controller asked the pilot if they were within a few miles of the airfield and the pilot responded that they were 7NM and 2min to the CAM. The pilot was cleared for

the NDB approach to RW05 and instructed to report at the CAM outbound. The pilot provided a full readback (Figure 1).

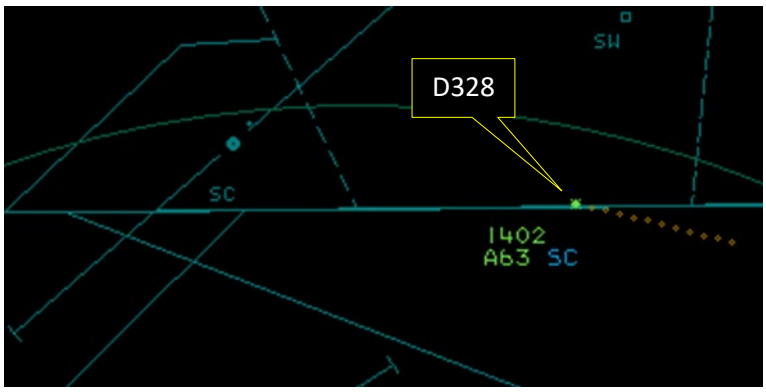


Figure 1 – 1413:50

At 1415:30, the D328 pilot reported CAM outbound, and the controller acknowledged and responded, "*roger, report base turn complete, caution Gransden Lodge Gliding site 10 miles southwest of Cambridge is active with six gliders*". The pilot responded, "*that is copied, we'll call you turning base*". (Figure 2)

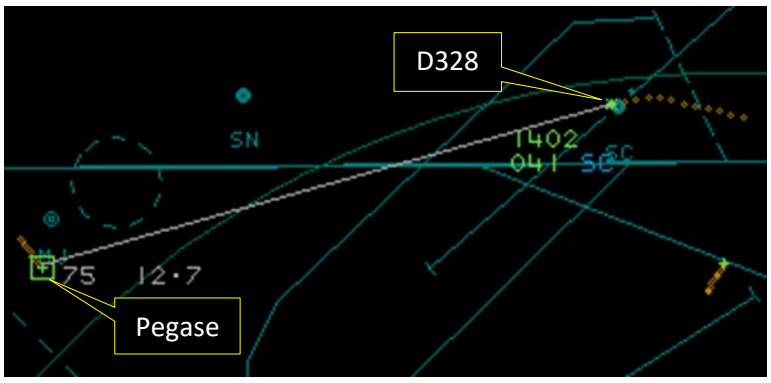


Figure 2 – 1415:30

At 1418:10, the controller advised the pilot that they were operating non-radar and to keep a good lookout when making the base turn; "*I believe there to be traffic in the vicinity of BEPOX tracking eastbound with no height information*". The pilot responded that they had copied the traffic and the controller advised that the traffic was believed to be non-transponding and that it might not be visible on TCAS. The pilot acknowledged (Figure 3).

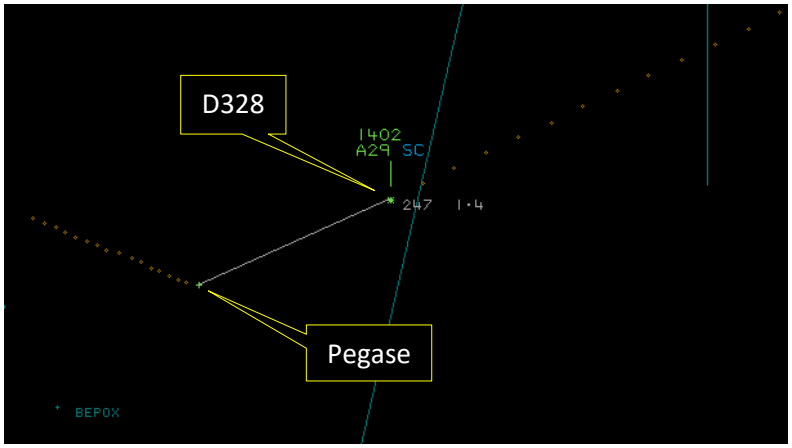


Figure 3 – 1418:10

At 1418:28, CPA occurred with the aircraft separated by 0.2NM and, [as reported by the D328 pilot on the RT], 100ft (Figure 4).

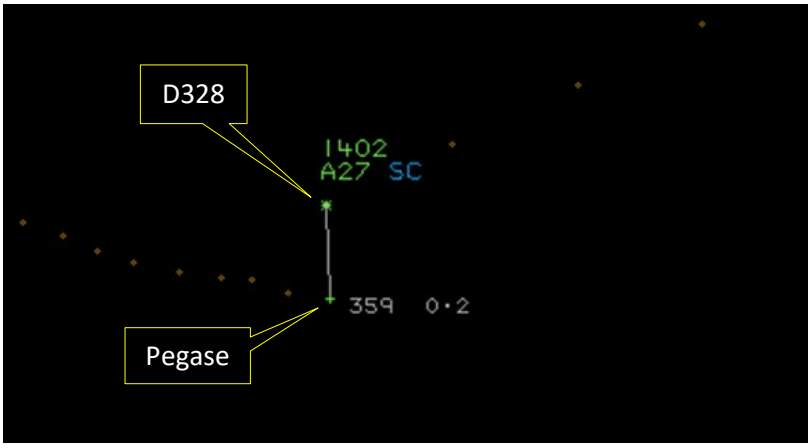


Figure 4 – 1418:28 CPA

At 1418:40, the pilot reported, "*I think the glider has just passed the lights 100 feet above us, just for information*". The controller acknowledged.

At 1420:20, the pilot reported base turn complete, and the controller passed a further warning on the glider traffic, advising that they believed it still to be eastbound.

Analysis

The Cambridge controlled recognised the potential confliction with glider traffic at an early stage and passed several warnings to the D328 pilot that enabled the pilot to gain sight of the glider traffic.

Conclusion

The Cambridge controller should be commended for using good defensive controlling techniques.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and the D328 was positively identified from Mode S data. The pilot of the Pegase kindly supplied GPS track data for their flight which enabled positive identification of a primary-only return on the radar replay as the Pegase. The diagram was constructed and the separation at CPA determined by combining the radar and GPS data.

The left-turn made by the pilot of the Pegase moments after CPA, apparent on the radar replay in Figure 5 , was not observed in the GPS track data and the radar returns were assessed as spurious. The pilot of the Pegase had maintained a broadly straight course (+/- 5°) before and after CPA.

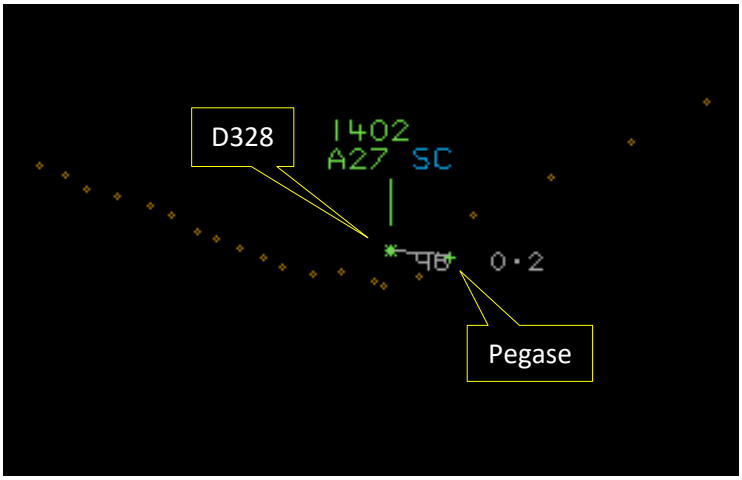


Figure 5 - 1418:30

The Pegase and D328 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 converging then the D328 pilot was required to give way to the Pegase.[2]

Comments

BGA

Gransden Lodge airfield operates 7 days per week during daylight hours between April and October (weather permitting). There were 18,744 aircraft movements there in the year to 1st October 2023, almost all of which were gliders, launched by both winch and aerotow.

A Memorandum of Understanding between Cambridge International Airport and Cambridge Gliding Club (which operates Gransden Lodge) enables the airspace surrounding both sites to be shared between them in a manner that reduces the risk of an aircraft incident or accident. Under the MoU, glider pilots flying from Gransden Lodge are encouraged to contact Cambridge Approach when operating within 5NM of Cambridge Airport and within the approach and climb-out areas as illustrated in Figure 6. CPA in this incident was approximately 1NM outside the MoU area.

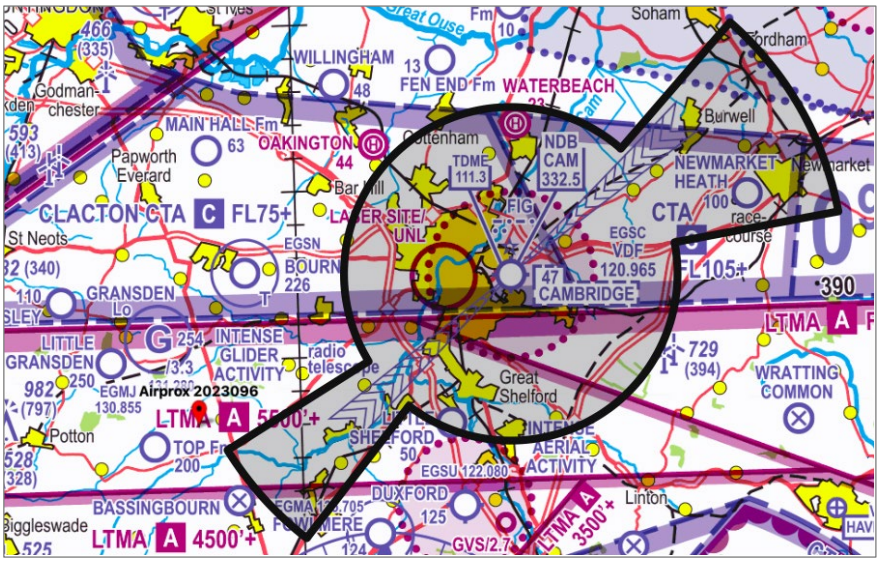


Figure 6

The Cambridge Approach controller is to be commended for recognising a potential conflict between the D328 and the Pegase, and passing appropriate warnings to the D328 pilot. ATSUs near busy gliding sites may wish to install Flight Information Displays that provide instantaneous SA on aircraft carrying the EC system fitted to almost all gliders, since this includes GNSS-derived altitude. Knowing the glider's approximate altitude in this instance would have assisted the controller.

Summary

An Airprox was reported when a Pegase and a D328 flew into proximity 3NM south-southeast of Gransden Lodge at 1418Z on Friday 26th May 2023. Both pilots were operating under VFR in VMC, the Pegase pilot not in receipt of an ATS and the D328 pilot in receipt of a Procedural Service from Cambridge Approach.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS track data, a report from the air traffic controller involved and a report from the appropriate operating

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3210 Right-of-way (c)(2) Converging.

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 Pegase. It was agreed by members that they had not had situational awareness of the D328 (**CF2**) but they had visually acquired it in time to have assessed the safest course of action. In their consideration of the Pegase pilot's narrative, and the reported separation between the aircraft, members surmised that emergency avoiding action had not been necessary, but nevertheless appreciated that the proximity had caused the pilot of the Pegase some concern (**CF4**). It was noted that the pilot of the Pegase had described their avoiding manoeuvre as a turn to their right, and it was also noted that the pilot of the D328 had reported that they had witnessed such a turn. It was acknowledged by members that, whilst the pilot of the Pegase had taken action to turn to the right, the extent of a swift manoeuvre may not have been captured in the GPS track log due to the relatively low sample-rate of the recording.

A member with particular knowledge of gliding operations explained that there exists a Memorandum of Understanding (MoU) between the operators of Cambridge Airport and Gransden Lodge gliding site. The MoU contains a diagram of airspace described as the Cambridge Airport approach and climb-out areas. The wording of the MoU states that, amongst other things, the Cambridge controller should, whenever practicable, avoid routing any flight within 2.5NM of Gransden Lodge below 4000ft AMSL, and that glider pilots will be encouraged to contact Cambridge Approach when operating within 5NM of Cambridge Airport or the aforementioned approach and climb-out areas.

The diagram (as reproduced in Figure 6 above) was shown to members. Referring to the increased use of RNP approaches to both ends of the main runway, one member wondered why the defined area did not cover all approach paths to Cambridge, and suggested that the MoU ought to be revised.

An alternate viewpoint was proffered by other members, that an increase to the area defined in the MoU, particularly to the west of Cambridge Airport, would impinge upon the airspace near Gransden Lodge. It was conveyed that, a glider pilot may wish to operate in that area without suitable radio equipment installed in their glider, or without having possession of the requisite licence to be able to use such equipment, and that this would be precluded by an extension to the existing defined area.

The point was put to a vote, and the latter view, that the extant MoU balanced the positions of both airfield operators adequately, prevailed. Concluding this part of the discussion, members noted that the point of CPA had occurred outside the area defined in the MoU.

In consideration of the aspect of Electronic Conspicuity (EC), members noted that the TCAS equipment fitted to the D328 would not have been expected to have detected the presence of the Pegase. Similarly, the EC equipment fitted to the Pegase would not have been expected to have detected the D328 (**CF3**).

Turning their attention to the actions of the Cambridge controller, members noted that they had been aware of the gliding operations in the vicinity of Gransden Lodge. Although height information on the 6 contacts visible to them on the FID had not been available (as the radar system had not been operational) members commended the passage of generic Traffic Information to the pilot of the D328 (**CF1**) in addition to the caution that the gliders may not be visible on their TCAS.

Members next considered the actions of the pilot of the D328. Noting that the Cambridge controller had passed Traffic Information to them regarding gliding activity, members agreed that the D328 pilot had therefore garnered generic situational awareness (**CF2**). The subsequent visual acquisition of the glider was pondered. It was noted that the pilot of the D328 had described having seen a glider "*at a slightly lower altitude*" and, subsequently, that "*..they would have passed each other if no alterations were made*". However, members also noted that they had reported on the radio that they believed that a glider had "*passed…100ft above us*". Members appreciated the difficulty to have recalled precise details of an incident which had lasted for only a few brief moments. Whilst it had not been reported by any party that there had been other glider pilots in the immediate vicinity of the D328, some members suggested that the glider that was reported to have passed 'overhead by 100ft' may not have been the Pegase but another of the 6 gliders of which the Cambridge controller had been aware. Notwithstanding,

members were satisfied that they had been presented with sufficient recorded evidence of the proximity of the D328 and the Pegase for consideration.

Members summarised their thoughts and were in agreement that safety had been degraded as the pilot of the Pegase had not had situational awareness of the D328, and the EC equipment fitted to the Pegase could not have detected its presence. However, members concluded that there had been sufficient time for the pilot of the Pegase to have visually acquired the D328 and to have manoeuvred to have increased separation. Further, that the separation between the aircraft had been such that there had not been a risk of collision. The Board assigned Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2023096			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Contextual	• Traffic Management Information Action	An event involving traffic management information actions	The ground element had only generic, late, no or inaccurate Situational Awareness
	• 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, inaccurate or only generic, Situational Awareness
	• Electronic Warning System Operation and Compliance			
3	Technical	• ACAS/TCAS System Failure	An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations	Incompatible CWS equipment
	• See and Avoid			
4	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[3]

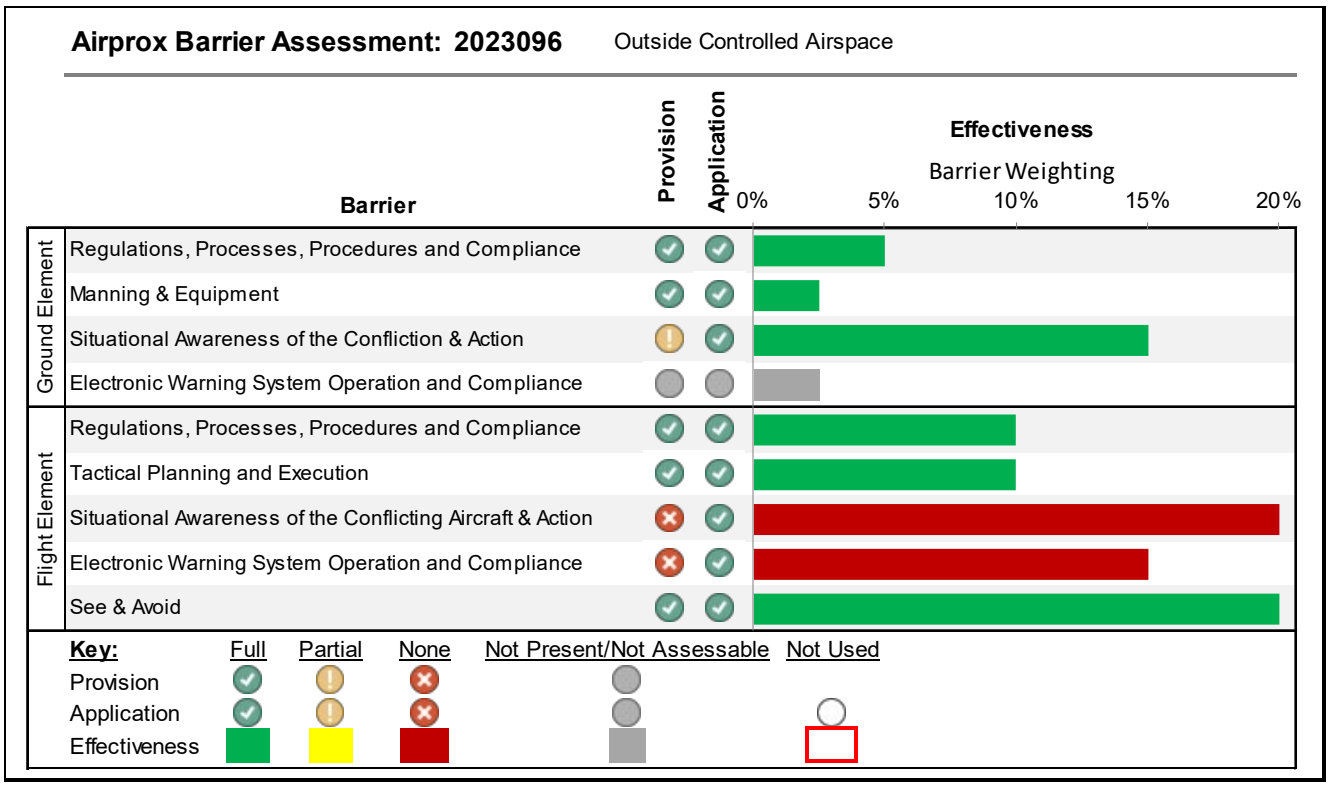
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the pilot of the Pegase had not had any situational awareness of the presence of the D328.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC equipment fitted to each aircraft would not have been expected to have detected the presence of the other aircraft.

[3] 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: 2023096
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:
Full
Partial
None
Not Present/Not Assessable
Not Used
Provision
Application
Effectiveness