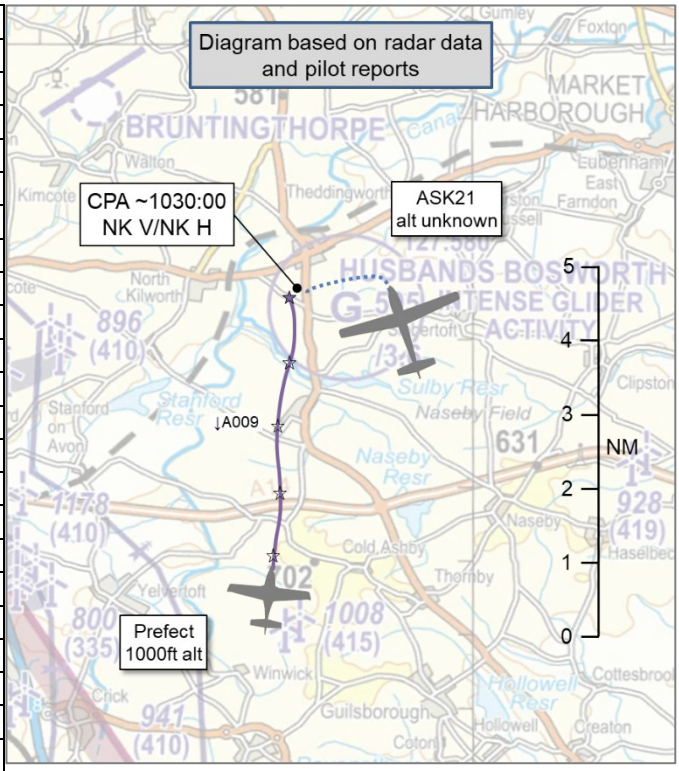
AIRPROX REPORT No 2021139

Date: 03 Aug 2021 Time: ~1030Z Position: 5226N 00103W Location: Husbands Bosworth circuit

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	ASK21	Prefect
Operator	Civ Gld	HQ Air (Trg)
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Listening Out	Basic
Provider	Husbands Bosworth	Wittering Zone
Altitude/FL	NK	A009
Transponder	Not fitted	A, C, S
Reported		
Colours	White	White, blue
Lighting	None	Strobes, Nav lights
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	500ft agl	NR
Altimeter	QFE (NK hPa)	RPS (1008hPa)
Heading	270°	010°
Speed	50kt	NR
ACAS/TAS	TAS	TAS
Alert	Information	Information
Separation at CPA		
Reported	100ft V/200m H	200ft V/500ft H
Recorded	NK V/NK H	



THE ASK21 GLIDER PILOT reports that, whilst instructing a student on where to start a base leg, they saw the other aircraft 500m to the left of their glider and then disappear underneath them travelling south-to-north at high speed.

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

THE PREFECT PILOT reports that, after a touch-and-go at Cranfield airfield, the student Observer continued low-level to the north at 500ft MSD[1] to identify their next turning point. During the transit they became distracted by airsickness. The turning point was subsequently misidentified, turning on a motorway junction 2NM further north than planned. The QPNI[2] turned on heading and approximately 1min later spotted Husbands Bosworth glider site in the right 3 o'clock at approximately 1.5NM (route study had planned for the glider site to be clear to the right of the aircraft). The QPNI then spotted a single glider in the 3 o'clock (with associated alert [from their on-board electronic conspicuity equipment]) approximately 200ft above and 500ft laterally clear in a slight climb. Due to speed of overtake, no avoidance action was required as there was clear and obvious separation. They regained track and continued the sortie without further incident. Of note, Husbands Bosworth is not marked on the electronic chart for QPNI situational awareness.

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

THE WITTERING ZONE CONTROLLER reports that they were the controller training in Zone at the time of the incident, and had Prefect [c/s], on frequency. They do not have full recollection of the aircraft due to the time that has passed since the date of occurrence. The [pilot of the] Prefect in question came onto their frequency from Cranwell, requesting transit towards RAF Marham before descending low-

[1] Minimum Separation Distance.
[2] Qualified Pilot Navigation Instructor.

level to roughly 500ft. As the aircraft transited along its navigation exercise route, the controller's track ident diminished due to the display clutter and other tracks along the route. They lost radar contact and downgraded the service from a Traffic Service to a Basic Service. For the duration that the aircraft was on frequency, they made little communication due to the nature of the service being provided. They did, however, conduct a radio check with [the Prefect pilot], as well as request the next turning point, to which [the Prefect pilot] responded "Husbands Bosworth" [UKAB note: the transcript shows that the Prefect pilot responded with "Market Harborough"]. Shortly after this, [the Prefect pilot] called Practice Pan for a visual PFL at RAF Wittering. The controller requested that they squawk ident and, once positively seen, [the Prefect pilot] was identified, given a Traffic Service and given a steer of 070° for RAF Wittering. For the duration of the aircraft on their frequency, no calls were made or information passed on a possible Airprox or any close proximity of traffic.

The controller perceived the severity of the incident as 'Low'.

THE WITTERING SUPERVISOR reports that they were the ATCO IC during this occurrence and also the Wittering TC(Zone) instructor monitoring the Wittering TC(Zone) controller under training. Although they have no recollection of this occurrence, they have referred to the training report narrative for this training session to assist their recall of events. The summary narrative given by the controller under training is accurate and they concur with the report. There was no declaration of an Airprox by [the Prefect pilot] on frequency nor was there any occasion where relevant Traffic Information was passed whilst under a Basic Service (BS). Equally, there was no communication to the fact post-event by any ground agency. The majority of [the Prefect's] transit was outside Wittering's radar cover (PSR/SSR) and as such [the aircraft] was not providing sufficient surveillance returns to monitor progress by direct screen reference; geographical reporting points were utilised as an alternative means of track monitoring. There were no occasions where it was deemed necessary to provide additional information relating to observed traffic affecting [the Prefect's] intended path or advice to augment [the pilot's] situational awareness. Tapes were impounded and transcripts completed upon notification of this event.

Factual Background

The weather at Wittering was recorded as follows:

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METAR EGXT 031050Z 13005KT 9999 FEW036 19/10 Q1013 BLU=
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Analysis and Investigation

Military ATM

The Glider pilot reported that, while they were carrying out an instructional sortie during which they were teaching the student where to start a base leg turn, they observed the Prefect transit beneath them travelling south to north. They reported that they received [an alert from their on-board electronic conspicuity equipment] and reported separation as 100ft vertically and 200m horizontally. The glider [pilot] did not take any form of avoiding action although it is unknown as to why not.

The Prefect [pilot] was conducting a training sortie which was being flown at low-level in receipt of a Basic Service from Wittering Zone. It was noted that, due to a distraction caused by airsickness, a turning point on the planned route was misidentified resulting in the Prefect not following the planned route. Husbands Bosworth glider site was observed to the right approximately to 1.5NM following which they spotted the Glider also receiving [an alert from their on-board electronic conspicuity equipment]. Due to the speed overtake, it was deemed that no avoiding action was required with separation reported as 200ft vertically and 500ft laterally.

The Wittering Zone controller was under training and reported that, as the Prefect transited along their Nav Ex routing, the controller's track ident diminished due to display clutter and other tracks. As the Prefect descended to low-level the controller lost radar contact with the Prefect, reducing their Traffic Service to a Basic Service. Minimal contact was made with [the Prefect pilot] with the controller requesting a radio check and confirming the next turning point. No Traffic Information was

passed by the controller to the Prefect and it was reported by the instructor that the majority of the Prefect's transit was outside the Wittering radar coverage.

Figure 1 has been provided by NATS radars which are not utilised by Wittering controllers therefore may not be entirely representative of what the Wittering controller saw at the time.

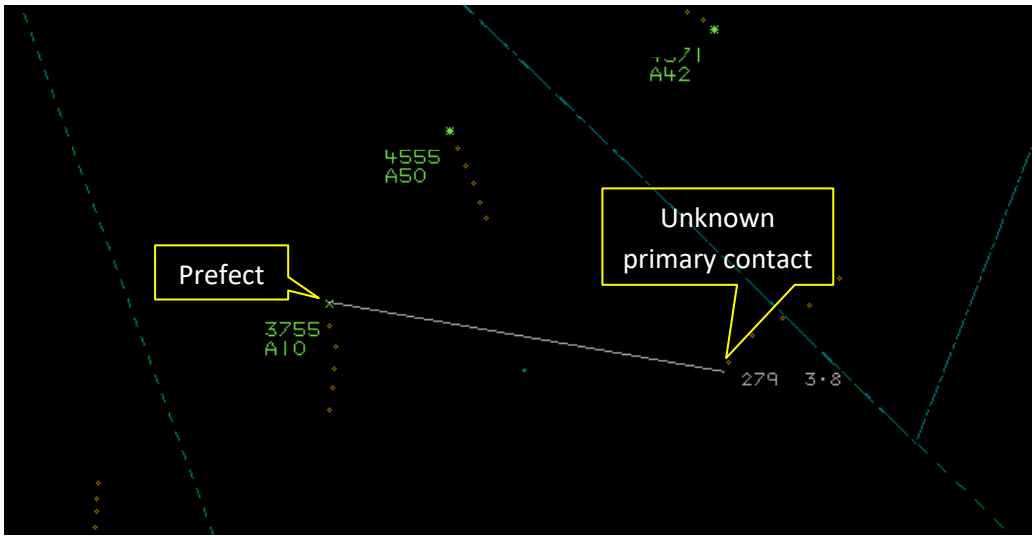

Figure 1: CPA prior to unknown PT fading from radar.

The investigation conducted by the Prefect organisation found that although both the QFI and the student were aware of the location of the glider site, the mis-identification of a turning point resulted in the northerly leg being flown further to the west than intended. It was also noted that the electronic charting does not have glider site information displayed although this is being investigated to see if it can be rectified. It could be expected that if the controller had observed the Prefect transiting towards the glider site a warning may have been passed. Although, as reported, the Prefect was operating outside the limits of radar coverage which meant that the controller was unable to pass Traffic Information.

UKAB Secretariat

The ASK21 glider and Prefect pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[3] An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation.[4]

Occurrence Investigation

The following findings were the result of the 3FTS investigation:

1. The Prefect flew through Husbands Bosworth glider site at 500ft MSD and into conflict with a glider approximately 200ft above and 500ft laterally separated. The crew had mis-identified a turning point on route, and were consequently flying their northerly leg further to the west than the intended route.

2. The electronic charting does not have glider site information displayed.

3. The observer student, who was the navigator for this sortie, was distracted due to airsickness thereby [did not] identify the turning point accurately.

[3] (UK) SERA.3210 Right-of-way (c)(3) Overtaking. MAA RA 2307 paragraph 14.
[4] (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome. MAA RA 2307 paragraph 17.

4. The QFI was not in possession of the [chart] and was therefore unable to cross-check that the identified turning point was the correct feature. Additionally, the students do not plan on the mission planning software, so there is not a readily available route to be uploaded to the instructor's screen.

5. This was the first rear-crew sortie for the instructor, post refresher training, and a slightly different route to [that with which] they were familiar.

6. The QFI was aware of the initial student error with respect to turning point mis-identification but, due to the subsequent student sickness, the QFI was preoccupied and did not appreciate their proximity to the gliding site on the unplanned track.

Comments

Prefect Squadron Commander

This Airprox further highlights why it is paramount that glider sites are added to the Genesys mapping at the earliest opportunity. We have Para Jump sites already and this provides huge SA to avoid them; there is no logical reason why we have PJ sites but not glider sites if we need to avoid both in equal measure. In this particular example, the QPNI was flying this [syllabus] route for the first time and the course dictates that the student has the map/chart and directs the pilot. This leaves the instructor low on SA if they are not already conversant with the route and they thus rely more on the Genesys moving map. The QPNI was aware of the proximity to Husbands Bosworth but not with sufficient accuracy to avoid it. Had it been on the moving map the outcome would have been very different and Air Safety would have been significantly enhanced by this information.

HQ Air Command

This Airprox was subject to a Local Investigation and made 2 recommendations. Recommendation 1: That a review of current practice for airborne chart and aeronautical information availability to the pilot, with potential for either a copy of the map be available to the pilot, or the route to be uploaded via SD card to the aircraft, be carried out. This has been actioned and all QFIs are required to carry their own copy of the chart and route. Recommendation 2: 3FTS to raise a query through appropriate channels to ensure identified mapping deficiencies are resolved. Unfortunately, the Prefect mapping has had issues since inception, but it is heartening to read in the DDH comments; ‘we are investigating the potential for all relevant airspace depiction to be added to the Genesys display’.

It is concerning that there wasn’t the situational awareness available to the pilot to show the proximity of Husbands Bosworth glider site on either electronic display or, if a chart was carried, the awareness of their position in relation to the glider site. These errors were compounded by distractions within the cockpit but it highlights the importance of having an awareness of one’s location in relation to the surrounding airspace. The recommendations from this investigation go some way to avoid a recurrence; having the Genesys display updated will provide that extra layer of mitigation. Due to the [on-board electronic conspicuity equipment] in the Prefect, the crew was able pick the glider up and assess that there was no risk of collision. However, it must have come as a shock to the glider pilot who was operating within the circuit at the glider site.

BGA

It is surprising that a major gliding site was not marked on the Prefect’s electronic chart. Notwithstanding that, it is a cause for concern that a high-speed low-level navigational training sortie managed to pass so close to Husbands Bosworth.

Summary

An Airprox was reported when an ASK21 glider and a Prefect flew into proximity in the Husbands Bosworth circuit at approximately 1030Z on Tuesday 3rd August 2021. Both pilots were operating under VFR in VMC, the ASK21 glider pilot listening out on the Husbands Bosworth Traffic frequency and the

Prefect pilot in receipt of a Basic Service (reduced from a Traffic Service due to radar performance) from Wittering Zone.

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 considered the actions of the ASK21 pilot and agreed that they would have been surprised to see the Prefect operating so close to the circuit at Husbands Bosworth. Members noted that the ASK21 pilot had received an alert from their on-board electronic conspicuity equipment generated by the proximity of the Prefect (**CF10**), but agreed that this had been coincident with them sighting the Prefect and therefore the ASK21 pilot had not had any situational awareness of the approaching Prefect (**CF9**). The Board heard from a glider pilot member that the pilot's options on sighting the Prefect would have been limited because the glider would have been slow-speed and relatively close to the ground, meaning that the only practical avoiding action that they could have taken would have been to descend. However, members noted that the ASK21 pilot had not deemed avoiding action to be necessary but had nonetheless been concerned by the proximity of the Prefect (**CF12**).

Turning to the actions of the Prefect pilot, members were surprised to learn that the moving map display in the Prefect did not display glider sites, and were heartened to hear from a military pilot member that these issues were being addressed – the member undertook to update the Board on progress in this regard. The military pilot member went on to add that a lack of instructor availability had led to instructors being unavailable for the planning stage of some flights and so the first sight that they had of the planned route was at the sortie briefing stage. The Board also heard that instructor pilots were not required to carry their own paper chart of the planned route and, given that the moving map in the prefect lacked essential navigational information, the Board agreed that this had been a factor in this Airprox (**CF2**).

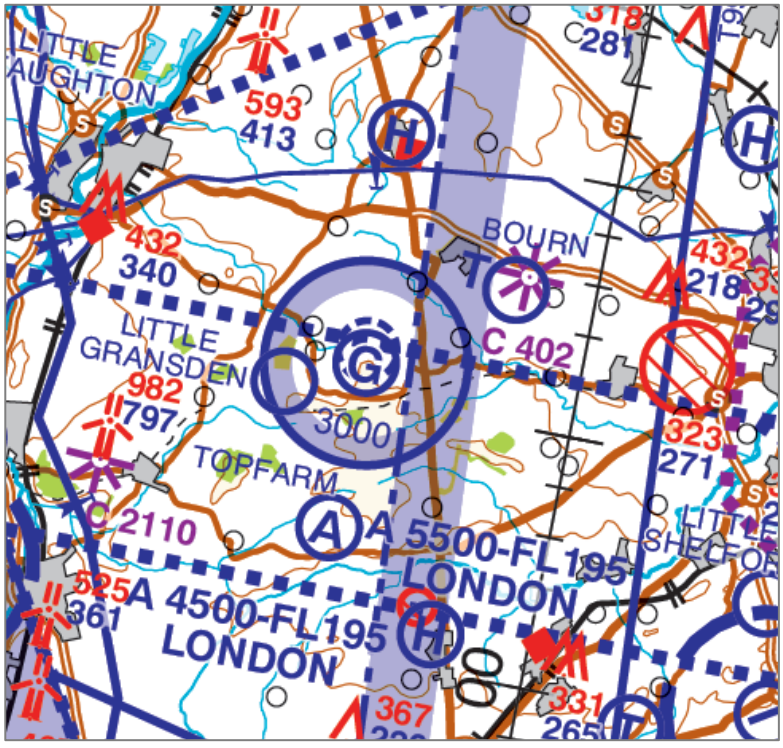

Figure 2 – Extract from the military 1:500,000 Low Flying Chart

The Board was encouraged to hear that, in light of this incident, instructor pilots are now required to carry their own paper chart on all flights, irrespective of whether or not they had been available for the mission planning. Returning to the Airprox itself, the Board agreed that the student's airsickness, and subsequent distraction of the instructor while dealing with an airsick student, had set in motion a chain of events that ultimately led to the Prefect flying through the circuit at Husbands Bosworth. Members noted that a misidentification of a turning point to the south of Husbands Bosworth had meant that the subsequent track had taken the Prefect into an area that military pilots are required to avoid (see Figure 2) and, subsequently, the Prefect pilot had neither avoided nor conformed with the pattern of traffic (**CF3**, **CF4**, **CF5**, **CF7**). Regarding their student's airsickness, the Board considered that the Prefect pilot's decision to continue

with the low-level route, rather than climb out of low-level and allow the student to recover, had also been contributory the Airprox (**CF6**, **CF8**). Noting that the instructor did not have access to an aeronautical chart with all the necessary navigational information, and that the alert received from their on-board electronic conspicuity equipment (**CF10**) had been coincident with the Prefect pilot's sighting of the ASK21, the Board concluded that the Prefect pilot had not had any situational awareness of the presence of the ASK21 (**CF9**). Furthermore, members agreed that by the time the Prefect pilot had seen the ASK21 it had been too late for them to take any action to materially increase the separation (**CF11**).

The Board then discussed the actions of the Wittering Zone controller and agreed that there was little that they could have done to alert the Prefect pilot to the presence of the ASK21 or, indeed, their proximity to Husbands Bosworth Glider Site, because they had not been required to monitor the aircraft under the terms of a Basic Service (**CF1**). Members noted that the Prefect pilot had initially been receiving a Traffic Service but that the controller had taken appropriate action in downgrading the level of ATS when they were no longer able to maintain identification on the Prefect's track. There then followed a discussion as to whether or not this loss of track identification, and consequent inability for the controller to deliver the level of service requested by the Prefect pilot, had been contributory to the Airprox. Some members felt that the pilot had clearly requested a Traffic Service and that the controller downgrading this to a Basic Service warranted a contributory factor, whilst others considered that an aircraft flying at around 500ft agl at a distance in excess of 20NM from the radar would be unlikely to be detected by most ground-based radars. Ultimately, the Board decided that the degradation in ATS had been necessary because of a simple case of physics and therefore chose not to assign a contributory factor. The Board also heard from a military ATC advisor that the controller had been passing Traffic Information to other pilots in the lead-up to this Airprox and so members agreed that, had the controller been able to see the Prefect and the ASK21 on their radar screen, then it was likely that Traffic Information would have been passed.

Finally, the Board considered the risk involved in this Airprox. Members noted that the ASK21 pilot had been unable to provide a GPS log file for their flight and that they therefore had no positional data for the glider. Consequently, no recorded CPA was available so the Board had to rely on the estimated separation reported by both pilots. Members noted that the ASK21 pilot had assessed the risk of collision to be 'medium' and that they had not taken any avoiding action, whilst the Prefect pilot had assessed the risk of collision as 'low' but had not sighted the glider in time to take any avoiding action. The Board remarked that both pilots had independently assessed the lateral separation to be in the order of 500ft and therefore, irrespective of the vertical separation, concluded that there had been no risk of collision but that safety had been reduced. Consequently, the Board assigned a Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021139			
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			
	• Regulations, Processes, Procedures and Compliance			
2	Organisational	• Flight Operations Documentation and Publications	Flight Operations Documentation and Publications	Inadequate regulations or procedures
3	Human Factors	• Use of policy/Procedures	Events involving the use of the relevant policy or procedures by flight crew	Regulations and/or procedures not complied with
	• Tactical Planning and Execution			

4	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
5	Human Factors	• Aircraft Navigation	An event involving navigation of the aircraft.	Flew through promulgated and active airspace, e.g. Glider Site
6	Human Factors	• Insufficient Decision/Plan	Events involving flight crew not making a sufficiently detailed decision or plan to meet the needs of the situation	Inadequate plan adaption
7	Human Factors	• Monitoring of Environment	Events involving flight crew not to appropriately monitoring the environment	Did not avoid/conform with the pattern of traffic already formed
	• Situational Awareness of the Conflicting Aircraft and Action			
8	Human Factors	• Mentoring	Events involving the mentoring of an individual	
9	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			
10	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
	• See and Avoid			
11	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
12	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 the Wittering controller had downgraded the ATS to a Basic Service and was therefore not required to monitor the flight.

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the Prefect instructor was not required to carry a paper chart of the route even though it was known that the Genesys mapping system in the aircraft does not display glider sites. Additionally, the Prefect pilot flew through a site that is required to be avoided (by military aircraft) and also did not conform with or avoid the pattern of traffic at Husbands Bosworth.

Tactical Planning and Execution was assessed as **ineffective** because the Prefect pilot, having mis-identified their turning point, inadvertently flew through a promulgated and active glider site and did not avoid the pattern of traffic formed by the ASK21 glider.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the Prefect instructor did not notice that their student had mis-identified their turning point and therefore did not have accurate situational awareness of the presence of Husbands Bosworth

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

glider site, and the ASK21 pilot did not have any situational awareness of the presence of the Prefect.