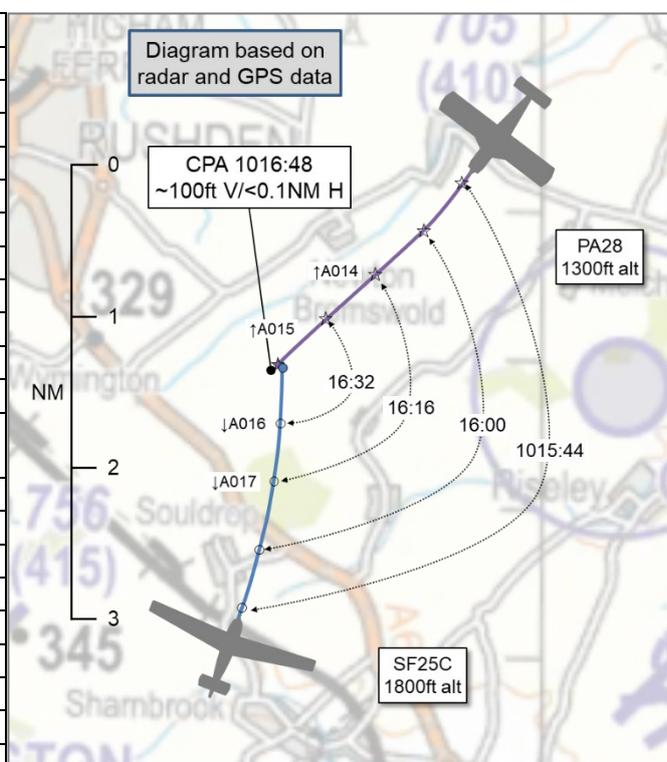


## AIRPROX REPORT No 2020152

Date: 22 Oct 2020 Time: 1017Z Position: 5216N 00033W Location: 2NM SE of Rushden

### PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

| Recorded          | Aircraft 1          | Aircraft 2                  |
|-------------------|---------------------|-----------------------------|
| Aircraft          | SF25C motor-glider  | PA28                        |
| Operator          | Civ FW              | Civ FW                      |
| Airspace          | London FIR          | London FIR                  |
| Class             | G                   | G                           |
| Rules             | VFR                 | VFR                         |
| Service           | None                | Basic                       |
| Provider          | N/A                 | Sywell Information          |
| Altitude/FL       | 1600ft <sup>1</sup> | 1500ft                      |
| Transponder       | Not fitted          | A, C, S                     |
| <b>Reported</b>   |                     |                             |
| Colours           | Yellow, black       | White                       |
| Lighting          | Strobe              | Strobes, beacon, nav lights |
| Conditions        | VMC                 | VMC                         |
| Visibility        | 10km                | 10km                        |
| Altitude/FL       | 1600ft              | NR                          |
| Altimeter         | QNH (1008hPa)       | QNH                         |
| Heading           | 005°                | NR                          |
| Speed             | 80kt                | 120kt                       |
| ACAS/TAS          | PilotAware/FLARM    | Not fitted                  |
| Alert             | Information         | N/A                         |
| <b>Separation</b> |                     |                             |
| Reported          | 200ft V/0m H        | NR V/0m H                   |
| Recorded          | ~100ft V/<0.1NM H   |                             |



**THE SF25C MOTOR-GLIDER PILOT** reports heading north away from a weak occluded front in excellent visibility. They flew to the east of Cranfield on a Basic Service at 2200ft and, when east-beam, they advised that they would descend to 1800ft because of scattered low cloud ahead. Shortly after leaving to the NE and cancelling their Service with Cranfield, they descended further to 1600ft; although the visibility was good, they wanted to remain clear of some local low cloud. They were running SkyDemon for navigation, with PilotAware for conspicuity. The aircraft is also fitted with FLARM. They became aware of a yellow circle from the PilotAware showing around their screen's aircraft symbol, which normally indicates that there is other traffic, although the altitude/direction information that it gives is far less than that normally seen from other PilotAware or FLARM users. The yellow ring turned red, indicating a greater risk and, on performing a routine scan, they saw the other aircraft in their 2 o'clock coming towards them, slightly below. Their passenger in the right-hand seat saw it at the same time as they did, and they can only assume that any avoiding action that they took was entirely incidental to the outcome. The pilot opined that the PilotAware warning was of little utility in this case, as it only gave a proximity warning with no further information regarding the direction, track or altitude of the threat. They felt that, had the PilotAware indications been absent, then they might have had their eyes out of the cockpit sooner.

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

**THE PA28 PILOT** reports that this was a CPL training flight with a planned navex leg to North Witham disused airfield, an in-flight diversion via Wittering MATZ to Poddington, some RNAV DTY VOR tracking inbound and outbound to Leicester (EGBG) for circuits, followed by a visual recovery to [their destination airfield]. The Airprox happened towards the end of the diversion leg ie before intercepting the 090°

<sup>1</sup> Derived from the GPS log file provided by the glider pilot.

radial inbound to DTY VOR. In-flight conditions, visibility etc were fine. The conflicting aircraft was not seen until literally the last few seconds, by which time it was too late to take avoiding action.

The student was carrying out a training diversion, initiated from North Witham disused airfield (approximately 7NM south of Grantham) to Poddington racetrack (approximately 8 NM ESE of Sywell aerodrome and a recent decommissioned disused airfield). The student was well off track to the east of the planned track and made an erroneous track correction, turning south-east when they should have turned south-west. The instructor then abandoned the diversion, pointing out Poddington (a well-known target to the instructor and easily identifiable on the day), asking the student to fly towards it. From their recollection of events, the Airprox happened around the time their aircraft was heading for Poddington and the instructor and student were debriefing elements of the diversion flown. Alertness levels were normal and the workload was reasonably low. Although a good lookout was being maintained by both pilots, they did not see the conflicting aircraft until the last minute, by which time it was too late to take avoiding action. This was the student's third CPL training flight, having previously flown 2 flights on 7th and 9th October. The flight instructor had been flying daily and was in regular flying practise.

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

**THE CRANFIELD CONTROLLER** reports that the SF25C pilot had been in receipt of a Basic Service from Cranfield as they transited through the local area, but had left the frequency. They reported back on the Approach frequency about 5min later that they had just had an Airprox, so the controller confirmed the aircraft's position and that they were not working Cranfield Approach at the time. The pilot's position report was such that the controller had no other aircraft in that area at the time of the Airprox. The pilot then continued en-route and left the frequency again.

**THE SYWELL AFISO** reports that the SF25C pilot did not call them on the day of the Airprox. However, the pilot of the PA28 did call them at 1010Z, with their routing, and reported abeam Lyveden gliding site at 2400ft. A Basic Service was provided with the Sywell QNH 1005 passed. No mention of an Airprox was made during the period that the PA28 pilot was on the Sywell frequency.

## Factual Background

The weather at Cranfield was recorded as follows:

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METAR EGTC 221020Z 23013KT 9999 SCT010 SCT028 BKN036 11/10 Q1007=
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## Analysis and Investigation

### UKAB Secretariat

Analysis of the NATS radar reply, coupled with the GPS log files provided by the SF25C glider pilot, was undertaken. A primary radar track could be seen heading northbound and passing approximately 4.3NM to the W of Bedford airfield, which correlated with the SF25C pilot's GPS log trace. At the same time, the PA28 – identified via its transponder returns on SSR – could be seen turning onto a south-westerly heading approximately 4.5NM NNW of Bedford airfield; the 2 aircraft were separated by 5.5NM at this point (see Figure 1).

The 2 aircraft proceeded on near-reciprocal tracks, with minimal deviation from either aircraft, until reaching CPA at 1016:48 (see Figure 2). Whilst the primary radar return from the SF25C was still apparent at CPA, the radar track was deemed to be too inaccurate for the measurement of the CPA because the radar could be seen to 'coast' on numerous occasions whilst it attempted to maintain or predict the track of the primary return. This radar positional error, when compared to the track derived from the GPS log file for the SF25C glider, was at its greatest at or around CPA, so the GPS position of the SF25C glider was compared with the radar position of the PA28 for the measurement of CPA, which gave a vertical separation of ~100ft and a horizontal separation of <0.1NM (GPS position and altitude for the SF25C glider; radar position and SSR Mode C for the PA28).



Figure 1 – 1015:00

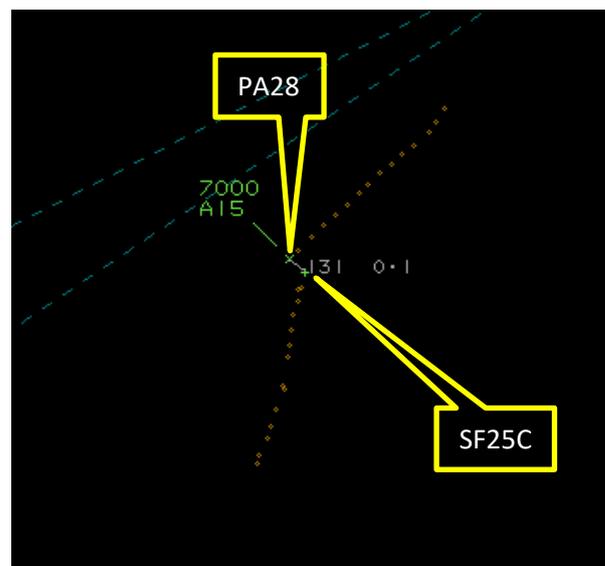


Figure 2 – 1016:48 – CPA

The SF25C glider and PA28 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.<sup>2</sup> If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.<sup>3</sup> If the incident geometry is considered as converging then the SF25C pilot was required to give way to the PA28.<sup>4</sup>

## Summary

An Airprox was reported when an SF25C motor-glider and a PA28 flew into proximity 2NM SE of Rushden at 1017Z on Thursday 22<sup>nd</sup> October 2020. Both pilots were operating under VFR in VMC; the SF25C pilot was not in receipt of an Air Traffic Service and the PA28 pilot was in receipt of a Basic Service from Sywell Information.

## PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings and reports from the air traffic controller and AFISO involved. 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 SF25C pilot and noted that they had been in receipt of a Basic Service from Cranfield approximately 5min prior to the Airprox but had since left the Cranfield frequency and not sought an Air Traffic Service from a different agency. There then followed a lengthy discussion surrounding the provision of the UK Lower Airspace Radar Service (LARS), and how this part of southern UK was once served by military airfields but this is no longer the case. The legacy is that there are areas where there is no LARS coverage, and one of those areas is in the vicinity of Rushden. While the Board lamented this lack of LARS provision in the area where the Airprox took place, members felt that perhaps the SF25C pilot could have called Sywell as they progressed north (**CF2**) [UKAB note: the pilot later informed the UKAB Secretariat that they had pre-selected the frequency of their destination airfield in preparation for their arrival]. Whilst this would have been unlikely

<sup>2</sup> SERA.3205 Proximity.

<sup>3</sup> SERA.3210 Right-of-way (c)(1) Approaching head-on.

<sup>4</sup> SERA.3210 Right-of-way (c)(2) Converging.

to have given them specific situational awareness of the relative position of the PA28, it may have afforded the opportunity – with both aircraft on the same frequency – for the PA28 pilot to note that the SF25C pilot had been progressing northbound in a similar area to themselves and so potentially modify their routing and/or height profile. However, members noted that the SF25C pilot had gained generic situational awareness of the presence of the PA28 through their PilotAware equipment (**CF3**, **CF4**) but that this had not been of sufficient detail for them to be able to either take action on the information presented or to gain early visual contact with the PA28. Indeed, the Board agreed with the SF25C pilot that, in this rare case, the PilotAware warning had probably distracted them from conducting a more detailed lookout scan (**CF5**) and that this had led to them sighting the PA28 too late to materially increase the separation between the 2 aircraft (**CF7**).

Next, the Board considered the actions of the PA28 pilot and heard from a GA pilot and instructor member that the prevailing weather conditions had probably limited their choice of operating altitude. Furthermore, members felt it likely that their lookout scan had been compromised slightly by their debriefing of a previous airborne exercise. Without any equipment on-board capable of detecting the presence of the SF25C, members agreed that the PA28 pilot had not had any situational awareness of the presence of the other aircraft (**CF3**) and that they, also, had not seen it until it had been too late to take any meaningful avoiding action (**CF7**).

The Board then considered the actions of the Cranfield controller and Sywell AFISO and noted that the Cranfield controller had supplied a report that showed that they had played no part in the event, other than to receive the airborne Airprox report from the SF25C pilot. Although not a factor in this Airprox, members wished to remind pilots that when re-contacting an agency from which a pilot has been receiving an Air Traffic Service but has since left the frequency, a new Service – if required – will need to be agreed upon re-contact. Finally, the Board also noted that, although the PA28 pilot had been in receipt of a Basic Service from the Sywell AFISO at the time of the Airprox, the AFISO had no knowledge of the presence of the SF25C and, in any case, had not been required to monitor the PA28 under the terms of the agreed Service (**CF1**).

Turning to the risk involved in this event, the Board was grateful to the SF25C pilot for providing their GPS log file because, without a secondary surveillance radar response from their aircraft (due to it not being equipped with a transponder), the GPS data had enhanced the Board's understanding of the event. Members noted that both pilots had assessed the collision risk as 'High' and that neither pilot had considered that there had been any time to take any action that would have materially increased the separation. They also noted that the measured separation was around 100ft vertically and that some (<0.1NM) lateral separation had also existed. Therefore, the Board concluded that safety had not been assured and that a risk of collision had existed (**CF6**). Consequently, a Risk Category B was assigned to this event.

## **PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**

### Contributory Factors:

|   | 2020152       |  |   |
|---|---------------|--|---|
| CF  | Factor        | Description                                | Amplification   |
| <b>Ground Elements</b>  |               |  |   |
| <b>• Situational Awareness and Action</b>                             |               |  |   |
| 1   | Contextual    | • ANS Flight Information Provision         | Not required to monitor the aircraft under the agreed service |
| <b>Flight Elements</b>  |               |  |   |
| <b>• Tactical Planning and Execution</b>                              |               |  |   |
| 2   | Human Factors | • Communications by Flight Crew with ANS   | Pilot did not communicate with appropriate ATS provider       |
| <b>• Situational Awareness of the Conflicting Aircraft and Action</b> |               |  |   |
| 3   | Contextual    | • Situational Awareness and Sensory Events | The pilot had generic, late or no Situational Awareness       |
| <b>• Electronic Warning System Operation and Compliance</b>           |               |  |   |
| 4   | Contextual    | • Other warning system operation           | Warning from a system other than TCAS                         |

| • See and Avoid |               |  |  |
|-----------------|---------------|--|--|
| 5               | Human Factors | • Distraction - Job Related  | Pilot looking elsewhere  |
| 6               | Contextual    | • Near Airborne Collision with Aircraft, Balloon, Dirigible or Other Piloted Air Vehicle | Piloted air vehicle  |
| 7               | Human Factors | • Monitoring of Other Aircraft   | Non-sighting or effectively a non-sighting by one or both pilots |

Degree of Risk: B

Safety Barrier Assessment<sup>5</sup>

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

**Ground Elements:**

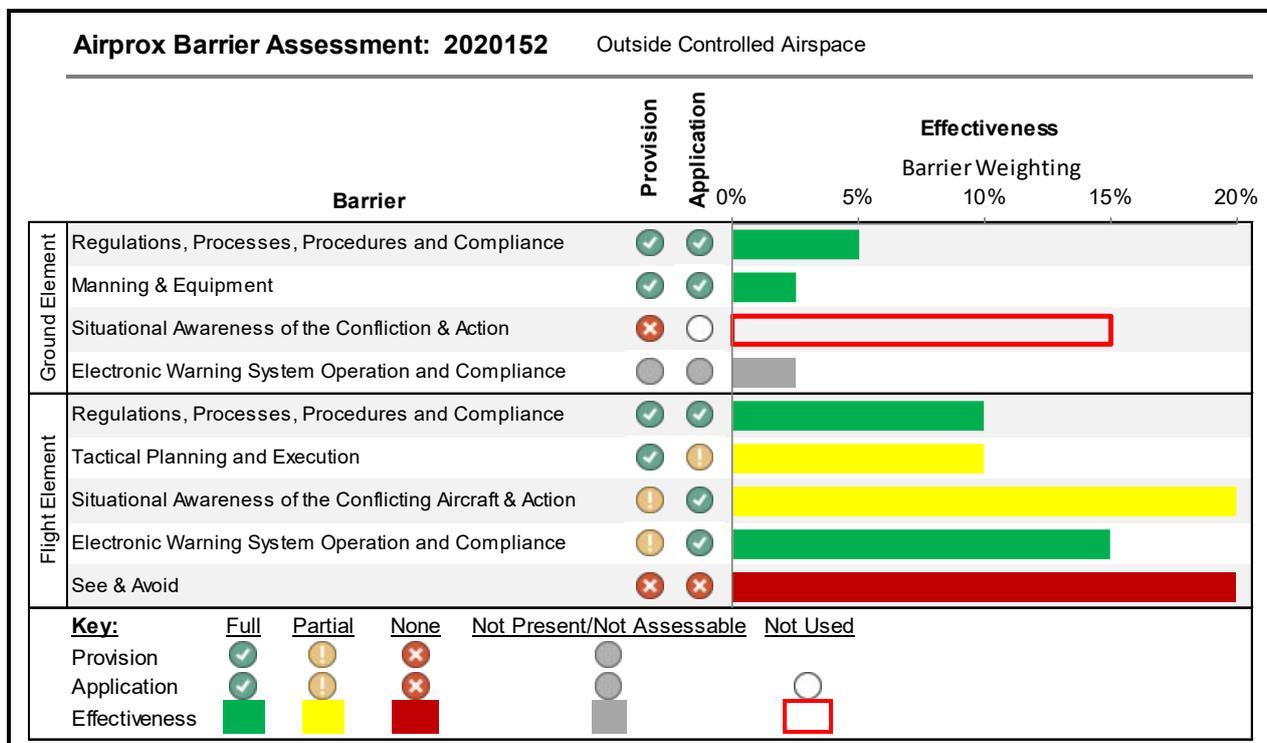
**Situational Awareness of the Confliction and Action** were assessed as **not used** because the Sywell AFISO was not required to monitor the PA28 under the terms of a Basic Service.

**Flight Elements:**

**Tactical Planning and Execution** was assessed as **partially effective** because the SF25C pilot chose not to seek an ATS after having spoken to Cranfield on their route northbound.

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **partially effective** because the PA28 pilot had no awareness of the presence of the SF25C, and the SF25C pilot had received only generic situational awareness of the presence of the PA28 from their PilotAware equipment.

**See and Avoid** were assessed as **ineffective** because neither pilot saw the other aircraft in time to materially increase the separation between the two aircraft.



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