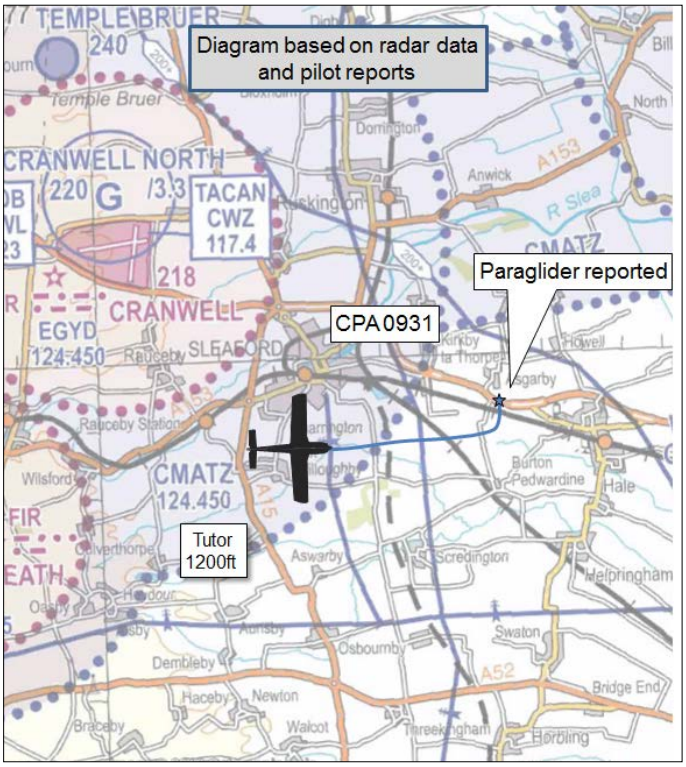
AIRPROX REPORT No 2016255

Date: 02 Dec 2016 Time: 0931Z Position: 5259N 00019W Location: E Sleaford

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Tutor	Para-glider
Operator	HQ Air (Trg)	Unknown
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	
Service	Traffic	
Provider	Cranwell	
Altitude/FL	1100ft	
Transponder	A, C, S	
Reported		
Colours	White	Black canopy, Orange logo
Lighting	Strobes, Nav	
Conditions	VMC	
Visibility		
Altitude/FL	1200ft	
Altimeter	QFE (1019hPa)	
Heading	360°	
Speed	100kt	
ACAS/TAS	TAS	
Alert	None	
Separation		
Reported	100-200ft V 0m H	
Recorded	NK	



THE TUTOR PILOT reports that his aircraft was being flown by the student and they were conducting an SRA to land at Cranwell. They were at 1200ft QFE and, as the aircraft turned onto 360° for base-leg, the instructor noticed a paraglider passing directly underneath the port wing, estimated to be 100-200ft below. The incident was reported to Cranwell ATC on the RT.

He assessed the risk of collision as 'Low'.

THE PARAGLIDER PILOT could not be traced.

THE CRANWELL APP CONTROLLER reports that the Tutor was receiving vectors for an SRA. Once downwind in the radar pattern, the pilot was given instructions to descend to 1200ft QFE in order to allow for a short-pattern circuit due to a Jetstream aircraft departing from the visual circuit. He instructed the Tutor pilot to turn onto a heading of 360° for base-leg and, once steady, the Tutor pilot advised that he had 'an urgent message'. He then declared an Airprox at 0931Z. The Captain reported that a paraglider had passed beneath by approximately 100ft and was 'clearing towards the reservoir'. Nothing was seen on the radar, and the controller opined that a paraglider was unlikely to be transponder equipped which would explain why the Tutor's TAS did not give an alert.

He perceived the severity of the incident as 'Medium'.

THE CRANWELL SUPERVISOR reports that on the morning of the incident, in his capacity as ATC Supervisor he received a telephone call from the pilot of a paramotor who operates out of a nearby private site south of Rauceby which is inside the Cranwell ATZ. The pilot advised the supervisor that he was about to get airborne, depart to the east for a flight and return. He confirmed his operating

altitude would be no more than 500ft and stated that any higher would be too cold. This information was passed onto the ADC (because the paraglider is sometimes visible from the tower), and the Duty Pilot. The supervisor was monitoring the App frequency when the Tutor reported the Airprox, there wasn't a primary return on the radar and he suspected it might be the paramotor pilot he had spoken to earlier but, because of the height difference, couldn't be sure. He went up to the tower to look for it and could see a paramotor to the south of the airfield at low-level, the height couldn't be estimated due to the distance. Later, he contacted the paramotor pilot to discuss his routing, but the pilot was adamant that he had not been above 500ft; indeed, he stated that most of the time he had been at very low-level and had only climbed once to avoid a built-up area. He also said that he had not seen any aircraft in close proximity.

[UKAB Secretariat note: Cranwell ATC were subsequently asked to check the colour of the paraglider wing of the pilot who telephoned. It was confirmed as blue and white and therefore it could not have been the one involved in the Airprox, which was black.]

Factual Background

The weather at Cranwell was recorded as follows:

```
METAR EGYD 020850Z 31006KT 9999 BKN046 06/04 Q1027 BLU NOSIG=
```

Portions of the tape transcripts between the Cranwell Approach controller and the Tutor are below:

To	From	Speech Transcription	Time
CWL APP	Tutor	[Tutor C/S], Cranwell	09:30:28
Tutor	CWL APP	[Tutor C/S]	09:30:30
CWL APP	Tutor	Yep err urgent message for you, directly below us is a paraglider, about one hundred feet	09:30:31
Tutor	CWL APP	Roger	09:30:36
CWL APP	Tutor	And [Tutor C/S] if I could file a err, airprox with you err, verbally	09:31:04
Tutor	CWL APP	[Tutor C/S] roger turn left heading two nine zero degrees, pass details	09:31:11
CWL APP	Tutor	Turn left heading two nine zero degrees, yeah paraglider err just went underneath us err with about a hundred foot of separation, he's just clearing now to the err, err to the South just over the reservoir	09:31:15
Tutor	CWL APP	Roger	09:31:33
Tutor	CWL APP	[Tutor C/S]roger details are copied I'll look for your position lat long	09:31:38
CWL APP	Tutor	Copied	09:31:43
Tutor	CWL APP	[Tutor C/S]contact Cranwell talkdown, stud eight	09:31:47
CWL APP	Tutor	Stud eight, [Tutor C/S]	09:31:50

Analysis and Investigation

Military ATM

The radar analysis, utilising all available radars, depicted the Tutor in the RTC but could not identify any primary contact in the vicinity that might have been the conflicting paraglider.

The Cranwell ATC Supervisor completed their report one month after the incident. They reported having taken a telephone call from a local paramotor pilot, who operates from a local site, that morning. The pilot informed the Supervisor that they would depart their site, approximately 4nm south of Cranwell, routing east and south to Heckington and then returning, all not above 500ft agl (any higher is too cold). This information was relayed to the Tower controller and Duty Pilot. After

the Airprox, the Supervisor relocated to the VCR and was able to see a paramotor operating to the south at low level, though it was not possible to estimate a height. The Supervisor reported that, later on, they telephoned the paramotor pilot, suspecting that the aircraft could have been involved, but the pilot insisted that they had not climbed above 500ft nor seen any other aircraft in close proximity.

Although the ATC team were aware that a paramotor would be transiting through the area, the information could only be used for Situational Awareness rather than Traffic Information (TI). There is also no evidence that the paramotor who telephoned was the reported 'paraglider' involved in the Airprox. With no conflicting traffic visible on radar, the Cranwell Approach controller could not have passed useful TI to the Tutor pilot.

UKAB Secretariat

Given the weather and terrain in the area, it is almost certain that the Tutor pilot saw a paramotor, rather than a paraglider. The Tutor and paramotor 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 Tutor pilot was required to give way to the paramotor[2].

Comments

HQ Air Command

Paragliders and paramotors rarely show up on radar and rarely carry electronic conspicuity aids or radios, which means that the only barrier effectively left is see and avoid. Due to their size and slow speed, they are also quite hard to acquire visually. However, during subsequent investigation of this incident, an example of good practice was evident whereby a paramotor pilot informed Cranwell ATC of his intentions, this enabled ATC and the duty pilot to be aware of its existence. This practice and local liaison should be commended.

It has been established that the paraglider involved in the Airprox was a different colour to the one which had notified Cranwell of its intentions and was flying in a different area. Without a report from the pilot concerned it is unclear whether they were aware of the Tutor.

Summary

An Airprox was reported when a Tutor and a Paraglider flew into proximity at 0930 on Friday 2nd December 2016. The Tutor pilot was operating under IFR in VMC, and in receipt of a Traffic Service from Cranwell App. The Paraglider pilot could not be traced.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the Tutor pilot, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

The Board first looked at the actions of the Tutor pilot, he was conducting a short-pattern circuit which was lower than for a standard radar pattern height. Nevertheless, he was still operating in accordance within normal Cranwell procedures and as such other airspace users could expect to see Tutors at that height. Noting that the pilot estimated that the paramotor was only 100-200ft below him, the Board wondered why he had not seen it earlier. In this respect, members opined that the student, who was presumably on the left of the cockpit (and therefore with best opportunity to see the paramotor), would have been concentrating on his instruments, whilst the instructor, on the right,

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

would probably have been obscured to the paramotor by the aircraft's canopy and coaming. Nevertheless, members highlighted that his incident served as a reminder for those acting as safety pilots during simulated IF sorties that robust lookout must be maintained at all times for just such eventualities. Some members wondered whether there may have been an element of surprise by the sudden appearance of the paramotor, causing the pilot to perceive it to be closer than it was. Alternatively, other members opined that a paramotor might have a larger than expected wing compared to a paraglider, thus making it appear closer. Ultimately, with the paramotor not showing on Cranwell's radar, and the TAS on the Tutor not giving any indications, the pilot's only mitigation against mid-air collision in this circumstance was lookout.

The Paramotor pilot was entitled to operate where he was and, whilst there was no doubt that he would not have intentionally flown close to the Tutor, the Board thought that there were mitigations that the paragliding/paramotor community could take to avoid such incidents, such as calling ATC if intending to fly close to radar patterns. In that respect, the Board noted the actions of the paramotor pilot who had rung Cranwell ATC before getting airborne and thoroughly commended him for his airmanship in having done so.

The Board then looked at the cause of the Airprox and quickly agreed that, because there was no information as to what the paramotor pilot had or had not seen, this incident was probably best described simply as a conflict in Class G airspace. In determining the risk, they noted that the Tutor pilot had assessed the risk of collision as 'low' but thought that this assessment did not take into account the fact that serendipity had played a part in the encounter. Without a radar picture to assist it was impossible to accurately judge how close the two aircraft were, but, on the other hand, it seemed that it had not been so close as to have been a situation where separation had been reduced to the bare minimum. Therefore, and noting that the Tutor pilot had not had the opportunity to take any avoiding action, the Board felt that this incident was a Category B; the safety of the aircraft may have been compromised and was certainly not assured.

PART C: ASSESSMENT OF CAUSE, RISK AND SAFETY BARRIERS

Cause: A conflict in Class G

Degree of Risk: B.

Safety Barrier Assessment[3]:

The Board decided that the following key safety barriers were contributory in this Airprox:

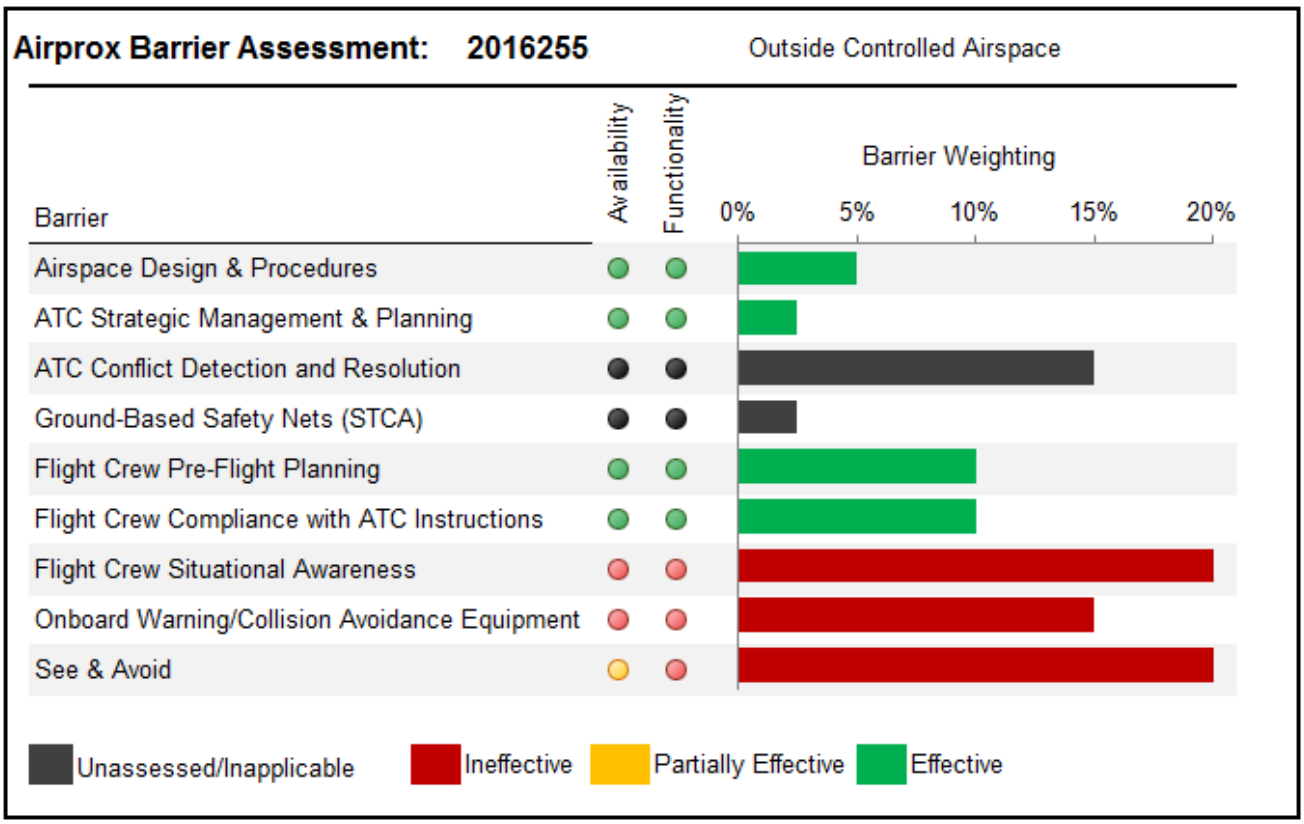
ATC Conflict Detection and Resolution was **inapplicable** because Cranwell ATC could not see the paramotor on the radar.

Flight Crew Situational Awareness was **ineffective** because the Tutor pilot did not receive any prior warning about the paramotor.

Onboard Warning/Collision Avoidance Equipment was **inapplicable** because the TAS on the Tutor could not detect the paramotor.

See and Avoid was **ineffective** because the Tutor pilot did not see the paramotor until CPA and neither pilot was apparently able to take avoiding action.

[3] 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 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). 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 Unassessable/Inapplicable). The chart thus illustrates which barriers were effective and how important they were in contributing to collision avoidance in this incident. 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: 2016255
Outside Controlled Airspace
Barrier
Availability
Functionality
Barrier Weighting
0%
5%
10%
15%
20%
Airspace Design & Procedures
ATC Strategic Management & Planning
ATC Conflict Detection and Resolution
Ground-Based Safety Nets (STCA)
Flight Crew Pre-Flight Planning
Flight Crew Compliance with ATC Instructions
Flight Crew Situational Awareness
Onboard Warning/Collision Avoidance Equipment
See & Avoid
Unassessed/Inapplicable
Ineffective
Partially Effective
Effective