

## **AIRPROX REPORT No 2014126**

Date/Time: 30 Jul 2014 1418Z

Position: 5211N 00030W  
(3.5nm NW Bedford)

Airspace: London FIR (Class: G)

Aircraft 1                      Aircraft 2

Type: Jetstream 31              Untraced glider

Operator: Civ Comm

Alt/FL: 2500ft  
QNH (1015hPa)

Conditions: VMC

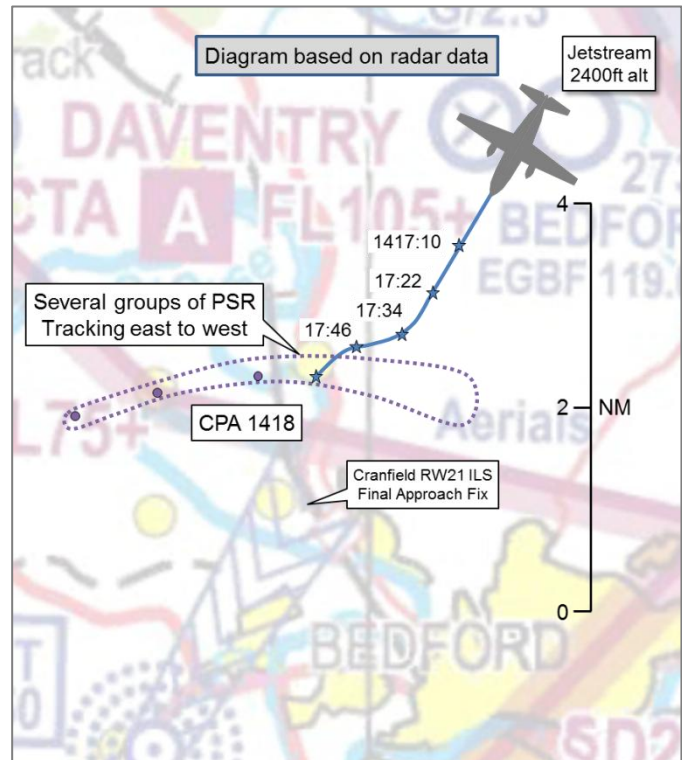
Visibility: 10km

Reported Separation:

0ft V/0.5nm H

Recorded Separation:

NK



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

**THE JETSTREAM PILOT** reports conducting an instrument approach to RW21 at Cranfield. The blue and white aircraft had beacons, HISLs and a landing light in each wing leading edge selected on, as was the SSR transponder with Modes A, C and S. The aircraft was fitted with PowerFLARM<sup>1</sup>. The PF was occupying the right seat with IF screens installed, an examiner the left seat, and they were operating under VFR in VMC, in receipt of a Basic Service from Cranfield Approach. On the final approach track, at a position 7.5nm bearing 033° from the Cranfield RW21 threshold, heading 220° at 160kt, the PowerFLARM gave an indication of contacts 2nm ahead. Three gliders were seen, one just below their level, tracking left to right and just left of the nose, and two gliders directly ahead, thermaling at about the same level. In the next few seconds, two more gliders were seen in the thermal. The examiner took avoiding action by turning about 40° to the right. As they got closer to the thermal, more gliders were discernible until seven were identified, thermaling from the same level as the Jetstream up to about 3000ft, in addition to a glider tracking left to right at about 2200ft. The examiner commented that due to the light conditions it was not possible to see all the gliders until they were abeam the thermal at a range of about 0.5nm. He also stated that Cranfield Approach had issued a generic warning of gliders but had no way of knowing where they were. As it happened, the gliders were thermaling at approximately the end of the instrument approach fan, as depicted on the CAA ½ million scale VFR chart. He stated that the PowerFLARM warning resulted in no risk of collision against the FLARM-equipped gliders but, given that some of the gliders may well not have been FLARM-equipped they had not seen all the gliders until they were about 0.5nm from the thermal. He stated that workload was moderate as the aircraft was about to be configured as they approached the final approach fix.

He assessed the risk of collision as 'Low'.

**THE GLIDER PILOTS:** Despite extensive tracing action, none of the glider pilots could be identified.

<sup>1</sup> PowerFLARM is a Traffic Advisory System using a freely available proprietary data link and collision sensing algorithm.

## Factual Background

The weather at Cranfield was recorded as follows:

METAR EGTC 301420Z 28006KT 220V320 9999 FEW045 24/13 Q1015=

## Analysis and Investigation

### CAA ATSI

The Cranfield controller was providing a combined Aerodrome and Approach control service without the aid of surveillance equipment. The ILS was out of service whilst Cranfield Air Traffic Engineers were conducting checks on the localiser. The Jetstream pilot had been requested to monitor the ILS on his VFR return to the airfield. There was a considerable amount of Glider activity in the local area and the controller believed that this had been broadcast on the ATIS. Radar recording showed intense glider activity to the north of Cranfield.

At 1403:42, after a local VFR flight to the northwest, the Jetstream pilot contacted Cranfield Approach and requested a self-positioned approach on the ILS for RW21 followed by a circling approach to land. The Jetstream was 12nm northwest of Cranfield at an altitude of 1400ft. The controller reported that two other aircraft were making R-NAV approaches and that there would be a delay. The Jetstream pilot agreed to continue operating in the local area and a Basic Service was agreed. The Jetstream pilot advised that he intended to route 10-12nm north of Cranfield and the controller passed traffic information on the two aircraft making R-NAV approaches together with information on "...multiple gliders in the local area" which the Jetstream pilot acknowledged.

At 1408:55, the controller advised the Jetstream pilot that the localiser was not yet back in service and the Jetstream pilot confirmed that he would make a straight-in approach VFR and was ready to commence the approach.

At 1414:17, the controller cleared the Jetstream pilot for a straight-in approach to RW21 with QNH 1015hPa and provided Traffic Information on other instrument traffic at 5nm. This was acknowledged by the Jetstream pilot who advised that he would keep his speed back descending from 2500ft. At 1417:11, radar recording showed the Jetstream 9.5nm from the airfield at 2400ft with 6 intermittent radar contacts ahead. One contact was in the Jetstream pilot's 12 o'clock position at a range of 1.4nm, which subsequently faded from radar, see Figure 1.

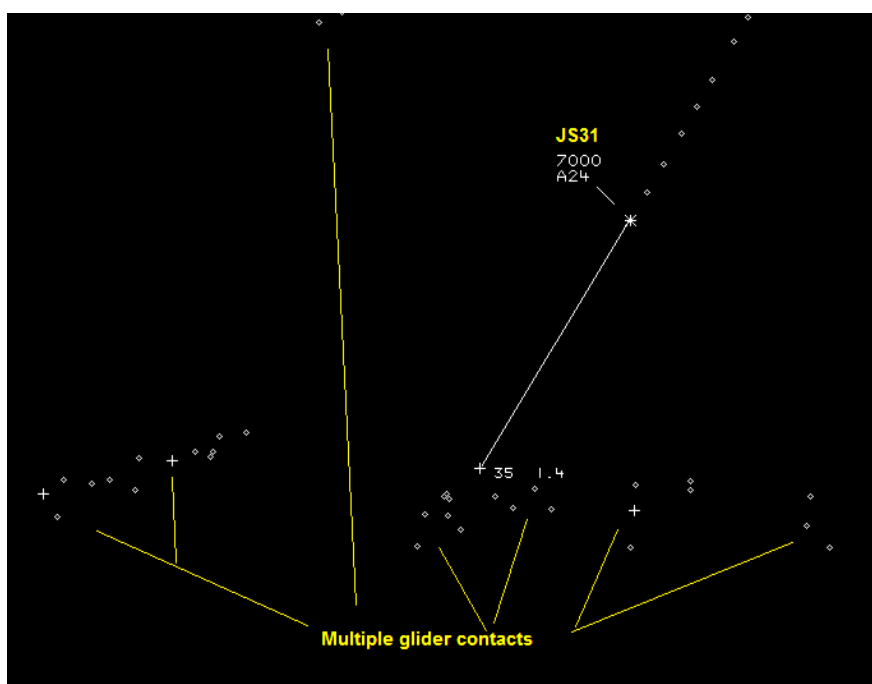


Figure 1: Swanwick MRT at 1417:11

At 1417:18, the controller advised the Jetstream pilot “[JS31 C/S] *just be advised there are four or five gliders orbiting in the thermal just inside the hold*” and the Jetstream pilot replied “[JS31 C/S] *thank you*”.

At 1417:35, the Jetstream pilot reported “[JS31 C/S] *we’ve just taken avoiding action against a glider which I make it two thousand five hundred feet and I can count six gliders*”. The controller acknowledged “Roger”, see Figure 2.

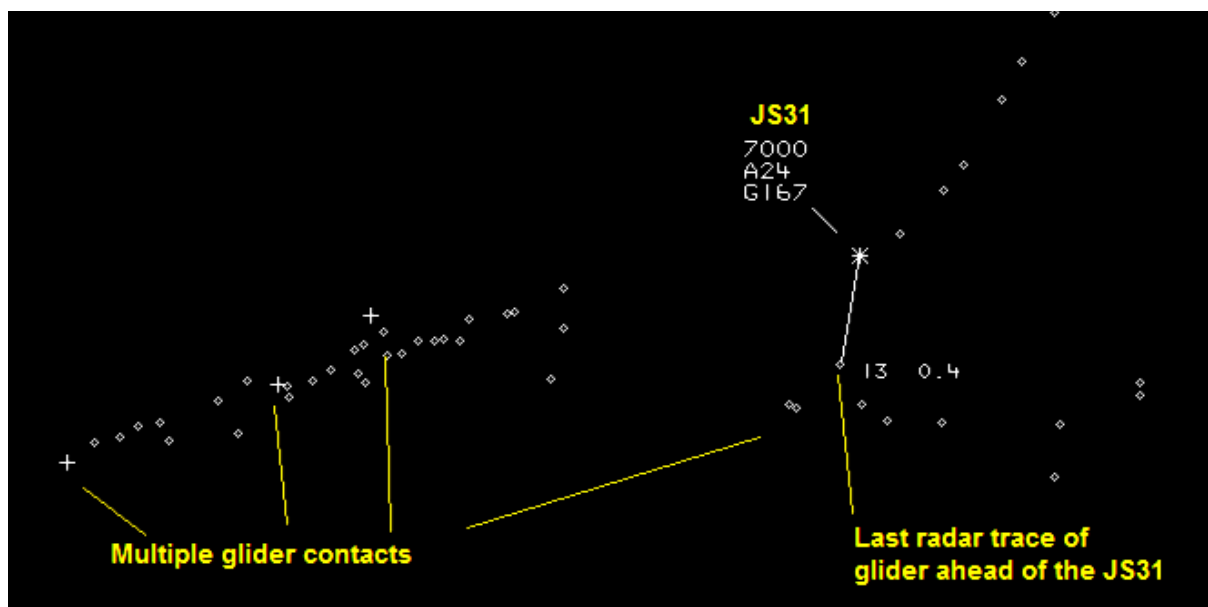


Figure 2: Swanwick MRT at 1417:35

At 1417:44, the Jetstream is shown to have passed a glider contact on the right hand side but it was not possible to determine which glider had been involved in the Airprox, see Figure 3.

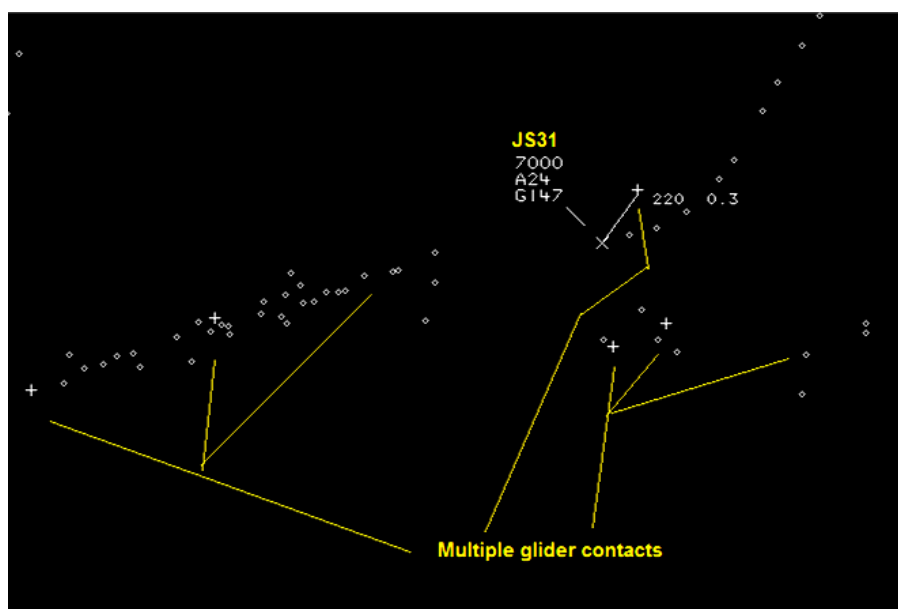


Figure 3: Swanwick MRT at 1417:44

The Jetstream pilot was in receipt of a Basic Service where:

‘Pilots should not expect any form of traffic information from a controller, as there is no such obligation placed on the controller under a Basic Service, and the pilot remains responsible for collision avoidance

at all times. However, on initial contact the controller may provide traffic information in general terms to assist with the pilot's situational awareness. This will not normally be updated by the controller unless the situation has changed markedly, or the pilot requests an update ... However, if a controller considers that a definite risk of collision exists, a warning may be issued to the pilot'<sup>2</sup>

## UKAB Secretariat

The Jetstream and glider pilots shared an equal responsibility for collision avoidance and not to fly into such proximity as to create a danger of collision<sup>3</sup>. If the incident geometry is considered as converging then the Jetstream pilot was required to give way to the gliders<sup>4</sup>. If the incident geometry is considered as head-on then both pilots were required to turn to the right<sup>5</sup>. If the incident geometry is considered as overtaking then the gliders pilots had right of way and the Jetstream pilot was required to keep out of the way of the other aircraft by altering course to the right<sup>6</sup>, which he did.

## Comments

### The Jetstream Operator

The mid-air collision risk outside controlled airspace is our biggest AOC risk and we are attempting to manage it as best we can, hence our aircraft are fitted with FLARM. We are recording traffic in an inappropriate position for our operators in order to try and establish any patterns of use and to use in any evidence-based follow-up action. Having gliders thermaling in the hold/instrument pattern is reasonably common but also possibly inappropriate, even though they are in the 'open FIR'. The human physiological limitations of 'see-and-avoid' make it very difficult to see gliders on occasion. In this case it was not possible to see all the gliders until probably too late to take avoiding action if a turn away from them had not already been made. The avoidance of mid-air collision then becomes a question of chance.

### British Gliding Association

FLARM supports see and avoid by helping to identify potential threats and thereby directing lookout. FLARM equipage continues to rise among civilian and military Class G users. It is encouraging to note in this case that the Jetstream crew see-and-avoid technique, which was supported by PowerFLARM, was effective in identifying other traffic in Class G (in this case sailplanes) and resulted in avoiding action.

The majority of Class G users operate using a ½ million VFR chart. So beyond the depicted ILS arcs, they are unaware of local arrangements for instrument traffic. The threat to other Class G users from IFR traffic can be further compounded where instrument traffic in Class G does not operate with a ½ million VFR chart. In this case, the instrument traffic was fully aware of which class of airspace it was operating in and was adopting appropriate risk mitigation.

## Summary

An Airprox was reported when a Jetstream flew into proximity with a group of gliders at 1418 on Wednesday 30<sup>th</sup> July 2014. All pilots were operating under VFR in VMC, the Jetstream pilot in receipt of a Basic Service from Cranfield Approach and the glider pilots most likely not in receipt of an Air Traffic Service.

<sup>2</sup> CAP774, Chapter 2, Paragraph 2.5

<sup>3</sup> Rules of the Air 2007 (as amended), Rule 8 (Avoiding aerial collisions).

<sup>4</sup> *ibid.*, Rule 9 (Converging).

<sup>5</sup> *ibid.*, Rule 10 (Approaching head-on).

<sup>6</sup> *ibid.*, Rule 11 (Overtaking).

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

Information available consisted of a report from the Jetstream pilot, radar photographs/video recordings and a report from the appropriate ATC and operating authorities.

Considering the pilots' actions first, Board members agreed that the PowerFLARM equipment fitted to the Jetstream had provided considerable mitigation against mid-air collision in warning the Jetstream crew of the presence of other FLARM equipped aircraft and queuing their lookout to enable early visual acquisition. Members considered this particularly effective when attempting to gain visual contact with gliders, which by nature of their design and colour could be exceptionally difficult to acquire. However, members also noted that pilots should always assume that not all gliders will be so equipped and that 'see-and-avoid' remained the underpinning mitigation to mid-air collision in Class G airspace. The Board commended the Jetstream crew for their pro-active behaviour, and their operating authority for having the foresight to fit PowerFLARM to their aircraft.

The Board were once again disappointed that none of the glider pilots could be traced, and could but hope that the situational awareness of the pilots in the FLARM-equipped gliders had been increased by knowledge of the approaching Jetstream. Glider-pilot Board members noted that the glider pilots concerned should have been aware of the instrument approach at Cranfield, as depicted by the 'fan' on the ½ million scale CAA VFR chart, and presumably of their proximity to it. However, they also opined that it was difficult for glider pilots to access information of where the IFR holds were in UK airspace other than to review all the approach charts of all the airfields they would be flying near. For long-endurance sorties, which might deviate significantly from planned routing and thereby go near numerous airfields, this was not feasible. Members noted that it was no more inappropriate for gliders to be flown in the vicinity of IFR approaches than it was to conduct an IFR hold and/or approach in Class G airspace. Nevertheless, the Board felt that it should be possible to present additional information on IFR procedures and resolved to recommend that the CAA considers producing a master chart of UK airfield IFR holding pattern positions and IFR tracks, that could either be carried as a paper copy or used as an overlay on proprietary GPS/digital mapping software. They agreed that it was probably not appropriate to annotate this information on the ½ million scale CAA VFR chart for reasons of clarity; however, a stand-alone chart would be useful as a means of highlighting these locations and tracks. Notwithstanding the issue of IFR-hold awareness, members felt that the glider pilots involved would in any case have been better served by contacting Cranfield either to inform ATC of their proximity (so that traffic conducting instrument approaches could be given specific Traffic Information), or to assist them in remaining clear of the instrument final approach.

The Board agreed that in this case the Airprox had been caused by the conflicting flight paths of the aircraft concerned and that effective and timely action had been taken to prevent collision.

## **PART C: ASSESSMENT OF CAUSE AND RISK**

<u>Cause:</u>	A conflict in Class G resolved by the Jetstream pilot.
<u>Degree of Risk:</u>	C.
<u>ERC Score<sup>7</sup>:</u>	4.
<u>Recommendation:</u>	The CAA considers producing a chart of UK airfield IFR holding pattern positions.

<sup>7</sup> Although the Event Risk Classification (ERC) trial had been formally terminated for future development at the time of the Board, for data continuity and consistency purposes, Director UKAB and the UKAB Secretariat provided a shadow assessment of ERC.