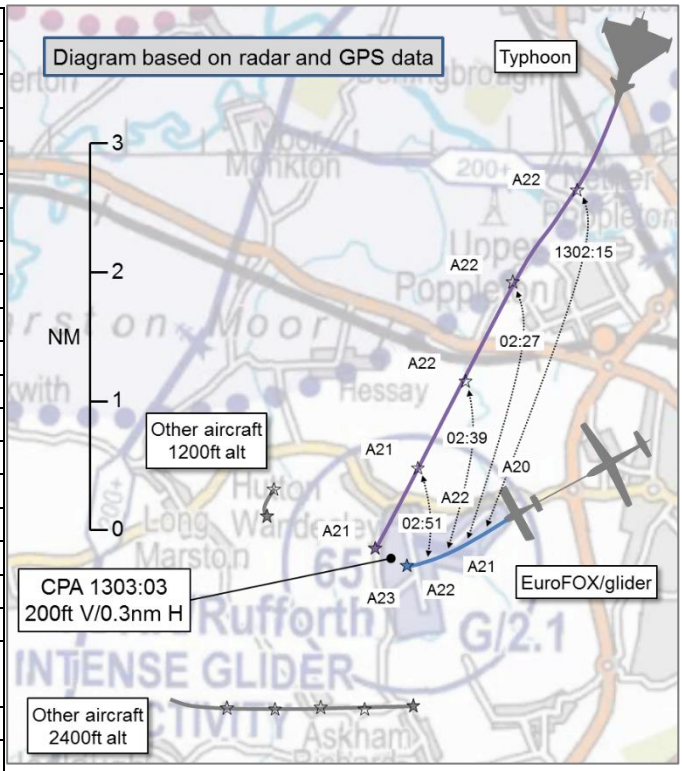
AIRPROX REPORT No 2017265

Date: 15 Nov 2017 Time: 1303Z Position: 5457N 00111W Location: overhead Rufforth airfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	EuroFOX/glider	Typhoon
Operator	Civ Club	HQ Air (Ops)
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	Traffic
Provider	N/A	Linton
Altitude/FL	2300ft	2100ft
Transponder	Not fitted	A, C (S off)
Reported		
Colours	Yellow, black	Grey
Lighting	Nav, strobes	NK
Conditions	VMC	VMC
Visibility	>10km	NK
Altitude/FL	~2500ft	2000ft
Altimeter	QFE (NK hPa)	QFE (1022hPa)
Heading	220°	210°
Speed	55kt	300kt
ACAS/TAS	Both fitted with FLARM	Not fitted
Separation		
Reported	100ft V/50m H	500ft V/1.5nm H
Recorded	200ft V/0.3nm H	



THE EUROFOX PILOT reports conducting an aerotow from Rufforth Aerodrome, climbing in a southwest direction and overhead the airfield. His view to the right was partially obstructed by the passenger who, at that point, started to vigorously point to the right side and downwards (the passenger did not have a headset). The pilot did not see anything but immediately made a sharp turn to the left. A few moments later, after he had straightened up on a southerly heading, he saw a Typhoon jet, slightly below and travelling rapidly in a southerly direction, rocking its wings. The passenger reported that when he saw the Typhoon it was slightly below and behind them on a converging heading and may have been 50m from them at the closest point. The glider pilot on tow likewise reported that he saw the Typhoon on a converging heading and slightly below, and that at the last moment the jet turned to the right.

He assessed the risk of collision as 'Medium'.

THE TYPHOON PILOT reports conducting a practice diversion to Linton on Ouse and in receipt of radar vectors to the ILS RW03. Traffic Information was passed twice and the tug/glider was seen on the second occasion in the left 10 o'clock at a range estimated as 2nm and 300ft above. The Typhoon pilot informed the Linton controller that he was visual with the traffic, descended slightly and commenced a long series of wing-waggles. He passed clear ahead of the slower, conflicting, traffic.

He assessed the risk of collision as 'None'.

THE LINTON DIRECTOR CONTROLLER reports that the Typhoon was under vectors for an ILS to RW03RH. Descent was given to 2100ft QFE as the aircraft was routed towards York Rufforth. Traffic in the vicinity of Rufforth was called and after being called for a second time the Typhoon pilot reported visual with a tug and glider as it passed overhead Rufforth. Nothing further was mentioned and the Typhoon pilot completed an ILS before departing.

THE LINTON SUPERVISOR reports that he did not recall the incident and was not informed of the Airprox until over a week after the event.

Factual Background

The weather at Linton on Ouse was recorded as follows:

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METAR EGXU 151250Z 34002KT 9999 OVC044 10/05 Q1024 BLU NOSIG=
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Analysis and Investigation

Military ATM

An Airprox occurred on 15 Nov 17 at approximately 1300hrs UTC, in the vicinity of Rufforth, between a EuroFOX and a Typhoon. The EuroFOX was operating on a gliding frequency and not receiving an Air Traffic Service (ATS), and the Typhoon was receiving Traffic Service (TS) from the Linton Director while being vectored for an ILS approach. At 13:02:02 (Figure 1), the Linton Director passed Traffic Information (TI) on traffic "south, 3nm, manoeuvring, no information, further traffic south west, 5nm, tracking east, indicating 200ft above". The Typhoon pilot responded that he was looking for the traffic.

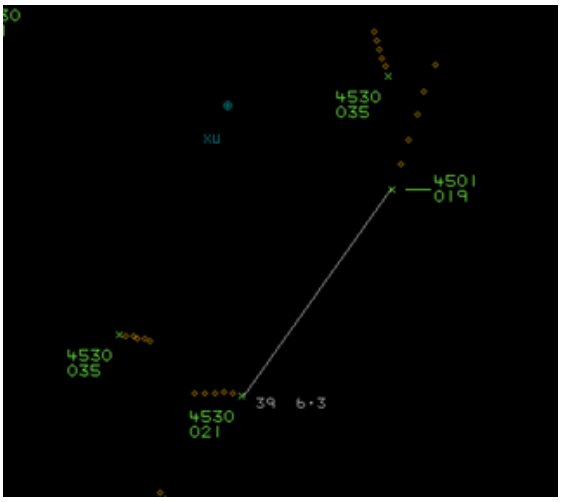


Figure 1: Geometry at 13:02:02

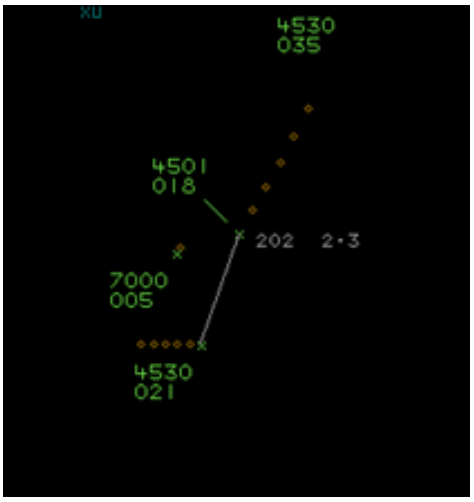


Figure 2: Geometry at 13:02:52

At 13:02:52 (Figure 2), the Linton Director updated the TI to "traffic south, 2nm, tracking east, indicating 300ft above". The Typhoon pilot responded that he was visual with a glider being towed, though this traffic is not displayed in Figure 2.

Rufforth glider site is marked on the Linton ATC radar map (Figure 3) as a central point with red ring denoting 2nm radius. It is treated as a military avoid, with glider operations up to 2000ft agl (elev 65ft). Although there is no formal agreement between Linton ATC and Rufforth, Linton ATC personnel do not descend aircraft below 2100ft QFE in the vicinity of Rufforth. Glider activity is generally visible on the radar screen and it is possible to distinguish between tugs and gliders as they split.

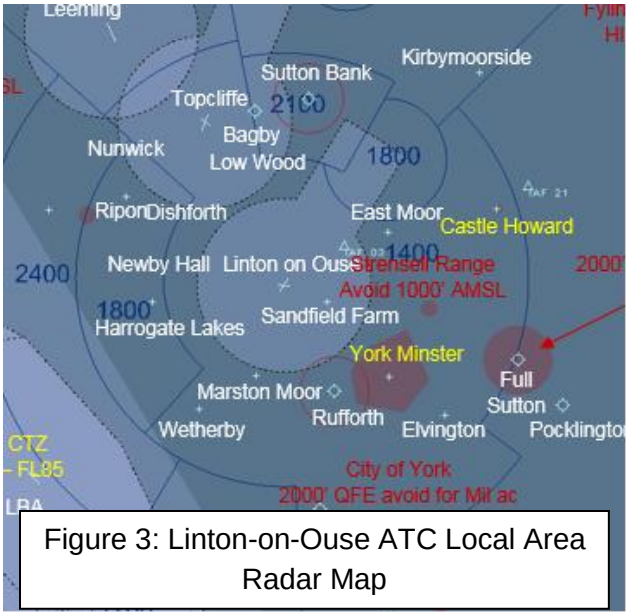


Figure 3: Linton-on-Ouse ATC Local Area Radar Map

It is not commonplace for controllers to descend aircraft to 2100ft QFE through the Rufforth overhead, particularly if high intensity glider activity is visible, in

which case aircraft are vectored away from likely conflict. The radar training circuit is to the west of RAF Linton-on-Ouse; therefore, aircraft downwind at the standard 2000ft QFE for ILS approaches are not normally in the vicinity of Rufforth. However, this was a radar recovery from the north east, by a fast jet aircraft, and the most expeditious route was to remain to the east.

During the minutes leading up to the Airprox, the Linton Director passed TI to the Typhoon pilot several times. Although the updated TI at 13:02:52 appears to correlate with other traffic utilising the Linton Basic Service code (4530) rather than the EuroFOX and glider, the passing and updating of TI enabled the Typhoon pilot to visually acquire the traffic. Had the EuroFOX been utilising a transponder, the Linton Director would have had altitude information both to pass to the pilot and to aid in his planning process, potentially triggering him to stop the Typhoon pilot's descent above the traffic. When the Typhoon pilot saw the EuroFOX and glider, they were above him, therefore even if the Controller had stopped descent at 2500ft, there would still have been potential conflict.

Local orders for use of FLARM-derived data by Linton ATC personnel are as follows:

> ***Use of FLARM derived data.*** *Gliders equipped with Flight Alarm (FLARM) can be viewed by ATC by way of a standalone computer display within the Approach Control Room. The use of FLARM derived information for providing traffic information is severely restricted as the data derived cannot be fully assured therefore crews should not routinely request such information nor should controllers rely solely on it. The information derived from FLARM equipped air systems can only be used under the following conditions:*
>
> *a. If a definite risk of collision exists and the controllers believes the provision of FLARM derived height information would assist the pilot; the phrase 'FLARM indicates' will prefix any height information.*
>
> *b. The information should only be relayed to the controller via the ATC Supervisor on request by the controller. This is to ensure that the controller is not distracted by monitoring a dislocated computer screen to the detriment of maintaining SA on the controlling air picture.*
>
> *c. ATC Supervisors will receive bespoke instruction on interrogating the FLARM display and the limitations of use to ensure the information passed is deemed appropriate and / or necessary.*
>
> *And with the following restrictions:*
>
> *a. FLARM derived information is not to be used for the purposes of controlling, planning or offering height de-confliction advice to air systems.*
>
> *b. FLARM derived information can only be used to supplement radar contact information displaying in primary only on the radar display where a definite risk of collision exists.*
>
> *c. Controllers are not to view / use the FLARM display when the Supervisor is not in the ACR.*
>
> *d. If doubt exists over the correlation of primary contact with the FLARM display the pilot is to be informed that FLARM information is unavailable.*
>
> *e. De-confliction advice is to be provided based primary radar only.*

UKAB Secretariat

The EuroFox/glider and Typhoon 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 overtaking then the EuroFox/glider combination had right of way and the Typhoon pilot was required to keep out of the way of the other aircraft by altering course to the right[2]. The EuroFOX/glider track in the report diagram has been derived from the glider's GPS log file.

[1] SERA.3205 Proximity.
[2] SERA.3210 Right-of-way (c)(3) Overtaking.

Occurrence Investigation

The military investigation found that the incident was caused by a confliction of flight-paths and a late visual sighting by the Typhoon pilot. A casual factor was that the Typhoon pilot was not aware of the presence of the tug/glider combination until Traffic Information was passed by the Linton controller. The investigation also observed that neither civilian aircraft was transponder equipped and that both civilian pilots were monitoring a 'glider frequency', with no Air Traffic Service provision.

Comments

HQ Air Command

The Typhoon pilot was conducting a practice instrument approach to Linton-on-Ouse under radar vectors and a Traffic Service from the Linton controller. The aircraft involved were not fitted with a CWS and only the Typhoon was transponder-equipped, hence the electronic conspicuity barrier was unavailable and the surveillance-based Air Traffic Service barrier was weakened. Controllers at Linton can often detect glider activity in the vicinity of Rufforth (primary radar only) but in this instance it seems that there was only a brief indication that there may have been glider activity; the majority of Traffic Information was being passed on transponding traffic and only one Traffic Information call mentioned a contact with no other (secondary) information. Fortunately, the Traffic Information being issued was on known traffic in the same general direction relative to the Typhoon as the non-transponding aircraft and thus the Typhoon pilot's lookout was biased towards that area, allowing him to gain visual contact with the tug and glider. Once visual, the Typhoon pilot elected to descend below his cleared height in order to increase vertical separation and waggled his wings to indicate to the other aircraft that he was visual.

Whilst it is not common practice to vector aircraft overhead Rufforth for instrument approaches (the radar training circuit at Linton passes to the west of Rufforth), in this instance it was not unreasonable for the controller to vector the Typhoon over an area that the controller believed to have little to no activity (due to the absence of any primary or secondary radar returns) and at a height that was at the maximum vertical extent of the winch launch. That said, the other element involved in this incident was a tug and glider combination so the maximum height of the winch launch is not indicative of the maximum height of aircraft associated with the Rufforth gliding activity. It is acknowledged that it is often impractical for a glider to carry or use a transponder; however, had the powered tug been transponder equipped this would have at least indicated to the controller the presence of an air system and he could then have planned to deconflict his Typhoon traffic accordingly.

Summary

An Airprox was reported when a EuroFox/glider aerotow combination and a Typhoon flew into proximity at 1303hrs on Wednesday 15th November 2017. Both pilots were operating under VFR in VMC, the Typhoon pilot in receipt of a Traffic Service from Linton on Ouse and the EuroFox/glider pilots not in receipt of a service.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, a transcript of the relevant R/T frequency, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

Members first considered the actions of Linton ATC, noting that the Typhoon pilot had first requested to self-position for the ILS but that radar vectors had subsequently been agreed. The Linton Director issued a clearance to descend to height 2100ft about 3 mins before CPA, with a right turn onto a heading of 200° some 35 seconds later. An ATC member wondered whether the descent and right turn had amounted to a vector into conflict with the traffic southwest of the Typhoon, eastbound at 2300ft (see Figure 1), but the military ATC advisor opined that the vector had been issued over 2 mins

before the Typhoon arrived in the area and, as such, it was not considered a vector into conflict. ATC members noted that although that may be considered the case, nevertheless the Typhoon had been vectored to an area of known intense gliding activity and had been cleared to descend to a height close to that of the traffic which could be seen on radar. Members were advised that Rufforth gliding site was marked on Linton radar screens as an avoid (see Figure 3), and that the Typhoon pilot had been cleared to descend not below the promulgated maximum winch height. Members commented that this left no margin for error or deconfliction; it was agreed that this was contributory to the Airprox. The discussion then turned to whether Linton ATC should be expected to vector traffic around the Rufforth gliding site and to what degree the Linton radar provided information in order to make such decisions. Members felt that this issue hinged on the degree to which Rufforth traffic, both tugs and gliders, could be observed on the Linton radar. The military ATC advisor stated that Linton controllers were of the opinion that gliders did 'paint' on their radar but members questioned how the controllers could know if gliders didn't appear on their radar; the Board understood from previous Airprox that gliders were generally not radar significant and often did not appear on radar.

The military ATC advisor also stated that Linton ATC had an area FLARM display installed and that it was used to provide additional SA under certain circumstances. The ATC advisor noted that this would typically occur should a controller observe primary-only returns in an area with Linton traffic, in which case the Supervisor could pass FLARM information on the traffic should any be displayed in the same area. Members noted that routine use of FLARM data was not permitted due to it being non-validated and that there were understandable and entirely reasonable concerns over its latency and veracity, especially given the safety-critical implications of its potential use. However, members also questioned the rationale of allowing FLARM data to be used for added SA for Linton controllers under some reactive circumstances, i.e. on observing PSR in the area, but not for planning purposes. In this case both the EuroFOX and glider were FLARM equipped and their presence could have been used to inform the Linton Director's choice of vector and descent height. Members considered whether the absence of FLARM data was contributory to the Airprox, but noted that incorporation of FLARM derived SA into ATC operations was the subject of an ongoing RAF trial and felt that its use, or lack of, could not be cited as contributory unless processes and procedures were established. A military member highlighted that electronic conspicuity had existed as a barrier but that the EuroFOX and glider had both not been equipped with a transponder, denying the Linton Director valuable information on what transpired to be conflicting traffic. Members agreed that it was for all airspace users to contribute to available barriers and that the EuroFOX not being transponder equipped was contributory to the Airprox. After further discussion concerning the cost, weight and power requirements of SSR transponders in gliders and tug aircraft, members agreed to recommend that 'The BGA consider recommending the fitment of transponders to tug aircraft'.

Turning to the pilots concerned, it appeared from the Typhoon pilot's report that he had seen the tug/glider combination at range although an R/T transcript indicated that he had obtained his first visual sighting about 10 secs before CPA. Members recognised that R/T transcript timing and radar replay came from different sources and were not always completely synchronised but, whatever the case, the Typhoon had passed some 200ft below and 0.3nm laterally as it overtook the tug/glider combination. Of greater concern was that the Typhoon pilot had been unaware of the tug/glider until passed Traffic Information on another aircraft to the south, when the tug/glider had entered his field of view as he looked south. Members agreed that it was for the Typhoon pilot to alter course to the right, that his late sighting had not allowed him to do that, and that this was the cause of the Airprox. Some members considered that the relatively high speed of the Typhoon was inappropriate at that level in that traffic environment; they opined that the downwind leg of the instrument approach could have been flown higher and slower, and that the Typhoon's overtake was such that safety had been much reduced. Notwithstanding, after some discussion, the Board agreed that in this instance separation and sighting had been such that there had been no risk of collision but that the incident was of sufficient concern that it could not be considered as 'normal operations'.

Lastly, a gliding member pointed out that the Rufforth CFI had informed him that Rufforth and Linton enjoyed a close and productive liaison, and that the Airprox had been filed because it appeared on this occasion that the Typhoon had flown into proximity with a tug and glider, but that it was very unusual for Linton traffic to be vectored overhead Rufforth.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A late sighting by the Typhoon pilot as he overtook the EuroFOX and glider.

Contributory Factors: 1. The Linton controller vectored the Typhoon overhead Rufforth at 2100ft.

2. The EuroFOX was not transponder equipped.

Degree of Risk: C.

Recommendations: The BGA consider recommending the fitment of transponders to tug aircraft.

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:

ANSP:

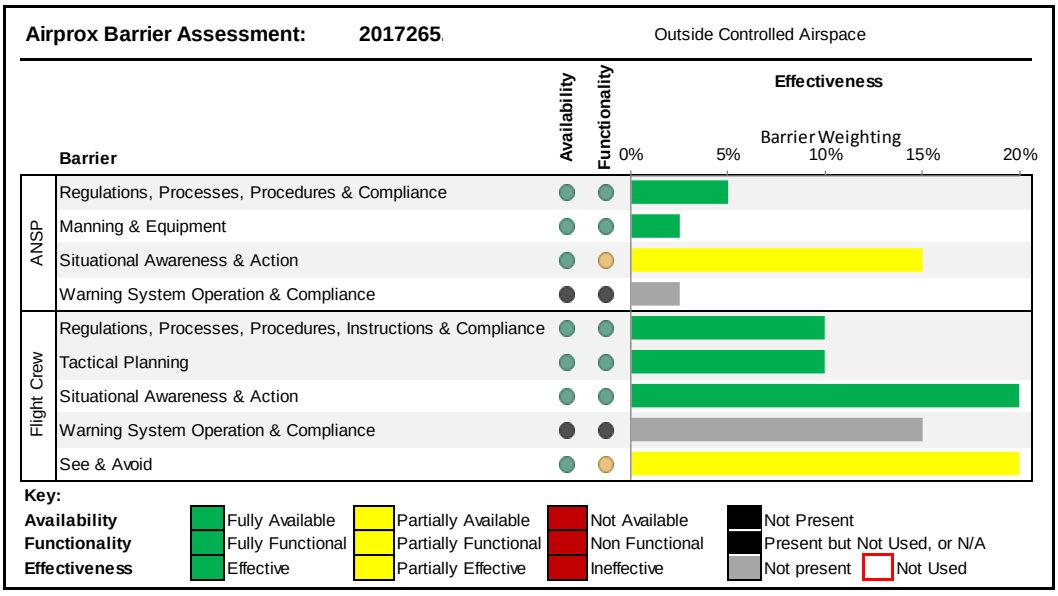
Situational Awareness and Action were assessed as **partially effective** because the Linton Director was aware of activity in the area but vectored the Typhoon over Rufforth at 2000ft agl.

Warning System Operation and Compliance were assessed as **not used** because the Linton Director console was not fitted with a warning system.

Flight Crew:

Warning System Operation and Compliance were assessed as **not used** because none of the aircraft were fitted with electronic conspicuity equipment.

See and Avoid were assessed as **partially effective** because the EuroFOX and glider pilots' lookouts were not as effective in the direction from which the Typhoon approached, and the Typhoon pilot only saw the EuroFOX and glider at a late stage.



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