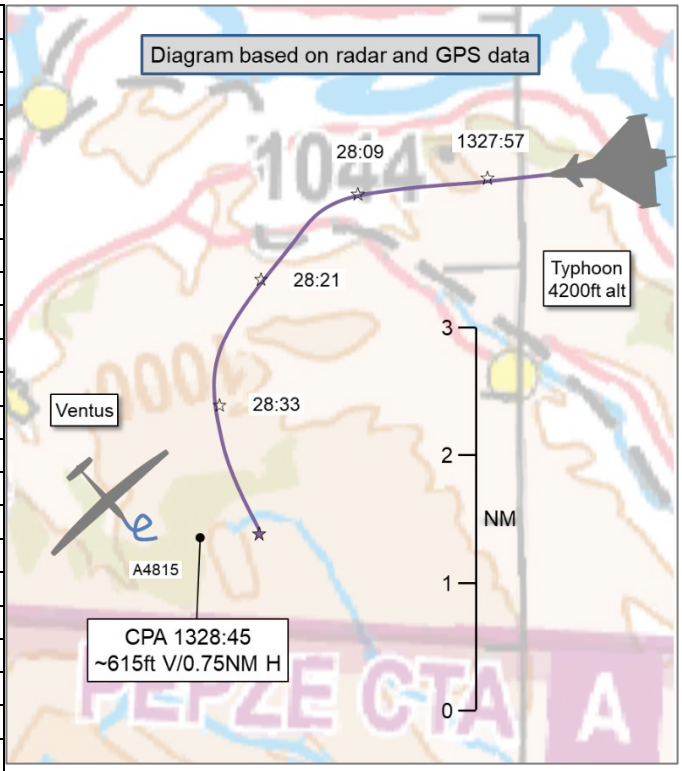
AIRPROX REPORT No 2024060

Date: 16 Apr 2024 Time: 1329Z Position: 5203N 00304W Location: 2.5NM SE Hay-on-Wye

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Ventus glider	Typhoon
Operator	Civ Gld	HQ Air (Ops)
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	IFR
Service	Listening Out	Traffic Service
Provider	Talgarth	Swanwick Mil
Altitude/FL	~4815ft	4200ft
Transponder	Off	A, C
Reported		
Colours	White	Grey
Lighting	Not fitted	NR
Conditions	VMC	NR
Visibility	>10km	NR
Altitude/FL	5100ft	4000ft
Altimeter	QNH (NK hPa)	NR
Heading	350°	'orbit'
Speed	60kt	NR
ACAS/TAS	FLARM	Not fitted
Alert	None	N/A
Separation at CPA		
Reported	100ft V/70m H	Not seen
Recorded	~615ft V/~0.75NM H	



THE VENTUS PILOT reports soaring near Hay-on-Wye. Some mountain wave [activity] allowed them to climb just above cloudbase, but well clear of cloud. They saw the jet just after it missed them and their paths were diverging. They radioed other gliders at the club to warn them of traffic. They had discussed the NOTAM area extending 8NM around Pontrilas at the pre-flight briefing, and were avoiding that. The military aircraft was obviously heading into that area for its exercise. There was no communication between the RAF and the club.

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

THE TYPHOON PILOT reports conducting Close Air Support training [as No 2 of a pair of Typhoons] and had negotiated a block with Swanwick Mil from 3000-12,000ft on the RPS. During the timeframe notified, they established at 4000ft in 'a wheel' to the north of Hereford. They reviewed the period, [noted they were] approximately 2-3NM east of Hay-on-Wye at 1327 and maintained 4000ft throughout. Given the 'reporting aircraft' was a glider it was unsurprising that there were no radar contacts displayed to the pilot in the vicinity of Hay-on-Wye during the time period. Both Typhoon pilots were maintaining a listening watch with Swanwick Military on a discrete frequency for Traffic Information but from what they could tell from the [recorded R/T] received no Traffic Information referring to the glider.

THE SWANWICK MIL CONTROLLER reports the [Typhoon pair] was on frequency operating on an exercise ivo EGD147, between 3000ft and 12,000ft on QNH 1008hPa and were remaining outside controlled airspace. Traffic Information was passed to [the Airprox Typhoon], that was being operated in the lower portion of the block, although nothing was seen on radar at the time of the Airprox. No Airprox was reported on frequency by either pilot. [The Typhoons] remained on task and appeared unaffected. No primary-only tracks appeared on radar and all known traffic to affect was called to aircraft on frequency. The controller noted that a possible mitigation could be for a local Terminal Radar Unit to provide the aircraft with a service with a less filtered radar, in this case Cardiff Radar.

THE SWANWICK MIL SUPERVISOR reports they had no recollection of the event because an Airprox was not declared on frequency.

Factual Background

The weather at Gloucester Staverton was recorded as follows:

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METAR EGBJ 161350Z 34014G24KT 310V010 9999 VCSH FEW034 FEW040TCU SCT045 12/04 Q1015=
METAR EGBJ 161320Z 34016G26KT 9999 -SHRA FEW034 BKN040CB 11/05 Q1015=
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The following NOTAM was issued:

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Q) EGTT/QWELW/IV/BO /W /000/200/5158N00252W009
A) EGTT B) 2404080800 C) 2404181600
D) 0800-1600
E) EXER FAST MOVER. MULTIPLE MIL ACFT, INCLUDING FAST JETS AND
ROTARY, WILL CONDUCT HIGH ENERGY MANOEVRES WI 8NM RADIUS:
515802N 0025223W (EWYAS HAROLD). ACFT MAY BE UNABLE TO COMPLY WITH
RAC. FOR INFO 07889 021882. AR-2024-1388/AU3.
F) SFC G) 20000FT AMSL)
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Analysis and Investigation

Military ATM

An Airprox occurred on 16 Apr 24 at approximately 1330 UTC, approximately 1NM southeast of Hay-on-Wye. The Ventus pilot was conducting soaring activities in the vicinity of Hay-on-Wye, not in receipt of a service. The Typhoon pilot was part of a formation conducting Close Air Support training at Hereford and in receipt of a Traffic Service from the Swanwick Military Radar controller.

Utilising occurrence reports and information from the local investigation, outlined below are the key events that preceded the Airprox. Both NATS radar and local radar replays did not show the position of the Ventus glider during the period both preceding and post the Airprox.

The Typhoon was part of a formation participating in a Close Air Support training as part of an exercise with Joint Terminal Air Controllers. The Typhoons were operating dual radios with a Traffic Service from the Swanwick Military Radar controller on one radio whilst the Joint Terminal Air Controllers were selected on the second radio.

The Swanwick Military Radar controller was providing a service to both the Typhoon formation and an RJ70 operating in the southwest, whilst they were responsible for the Central and South-West radar sectors. Traffic Information had been passed to both the RJ70 and the Typhoons throughout the period preceding the Airprox regarding various transiting traffic.

The Typhoon formation was established in non-standard formation within the operating altitude block 3000ft to 12,000ft on the RPS of 1008hPa. A Traffic Service had been provided, however, no limitations had been issued given the lower level of the operating block being below the base of primary radar coverage.

The Ventus did not display on radar at any stage throughout the period and hence no Traffic Information was provided to the Typhoon pilot. Additionally, the Typhoon pilot did not report the presence of gliders or an Airprox.

The base of radar coverage in the vicinity of Hay-on-Wye is variable but approximately between 4606ft and 7283ft for non-cooperative radar and between 623ft and 1542ft for cooperative radar. With the Ventus operating at approximately the lower base of non-cooperative radar coverage and without a transponder, the lack of detection by radar could be entirely expected.

The local investigation conducted by 78 Sqn identified the event outcome as a perceived loss of safe separation between two non-cooperating aircraft. As a result of the Ventus glider not being displayed on radar at any stage, they were unable to identify any BM-related contributory or aggravating factors outside expected non-detection by radar.

The operating altitude block selected by the Typhoon formation, whilst required for the exercise, did result in the lower portion being at or even outside the base of radar coverage for the Swanwick Military Radar controller. Whilst a limitation in service was not provided, it is generally well understood across military operators that Swanwick Military is unable to provide a low-level Air Traffic Service to the same capability as Terminal Radar units. Additionally, as the operating block was required for the exercise the limitation would have had little effect had it been passed and still not prevented the Airprox as the Typhoon formation would have remained in the extant block. Within the location in question there were no alternative military terminal radar units that could provide an alternative service and hence the Typhoon formation selected the best Air Traffic Service available.

UKAB Secretariat

The Ventus 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].

Comments

HQ Air Command

The local investigation into this Airprox revealed the Typhoon pilot had no SA on the glider from on or off-board radar. Despite comment that Cardiff may have provided a less filtered radar picture than Swanwick, the Airprox location is outside the published LARS coverage, and radio comms at that range from Cardiff may have been poor. The NOTAM warning for the Typhoon air exercise was only indicative of the likely area of operations, and it's pleasing to see the glider pilots were planning to avoid it. That said, weather and tactical considerations may force the Typhoons to operate outside the published radius, when 'see and avoid' principles become more focussed due to lack of mitigation by NOTAM, especially as Typhoon has no ADS-B compatibility at present. Recent RAF engagement with the Black Mountains Gliding Club may lead to better regulation of the low flying system in this region and this should heighten mutual awareness of both airspace users' needs when utilising this area of Class G. That, in turn, may open potential for military aircraft to coordinate more closely with gliders operating from Talgarth, with the ability to contact them directly by radio, for example.

BGA

Under the right conditions, nearby hills generate mountain lee wave, which gliders launched from Talgarth airfield (about 6.5NM SW of the Airprox location) use to achieve altitudes of FL120 and above when flying in this area. A greater density of gliders, and aircraft towing gliders, may be expected nearby at any time during daylight hours, and at any altitude up to the base of Controlled Airspace (which is at various levels up to FL195 near Talgarth). Gliders will generally remain clear of cloud, but will routinely fly in IMC (e.g. within 1000 ft vertically and 1500 m horizontally of cloud above 3000 ft AMSL in Class G airspace). With the Ventus circling above cloudbase and alongside (but clear of) cloud, it's possible that the Ventus and Typhoon were each obscured from the other by cloud until just before CPA.

If the glider's transponder had been switched on, it may have registered on Swanwick's radar, allowing the Swanwick controller to pass appropriate Traffic Information to the Typhoon. Given recent rapid advances in rechargeable battery technology, owners of transponder-equipped gliders may wish to re-equip with higher-capacity batteries that allow them to run their transponders for longer in flight.

[1] (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

Summary

An Airprox was reported when a Ventus glider and a Typhoon flew into proximity 1NM southeast of Hay-on-Wye at 1329Z on Tuesday 16th April 2024. The Ventus pilot was operating under VFR in VMC, not in receipt of a FIS and the Typhoon pilot was operating under IFR in unknown conditions, in receipt of a Traffic Service from Swanwick Mil.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS data, a report from the air traffic controller 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.

The Board first discussed the mis-match between the Ventus pilot's estimate of separation at CPA and that provided by GPS and radar data. A Board gliding member briefed that they had discussed the Airprox with the Ventus pilot but that they too were not able to explain the difference between recorded and reported separation at CPA. Members wondered whether the Ventus pilot had perhaps reported an incorrect date for the Airprox or may have been sufficiently startled by the proximity of the relatively fast-moving Typhoon that they had significantly under-estimated the separation at CPA. Considering other aspects of the event, members agreed that each pilot had had only generic situational awareness in the form of the NOTAM (Ventus pilot) and the proximity of Talgarth airfield (Typhoon pilot), 6NM to the southwest of the CPA position. It was unfortunate that the Ventus pilot had not elected to turn their transponder on at that point in their flight and Board members felt that they would perhaps have been better served by selecting the transponder on, with all Modes, whilst in the vicinity of the NOTAM. This also had the effect of denying secondary radar information to the Swanwick Mil controller and thereby situational awareness with which to provide Traffic Information to the Typhoon pilot. The Ventus pilot's TAS was incompatible with the Typhoon EC and the Typhoon was not equipped with a TAS. The Ventus pilot reported not seeing the Typhoon until after CPA; the Typhoon pilot did not see the Ventus glider. Whilst the Ventus pilot had been concerned by the proximity of the Typhoon the Board agreed that separation at CPA had been sufficient that there was no risk of collision and that normal safety parameters had pertained, Risk E.

CF1: The Swanwick Mil controller had had only generic situational awareness.

CF2: The Ventus transponder had not been selected on.

CF3: Both pilots had had only generic situational awareness.

CF4: The Ventus TAS had been incompatible with the Typhoon's EC and the Typhoon had not been fitted with a TAS.

CF5: The Ventus pilot had seen the Typhoon after CPA, effectively a non-sighting, and the Typhoon pilot had not seen the Ventus.

CF6: The Ventus pilot had been concerned by their perception of the proximity of the Typhoon.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024060			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Contextual	• Traffic Management Information Action	An event involving traffic management information actions	The ground element had only generic, late, no or inaccurate Situational Awareness
	Flight Elements			
	• Tactical Planning and Execution			
2	Human Factors	• Transponder Selection and Usage	An event involving the selection and usage of transponders	
	• Situational Awareness of the Conflicting Aircraft and Action			
3	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
	• Electronic Warning System Operation and Compliance			
4	Technical	• ACAS/TCAS System Failure	An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations	Incompatible CWS equipment
	• See and Avoid			
5	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
6	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: E.

Safety Barrier Assessment[2]

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 **ineffective** because the Ventus glider did not appear on primary or secondary surveillance and the Swanwick controller could not detect its presence.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the Ventus pilot's transponder had been selected off in the vicinity of a known NOTAM.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because both pilots had had only generic situational awareness of other aircraft in the area.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the Ventus pilot's TAS had been incompatible with the Typhoon's transponder emissions.

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

See and Avoid were assessed as **ineffective** because the Typhoon pilot had not seen the Ventus glider and the glider pilot had only seen the Typhoon after CPA.