

## AIRPROX REPORT No 2011134

Date/Time: 4 Oct 2011 1317Z

Position: 5258N 00351W  
(30nm SE Valley)

Airspace: Valley ATA (Class: G)

Reporting Ac Reported Ac

Type: Hawk TMk1 Duo Discus

Operator: HQ Air (Trg) Civ Pte

Alt/FL: 10500ft 12000ft  
RPS (1012mb) NK

Weather: VMC CLBL NK

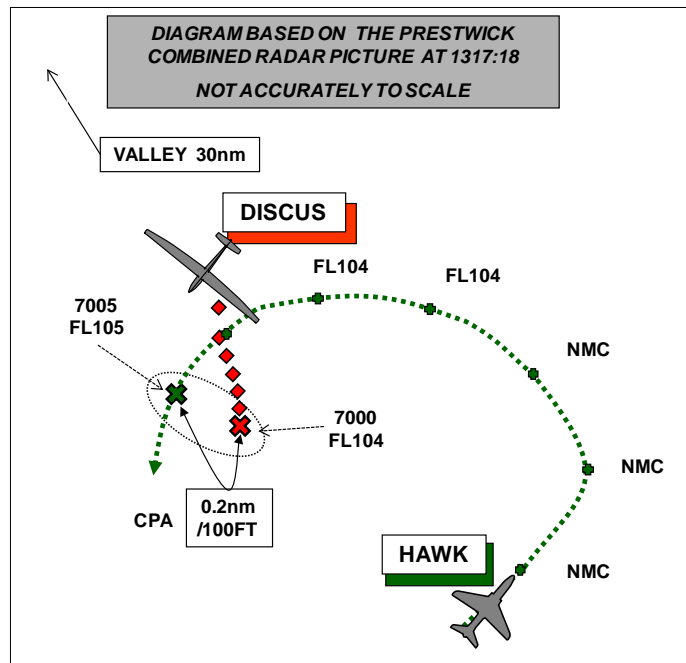
Visibility: 30km

Reported Separation:

0 V/300ft H NR V/300ft H

Recorded Separation:

100ft V/0.2nm H (~1200ft)



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

**THE HAWK (A) PILOT** reports leading a pair of black ac with all external lights (including the nose light) switched on, on a local, medium level, tactical training sortie in the Valley Aerial Tactics Area (VATA), squawking 7005 with Mode C; ACAS and Mode S were not fitted. On terminating a 1v1 fight, Hawk (A) levelled at 10500ft, at 300kt and began a left hand turn onto a SW heading (240°); during the turn the front seat pilot called tally on a glider in the left 10 o'clock. At the time of the sighting they were still on a tactical frequency and not under an ATC service. The glider was white in colour with the registration clearly visible, was in a left hand turn and was estimated to have been about 400ft laterally from Hawk (A) initially on a similar heading and at the same level. On hearing the call the (rear seat) handling pilot simultaneously rolled wings level and gained tally with the glider. The glider passed 300ft from Hawk (A) and about 1nm from Hawk (B) who was not visual with it at the time. The formation was then moved to the SW of the glider and the glider's position was reported to Valley APP on first contact; he backed this up with a telephone report on landing.

He assessed the risk as being high.

**THE DUO DISCUS GLIDER PILOT** did not consider there to have been an Airprox but provided a comprehensive written account of the incident. He was soaring in the RAF Valley ATA to the W of Betwys-y-Coed over Snowdonia, at about 12000ft. A transponder was fitted and he was squawking 7000 with Modes C and S; he was also in communication with Valley APP and continuously monitoring their frequency.

He observed a couple of Hawks 'dog fighting' above him and admired their skill.

A couple of minutes later he was heading about W he thought, soaring at about 50kt (thus almost stationary over the ground (the wind speed being W at about 40kt) when a Hawk overtook him off his starboard wing about 100yds away but certainly not close enough to cause him any anxiety or turbulence. The Hawk then dived away towards the SW.

He cannot recall if the Hawk 'waggled' his wings, but he had the distinct impression that the pilot was conducting a close pass to either 'say hello' or to note his registration. He believes that the Hawk's

speed would have precluded noting his registration but he thought that this would have been available from Valley ATC through his squawk.

He had no doubt that the overtaking Hawk had both seen him visually and probably observed his squawk. He was quite content that the Hawk's pass was carried out at a safe distance.

The curious question remains as to why an overtaking ac in such a situation should have filed an Airprox on a perfectly visible ac in VFR with transponder on; he thought that the Hawk 'cockpit camera and voice recording' might provide further information. Also he was content that the radar replay would verify that there was no danger in the Hawk's manoeuvre.

**RAF VALLEY APPROACH CONTROLLER** reports he was working as a screen controller on the Radar console monitoring the VHF frequency 125.225. A glider (callsign given) called informing them that he was soaring overhead Betws-y-Coed at 10000ft and asked if the VATA was active. A check on the electronic tote confirmed that a formation had departed from VATA East and that they were still airborne so the glider was told that the VATAs were active. There appeared to be a formation manoeuvring in the area of VATA East but they were not within 10nm of the glider's reported position.

**RAF VALLEY SATCO** reports: this incident was subject to Airprox action as a Valley based formation reported that they encountered a glider. Valley ATC were not in contact with the Hawk formation at the time of the Airprox, but were in contact with the glider.

The RT tape was retained and a transcript for the frequency was sent to the SFSO.

Valley was operating without SSR at the time of the reported incident. PSR coverage over the Snowdonia mountain range is weak and the chances of the PSR detecting a glider are very small. The glider could not have been identified on radar and furthermore, the Hawk formation would not have been identified by ATC as without SSR they would merely have been non-squawking contacts.

The VATAs are designated blocks of airspace used for the deconfliction of RAF Valley training sorties; they lie entirely within Class G airspace and have no recognition outside Valley. RAF Valley ATC does not provide any type of ATS to Hawk ac operating in the VATAs and ac work autonomously under VFR and are not in contact with Valley ATC; however, ATC does have the ability to contact these formations through the use of discrete frequencies but this is normally limited to changes in the flying phase or weather recalls. Valley ATC provides radar services to ac transiting the VATAs, both visiting ac inbound to Valley and medium level transits when requested.

**BM SAFETY MANAGEMENT** reports (abbreviated to avoid duplication) that this Airprox occurred between one of a pair of Hawks operating VFR in the VATA and a Discus glider operating VFR in the vicinity of Betws-y-Coed.

Of note is the fact that the Discus was equipped with a Mode S capable transponder.

At the time of the incident, the SSR at RAF Valley was unserviceable. Moreover, PSR coverage in the area of the Snowdonia mountain range is known to be poor and SATCO RAF Valley believes that there was a minimal likelihood of the Discus being detected by the PSR.

At 1312:02 the Discus pilot called Valley Radar to enquire as to whether the VATA was active and stated that they were, '*soaring at ten thousand feet overhead Betws-y-Coed*'. Based on the radar recording, the Discus and the Hawk were operating within the same area for at least 4min and 33sec prior to the call to Valley Radar, no request for an ATS was made by the Discus pilot.

At 1316:40, the Hawk can be seen to be in a left turn, passing 0.4 nm through the Discus's 12 o'clock indicating FL136, with the Discus tracking SE indicating FL103. The Hawk continues this left turn with the SSR Mode C dropping out at 1316:46 and re-appearing at 1317:07 indicating FL104; the Discus also indicates FL104.

The CPA occurs at 1317:18 with 0.2nm lateral and 100ft vertical separation indicated on the radar replay.

The Hawk pilot reports first seeing the Discus in their 10 o'clock with about 400ft lateral separation, on a similar heading and at the same level. The Discus pilot reports that whilst he was visual with both Hawks of the formation up to a couple of minutes prior to the Airprox, the Hawk overtook him on his starboard side, thus removing any possibility of him being visual prior to the CPA.

Given that SSR information was not available to RAF Valley ATC, from an ATM perspective there is little that could have been done to affect the outcome of this occurrence. A hindsight-bias argument could be constructed that suggests that having received the call from the Discus pilot at 1312:02, Valley Radar could have advised the Hawk of its presence; however, any TI passed would have been generic in nature and would probably not have had any bearing on the outcome of the occurrence.

Based on analysis of the radar replay and the Hawk pilot's report, their first sighting of the Discus appears to be approximately co-incident with the CPA. Moreover, given the geometry of the incident, the Discus pilot was not in a position to see the Hawk since it approached from his 6 o'clock. This suggests that provenance was the sole remaining safety barrier to this occurrence. Mitigations that could be put in place to reduce or remove the risk are to operate this type of sortie within segregated airspace or to provide a collision warning system (CWS) [UKAB Note (1): TCAS 2 is fitted to the Hawk T Mk 2] that is inter-operable with all types operating in Class G airspace.

UKAB Note (2): The recording of the Prestwick combined radar picture was showed the incident as outlined in the BM SM report and as depicted above.

**HQ AIR (TRG)** comments that training exercises such as Air Combat Training are essential for preparing military pilots for combat and can affect the ability of participants to detect other traffic. Therefore, exercise areas are selected to minimise the likelihood of encountering civilian traffic and the AIAA and VATA are notified in the AIP for that reason. The limitations on the Valley radar capabilities, combined with the poor radar visibility of the glider, meant that he could not have been provided with a radar service had he requested one, nor could the Hawk formation have been alerted to his presence other than with a general warning. The fitment of TCAS to the Hawk TMk1 has been considered but is not affordable given the imminent retirement of the fleet at RAF Valley. So, whilst the fact that the Discus was operating a transponder is welcome it was not effective in this case.

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

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequency, radar recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

The Board commended the glider pilot for his fitment of SSR and with Modes C and S; this allowed easy identification of the glider on area radars and a full investigation. Clearly the pilot was also aware of the nature and intensity of military operations in the N Wales area. One Member reminded the Board that the fitment of SSR (Mode S Elementary) will become mandatory if operating above FL100 later this year.

The Gliding Member briefed the Board that the glider was probably soaring in a narrow wave with substantial sink behind it and although, as shown on the radar, he was 'beating' N/S just W of the edge of the mountains, the ac was most likely experiencing considerable drift in the moderate Westerly wind and had been pointing well to the right of its ground-track (while heading South). That being the case, the pilot's view would have been away from the approach path of the Hawk making it invisible behind him in the latter stages of closing.

The HQ Air Trg Member reminded the Board of the position and dimensions of the VATA and that, although it is Class G airspace, it is almost continuously busy on weekdays.

The Secretariat informed the Board that, although not shown fully on the diagram above, the Hawk completed a full descending left-hand orbit dropping from FL140 to about FL105 before levelling and coming into conflict with the glider and that was probably why its Mode C had dropped out (as shown on the diagram).

Unfortunately, in this case circumstances conspired to negate the utility of the comprehensive glider avionics fit and the good intentions of its pilot. Firstly the RAF Valley SSR was unserviceable due to technical issues therefore the ATC controller would not have been able to see the glider and secondly the ac Hawks involved were non-ACAS equipped T Mk 1s so they were 'blind' to the glider's SSR.

Notwithstanding these factors, some controller Members considered that since the glider pilot had gone to some effort to inform Valley ATC of his position and intentions, the controller should have not only disseminated the information internally, but passed an 'all stations' generic warning on the RT (on Guard if that was the only option) of glider activity at medium level in the Betws-y-Coed area and this would have prompted the Hawks to avoid that area or increase their lookout. Members discussed the efficacy of the Hawks operating on a discrete frequency without an ATS; however, bearing in mind the type of exercise being performed, they agreed that it was justified.

Notwithstanding the issues discussed above, both ac were operating legitimately in Class G airspace where both pilots had an equal and shared responsibility to see and avoid other ac. As noted above the Hawk descended and approached the glider from his rear, making it invisible to the glider pilot. On the other hand, although perhaps difficult to see the white glider against a white background, in the Board's view, the Hawk crew should have seen the glider earlier than they did (400ft away). Although the Hawk crew just had time to take effective avoidance, Members agreed that there had been a compromise of normally accepted safety margins.

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

Cause: A late sighting by the Hawk crew.

Degree of Risk: B.