

AIRPROX REPORT No 2010173

Date/Time: 25 Nov 2010 1248Z

Position: 5231N 00043E
(STANTA)

Airspace: D208 (Class: G)

Reporting Ac Reported Ac

Type: DH3 UAV Tornado GR4

Operator: RA HQ AIR
(OPS)

Alt/FL: NR 250ft
(NK) (Rad Alt)

Weather: VMC CAVOK VMC CLBC

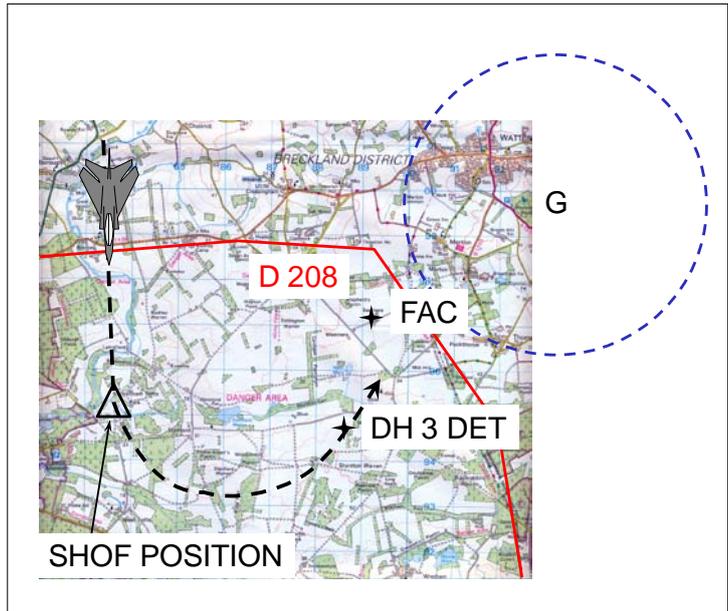
Visibility: 5.0km 5.0km

Reported Separation:

100-200ft V/O H Not Seen

Recorded Separation:

NR



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE DESERT HAWK flight safety officer reports that they were conducting proving flights within the STANTA training area and at the time of this incident he was located at 5km E of Buckenham Tofts with the UAV control station.

They had requested permission to fly their MUAV from the OIC (Officer in Charge) and he was instructed to wait; 5min later the OIC gave them clearance to launch as he, in turn, had been given clearance by Range Control and the FAC, so they then launched the ac. Twelve minutes into the flight the Air Sentry informed him that he had seen a jet ac S of the operating area, approaching at low altitude but the warning came too late and the jet was already over his position at about 250-500ft coming from the S to N. He then instructed the MUAV Commander to recover the ac to the landing point, the detachment conducted its landing drill and the MUAV landed without further incident.

He reported the incident to the OIC and assessed the risk as being high.

The airspace had been allocated to them by the TACP and had not changed over the previous 3 days of live flight activity.

[UKAB Note (1): The following is an extract from the HQ1 Arty Bde Operation Order:

SAFETY NOTE: If at any time the Air Sentries, or Exercising Troops see a breach of the DH3 UOA they are to immediately inform the FSO. On a breach of the UOA the FSO is to order the UAS-c to "LAND NOW". The ROZ must cover the dimensions of the UOA.

THE TORNADO PILOT reports that they were working with a Joint Tactical Air Controller (JTAC) in the STANTA in support of a ground exercise under the control of a Tactical Ops Centre (TOC). The JTAC requested a Show of Force (SHOF) near Buckenham Tofts so his WSO contacted the controlling TOC to request clearance for the SHOF at the tasked position; they were instructed to

standby while the TOC negotiated their clearance. While waiting, the crew discussed with the controlling JTAC the probability of having to return to Marham due to shortage of fuel if the clearance was delayed. The TOC then contacted them and informed them that they had clearance to ground level and were approved to carry out a SHOF. The WSO informed the TOC that the LOA would be 180°, which they acknowledged and then the WSO confirmed that they would depart to the East (left) off the target. The TOC then responded confirming that the Tornado would route East over the target and the WSO corrected them saying, *“negative, we will be heading 180 over target then turning left on to East before climbing to 10000ft”*, and they acknowledged this. They were then given clearance by the TOC down to ground level on LOA 180°, and carried out the SHOF at 250ft under control of the JTAC, egressing East off target at 250-500ft before climbing to 10000ft and recovering to RAF Marham.

After debriefing the sortie the crew was informed that they had been involved in an Airprox with a UAV that they had not seen.

RANGE CONTROL reported that Tornado GR4 was booked on to the Training Area to support a ground force pre-deployment work-up exercise. The ac was under the control of a FAC and had been ordered to conduct 3 SHOF over the Western part of the training area over the river Wissey. A UAV was flying at the same time and was allocated an area which covered the centre of the Training Area up to a height of 1100ft. The Tornado crew was aware of this restricted area and had avoided it on the first 2 passes over the river Wissey and on completion of each of the first 2 passes they broke off to the W to reposition themselves at the northern end of the Training Area for the next pass; on the final pass they broke off to the E passing through part of the airspace reserved for the UAV.

The UAV controller filed an Airprox with them as a result of this incursion.

The FAC, UAV controller and the Tornado pilot were all contacted and asked to submit reports and it was apparent that there were differing interpretations of the instructions to the Tornado crew regarding their departure from the training area.

The Supervising FAC (SupFAC) reported that he and another SNCO were overseeing the training of a number of junior FACs, who were controlling a single Tornado GR4 and were located 6km ENE of Buckenham Tofts. During the period of the sortie a detachment from the Royal Artillery (RA) was operating a DH3 2½km to the S of them and was allocated a Working Area (WA) airspace named WA1. [The dimensions of WA1 cannot be determined but, based on other reports, was probably about 2km radius of its operating position – see UKAB Note: (1) below].

During the Tornado sortie 3 SHOFs had been conducted and, as the GR4 took priority, each time the aircraft conducted a SHOF they grounded the DH3 to ensure deconfliction as agreed with DH3 Instructor Gunnery (DH3 IG) overseeing DH3 safety; however, the DH3 IG informed them that having to ground the ac so often was limiting their training opportunities.

When a further SHOF was requested near Buckenham Tofts [5k W of the DH3 location and near the W edge of the Training Area] both SupFACs were concerned about the possibility of noise complaints from civilians and further interference with the DH3 training, so they requested approval from Range Control and conducted a map appreciation to facilitate the SHOF with as little disturbance as possible to avoidance areas and to allow the DH3 to remain airborne. They decided to proceed with the SHOF routeing from the North to the South, laterally deconflicting the Tornado from the DH3, then once it was off the target climbing and turning East in the climb to avoid both avoidance areas and the DH3.

The SHOF was conducted successfully and safely at the requested height of 250ft agl and they observed the ingress and egress over target from their position but then lost visual due to terrain masking as the ac continued S. He then regained visual with the Tornado at about 2000ft on its egress to the N outside the Range Boundary.

They were then informed by the DH3 IG that his position [just to the S of the DH3 take-off/landing area] had just been overflown at 100 to 150ft agl.

Later that afternoon they received a call from Range Control informing them that the DH3 operator had submitted an Airprox report. The TACP confirmed to Range Control that WA1 had been active and that the Tornado crew had been briefed accordingly.

Further reports from the FACs were submitted but they are essentially the same as the SupFAC's above and reiterate that the aircrew were briefed that WA1 was active.

HQ AIR (OPS) comments that a lack of appreciation of the airspace allocated to the DH3 appears to have been a factor and we believe this is more of an airspace infringement than an AIRPROX, however, it is difficult to understand what avoidance criteria the GR4 had been given as the dimensions of WA1 appear to be unknown. It is not clear from the information above how close the 2 platforms got, the assessment by the DH3 IG of a 150ft agl overflight is not consistent with the report from the SHOF target site.

HQ 1 Arty Bde comments that at the time of the incident the DH3 non-operational flying was conducted in accordance with Special Flying Instruction (SFI) DH3 01-10 (AL2) and the Statement of Range Practice (SoRP). Both the SFI and the SoRP had been put in place to ensure that the DH3 remained within its dedicated airspace during non-operational flying as well as providing another layer of safety (in respect of collision avoidance) which is equivalent to that provided by the pilot of a manned aircraft as a UAS is unable to 'see and avoid'.

The OIC Practice of this ex has confirmed to HQ 1 Arty Bde that the DH3 was operating within the Safe Flying Area (SFA) and that WA1 encompassed both the Unmanned Air System Operating Area (UOA) and the SFA.

[UKAB Note (2): The diagram provided shows that for the period in which the Airprox occurred the UOA and therefore WA1 extended to the Western boundary of the Range Danger Area but the height was not stipulated. The Safe Flying Area was a 4x2km area, within the UOA, area up to 300ft agl. The SFI and HQ 1 Arty Bde Operation Order state that no other aviation activity should take place in the UOA i.e. the larger area. To avoid this area laterally the Tornado would have to depart the Danger Area to the S or W.]

There have been a number of unauthorised manned aviation incursions into notified and dedicated MUAS airspace on DTE ranges over the last twelve months; MUAS are not permitted nor authorised to fly in any other airspace. These incursions include transits and, more alarmingly, deliberate manoeuvres such as landing in the allocated MUAS airspace. As a result, Comd 1 Arty Bde has undertaken a range of actions to minimise the likelihood and impact of similar events in future. These measures include administrative action, publicity campaigns and training reviews.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots (operators) of both ac, reports from the FACs involved and reports from the appropriate operating authorities.

Members found this a very complex incident as in most cases their knowledge of such exercises is scant. Although there was a view that such incidents should be investigated by the Military authorities, the Director informed the Board that their remit included the investigation of such incidents and if possible, bearing in mind the lack of such material normally available (for instance RT and radar recordings) an investigation and report should be completed as an independent view would be welcomed by the Military authorities. Members decided that there was sufficient information available to them to decide on the cause of the incident but that since there was no information regarding the separation between the Tornado and the UAV involved or whether the Tornado had

flown over the UAV, the landing site or merely infringed the UAV area of operation, the Board could not determine the degree of risk.

Members noted that on previous SHOFs the DH3 had, in accordance with 1 Arty Bde SOPs, been 'grounded' while the Tornado was in the area, thus ensuring separation. Members opined that the reason that this had not been done on the 3rd SHOF was unclear but probably in a wish to get the most out of the limited range time available and thus complete the operational work-up. The 3rd SHOF was very close to the boundary of the UOA, but the Board considered that the decision not to land the UAV was reasonable provided that there was positive deconfliction. As it was in the heat of the moment and under pressure from the Tornado crew for a quick response to their call requesting an Easterly departure, (due to fuel considerations) it seemed that the message approving the departure was not communicated accurately to the crew or was misunderstood by them; namely they understood that they could turn E and then climb rather than the intended climb then turn E. A Member familiar with current Close Air Support procedures opined that positive deconfliction/integration by height, area or time is essential to ensure the safe operation of multiple air assets in an often small area; the crew should have been given specific instructions for their ingress and egress, and been required to read back these instructions. In this case, the Tornado crew's read back of their intention to turn East then climb was not assimilated by the TOC.

Without an RT recording (not available in Military Tactical communication systems) the Board could not determine the actual departure clearance passed to the Tornado or whether the clearance had been inappropriate or misunderstood; nor could the Board determine whether the Tornado crew's transmission was ambiguous. However, the Board was satisfied that the Tornado crew both understood that they were 'cleared' to depart to the E. The Tornado crew had been operating not below 250ft (Rad Alt) and, assuming that they turned E without climbing, they had flown through the area of the UAV operation below the top height of 300ft. The Tornado's flight path through the UOA had caused the DH3 Safety Officer justifiable concern. Members were not able to determine from the reports or data available how close the Tornado had come to the DH3. The Tornado crew did not see the UAV, neither the DH3 nor the Tornado showed on radar at the time and the DH3 operators' reports did not assess the miss-distance either horizontally or vertically, stating only that it had flown over the landing site. Members also observed that there was confusion over the position of the flight line as the position given in the DH3 operator's report was significantly in error and the corrected position did not accord with that detailed in the 1 Arty Bde Operation Order. On considering all the information and expert opinion presented, on balance Members thought it unlikely that the Tornado had been very close to the DH3 but agreed unanimously that they were unable to substantiate this view and so could not determine the degree of risk.

Having considered the incident fully, the Board agreed that such incidents should continue to be reported as Airprox but, bearing in mind the paucity of supporting data and that many participants are frequently 'out of area', urged as comprehensive reporting as possible. The Director informed the Board that he would write to HQ Air (Ground Air Liaison) on the topic.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Tornado flew close enough to the UAV to cause its operators concern.

Degree of Risk: D.