

## Assessment Summary Sheet for UKAB Meeting on 13 January 2010

<b>Total: 6</b>	<b>Risk A: 0</b>	<b>Risk B: 2</b>	<b>Risk C: 4</b>	<b>Risk D: 0</b>
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<u>No</u>	<u>Reporting</u>	<u>Reported</u>	<u>Airspace</u>	<u>Cause</u>	<u>Risk</u>
2009-073	Grob Viking (MIL)	PA34 Seneca (CIV)	G	The PA34 pilot did not follow the recommended VFR Departure Route contained in the AIC and flew close enough to the Viking to cause its pilot concern.	C
2009-075	B737-700 (CAT)	Typhoon (MIL)	G	Sighting Report (TCAS).	C
2009-076	PA28A (CIV)	ASK21 (CIV)	G	<p>Conflict in the Dunkeswell ATZ resolved by both pilots.</p> <p><u>Contributory factor:</u></p> <p>The absence of any promulgated procedures to deconflict gliding operations at North Hill Glider Site from Dunkeswell aerodrome traffic.</p> <p><u>Recommendations:</u></p> <p>(1) Dunkeswell Aerodrome and the Operator of North Hill Gliding Site should jointly develop a LoA and promulgate agreed procedures that will ensure the safe integration of air traffic at these closely located airfields.</p> <p>(2) The CAA should review the disparate operations within the ATZ at Dunkeswell aerodrome and at North Hill Glider Site, to ensure their continued operation is in accord with the requirements of Rule 45 of the Rules of the Air Regulations.</p>	B
2009-078	Stemme S10-V (CIV)	Vulcan (CIV)	G	Late sightings by the pilots of both ac.	C

2009-086	B200 King Air (MIL)	Grob Tutor (MIL)	G	The Grob solo student pilot in the visual circuit flew into conflict with the King Air, which was joining the circuit from a radar approach.	B
2009-100	Typhoon T Mk3 (MIL)	Cessna 172M (CIV)	G	Conflict in Class G airspace.	C

- end -

## AIRPROX REPORT No 2009-073

Date/Time: 11 July 1700 (Saturday)

Position: 5158N 00031E (O/H  
Wethersfield Gliding Site  
- elev 321ft)

Airspace: London FIR (Class: G)

Reporting Ac Reported Ac

Type: Grob Viking PA34 Seneca

Operator: HQ Air (Trg) Civ Pte

Alt/FL: 1300ft 1350ft  
QFE (1004mb) QNH (1012mb)

Weather: VMC VMC

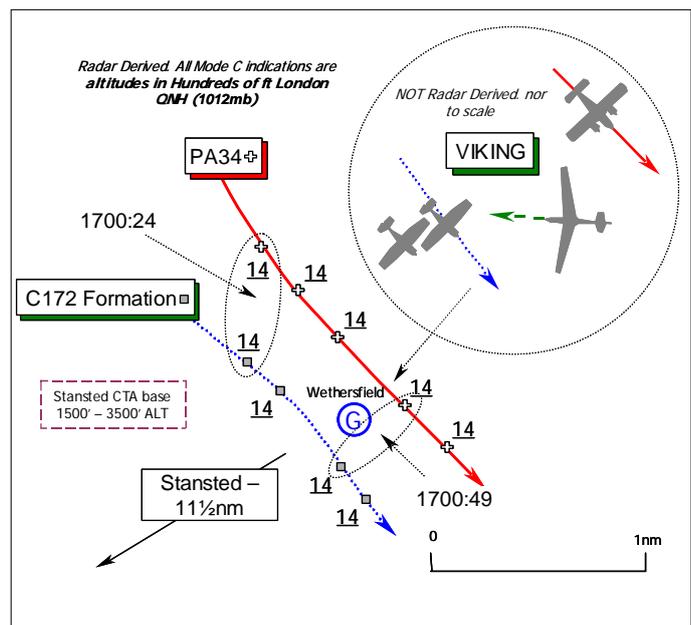
Visibility: >10km 15km

Reported Separation:

Nil V/25m H 0-30ft V/100m H

Recorded Separation:

Not recorded



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE GROB VIKING T Mk1 GLIDER PILOT** reports that he was executing a winch launch from Wethersfield Glider Site whilst in communication with Wethersfield RADIO A/G Station on 129-975MHz. Level at 1300ft QFE (1004mb), he had just released the winch cable at the 'top of launch' and was heading 285°(M) at 50kt whilst completing his post launch lookout and trimming. Two Cessna 172/182 ac were seen in formation about 100ft above and 500m ahead so to ensure there was no conflict with these two ac a lookout for a right-hand turn was commenced whereupon a White & Red Piper PA34 Seneca was spotted at 4 o'clock - about 25m away at the same height. At this point the two Cessna ac had drawn left into his 11 o'clock so to remain clear of all three ac he maintained a straight and level attitude. The PA34 appeared to be nose high in a climb and turned L away from his glider as it passed about 25m away at the closest point. The two Cessna ac were not a "danger" to his glider, but none of the three ac had made contact with Wethersfield RADIO A/G Station. He assessed the Risk against the PA34 as "very high" and a call was made to Wethersfield RADIO to report the Airprox. His glider is coloured white with orange stripes on the Wings.

After the Airprox occurred a telephone call was made to Group Supervisor (GS) Airports North at LTCC that revealed the three ac had Farnborough RADAR squawks. The Farnborough controller then telephoned the VGS and discussion took place over the incident in Class G airspace. Details of the VGS were passed to the Cessna and Seneca pilots, who telephoned upon landing at their destination. Both pilots were apologetic stating they saw the glider and were operating in Class G airspace, under see and avoid. In discussion it was ascertained the pilots were using Jeppesen VFR GPS charts, which do show Wethersfield glider launching site. Whilst the airspace surrounding the Gliding site is Class G, it is situated under the northern part of the Stansted CTA [CTA-1 1500-3500ft amsl]; a letter of agreement is in place with Essex RADAR.

In his view, to assist in avoiding future incidents it might be advisable if:

1. Air traffic services point out to pilots that they are approaching gliding sites.
2. When Duxford has a fly in they notify pilots on departure of Wethersfield.
3. An ATZ/MATZ is established around Wethersfield.

**THE PA34 SENECA PILOT** reports he departed Duxford's RW24 at 1651 UTC under VFR bound for Lydd. For planning and navigation he had used a commercial VFR - GPS chart - 2009 Edition and GPS/mapping. After leaving Duxford's ATZ he had contacted London INFORMATION, passed his flight details and, as far as he can remember, was instructed to call Farnborough LARS, which he did. Flying VFR in a level cruise at 1350ft QNH heading 130° at 130kt, some time after radio contact with Farnborough was established, he received traffic information about the two Cessnas, which departed Duxford just before he did. He had seen them already at about 2 o'clock - less than 0.5km away, flying the same heading and at the same altitude overtaking them quite quickly, which was subject of comments by his PPL co-pilot and passengers. Shortly afterwards his co-pilot spotted the glider – coloured white with bright red markings – in their 12 o'clock, at the same altitude, about 1km away, crossing from L to R. As the glider had crossed their path already he did not consider any avoiding action was necessary, so he only banked to the L a little, without any change of altitude, to indicate to the pilot that his glider had been seen and avoided. He estimated the minimum horizontal separation was about 100m as he flew past about no more than 30ft above the glider and assessed the Risk as "low". The flight continued uneventfully and he landed at Lydd at 1732 UTC.

Some minutes after passing Wethersfield he had heard communication between the Cessna pilots and Farnborough' LARS, with a request to call the Gliding Site by phone after landing; he said to himself that they must have come very close together. Immediately after, to his surprise, he was asked to do the same and was given the telephone number. According to his GPS track record, the event happened at 1701. His ac is coloured white and red with gold stripes and the HISLs were on.

**ATSI** reports that following departure from Duxford, C172 (A), the lead pilot of the two subject C172s, established communications with Farnborough LARS North at 1653:30 ('North' was combined with LARS 'East' at the time). The pilot provided details of C172 (B) that made up the formation, which was en-route from Duxford to Midden Zeeland via the CLN (Clacton) VOR. The controller issued the squawk - A4650 - and the London QNH (1012mb), adding that a BASIC Service would be provided. The squawk and QNH were read back correctly, but the pilot did not acknowledge the level of Service. This passed unchallenged by the controller.

MATS Part 1, Section 1, Chapter 11, Page 4, Paragraph 3.1, defines a Basic Service:

*"A Basic Service is an ATS provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights. This may include weather information, changes of serviceability of facilities, conditions at aerodromes, general airspace activity information, and any other information likely to affect safety. The avoidance of other traffic is solely the pilot's responsibility.*

*BASIC Service relies on the pilot avoiding other traffic, unaided by controllers. It is essential that a pilot receiving this service remains alert to the fact that, unlike a TRAFFIC Service or a DECONFLICTION Service, the provider of a BASIC Service is not required to monitor the flight."*

Guidance on identification of flights under a BASIC Service appears in Paragraph 3.4.1:

*"A controller may identify an aircraft to facilitate co-ordination or to assist in the provision of generic navigational assistance, but is not required to inform the pilot that identification has taken place",*

and in Paragraph 3.5.1 Traffic Information:

*"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 outside an Aerodrome Traffic Zone (ATZ), 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. A controller with access to surveillance*

*derived information shall avoid the routine provision of traffic information on specific aircraft, and a pilot who considers he requires such a regular flow of specific traffic information shall request a Traffic Service. However, if a controller considers that a definite risk of collision exists, a warning may be issued to the pilot”.*

At 1655:25, the controller asked the lead C172 pilot to report his level on the London QNH. Reporting at 1500ft, the pilot was then warned “.....you’re at the base of Controlled Airspace..no higher please..underneath the Stansted Zone”. The pilot agreed to stay ‘under’ 1500ft. The CAS referred to is the Stansted Control Area (CTA-1), Class D CAS, which extends vertically from 1500ft to 3500ft amsl.

At 1659:41, the subject PA34 pilot established communications with Farnborough LARS North, reporting en route from Duxford to Lydd. Similarly, this flight was issued a discrete squawk, the London QNH (1012mb) and provided with a BASIC Service. Again the level of Service was not read back and not challenged by the controller.

The tracks adopted by the C172s and the PA34 would take them in the vicinity of Wethersfield airfield, which lies beneath Stansted CTA-1 and has no ATZ. The airfield is marked on UK Aeronautical charts as a Glider Launching Site with winch launching to a maximum of 2400ft amsl. There is also the warning of “Intense Glider Activity”. The Farnborough MATS Part 2, APR 5.3.16 contains brief information on Wethersfield:

*“Gliding activity occurs within 2.5nm radius of Wethersfield, excluding that portion north of a line Great Bardfield-Howe St-Toppesfield, up to 2321ft amsl (2000ft agl) under an airspace sharing agreement with Terminal Control. [The] Gliding School at Wethersfield notify Terminal Control of commencement and cessation of gliding operations. Traffic in receipt of a service from Farnborough and operating in the vicinity of Wethersfield should be encouraged to avoid the area as detailed above.”*

The Farnborough LARS North controller elected not to ‘encourage’ the transit aircraft to avoid the area. ATSI subsequently undertook discussions with Farnborough about the wisdom of the current MATS Part 2 guidance, had it been employed. It was decided to remove the expression ‘encouraged to avoid’ and add an instruction to controllers that traffic, in the category referred to, **must be advised** of the activity status of the Gliding site at Wethersfield. Information on the activity status held by the Terminal Control Group Supervisor (Airports) would, in future, be extended to Farnborough LARS North. An SI will be issued to implement these MATS Part 2 changes.

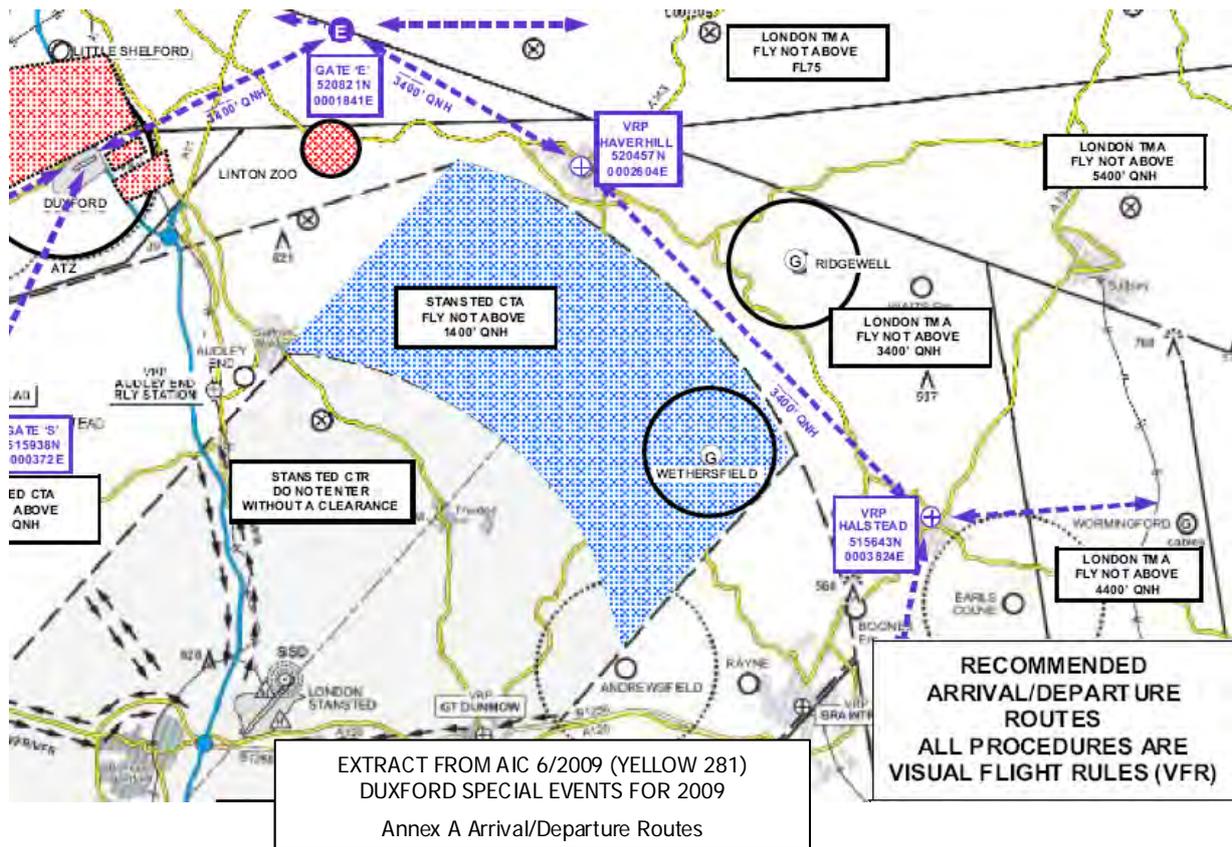
C172 (B) was still wearing A7000 with Mode C, but its SSR label was obscuring the leader’s SSR label and preventing adequate monitoring of Mode C levels in relation to the base of Stansted CTA-1. Consequently, the controller requested, at 1700:42, that the pilot of C172 (B) ‘switch off’ its transponder.

Following a request by the controller, at 1701:04, the PA34 pilot confirmed his level as 1300ft [London QNH (1012mb)]. The controller then asked “...are you visual with a couple of aircraft in your vicinity Cessnas 1-7-2 departed..Duxford”, to which the pilot replied “Yeah traffic in sight er four o’clock now”. None of the three pilots reported at any time, seeing a glider or being involved in an incident.

At 1703, the TC GS Airports received a telephone call from the Gliding School at Wethersfield. The caller asked if TC were working “an Aztec or Seneca and two Cessna 152s” that had recently passed through the overhead. The GS advised that the observed ac were wearing Farnborough LARS squawks and it was agreed that Farnborough would be requested to phone the Gliding School. This call took place at 1706, the controller confirming that he had worked aircraft in that area. The Gliding School representative stated that one of their pilots took avoiding action on the Seneca and that all three had flown through the ‘top end’ of the circuit over the winch. The Farnborough controller agreed to ask the transiting pilots to telephone the Gliding School after landing. At 1710:30, the LARS North controller relayed the message from Wethersfield to C172 (A) and the pilot agreed to

make the call after landing. A few minutes later the same message was passed to the PA34 and acknowledged by its pilot.

The PA34 and the two C172s had departed from Duxford on one of the airfield's Special Events dates. To promote the safe conduct of flights to and from Duxford on these dates, a UK AIC was published on 26 February (6/2009 (Yellow 281) providing comprehensive guidance and information for visiting aircraft. It included recommended routes in class G airspace, with appropriate cautions, for aircraft arriving and departing the airfield VFR. The recommended route for traffic departing to the SE is initially towards Gate E - a point approximately 6nm NE of Duxford - and then south-easterly via VRP Haverhill and Halstead. Aircraft adopting this route would remain clear of the boundary of Stansted's CTA-1 and in an area of Class G Airspace where the base of Controlled Airspace (LTMA) is 3500ft amsl.



UKAB Note (1): AIC 6/2009 (YELLOW 281) – Duxford Special Events for 2009 – includes a note at 3.4(b) *“Note: Beware of Wethersfield Gliding Site...”*.

UKAB Note (2): The UK AIP at ENR 5-5-1-6 promulgates Wethersfield Glider Launching Site situated at 51° 58' 27" N 000° 30' 14" E as active from Sunrise to Sunset (HJ) on Saturdays, Sunday and PHs and from 1600 to Sunset in Summer; at other times by NOTAM. Launching by Winch and Tug ac may be encountered up to 2000ft above the Site elevation of 321ft amsl.

UKAB Note (3): The LATCC (Mil) recording of the Stansted radar does not illustrate this Airprox as the glider flown by the reporting pilot is not shown at all. The PA34 flown by the reported pilot is shown passing the Cessna 172 formation about ½nm to port as the ac approach the vicinity of Wethersfield tracking SE. Both the C172 formation and the PA34 maintain 1400ft London QNH (1012mb) beneath the Stansted CTA – broadly 1079ft above the site elevation of 321ft amsl - as they pass respectively to the SW and NE of the plotted location of Wethersfield Glider Site at a range of about 0-2nm.

**HQ AIR (TRG)** comments that had the PA34 and the two C172s followed the Special Events UK AIC routing they would have remained clear of the Wethersfield glider launch site. The change to MATS Pt 2 requiring the Farnborough' LARS North Controller to advise pilots of the activity status of

Wethersfield will improve the SA of crews operating in the area and should reduce the risk of a similar occurrence happening.

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

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

It was evident to the Board that the event organisers at Duxford had taken care to promulgate for the benefit of the many visitors flying in to their displays recommended outbound routeings from the aerodrome, which took into account of the proximity of other aviation activities in the vicinity such as Wethersfield. The gliding/GA Member commented that this was one of the better examples of advice promulgated by event organisers for the benefit of visiting pilots and it seemed that Duxford had exercised their local knowledge to the full and taken great care to develop appropriate routeings around other local aviation facilities. It seemed clear that the PA34 pilot, and the C172 formation pilots, had not followed recommended routeings contained in the AIC for pilots departing Duxford under VFR to the SE. The Board agreed that if the PA34 pilot had followed the AIC routeing via Gate E and thence to Haverhill & Halstead VRPs, he would have avoided Wethersfield glider site by a substantial margin. One Member, noting the importance of preventing a recurrence, suggested that a call to Wethersfield RADIO might have helped. However, the Board were unanimous that it would have been preferable to avoid Wethersfield glider site in the first place by following the procedures Duxford had developed and promulgated to do just that; these procedures were easily accessible to all visiting pilots, including a link to the AIC on the Duxford website]. The consensus amongst the pilot Members was that this Airprox could have been prevented through wiser airmanship and more thorough flight planning. [Post Meeting Note: The Aerodrome Operator confirmed the Duxford procedures stipulated in their AIC, insofar as pilots are required to state their intended departure 'gate' when obtaining prior permission to land at Duxford. This ensures that pilots have read the AIC and are cognisant of the existence of the recommended VFR routes to/from Duxford before their arrival. Moreover, large-scale charts depicting these routes are also displayed in the Flight Planning Office for the benefit of departing pilots.]

The Gliding Member explained that Wethersfield Site is used predominantly, but not exclusively, for circuiting by the VGS and thus the gliding activity is concentrated in its immediate vicinity unlike many other sites from which sport gliders might roam far and wide. The radar recording shows that the PA34 had remained below the 1500ft amsl base of the Stansted CTA, and below the altitude that the Viking attained following the winch launch; it passed approximately 0.2nm abeam the glider site (~370m) – in the Board's opinion far too close. The gliding Member stressed the hazard from the virtually invisible winch wire, which could potentially attain an altitude of 2321ft amsl [under the airspace sharing arrangement with LTC stipulated in the ATSI report] and it seemed that the PA34 pilot had been oblivious to the inherent threat. A Member wondered if it was expecting too much of Farnborough LARS controllers to be cognisant of all such activities within their 'local area' and be able to warn transiting pilots accordingly. However, the ATSI report had made it plain that Farnborough ATC was entirely cognisant of the intense gliding activity at Wethersfield. Advice for controllers was contained within their MATS Pt 2, that "*Traffic in receipt of a service...should be encouraged to avoid the area*" so it was unfortunate that this was not pointed out by the LARS controller at the time. However, the ATSU's subsequent modification of this advice in the light of this Airprox to require controllers to advise pilots flying in the vicinity of the activity status of the gliding site at Wethersfield was a laudable and a worthwhile step.

The Viking Glider pilot's report illustrated the vulnerability of gliders during the launching phase as it was not until he had released from the winch cable and completing his lookout post launch that he saw the Cessna formation crossing about 500m ahead. The very high nose-up attitude coupled with the steep climb-out gradient can inhibit all-round lookout from gliders, which exacerbates the difficulties of catching sight of other ac – a point that should be borne in mind by other pilots when operating in the vicinity of glider launching sites. Although the glider pilot was clearly unable to

manoeuvre whilst attached to the winch cable, launches can be aborted in extremis. Here it was clear that after spotting the PA34 to starboard in his 4 o'clock at very close range – about 25m away at the same height he reports - the Viking pilot wisely elected to maintain his course and not turn R as he had intended, whilst the PA34 crossed 25m astern as the formation ahead drew left and cleared to the S. The Board assessed that the Viking pilot had promptly assimilated the geometry and chosen a sound course of action to prevent the situation from deteriorating further and thereby had ameliorated the Risk.

The PA34 pilot had been alerted to the presence of the Viking glider by his co-pilot, which in this case was possibly not an easy spot. Unless primed, many pilots will be surprised by ac climbing at such a steep angle and high rate from below and all the more reason to give winch launch glider sites as wider berth as feasible. However, here the glider was seen at a range of 1000m as it crossed ahead in the PA34's 12 o'clock from L – R and it seemed the bright orange markings helped somewhat. No avoiding action was necessary, the PA34 pilot reports, other than a little bank to the L, without any change of altitude. Estimating the minimum horizontal separation to be about 100m, he reports flying about 30ft above the glider. Pilot Members opined that the PA34 pilot should have given the glider a much wider berth after spotting it. Unfortunately the radar recording did not capture the presence of the glider and thus the pilots' different perceptions of the minimum separation that pertained here – between 25 and 100m - could not be resolved independently. However, it was the pilot of the twin-engine aeroplane that ultimately chose the final separation and clearly that was of concern to the reporting pilot of the Viking. Moreover, if the PA34 pilot had followed the advice promulgated for traffic departing from Duxford this Airprox could have been entirely averted. The Board determined that this Airprox resulted because the PA34 pilot did not follow the recommended VFR departure route contained in the AIC and flew close enough to the Viking to cause its pilot concern. However, despite the minimum separation reported here as the PA34 pilot had acquired the glider 1000m away, was always going to pass astern and able to turn further away if needs be, in these circumstances Members agreed unanimously that no risk of a collision had existed.

Turning to the Viking pilot's suggestion that an ATZ/MATZ around Wethersfield might preclude such occurrences as reported here, the DAP Advisor commented that such proposals had been reviewed in the past. Here, beneath the Class D CAS of the Stansted CTA, an ATZ around Wethersfield would in effect present a solid brick wall to GA pilots in transit through Class G airspace, which they could not climb above and might have the undesirable side-effect of funnelling traffic into confined areas and causing difficulties elsewhere, possibly resulting in infringements of CAS. In the Advisor's view, Duxford had provided recommended routes that skirted clear of Wethersfield and, if followed, would guide ac clear of the glider site and the inherent danger from the winch cable. Other pilot Members agreed that whilst the aeroplanes involved here flew too close to the glider site an ATZ might not be the answer. A CAT pilot Member suggested that more publicity should be given to Airprox such as these, so as to illustrate the inherent dangers with the aim of encouraging pilots to give glider sites a wider berth and the Chairman agreed that more impact might be achieved throughout the GA community by publishing accounts of these Airprox in pilot-orientated aviation magazines. [Post Meeting Note: Duxford have also suggested that they will use this Airprox Report to illustrate what can occur if visiting pilots deviate from the recommended VFR routeings contained in their AIC.]

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

Cause: The PA34 pilot did not follow the recommended VFR departure route contained in the AIC and flew close enough to the Viking to cause its pilot concern.

Degree of Risk: C.



there was no risk of collision. He continued on his current heading and completed the sortie uneventfully, as planned. He assessed the risk as low.

UKAB Note (1): TRA005 vertical limits are FL195-FL245. D510 was active up to 5500ft amsl.

UKAB Note (2): ScACC Tay and Newcastle RAD1 controllers both submitted reports but these have been omitted for brevity as the majority of the pertinent details are included in the ATSI report below.

**ATSI** reports that the B737 was inbound to Newcastle from Belfast. In accordance with local procedures, the ScACC Tay Sector had obtained a squawk and an acceptance level (FL80) from Newcastle. To assist the handling of such flights, it is usual practice for the Talla Sector to work the aircraft through Tay's airspace and then transfer it direct to Newcastle Approach. Accordingly, at 1523, the Talla Sector telephoned the Tay Sector to obtain the local squawk and level, in order to carry out the procedure. However, 13min later, Talla telephoned Tay to advise that because the sector was busy, they intended to transfer the flight to Tay. It was agreed that it would descend to FL130, to remain within CAS and be transferred shortly. At the time, the Tay Controller was performing both the Planner (P) and Tactical (T) functions. He reported that he had been happy to elect to work single manned, as the workload had not been high. In the event, prior to the B737 flight contacting the sector, the Tay Controller had requested a Planner, as the workload of the sector had increased substantially.

The B737 flight established communication with the ScACC Tay Sector at 1536:30, reporting descending to FL130 to NATEB. In accordance with its acceptance level, the B737 flight was instructed to *"descend Flight Level Eight Zero clear to leave controlled airspace"*. NB The base of CAS, in its vicinity, is FL85. In the event, the ac left CAS laterally, after passing NW of Carlisle, where the base is FL165. The flight was instructed to select the Newcastle allocated squawk.

The Tactical believed that the Planner arrived at the sector at about this time. He was unable to inform him about the situation because of the high loading of the frequency and the complexity of the traffic. Approximately 30sec after the pilot of the B737 read back the Newcastle squawk, just after 1537:30, the controller informed the pilot *"traffic information for you traffic when you leave controlled airspace is unknown traffic in your one o'clock at a range of eleven p-point six miles crossing right to left indicating One Five One unverified"*. The pilot replied *"Okay thanks we're IMC we've got him on our radar"*. The controller added *"Yes should pass well ahead"*. The radar timed at 1537:25 shows the B737, just leaving CAS just NW of Carlisle Airport where the base level changes from FL125 to FL165, passing FL153. The unknown traffic (subsequently identified as the subject Typhoon), showing SSR code 1741, an RAF Spadeadam allocated squawk, at FL150, tracking N in the B737's 1 o'clock at 13.4nm. The UK AIP, Page ENR 1-6-2-4, states that *'All Spadeadam squawks indicating above FL50 will be validated and verified by Spadeadam ATC/Range control'*.

By 1538:21 the B737 is passing FL138 and the Typhoon is in its 1130 position at a range of 8.9nm. The latter is in a R turn, passing through SE, at FL145. At the time, the controller advised the pilot of the B737 *"I've lost that the primary con- that contact now in your twelve o'clock at a range of seven miles he's manoeuvring indicating One Four F- One Five One"*. As the controller was transmitting, the radar return of the Typhoon did disappear momentarily, before returning to indicate that the ac was climbing. The pilot commented *"we keep losing him on TCAS thanks he's popping about we can see he's two thousand above us and we're just expediting our descent"*. The controller responded *"Roger that ties with me you can contact Newcastle One Two Four Three Seven Five"*. As this message is passed, at 1538:37, the Typhoon is just R of the B737's 12 o'clock, at 7.9nm, turning R through a S'ly heading at FL150. The B737 is passing FL134.

Meanwhile, Spadeadam telephoned Newcastle, at 1538, to pass TI about the subject Typhoon manoeuvring 30nm W of Newcastle. It was reported to be operating between surface and 23000ft, in receipt of a TS. Newcastle informed Spadeadam about the B737, which had not yet called him but was descending to FL80 with ScACC. Newcastle said that, on contact, he would route the B737 N'bound, to avoid the Typhoon. Spadeadam suggested a turn to the S, if possible, as he did not know the Typhoon's intentions but would *'call you in to him anyway as soon as I can'*.

The B737 flight contacted Newcastle Approach at 1539:17, reporting “*descending Flight Level Eight Zero direct NATEB and we’ve got TCAS traffic approximately five miles popping on and off our TCAS radar*”. The radar recording shows the Typhoon, still in its R turn, having just passed through S, at FL107. The B737 is NW of it, 6.3nm away, passing FL123. The Newcastle APR replied “*good afternoon and avoiding action then turn left heading Zero Six Zero degrees keep you clear of traffic to the southeast of you by five miles manoeuvring indicating Flight Level One Two Zero*”. The pilot replied “*Left er Zero Six Zero degrees and we’ve now got er ????? ????? traffic ????? ????? ?????*” (several words unintelligible). The controller transmitted “*that traffic now to the south of you by two miles heading towards height is er unknown*”. The pilot responded “*TCAS says er a thousand feet above*”. The radar recording at 1539:55 confirms that the ac are separated by 1000ft at the time, the B737 is passing FL117 and the Typhoon, which is 2.7nm S of it, tracking N, is level at FL127. The controller advised the pilot of the B737 “*roger and er now to the southwest by two miles heading Zero Six Zero is the best for avoiding action indicating Flight Level One Two Five and climbing*”. Shortly afterwards, the controller updated the information “*that traffic now the er west of you by four miles heading northbound Flight Level One Three Five and climbing*”. The radar recordings show that the closest point of approach occurred at 1540:03, when the two ac were 2.4nm apart. The Typhoon, at FL127 is SW of the B737, which is passing FL115. Thereafter, the climbing Typhoon passes 3.1nm behind the descending B737, the vertical separation having increased to 2300ft.

The MATS Part 1, Section 1, Chapter 5, Page 1, states: ‘*Pilots must be advised if a service commences, terminates or changes when: a) they are operating outside controlled airspace; or b) they cross the boundary of controlled airspace*’. On this occasion, the Tay Controller did not advise the pilot of the B737 when he had left CAS or the type of service being provided thereafter. Additionally, the MATS Part 1, Section 1, Chapter 11, states: ‘*A pilot shall determine the appropriate service for the various phases and conditions of flight and request that service from the controller. If a pilot fails to request a service, the controller should normally ask the pilot to specify the service they require*’ (apart from certain circumstances not applicable to this Airprox). The pilot of the B737 reported that he was of the belief that he was receiving a DS from ScACC. The Tay Controller stated, in his report, that he did not take into account the fact that the pilot of the B737 had reported being IMC. Had this registered he would probably have issued the flight a R turn as avoiding action. He commented that he was busy at the time, dealing with traffic elsewhere in the sector. Because of his high workload, he did not think it would have been possible to provide a full DS and would have had to reduce the service as necessary. However, he believed that there would be a vertical separation of at least 3000ft between the subject ac and their radar returns would not have merged. This is the deconfliction minima for a DS stated in the MATS Part 1 against uncoordinated traffic, albeit the latter minima is not required if Mode C has been verified. Undoubtedly, with hindsight, it would have been prudent to keep both the Planner and Tactical Controllers in position on the Tay Sector. This may have allowed the controller(s) more time to provide an improved service to the B737 or to coordinate an action with Newcastle. In the event, the controller complied with procedures as if he was providing a TS. Under either service, it is the pilot’s responsibility to avoid other traffic.

The Newcastle APR reacted quickly to the situation, issuing an avoiding action turn to the B737 on initial contact. Although no service was agreed with the pilot, due to the time constraint, the controller endeavoured to provide a DS to the extent possible.

**DAATM** comments that Spadeadam were unaware of this incident being filed as an Airprox. Spadeadam were contacted by RAC Mil during tracing action to establish the identity of the Typhoon but it appears that the signal of the Typhoon pilot’s report that was sent was not received by DAATM and neither was a copy of the report sent by UKAB. Consequently the Spadeadam RT recording was not impounded and the controller was unable to provide a meaningful report when informed of the incident several months later.

**HQ AIR (OPS)** comments that B737 pilot may have perceived this as an Airprox when in fact it was not; the Typhoon was operating in class G airspace, both ac were reported to each other and the Typhoon was in visual contact with the B737.

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

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequencies, radar video recordings, reports from the ScACC and Newcastle air traffic controllers involved and reports from the associated ATC authorities.

An experienced ATCO Member familiar with ScACC operations expressed sympathy for the Tay controller's predicament, as Tay was not expecting to work the B737 initially. Newcastle ATC normally take over control from the Talla Sector as the ac leaves CAS just W of Carlisle, about 40nm W of Newcastle, owing to the short time that the flight would work Tay Sector after Talla and before Newcastle, in this case 2min. Although no level of service was requested by the crew or offered by Tay, the Tay controller had given TI as if he was providing a TS to the B737 flight as it left CAS (on the Typhoon as it crossed R to L N'bound well ahead) and the crew reported IMC but able to 'see' the traffic on TCAS. The B737 crew believed that they were under a DS from Tay but no agreement had been established before or after the ac left Class A CAS and entered into Class G airspace. Without a clear agreement as to a level of service, the B737 crew believed that they were receiving a higher level of service than that being provided. A salutary lesson for all pilots and controllers to note, the importance of agreeing an ATS so that there is no misunderstanding as to the service being afforded at any time.

Subsequently TI was updated as the Typhoon manoeuvred S'bound across the B737's track 7nm ahead from L to R, the B737 crew reporting it as being 2000ft above from TCAS and that they were expediting their descent. At this stage, with the Typhoon not in conflict as it diverged away from the B737's projected track, it was understandable that the Tay controller transferred the B737 to Newcastle. However, during the period between the B737 leaving the Tay frequency and calling Newcastle, the Typhoon had manoeuvred back to the NW after completing the high-energy part of its sortie with Spadeadam. Without the benefit of a DAATM report it was unclear why the Spadeadam Range controller had 'down-graded' the level of service given to the Typhoon pilot from DS to TS. Under a DS Spadeadam would have had either to coordinate with Tay or Newcastle to establish a plan to deconflict the subject ac or have passed avoiding action to the Typhoon. That said, the Spadeadam controller had discharged his responsibilities under a TS and passed TI to the Typhoon pilot twice: once when the flight was S'bound in IMC with the E'bound B737 10nm to its W and again when the Typhoon was NW'bound with the B737 to its N. The Typhoon pilot had shown good situational awareness with respect to the B737 but had estimated that the B737 would be clear of his intended flightpath i.e. further to the E, when he turned R and climbed to route to TRA007. However, the TI had allowed the Typhoon pilot, who had climbed to 12600ft into VMC between layers, to visually acquire the B737 in his 1 o'clock which was 1000ft below, about 3nm away, and diverging.

The Chairman asked why the B737 had flown on this direct route which placed the flight in Class G and into an area where military ac frequently carry out high-energy manoeuvres. Members opined that even if the B737 had routed NE from Belfast within CAS towards TLA VOR, as the base level of the airway that then routes SE towards Newcastle increases, any flight landing at Newcastle from this direction would also leave CAS in the descent and would transit through Class G for a similar period of time. The only route which exhibits contiguous CAS involves extensive track distance from Belfast via IOM to the Manchester area before routeing NNE'bound past Leeds via airway P18, which Members believed would probably not be operationally viable.

Pilot Members opined that the B737 pilot appeared to have anticipated more separation than that which pertained at the time; he reported 2nm separation and 1000ft at the CPA. Had there been a coordinated resolution between Tay or Newcastle and Spadeadam the separation minima would have been 3nm or 1000ft. Irrespective of the ATS being provided, within Class G airspace crews were responsible for maintaining their own separation from other traffic through 'see and avoid', the B737 flight with assistance from ATC under an ATS. From the TI given and the TCAS derived information available, the B737 crew had gained good situational awareness of the rapidly evolving situation and elected to increase their ROD. On first contact with Newcastle, RAD1 had issued the B737 flight an avoiding action L turn, away from the manoeuvring Typhoon, having previously

informed Spadeadam of his intended actions during the telephone conversation a minute earlier. At the time the Typhoon was tracking S but had shortly afterwards climbed and turned R onto a NW'ly track, which undoubtedly had caused the TA alert to be generated on the B737 flightdeck as the Typhoon's vector had temporarily breached its TCAS 'safety bubble'. However, the Typhoon pilot had quickly levelled at 12600ft in VMC between layers and had seen the B737 as it diverged in his 1 o'clock about 1000ft below. Meanwhile the B737 crew were uncomfortable with the Typhoon's high-energy manoeuvres, which had caused intermittent positions and heights to be displayed on TCAS, and because they were unable to visually acquire the Typhoon during the latter stages owing to IMC. Although this incident had been a somewhat untidy, all parties had taken appropriate actions – Tay and Spadeadam giving TI, Newcastle giving avoiding action, the B737 crew increasing their ROD and the Typhoon pilot's visual sighting. The recorded radar clearly shows the geometry of the encounter, the B737 crossing well ahead of the Typhoon with the CPA of 1200ft/2.4nm occurring after the B737 had passed through the Typhoon's 12 o'clock and out of conflict. These elements were enough to allow the Board to conclude that this incident was a sighting report (TCAS) and that no risk of collision had existed during this encounter.

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

Cause: Sighting report (TCAS).

Degree of Risk: C.

## AIRPROX REPORT No 2009-076

Date/Time: 5 July 1147 (Sunday)

Position: 5051N 00316W (about  
½nm SW of Dunkeswell  
Aerodrome – elev: 839ft)

Airspace: Dunkeswell ATZ (Class: G)

Reporting Ac      Reporting Ac

Type: PA28A              ASK21

Operator: Civ Trg              Civ Club

Alt/FL: 1800ft              450ft  
QNH (1015mb)      QFE

Weather: VMC CLOC              VMC CLOC

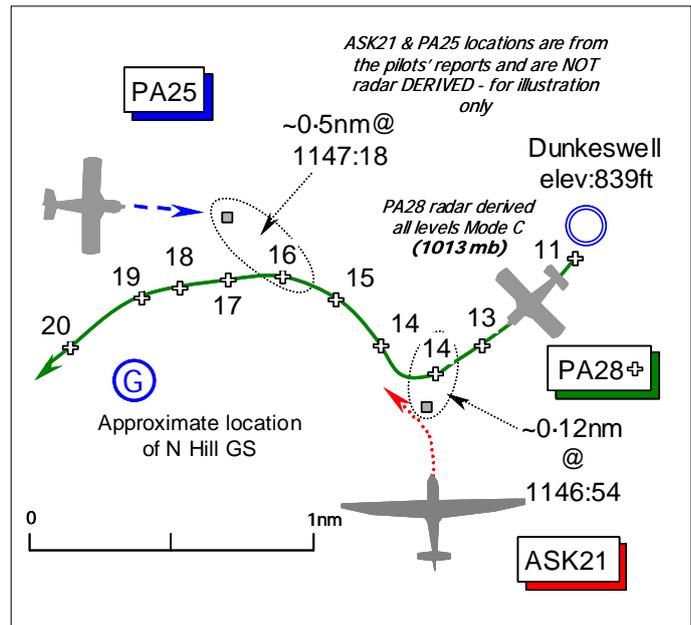
Visibility: 20km              25nm

Reported Separation:

100ft V/50m H      Nil V/20m H

Recorded Separation:

Not recorded



## BOTH PILOTS FILED

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

**THE PA28A PILOT**, a student on the last leg of his PPL qualifying cross-country exercise, reports that he was departing from Dunkeswell bound for Exeter, flying solo under VFR and in communication with Dunkeswell RADIO A/G Station on 123.475MHz. On the climb out from Dunkeswell's RW23, heading 230° whilst climbing through 1800ft QNH (1015mb) at 90kt, he observed an ac as it passed from R to L ahead. Almost immediately he observed another ac in his 12 o'clock some 100m away at a similar level, which he considered would be a risk if no action was taken. To ensure separation from the other ac, which he believed initially was a powered ac, he turned R using 45° AOB whilst lowering the nose. However, the other ac then turned to port and it became apparent to him that it was a glider. It was at this point that the two ac were at their closest - he estimated 50m horizontally and 100ft vertically - so he continued the turn maintaining visual contact with the glider until it was clear below. Dunkeswell RADIO then called on the RT to advise that he was near a glider site [North Hill Glider Site] to which he responded, "roger I am visual with the glider". There was significant activity in the Dunkeswell area at the time due to a rally taking place. He assessed the Risk as "low". The ac has a burgundy & cream colour scheme; the anti-collision beacon and landing light were on.

**THE ASK21 GLIDER PILOT** reports he was in the cct to North Hill Glider Site with the P2 flying his glider from the front seat and in communication with North Hill Glider Site on 129.90MHz. About 1¼nm WSW of Dunkeswell, descending on base leg heading 360° at 55kt at a height of 450ft North Hill QFE (1380ft amsl), the P2 suddenly saw a PA28 climbing and converging from the right very close and on a collision course. The P2 immediately took avoiding action and continued to land the glider further up the airfield. He had not seen the approaching PA28 himself as it was hidden from view by the starboard wing. Minimum horizontal separation was 20m as the PA28 passed at the same height with a "very high" risk of collision, its pilot seemingly oblivious to the presence of his glider or North Hill Gliding Site.

The PA28 then flew into conflict with the Tug aircraft that was on a RH downwind leg, whereupon the PA28 turned L and flew over the glider winch at about 700ft.

**THE PA25 PAWNEE TUG PILOT** reports that he was in communication with North Hill BASE on 129.90MHz whilst recovering to North Hill Glider Site at 100kt having released a glider. Descending through a height of 500ft on a right hand downwind heading of 100° for North Hill's RW27, he first saw the PA28 about 500m away climbing out from Dunkeswell's RW23. The PA28 then turned R and continued to climb. Realising that there would be little separation between the PA28 and his ac he turned L into a holding pattern at the end of his downwind leg, he also observed the ASK21 glider on a L base leg having to take avoiding action. The PA28 passed 500m to starboard and at the closest point was 200ft below his ac as it continued to climb maintaining a steady course. After the PA28 had passed by he continued onto a right base leg and carried out a normal landing. It seemed as though the pilot of the PA28 had not seen his PA25 or the glider during the period of the incident. He assessed the Risk as "medium".

**THE PA28A STUDENT PILOT'S INSTRUCTOR** reports that Dunkeswell A/D is very close to North Hill Glider Launching Site and indeed the runway heading on departure from Dunkeswell will put you onto the downwind for North Hill. It appears he saw what he took to be a powered ac ahead and took what would seem to be the correct avoiding action ie turning to the R. Unfortunately, it would seem it was actually a glider in the North Hill cct turning L from the downwind to base-leg and so the R turn made by the PA28A student not only put him squarely into the North Hill cct but also into the path of the glider.

UKAB Note (1): The UK AIP at AD2-EGTU-1-2 promulgates the Dunkeswell ATZ as a circle radius 2nm centred on the longest notified runway 05/23, extending from the surface to 2000ft above the aerodrome elevation of 839ft amsl and active in Summer from 0830-1700, with an A/G Service from Dunkeswell RADIO. Additionally a warning is included at EGTU AD 2.20 – Local Traffic Regulations – that:

*Glider launching takes place at North Hill [Lat & Long given] West-South-West of Dunkeswell.*

UKAB Note (2): The UK AIP at ENR 5-5-1-4 promulgates North Hill Glider Launching Site situated at 50° 51' 07" N 003° 16' 39"W as active from Sunrise to Sunset (HJ). Launching is by winch and by tug ac, which may be encountered up to 2000ft above the site elevation of 921ft amsl.

UKAB Note (3): This Airprox is not shown clearly on radar recordings. The Burrington Radar shows the PA28, squawking A7000, climbing out from Dunkeswell to 1400ft unverified Mode C (1013mb) – broadly 1340ft amsl. At 1146:54 a single primary contact is shown ~0.12nm SSW of the PA28, which might, or might not be the ASK21 glider. The PA28 turns sharply R, as reported, and maintains the climb through 1600ft unverified Mode C at 1147:18. At this point another single primary contact is shown ~0.5nm NW of the PA28, which again might, or might not be, the PA25 Pawnee Tug, as the PA28 makes a wide L turn to pass about ¼nm NW abeam North Hill Glider Site at 2000ft unverified Mode C – about 1940ft amsl - onto a SW'ly course.

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

Information available included reports from the pilots of both ac, radar video recordings, and comment from the PA28 Student pilot's instructor.

Although encounters between light ac and gliders are not uncommon this was an unusual Airprox because it involved a pilot departing an aerodrome with an ATZ, who was confronted with a glider circuiting to a glider site located away from the aerodrome but within its ATZ. The PA28 Student pilot had reported that he spotted the glider (that he had first mis-identified as a powered ac), assessed there was a potential for a conflict and turned R in avoidance. It was unclear how many other gliders were operating in the North Hill cct at the time; however, the similarities in the geometry of the encounter reported by both pilots reinforced that the PA28 Student had actually spotted the subject ASK21 glider. It seemed that the PA28 student was unable to turn L to avoid the glider in the first instance because of another ac that he had seen crossing ahead from R – L. As it was, the PA28

had seen the glider but at a late stage and elected to turn R, leaving the glider to port and thus allowing the glider pilot to manoeuvre onto final for the glider site, albeit that he had to land 'long' and perhaps further up the site than he would have wished. It was reported that the ASK21 P2 suddenly saw the PA28 very close by, climbing and converging from the right; although possibly a late sighting by the P2, he appeared to have seen the PA28 before its avoiding action R turn as it was still apparently closing on a collision course when first seen. The absence of any tangible radar contact on the ASK21 glider did not permit the geometry of this close encounter or the minimum separation to be verified independently although it did clearly show the track of the PA28. Therefore the Board could only base its assessment on the reports from the pilots involved, supplemented with the report from the PA25 Tug pilot in the opposite cct. Some might argue that the PA28 Student should have spotted the glider earlier than he did – about 100m away – but the Board was aware that a white glider of small cross-sectional area with perhaps only the crossing motion to draw attention to it would have been difficult to spot. Given that the PA28 Student had just taken-off from Dunkeswell solo, possibly under significant pressure coping with a high workload, suggested to Members that under these circumstances he probably saw the ASK21 as early as he could. Although the glider pilot might have been concentrating on the landing site to his L he had seen the other ac in time to take avoiding action albeit perhaps later than ideal. This led the Board to conclude that this Airprox was the result of a conflict in the Dunkeswell ATZ, which was resolved by the actions of both pilots.

Consultation with the Dunkeswell Aerodrome operator and the Gliding club that operates at North Hill revealed that, although these closely located units had operated successfully over many years, they have not stipulated any method of de-confliction between themselves nor promulgated any procedures in aeronautical publications for the benefit of visiting pilots. Thus there were no mutually agreed procedures to ensure the satisfactory integration of North Hill gliding site and Dunkeswell aerodrome cct traffic. Experienced pilot members commented that, at face value, Dunkeswell did not seem to be a good choice of aerodrome to which to send a Student pilot for a solo cross-country landaway. In the Board's view, it was incumbent on the Instructor to ensure that his Student was briefed precisely on what he might expect at Dunkeswell and how to avoid tangling with North Hill's mixed traffic environment, but in the Board's view, the absence of any published procedures was a contributory factor to this Airprox.

The GA Member emphasised that with minimal experience to back-up their decision making process Students will understandably do odd things occasionally. However, in the Board's view, it was asking a lot of an inexperienced student to cope with avoiding other traffic operating inside the Dunkeswell ATZ, but in an entirely separate cct pattern divorced from the aerodrome without any form of prewarning from other pilot's RT calls. Whilst a L turn would have been preferable here and kept the PA28 out of the North Hill cct area, it seemed the PA28 Student pilot was unable to do this because of other traffic. In concluding their assessment of the Risk, Members agreed unanimously that at the distances quoted here the safety of the ac involved had indeed been compromised.

The Board was briefed that the UK AIP and commercially available aviation guides do not indicate how the disparate activities within the Dunkeswell ATZ operate together, except for a warning about the existence of North Hill. No specific procedures are promulgated in the AIP about how the two aeroplane circuits are deconflicted from one another, other than being flown in opposite directions; nevertheless this still did not take account of the RW27 left-hand cct at North Hill for gliders as flown here. Thus it was not clear to the Board how the PA28 Student's departure routeing was supposed to avoid the circuit at North Hill as a departure off Dunkeswell's RW23 to Exeter was virtually a straight line but in opposition to any LHD glider cct. Indeed the PA28 Student's Instructor had commented that his Student's avoiding action against the glider had unfortunately placed him in North Hill's pattern. Here the PA28 student had spotted and avoided the glider albeit to the detriment of the ASK21 pilot's cct and caused him to fly very close to the NW of the glider site. The radar recording confirming that the PA28 had flown in opposition to the RHD cct causing the tug pilot to hold at the end of the downwind leg to maintain separation against the PA28. Moreover, with North Hill traffic operating on their own gliding frequency and not that of Dunkeswell RADIO, this seemed at odds with the requirements of Rule 45 of the Rules of the Air Regulations. Plainly the PA28 Student pilot was required to maintain a continuous RT watch with Dunkeswell RADIO whilst within the Dunkeswell ATZ and communicate his position and height on leaving it. It seemed to the Board that this same

Rule applied to North Hill's traffic equally when within the Dunkeswell ATZ. Consequently, the Board made two Safety Recommendations: first that Dunkeswell Aerodrome and the Operator of North Hill Gliding Site should jointly develop a LoA and promulgate agreed procedures that will ensure the safe integration of air traffic at these closely located airfields; Second, the Board also recommended that the CAA should review the disparate operations within the ATZ at Dunkeswell aerodrome and at North Hill Glider Site, to ensure they are in accord with the requirements of Rule 45 of the Rules of the Air Regulations.

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

- Cause: Conflict in the Dunkeswell ATZ resolved by both pilots.
- Degree of Risk: B.
- Contributory factor The absence of any promulgated procedures to deconflict gliding operations at North Hill Glider Site from Dunkeswell aerodrome traffic.
- Recommendations:
- (1) Dunkeswell Aerodrome and the Operator of North Hill Gliding Site should jointly develop a LoA and promulgate agreed procedures that will ensure the safe integration of air traffic at these closely located airfields.
  - (2) The CAA should review the disparate operations within the ATZ at Dunkeswell aerodrome and at North Hill Glider Site, to ensure their continued operation is in accord with the requirements of Rule 45 of the Rules of the Air Regulations.

## AIRPROX REPORT No 2009-078

Date/Time: 18 Jul 1410 (Saturday)

Position: 5155N 00158W (8nm E Gloucestershire)

Airspace: LFIR (Class: G)

Reporting Ac Reported Ac

Type: Stemme S10-V Vulcan  
Motorglider

Operator: Civ Pte Civ Pte

Alt/FL: 2400ft 2000ft  
(QNH) (RPS)

Weather: VMC CLBC VMC CLBC

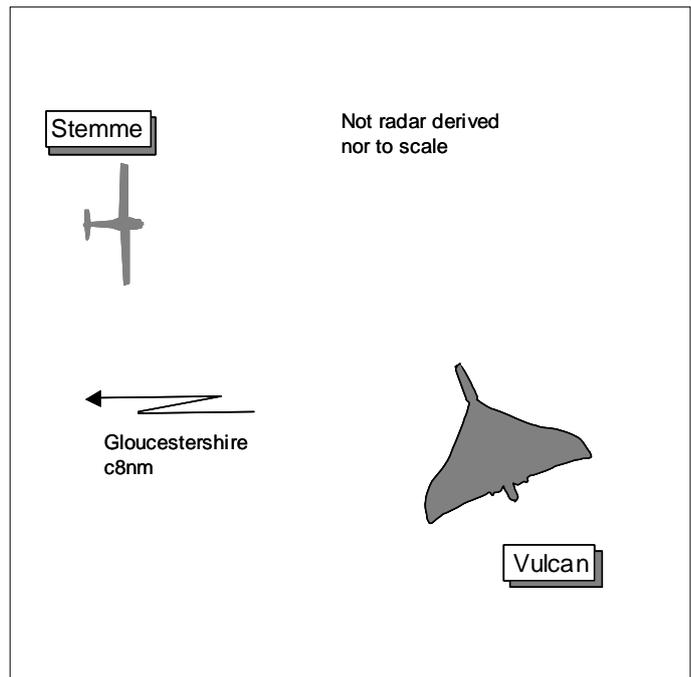
Visibility: 20km >10km

Reported Separation:

150ft V/100m H 300ft V/100m H

Recorded Separation:

NR



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE STEMME S10-V MOTORGLIDER PILOT** reports flying a local sortie from Bicester, VFR with another pilot in the LH seat and not in communication with any ATSU. The visibility was 20km flying 1500ft below cloud in VMC and the ac was coloured white/orange. They had recently restarted the engine on the Cotswold ridge about 6nm ENE of Gloucestershire airport after the W'ly wind had slackened and the lift became intermittent. They set an E'ly course for Bicester heading 090° at 070kt and about 2400ft QNH. About 10nm E of Gloucestershire airport he was looking ahead assessing the potential lift under a cloud about 1nm away when he became aware of something on his starboard side. He looked and was horrified to see a Vulcan bomber about 150m away very slightly below him in what appeared to be a nose up attitude. The pilot seated in the LH seat simultaneously saw the approaching ac but only the rounded front of the ac and the adjacent leading edge of the swept-back wing. He immediately took avoiding action by pulling up hard and rolling R, watching the Vulcan pass about 150ft almost directly underneath, within 100m laterally, heading NW apparently taking no avoiding action and holding a steady course. They heard no unusual sound nor encountered any turbulence and the ac was only seen for a fraction of a second. He assessed the risk as very high.

**THE VULCAN PILOT** reports flying a local sortie from Fairford VFR and in receipt of a TS, he thought, from Brize Norton squawking an assigned code with Modes S and C, he thought. The visibility was >10km flying about 1000ft below cloud and the ac was military camouflaged; no strobes were fitted. During a transit below cloud tracking 336° at 240kt and 2000ft RPS, he thought, they were aware there was a lot of gliding activity in the area 10nm E of Gloucestershire airport and they were alerted to traffic ahead at 6nm and then 1nm. The PF in the RH seat saw a glider crossing from L to R in his 10 o'clock range about 400m and >200ft above. The glider was not immediately visible to the Capt in the LH seat because of the large 'A' pillar. No avoiding action was required but the PF instinctively descended by about 100ft as they passed about 300ft below and 100m in front of the glider. The observed glider definitely appeared to have a round (smooth) nose and did not appear to be a motor-glider and was coloured white with a small amount of colour. He assessed the risk as low.

UKAB Note (1): The Stemme S10-V Motorglider is fitted with an engine mounted behind the cockpit driving a nose mounted retractable/folding propeller via a drive shaft. When the engine is not in use, the propeller is stowed inside a moveable nose cone.

**DAATM** reports that the Vulcan was taking part in the RIAT event at Fairford although not directly at the time of the Airprox. The Vulcan had departed Fairford en-route Cosford VFR in receipt of a BS from Fairford Director (FFD) at Brize Norton ATC, a controlling position used for the purpose of managing RIAT air traffic. The Stemme was operating autonomously from Bicester VFR along the Cotswold Ridge. The radar replay did not capture the incident.

At 1406:37 the Vulcan flight called FFD and was given a BS and acknowledgement of a climb to 3000ft 1010mbs QNH; the Cotswold pressure of 1006mbs was also passed. The Vulcan pilot reported that he was levelling 2500ft 1006mb, which was acknowledged. At 1409:12 FFD transmitted *"Vulcan Basic Service however traffic eleven o'clock three miles crossing left right slow moving no height information"*. The crew replied *"Vulcan copied."* The controller stated in his report that the conflicting traffic was deemed to represent a possible risk of collision which is why it was called. At 1409:41, as the conflicting traffic approached the Vulcan's 12 o'clock, the controller reported *"Previously called traffic twelve o'clock one mile left right no height"*. The crew replied (1409:51) *"Vulcan er visual with the glider we're descending slightly"*. Thereafter the flight continued en-route as planned and was transferred to Birmingham.

CAP774 Ch2 defines Basic Service as: *'A Basic Service is an ATS provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights. This may include... .. any other information likely to affect safety. The avoidance of other traffic is solely the pilot's responsibility. A BS relies on the pilot avoiding other traffic unaided by controllers/FISOs'*.

Although the Vulcan pilot stated in his report that he was in receipt of a TS from Brize Norton, the FFD controller clearly stated BS on initial contact and again prior to passing TI.

In conclusion, the Vulcan departed Fairford under a BS from Brize Norton. In compliance with CAP 774 Ch 2, TI regarding unknown traffic was twice passed to the Vulcan crew as the controller assessed the risk of collision was high.

UKAB Note (2): The Airprox is not captured on recorded radar as the Stemme Motorglider does not show at all during the period of the radar data supplied. The Vulcan is first seen 0.5nm W of Fairford tracking NW'ly squawking 4777 (ORCAM Special Events code) indicating FL022 (1990ft RPS 1006mb) and climbing. The next 2 radar sweeps shows the Vulcan at FL024 (2190ft RPS) but thereafter NMC is displayed for the duration of the recording. When the Vulcan pilot reports visual with the Stemme at 1409:51, the Vulcan is passing 8nm ENE of Gloucestershire airport on a NW'ly track.

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

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

Members believed that the Stemme pilot would have had better SA if he had been talking to an adjacent ATSU. As the Airprox location was some 8nm E of Gloucestershire airport and the Stemme had previously been closer when he started his engine, a BS from Gloster APP should have been available. However, with the intended route E to Bicester, an early call to Brize Norton would have been more appropriate as the ac would be very quickly entering and transiting the Oxford AIAA. It was also noted that Vulcan crew were under the mistaken impression that they were in receipt of a TS whereas the DAATM report revealed that the Fairford Director clearly stated twice that a BS was being provided. Nevertheless, Members agreed that although the passing of TI to the Vulcan was outside the terms of a BS, FFD had shown good 'controllership' in doing so, as he assessed that

there was a high risk of collision. Indeed Members thought the Vulcan crew should have perhaps asked for a higher level of service (TS or DS) from the outset to supplement their lookout, particularly as the 'letter box' cockpit windscreen with large pillars restricted the pilot's view.

UKAB Post Meeting Note: The difficulty of looking out of the Vulcan is one of the factors behind an application to the CAA for an IMC clearance for the aircraft that would increase the opportunities for it to transit at higher altitudes and above much of the GA traffic.

Both pilots had equal onus to 'see and avoid' in this Class G airspace, the Vulcan having right of way under the Rules of the Air. The Vulcan had approached from the Stemme's R and slightly below, possibly blending into the background owing to its camouflage paint scheme. Similarly, the Stemme would almost certainly have been skylined and more difficult to see against the backdrop of cloud. However, the opportunity to see each was there for some time prior to the Airprox but, for whatever reason, both pilots only saw each other's ac late and this had caused the Airprox.

Turning to risk, the Stemme pilot saw the Vulcan briefly on his R, about 150m away and had instinctively pulled up and turned R, estimating it passed 150ft below and within 100m. The Vulcan pilot was twice given TI on the Stemme and they saw it 400m away >200ft above and, although no avoiding action was necessary, he instinctively descended 100ft to increase separation before passing 300ft below and 100m ahead. Members noted the difference in reported vertical separation and opined this may have been because, from the Stemme cockpit the Vulcan, a large ac, had in fact been further away than it appeared to be. In the end both pilots saw each other and acted promptly to resolve the situation, which allowed the Board to conclude that any risk of collision had been quickly and effectively removed.

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

Cause: Late sightings by the pilots of both ac.

Degree of Risk: C.

## AIRPROX REPORT No 2009-086

Date/Time: 6 August 1406

Position: 5302N 00027W (1¼nm  
FINAL to Cranwell RW27  
- elev 218ft)

Airspace: MATZ/ATZ (Class: G)

Reporting Ac Reported Ac

Type: B200 King Air Grob Tutor

Operator: HQ Air (Trg) HQ Air (Trg)

Alt/FL: 600ft 600ft  
QFE (1011mb) QFE (1011mb)

Weather: VMC CLOC VMC CLOC

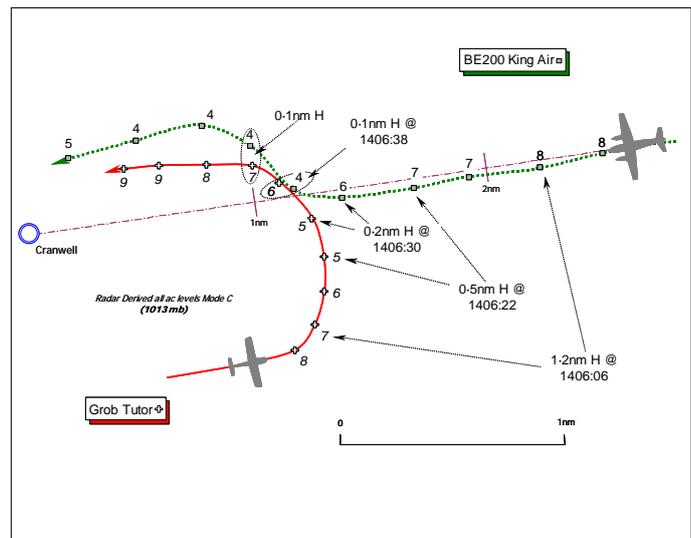
Visibility: 25km 20km

Reported Separation:

Nil V/50-100m H 100ft V/Nil H

Recorded Separation:

200ft V @ 0.1nm Min H; 100ft Min V @ 0.2nm H



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE BEECH 200 KING AIR PILOT**, a QFI, reports that he was completing the last detail of an IF training sortie at Cranwell. A PAR was being flown in good conditions to RW27 with his student pilot occupying the left hand seat as PF under an IF visor; the QFI was occupying the right hand seat as the PNF looking out and acting as safety pilot. An Air Cadet was seated in the jump seat.

On final to RW27, heading 265° at 127kt, the TALKDOWN controller issued a continue instruction, which was read-back. At about 2½nm from touchdown TALKDOWN enquired if they were visual with the airfield, which they were, so after this positive response TALKDOWN instructed them to continue visually and switch to the TOWER frequency of 125.050Mhz. Descending through 600ft Cranwell QFE (1011mb) [broadly 660ft (1013mb)], just prior to checking in with TOWER, he [the QFI] looked up from changing the radio frequency selection to see a Grob Tutor directly ahead, at the same height, belly up to their cockpit about 50-100m away in a L banked turn with a very high risk of a collision. To avoid a potential collision with the Grob he took control from his student and dived his ac aggressively in a steep right hand banked turn. This resulted in his ac flying at a height of about 250ft, close to the stall speed – with the stall warner sounding - and full power applied. He reported an Airprox to TOWER when he checked in on the RT, whereupon the ac was recovered via a visual cct.

The subject Grob Tutor was painted in display markings and was identified from the ac's registration. The King Air has a white and blue colour-scheme; the landing light and HISL were selected on. A squawk of A2603 was selected with Mode C. Mode S and TCAS is fitted, but neither a TA nor RA was enunciated.

**THE GROB 115E TUTOR STUDENT PILOT** reports he had just flown a VFR solo sector reconnaissance, in CAVOK, which was his first solo flight outside the circuit area. Returning to Cranwell he was flying his third cct to RW27 whilst in communication with TOWER on VHF – 125.050Mhz. A squawk of A2641 was selected with Modes C & S on.

After he called final, TOWER asked if he was visual with the King Air that was making an approach with radar. The King Air had been spotted at a range of 2½nm on final approach so he replied that he was visual and was instructed by TOWER to continue. Descending from 600ft QFE (1011mb) he

then heard his instructor call on the RT saying that he could not continue in front of the King Air, but should fly behind it, followed by TOWER instructing him to go around. He rolled out of the L turn onto 360° at 75kt, applied full power and climbed back to cct height whence he saw the King Air to his right, passing at least 100ft below him. He completed another cct to land and was later informed of the Airprox by his QFI.

His ac is coloured white, with a distinctive air display colour-scheme of reflective blue stripes on the sides and upper wings, plus a large roundel on the under surface of the main plane; the HISLs and landing light were on.

**THE GROB 115E TUTOR STUDENT PILOT'S INSTRUCTOR** reports he had authorised his student to fly the sortie solo, following a dual flight of the same profile. His solo student was back in the aerodrome circuit when he took off to instruct on another dual sortie teaching circuits. Following his initial take-off, he was flying directly behind his solo student on this circuit to RW27L. After his solo student called downwind to roll, he was informed by TOWER of 2 ac ahead, 1 on radar. When his solo student called final, another Tutor was still on the runway rolling from his approach, and the controller asked his solo student "are you visual with the radar traffic?"; he replied "affirmative" and was instructed by TOWER to continue. From the QFI's point of view, it appeared that his solo student was turning in front of the King Air so he transmitted on the TOWER frequency telling his student that he could not continue in front of the twin, but should go behind it. TOWER then instructed the solo student to go around. His solo student rolled wings level, enabling him to watch the King Air, and climbed heading N, passing across the runway centreline in front of, then above, the King Air onto the deadside of the cct. As the Tutor cct is flown downwind at 800ft QFE, with a continuous finals turn to roll out at 400ft on final at about 0.8nm, all of the turn would be completed above the flightpath of the radar traffic flying a 3° glidepath [318ft/nm]. Since his solo student had rolled wings level half way around the turn, at about 600ft, and climbed, this vertical separation would have been further increased.

Although his solo student should have had his transponder on standby, when asked later, he thought that he had left it on. The Grob Tutor student pilot had a total of 20.25hr 'dual' and 1.25hr 'solo' experience.

**THE CRANWELL AERODROME CONTROLLER (ADC)** reports that he had a constantly busy aerodrome circuit. The King Air crew was instructed to "continue visually, 1 ahead" after being continued at the 3-mile call. The Grob solo student had already been given a "2 ahead" call and told one was a King Air from Radar at 5nm, in response to his downwind with intentions call. Once the Grob solo student called final the King Air on PAR was inside 2nm, so he asked the Grob solo student, "are you visual with the radar traffic at 2 miles?" The Grob solo student responded with a "Yes I am", so he then instructed him to continue. Within seconds a transmission was made to the Grob solo student "...when you continue you are supposed to continue behind the radar traffic" – or words to that effect. This transmission was believed to be from another Tutor in the visual circuit. After hearing this transmission, he instructed the Grob solo student to go around. The Grob solo student acknowledged the go around and the King Air pilot broke off his approach at approximately ½nm final but had still not called on the TOWER frequency. As a result the two ac flew within close proximity of each other. The King Air pilot then called on VHF requesting to join and to file an Airprox.

The Cranwell Weather was reported to be: Colour Code BLU; QFE 1011mb; Cloud FEW 2400ft, OVC 6500ft. The aerodrome circuit was busy, with 3 to 4 ac in the visual circuit and radar traffic. At the time of the Airprox the weather was allowing full visual ccts.

**DAATM** reports that the Grob Tutor student pilot was conducting visual ccts to RW27. The King Air crew was flying a PAR at the end an IF sortie. The TOWER controller (ADC) was a first tourist having held an endorsement in the position for 7 weeks.

The Cranwell visual cct was busy with up to 4 ac operating at any time in addition to radar traffic being integrated into the pattern; all RT was on VHF 125.050MHz. The Grob solo student was in the

visual cct on completion of the pilot's first solo flight outside the cct. At 1403:22, the ADC received a standard radar intercom call from TALKDOWN warning-in the King Air for a PAR at 7nm from touchdown to LAND. Immediately after this call an ac not involved in the Airprox [a/c1] was cleared to take-off into the visual cct. Some 4sec later another ac [a/c2] called downwind to roll. Twenty seconds later at 1404:06 a third, uninvolved, ac [a/c3] called for a visual join. Standard joining instructions were given to a/c3 including the cct state of '2 in' [the Grob solo student and a/c2], with 1 on [the runway] for departure [a/c1] and radar traffic at 6nm [the King Air]. Some 9sec after a/c3 acknowledged the joining instructions, the Grob solo student called "*downwind land*". The ADC acknowledged by passing "*2 ahead [a/c1 and a/c2] 1 radar 5nm, Kingair*". The Grob solo student did not acknowledge the cct state. At 1404:37 another ac [a/c4] called TOWER to join the circuit. Again standard joining instructions were given for an overhead join with the circuit state as "*2 in [a/c2 and the Grob solo student, but no mention was made of a/c1], radar traffic 4 miles [the King Air], 1 other joining via initials [a/c3]*". The pilot of a/c2 immediately called "*final*" and was cleared to roll. At 1405:38, the ADC received a call from TALKDOWN on the radar clearance line "*3nm [King Air C/S] to land*". Because a/c2 had been given the runway, TALKDOWN was told to "*call by 2*" - a radar continue. The ADC broadcast "*King Air, 3 miles continuing*" on the TOWER frequency to alert all cct traffic that the ac on PAR was continuing its approach inbound. The pilot of a/c1 then reported "*downwind roll*" to which the ADC replied with the cct state "*3 ahead*" [a/c 2, the King Air and the Grob solo student]. Although the previously reported cct states did not tally with the number of ac that now appear to have been in the cct from the RT, this had no bearing on the Airprox.

At 1405:54, TALKDOWN called the ADC via the radar clearance intercom line with "*2 and a quarter miles [King Air C/S] land*", the standard call for an ac on a delayed clearance. Three seconds later, the Grob solo student called "[Grob solo student C/S] *final*" on the TOWER frequency. Via the radar clearance line the ADC instructed the TALKDOWN controller that the King Air should continue visually, with 1 ahead. At this point TALKDOWN asked the King Air pilot if he was visual with the airfield and when the pilot replied that he was, the continue visually instruction was passed. In response to the Grob solo student reporting final, the ADC asked "*.. are you visual with the radar traffic 2 miles?*" The Grob solo student replied, "*Yeah, I am [C/S]*" to which the ADC replied, "[C/S] *continue.*" At 1406:13, 5sec after the Grob solo student was told to continue, a transmission was made on the TOWER frequency: "[Grob solo student C/S] *you need to be behind the radar [traffic] not in front.*" It later transpired that the transmission was made by the Grob solo student's QFI in a/c1. Alerted by the QFI's transmission, the ADC instructed the Grob solo student to go around; the Grob solo student complied with this instruction. When the King Air crew called on the TOWER frequency at 1406:52, the pilot notified the ADC that he wanted to declare an Airprox.

The report submitted by the Grob solo student reiterated the sequence of events but did not indicate the student's thought process. Therefore, it is unclear as to whether the student pilot intended to route behind the King Air or was continuing to fly a standard circuit profile by rote. The Grob solo student's instructor [pilot of a/c1] reported that from his point of view, it appeared that his solo student was turning in front of the King Air and therefore he elected to transmit advice to him. The QFI described the Tutor flight path in detail and opined that the manoeuvre would have been completed above the flight path of radar traffic on a 3° approach.

The ADC's instruction to the Grob solo student to continue after confirming that the student pilot was visual with the radar traffic was standard practice, as was the expectation that the Grob solo student would self-position behind the King Air as radar traffic. The radar replay clearly shows both ac involved in the Airprox. The Grob can be seen to fly in front of the King Air passing from the latter's L to R; minimum horizontal separation of 0.1nm is evident.

During these events, a Duty Instructor was present in the VCR monitoring a student not involved in the Airprox. When the Duty Instructor's attention was drawn to the incident by the Grob solo student QFI's transmission, he looked up and confirmed that it was very difficult to ascertain the relative positions of the ac involved from the viewpoint of the VCR. There is a 'Hi-Brite' Aerodrome Traffic Monitor (ATM) console fitted in the VCR, but its position is such that to monitor the screen, the controller's focus would have been drawn away from the actual situation, which was on the opposite side of the VCR.

The ADC was controlling a busy visual cct whilst integrating radar traffic using standard procedures and phraseology. Circuit priorities were clearly indicated with cct state calls although it appeared that at one stage the number of ac in the circuit was more than that indicated by the ADC. However, this error did not have a bearing on the Airprox.

UKAB Note (1): The Claxby Radar recording shows the King Air established on final indicating 800ft Mode C (1013mb), with the Grob Tutor flown by the solo student at 11 o'clock – 1.2nm away descending through 700ft Mode C (1013mb) - broadly 760ft QFE (1011mb) – as the latter turns L onto final. The two ac converge as the Grob maintains a L turn descending to 500ft Mode C – now 100ft below the King Air that is descending through 600ft (1013mb) at a range of 0.2nm whilst 1¼nm distant from the aerodrome. A rapid descent by the King Air of 200ft to 400ft Mode C is evident 8sec later on the next sweep timed at 1406:38, minimum horizontal separation was no more than 0.1nm – 185m - as the Grob climbed to 600ft Mode C. This horizontal separation is maintained as the Grob turns inside the twin onto the deadside and climbs further before the King Air, now maintaining 400ft Mode C – broadly 460ft QFE - opens wider onto the deadside.

**HQ AIR (TRG)** comments that this was another incident involving radar traffic integrating into a visual circuit. Had the King Air crew been on the TWR frequency earlier their SA of the busy circuit traffic may have drawn their attention to the Tutor ac turning final sooner and avoided the late sighting and necessity to fly such an aggressive avoiding action. The limited experience of the student pilot contributed to this Airprox, having been told to continue he did just that until he was told to go around. This Airprox occurred in the circuit area of a major flying training unit and clearly demonstrates the need for both instructors and controllers to always be prepared to intervene when students are not getting it right.

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

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

This Airprox was a salutary example of what can occur at a busy flying-training unit. With 1:25 solo hrs under his belt, the Members empathised with the Grob Student's situation but it seemed evident to the Board that this Airprox stemmed from the extreme inexperience of the exceedingly low-hours Grob Tutor solo student pilot when confronted with IFR traffic. For the benefit of civilian colleagues, the military fast-jet Member explained the basic methodology for teaching military student pilots to fly ccts at military aerodromes, which is somewhat different to that encountered in the civilian flying training environment. Here the Grob Student would have been taught to follow a standard ground track on the downwind leg and begin the final turn at an appropriate position relative to the runway threshold; extending downwind for separation is discouraged because it introduces variables into the final approach. Rather than extend downwind, pilots are taught to go-around from the point at which the final turn would normally commence and, if necessary, extend upwind on the dead side to adjust separation between preceding traffic.

When he reported final to land and was questioned by the ADC “.. are you visual with the radar traffic 2 miles?” the Grob solo student replied positively, which led the ADC to reply with “[C/S] continue” in accord with standard military practice. This caused a civilian controller Member considerable concern and he explained that civilian practice would dictate that TOWER would specify that the Grob pilot was to continue as No2 to the King Air. In this manner the situation would have been spelt out more clearly for the ab-initio Grob solo student. However, the military pilot Member pointed out that before he had been allowed to fly solo the student's instructor would have taken great care to brief his student on how to operate in the cct. This briefing would include the priority of IFR radar traffic over VFR cct traffic in the aerodrome pattern and what to do under such circumstances – in general the onus being on the visual cct traffic to ‘give-way’ to the approaching IFR traffic. The DARS Advisor stressed that the circumstances described here were in accord with standard military cct procedures;

if they are not in visual contact with the PAR traffic circuiting pilots will be instructed to 'go-around', whereas if they have sighted the other ac the standard response from the ADC will be to continue as here, allowing the pilot to maintain his own visual separation against the approaching IFR ac. It is then for the circuiting pilot to make up his own mind whether he needs to go-around from that point. If the cct spacing does not allow the cct to be 'continued' to a satisfactory landing/roll etc, a 'go-around' will be initiated aiming to fly clear astern of the radar traffic onto the deadside [if one exists] and giving it as wider berth as necessary - bearing in mind that any IFR approach can turn into a 'missed approach'. Here the Grob solo student's cct was such that he was not going to fly clear of the approaching King Air, according to the account by the Grob solo student's QFI and he had wisely warned his Student on the RT, which was subsequently reinforced by the ADCs instruction to 'go-around'. The Board commended the Grob student's QFI for his astuteness and presence of mind. Given this high-pressure cct environment some Members debated whether the Grob solo student had the capacity to recognise what was actually occurring. Pilot Members postulated that in the 1:25 hrs he had accumulated solo he might not have ever encountered such a situation before with IFR traffic in the cct. A Member suggested that at this very early stage of training the solo student was probably flying the cct 'mechanically' by rote, which might explain why he did not do better. The lesson here for all aviators and controllers, both highly experienced and ab-initio alike, is that in an intense instructional environment to always be on your guard and prepared for students to act unpredictably!

Thus, unfortunately, the Grob ended up crossing ahead of the King Air at which point the QFI in the latter spotted it. Experienced pilot Members were surprised that the QFI, acting as safety pilot, had not acquired the cct traffic beforehand as the ac approached the aerodrome, but acknowledged that he was seated in the RHS and looking out of the small flight deck windshield across the cockpit. Moreover, as they had been broken off from their PAR and instructed to continue visually, the crew would have received no cct state, which is normally transmitted with the final clearance at 2½nm. At this stage, the King Air crew were visual with the aerodrome and No2 to ac2 that was rolling on the RW, and which the ADC expected clear the RW in time for the King Air to be issued with a landing clearance. So the instrument approach had been terminated, they had been switched to TOWER and the King Air was now approaching the RW for a visual straight-in to land. Nevertheless, the King Air still had 'right-of-way' and the cct state would have been issued as soon as the crew checked-in with TOWER. The conflict developed before the King Air crew was able to establish contact with TOWER as a result of the Grob solo student crossing ahead as he climbed to cct height. Therefore, the Board concluded that the Cause of this Airprox was that the Grob solo student pilot in the visual circuit flew into conflict with the King Air, which was joining the circuit from a radar approach.

When confronted with the Grob Tutor directly ahead, at the same height, belly up to the King Air about 50-100m away in a L banked turn – as broadly replicated by the radar recording - robust action was undoubtedly called for. However, the Board questioned whether diving the King Air aggressively in a steep right hand banked turn was the best form of avoiding action. Nonetheless, Members accepted that the QFI took the action he thought appropriate at the time. The radar recording substantiated the King Air QFI's view of events as they unfolded; the Grob climbed through the King Air's level and crossed ahead of it at close quarters. This convinced the Board that the safety of the two ac involved had been compromised.

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

Cause: The Grob solo student pilot in the visual circuit flew into conflict with the King Air, which was joining the circuit from a radar approach.

Degree of Risk: B.

## **AIRPROX REPORT No 2009-100**

Date/Time: 4 September 1028

Position: 5246N 00003W (2nm  
NNW Fenland - elev 6ft)

Airspace: London FIR (Class: G)

Reporting Ac Reported Ac

Type: Typhoon T Mk3 Cessna 172M

Operator: HQ AIR (Ops) Civ Pte

Alt/FL: 2200ft 1700ft  
(RPS 994mb) (QFE 1004mb)

Weather VMC CLBC VMC CLBC

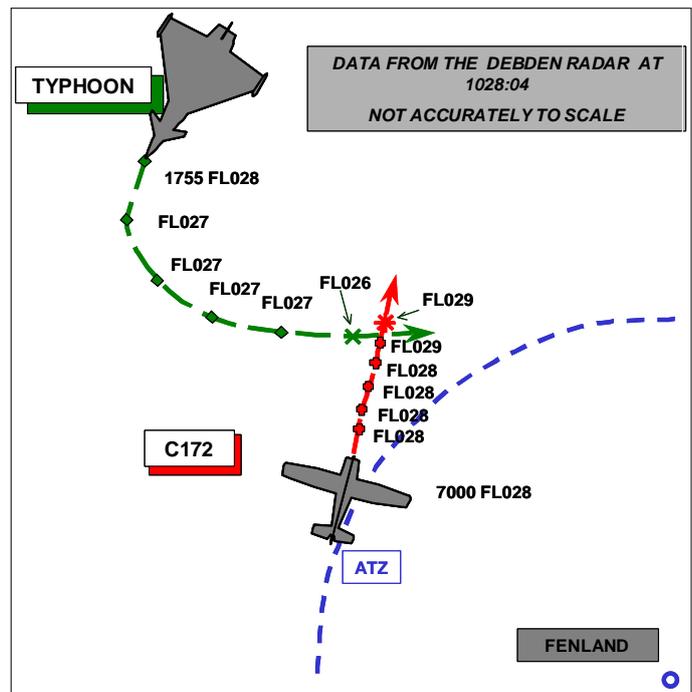
Visibility: >20nm >10km

Reported Separation:

300ft V/1800ft H 100ft V/500m H  
(0.3nm) (0.4nm)

Recorded Separation:

300ft V /0.2nm H



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

**THE TYPHOON PILOT** reports flying a grey ac [Typhoon 1 in DAATM report] with HISLs and Nav lights switched on, leading a 2 - ship formation performing practice intercepts on a Tutor light ac. They were in receipt of a TS from Coningsby APP and were squawking 1755 with Mode C but TCAS was not fitted. The front seat pilot was under instruction and in control of the ac and was resetting to the E after attempting an intercept on the Tutor. He had rolled out of a turn at 2200ft and was heading 094° when he saw a Cessna with Orange markings 2000ft away in his 1 o'clock and slightly above them so he immediately bunted then rolled right to increase lateral separation. Prior to the manoeuvre they were not on a collision course, as the flight path of the Typhoon would have placed it slightly below and behind the Cessna so he assessed the risk of collision as being low.

He reported the incident to Coningsby ATC immediately on the frequency in use.

**THE CESSNA 172 PILOT** reports that he was flying a private flight from Fenland to Beverley with a passenger, in a yellow and white ac with the beacon switched on, squawking 7000 with Mode C and in receipt of an AGS from Fenland Radio. Prior to start up he was aware of a Typhoon ac orbiting around the Fenland ATZ; he presumed that it was waiting to enter Wainfleet bombing range as, in his experience, they frequently do. During his power checks he continued to monitor the Typhoon, which was [apparently] still holding close to the ATZ. After departing from RW26 and climbing to the overhead, he positioned the ac on his first heading of 347° towards Boston. He could still see the Typhoon, which continued to orbit with a tight turn to the left. He initially thought that Typhoon pilot was aware of his position since he had been orbiting around the ATZ for over 20min. The Typhoon then flew West before backtracking to the East flying directly towards him. As the ac continued to approach him from his 10 o'clock, it banked steeply to the right then left and it passed about 500m behind his ac. At the time he thought that he was passing about 1700ft in his initial climb to 2500ft and he was still within Fenland's ATZ. He continued to climb during the incident as he was on the Typhoon's right and had right of way, but was always ready to take evasive action, as he was aware that the Typhoon was on a converging course. After changing frequency to Coningsby at about 1040 he passed his details and received a TS. The controller then informed him that he had a message relating to the Airprox and he replied that he had been visual with the Typhoon throughout.

He assessed the risk as being Medium.

UKAB Note (1): Fenland is published in the UKAIP (AD 2 EGCL) as a civil licensed aerodrome with an ATZ of 2nm radius up to 2000ft aal.

UKAB Note (2): The Typhoon reported that he was flying at 2200ft on the (Barnsley) RPS of 994mb. Met Office Archival data shows the Wittering (nearest recorded met data) QNH to be 1004mb; since Fenland is 6ft amsl this would also have been the Fenland QFE/QNH. That being the case the Typhoon would have been flying at 2500ft agl when it indicated FL028.

UKAB Note (3). The Wittering METAR for 1050Z was:

EGXT 041050Z 27024G34KT 9999 FEW035 BKN250 16/06 Q1004 BLU NOSIG

The 1000 Barnsley RPS was 994mb, the 1100 995mb.

UKAB Note (4): The Coningsby controller also provided a report. Since it is essentially the same as the DAATM report below, for brevity it has not been included.

**DAATM** reports that the Typhoon formation was in receipt of a Traffic Service (TS) from Coningsby Departures/Zone (RAD). RAD passed the first TI on the C172M to Typhoon 2 at 1020:36, '*C/S 2 Traffic South, 4 miles, tracking North, no height information*'. This was followed 5min later at 1025:41, '*C/S 1 [Typhoon 1] Traffic South West, 3 miles tracking North indicating 200 feet below*'. The pilot of Typhoon 1 asked for confirmation that the TI was for him, and RAD responded 13 sec later with updated TI, '*Affirm, eh, traffic is, eh believed to be operating around Fenland*'. This was again acknowledged before further TI on the subject C172M was passed at 1027:19, '*C/S 1, traffic south 3 miles tracking North indicating similar level*'. Shortly after at 1028:42 the pilot of Typhoon 1 reported an Airprox on freq, '*Just had an Airprox with an orange Cessna approximately one minute ah, one minute ago*'.

UKAB Note (5): The recording of the Debden Radar shows the incident. The Typhoons were operating in a racetrack pattern with one at each end of the pattern. The C172, squawking 7000 is tracking 010° and is initially FL028 (2500ft agl/amsl) as the Typhoon, in its 12 o'clock at just over 4nm, commences a left turn from a NNW track onto 220° for 30sec. When in the C172's 11 o'clock at 2.5nm and at the same level it commences a further left turn towards the C172, rolling out on 100° and descending 300ft to pass below and 0.2nm behind the C172; it then departs to the E while the C172 continues to the N. The incident takes place 2.2nm NW of Fenland at 2500ft amsl and the Typhoon remained 500ft above top of the ATZ when it crossed the lateral boundary just after the CPA.

**HQ AIR (OPS)** comments that this is another confliction in busy class G airspace, it is unwise to assume that the other aircraft is visual and even though the Cessna has right of way it could have altered its flight path or altitude to maximise separation as it claimed to be visual throughout.

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

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controller involved and reports from the Typhoon operating authority.

In this incident the Board noted that both ac had been operating legitimately in Class G airspace; that being the case they had an equal and shared responsibility to see and avoid other ac. Albeit not as early as optimum, both pilots had seen the opposing ac and, in accordance with his responsibility under the Rules of the Air, the Typhoon pilot did take sufficient avoiding action to increase the extant separation to, what was in the Board's view, a reasonable margin.

Having agreed the cause, specialist Members noted the accurate and timely TI provided to the Typhoon crew, which should have enabled them to react earlier to the presence of the C172; further they also opined that this demanding exercise should have been conducted well clear of the Fenland ATZ and any other congested airspace.

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

Cause: Conflict in Class G airspace.

Degree of Risk: C.