

ASSESSMENT SUMMARY SHEET FOR UKAB MEETING ON 17 Nov 2010

Total: 19 Risk A: 1 Risk B: 7 Risk C: 10 Risk D: 1

<u>No</u>	<u>Reporting</u>	<u>Reported</u>	<u>Airspace</u>	<u>Cause</u>	<u>Risk</u>
2010033	Tornado F3 (MIL)	Tornado GR4 (MIL)	G	Lack of TI led to late sighting by the F3 crew.	C
2010050	Robinson R44 (CIV)	Untraced Model Ac (CIV)	G	Conflict with an untraced model ac.	D
2010054	AS365 (CAT)	Hawk (MIL)	G	Conflict in Class G airspace.	C
2010057	DHC-8 (CAT)	Super Lynx (MIL)	G	In the absence of TI, the DHC-8 crew was concerned by the proximity of the Super Lynx.	C
2010058	ASK 13 (CIV)	PA28 (CIV)	G	The PA28 pilot flew O/H a notified and active glider launching site below the promulgated winch cable release height and into conflict with the ASK13 glider, which he did not see.	B
2010062	Tucano T Mk1(A) (MIL)	Tucano T Mk1(B) (MIL)	G	Erroneous TI from the ADC resulted in a late sighting by the crew of Tucano B.	C
2010065	EC225 (CAT)	Tornado (MIL)	G	The Tornado crew flew close enough to cause the EC225 crew concern.	C
2010066	Hawk T Mk 1 (MIL)	PA28 (CIV)	G	TI was not passed to either ac leading to effective non-sightings by the pilots in both ac.	B

2010067	Tornado GR4 (MIL)	PA28 (CIV)	G	Non-sighting by the PA28 pilot and a late sighting by the Tornado crew.	B
2010074	Viking T1 Glider (MIL)	Hispano HA-1112 (CIV)	G	Conflict in the vicinity of the Wethersfield glider launching site resolved by the pilots involved.	C
2010077	PA31 (CIV)	ASK21 (CIV)	G	Effectively a non-sighting by the ASK21 pilot and a late sighting by the PA31 pilot.	C
2010078	Vigilant (MIL)	PA28 (CIV)	G	The PA28 pilot flew close enough to cause the Vigilant pilot concern.	C
2010080	DR400+K13 (CIV)	PA28 (CIV)	G	Non-sighting by the PA28 pilot and a late sighting by the DR400 pilot.	C
2010085	Hawk T Mk1 (MIL)	Grob Tutor II (MIL)	G	Late sightings by the crews of both aircraft.	B
2010107	C150 (CIV)	PA46 (CIV)	G	Non-sighting by the PA46 pilot and a late sighting by the C150 pilot.	C
2010110	Harrier T12 (MIL)	PA28 (CIV)	G	Non-sighting by the PA28 pilot and a late sighting by the Harrier crew.	B
2010115	Hawk (A) Pair (MIL)	Hawk (B) Pair (MIL)	G	Conflict in the UKDLFS resolved by Hawk (A) leader.	B
2010130	Tornado GR4(A) (MIL)	Tornado GR4(B) (MIL)	G	1. Non-sightings by the crews of both aircraft. 2. The crew of Tornado (B) did not adhere to the deconfliction plan.	A

2010142	MD902 (CIV)	Untraced Small Unmanned Ac (N/K)	G	Conflict with an untraced UAS.	B
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- end -

AIRPROX REPORT No 2010033

Date/Time: 26 Apr 2010 1402Z

Position: 5746N 00313W (5½nm
FINAL RW23 Lossiemouth –
elev 41ft)

Airspace: Lossiemouth CMATZ (Class: G)

Reporting Ac Reporting Ac

Type: Tornado F3 Tornado GR4

Operator: HQ Air (Ops) HQ Air (Ops)

Alt/FL: 1000ft 1500ft↓
QFE (1017mb) QFE (1017mb)

Weather: VMC CLOC VMC CLOC

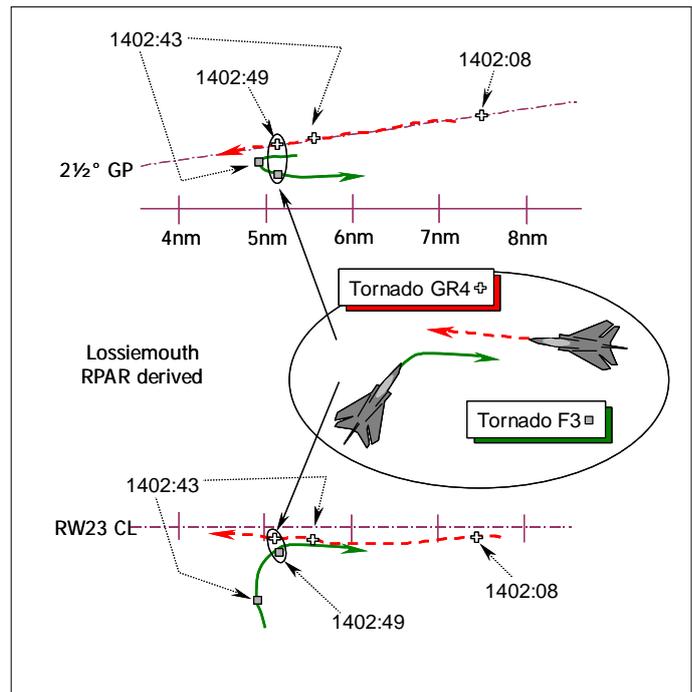
Visibility: 10km 20km

Reported Separation:

400ft V/500ft H >200ft H

Recorded Separation:

See UKAB Note (6)



BOTH PILOTS FILED

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE TORNADO F3 PILOT reports he was conducting a visual recovery [VFR] to RW23 at Lossiemouth from about 15nm SE of the aerodrome at 350kt. The SSR was selected to standby. Neither TCAS nor Mode S is fitted; his ac's AI radar was u/s.

Although requested, no TI was provided by the APPROACH (APP) controller about any other ac recovering before switching to TOWER (TWR) on 279.05MHz. Approaching the extended centreline to RW23 at 8nm, flying level at 1000ft QFE (1017mb), a standard 8nm instrument traffic call was broadcast by TWR, so he manoeuvred off of his westerly heading in an attempt to gain visual contact with the instrument traffic. Whilst in the turn he spotted a Tornado GR4 at close range – crossing from R – L about ½nm away – descending wings level on a 2½° glide-path instrument approach. To avoid the GR4 he initiated a descending RH break at about 3G. The GR4 passed about 500ft ahead with a 'high' Risk, some 400ft above his F3 after he had executed his avoiding action descent. Although the manoeuvre was not extreme he and his navigator believed that the 2 ac were on a collision course beforehand.

He added that having spoken to the GR4 pilot, the first TI received on their frequency was coincident with his own F3's avoiding action. He did not report the Airprox on RT, but subsequently contacted the ATC Supervisor by landline and reported it. His ac has a low-conspicuity, grey, air defence scheme but the white HISLs were on.

THE CAPTAIN OF THE TORNADO GR4 reports he was conducting a pilot-pilot check from the rear-seat as the PNF and had just taken off from Lossiemouth into the radar pattern for RW23 to conduct a single-engine [SE] profile PAR under IFR in VMC. Whilst in receipt of a TS from TALKDOWN, flying level at 1500ft QFE at 8nm from touchdown, heading 230° at 300kt, the controller advised them about a 'visual joiner passing down your left hand side'. Looking L he saw an F3 at 9 o'clock in a RH descending turn belly up to his ac. Assessing the range visually as about 500ft at 'pick up', he estimated it was closer during the break manoeuvre by the F3 to a minimum horizontal separation that could have been as close as 200ft with a 'very high' Risk of a collision. He stressed that there was no time to react and take control of his GR4 to evade the other ac between his first sighting and

the F3 passing astern. There was no indication from ATC about the conflict until it was too late and he assessed that if the F3 crew had not taken evasive action a mid-air collision would have been a certainty.

The assigned SSR code was selected with Mode C; neither TCAS nor Mode S is fitted. All external lights were 'on' with HISLs on white.

THE LOSSIEMOUTH APPROACH (APP) CONTROLLER reports he was mentor to a trainee controller. RW23 was the duty runway; SSR was u/s and the Watchman ASR was operating without any filters selected.

The F3 was the first ac on frequency for recovery and was handed over by Scottish MILITARY for a visual recovery back to Lossiemouth. The F3 crew was given initial vectors for descent and then own navigation for the aerodrome westbound, the crew reporting visual about 8nm E. At this point the radar traffic – the GR4 - was just turning base-leg some 15-18nm from touchdown on an extended pattern, and was not considered to be a factor to the F3's visual recovery when it was switched to TOWER. There was no further liaison or communication with the F3 crew by APP; the estimated horizontal separation was ½nm.

THE LOSSIEMOUTH TALKDOWN CONTROLLER reports he was mentor to a trainee controller on TALKDOWN operating on 244.375MHz. The GR4 was at about 6-7nm from touchdown for a PAR to RW23 at 1500ft Clutch QFE (1017mb) when a contact appeared on the PAR screen to the GR4's L at a similar height and range. At this point the trainee pointed out the conflicting traffic to DIRECTOR (DIR) and was told that it was inbound radar - visual traffic passing down his LH side. The trainee then relayed the same message to the GR4 crew with the confliction evident in 1 plane only. As the conflicting traffic – the F3 - got closer it was slightly ahead and then turned hard R to pass astern of the GR4 on PAR. He did not offer avoiding action and reduced the displayed range at this stage to concentrate on the approach; the confliction was no longer evident. The GR4 pilot stated on RT that he wanted to speak to the F3 pilot when he landed and the talk-down was continued. The minimum separation was estimated as 100ft vertically and ½nm horizontally; the SUPERVISOR was briefed on the incident afterwards.

THE LOSSIEMOUTH AERODROME CONTROLLER (ADC) reports that he was mentor to a trainee controller whilst operating TWR band boxed with GROUND. The workload was low on the TWR frequency, with only one ac which had aborted a take-off, however several ac were taxiing out for departure on the GROUND (GND) frequency. Just as 2 other ac were calling ready for departure, the F3 crew called inbound for a visual join and was given the joining details for RW23 with the circuit clear. Shortly afterwards an 8½mile call was received from TALKDOWN on radar traffic – the GR4 – for a low-approach and depart the cct. The F3 crew made no further transmissions until they reported positioning behind the radar traffic, which was now inside 4nm.

[UKAB Note (1): 4 flights were under service from the combined TWR/GND position, including the F3, when the Airprox occurred.]

THE LOSSIEMOUTH ATC SUPERVISOR reports that SSR was u/s all day so no Mode C readout was available from any ac. When the Airprox occurred he was in the VCR due to the [expected] amount of traffic in the visual cct and the number of ac on recovery. Although not identified to him, he saw an ac orbit around the instrument traffic, which he believed was the F3 visual joiner.

When the visual cct traffic had eased, he returned to the ACR to be told by the DEPARTURES (DEPS) controller that the GR4 Captain might call when on the ground because he wasn't happy about his instrument approach. He then had a call from the F3 pilot who enquired about his visual recovery – specifically why he wasn't told about the instrument traffic when working with APP. He also stated that after he called TWR to join the visual cct he heard the broadcast 'Tornado 8 miles, low approach join'. After this he saw a GR4 on an instrument approach that was very close and he descended to avoid it.

The APP mentor said that when the F3 pilot advised that he was visual with the aerodrome they did not call the GR4 on PAR because they did not think it was a factor. He then spoke with the TALKDOWN mentor who said that they were informed by DIR that there was a visual joiner passing down the LH side of the instrument traffic. This was then relayed to the ac.

SATCO LOSSIEMOUTH comments that traffic information on the GR4 radar traffic was not passed to the F3 crew. At least 10nm track spacing existed between the F3 and GR4 when the F3 coasted out and APP perceived that as the F3 was expected to turn toward the IP it would not conflict with the following GR4. However, the F3 crew turned in a manner not consistent with the normal IP join expected by the APP controller, which would have been a continuing LH arc towards the IP.

No orders were in place regarding the controllers' responsibilities for a radar-visual or visual joiner. In the interim, it has been specified that visual joiners must be advised of radar traffic, and this acknowledged, before transfer to TOWER. Radar-visual joiners must be separated from instrument traffic until visual with it before transfer to TOWER. A Safety Survey [Completed 20 Aug 10] was conducted to review visual and radar-visual joining procedures.

HQ AIR BM ATM SAFETY MANAGEMENT reports that the point at which the F3 crew became visual with the airfield and transferred to the ADC's freq, the F3 was reported to be 8-10 miles S/SE of the aerodrome, with the GR4 to the N, at 13-5 track miles, positioning for a PAR to RW23. Although APP considered their workload to be low at the time of the occurrence, at the point at which the F3 crew reported visual with the aerodrome, APP appears busy conducting liaison on the landline.

[UKAB Note (2): At 14:00:08, the F3 crew advised, "*Lossie Approach [F3 C/S] is visual with the tower if no further traffic to effect?*" At the time of the transmission APP was liaising with TWR and DEPS to, "*call for releases*" because of the F3 that was, "*..south of the airfield at 10 miles just visual with the aerodrome now*". Without passing any further advice to the F3 crew, at 1400:22, APP instructed the F3 crew to, "[F3 C/S] *squawk standby to tower stud 2*", which was acknowledged.]

Whilst in the opinion of APP the F3's position was such that it would run well ahead of the GR4, given the F3 crew's requirement to position outside Lossiemouth town in accordance with the FOB, the track distance for both ac was actually relatively similar. Consequently, best practice suggests that APP should have warned the F3 crew of the presence of the GR4 positioning for PAR. Whilst APP's liaison/planning task might have distracted them from an effective assessment of the track distance, APP reports that they assessed the F3 would not affect the GR4's recovery.

[UKAB Note (3): At 1400:37, the F3 crew called TWR requesting to join. TWR responded 6sec later, "[F3 C/S] *Lossie Tower join runway 2-3, clutch Q-F-E 1-0-1-7 circuit clear*", the RW and QFE being read-back by the F3 crew. At 1401:50, TALKDOWN made the standard liaison call to TWR via the on-channel intercom, "*8 and a half miles [GR4 C/S] low approach and depart*". Some 10sec later TWR responded, "*say again*". A broadcast was made by the ADC on the TWR frequency at 1402:08, "*Tornado 8 miles low approach depart*", which would have been the first notification to cct traffic - the solitary F3 - of the presence of the inbound GR4 as instrument traffic. TALKDOWN made another call on intercom at 1402:17, "*7 miles [GR4 C/S] low approach depart*", which TWR immediately read-back, "*7 miles low approach depart roger TOWER*", but no further broadcast was made.]

The PAR replay shows that at 1402:39, the F3 began to paint in both azimuth and elevation and was quickly spotted by the PAR controller, with TI being sourced from DIR and passed to the GR4 crew.

[UKAB Note (4): At 1402:36, the GR4 crew was told by TALKDOWN they were, "*on glide path slightly left of centreline correcting slowly*", followed 7sec later at 1402:43 by a warning about the presence of the F3, "*5 and a half miles visual joiner on your left hand side*". The GR4 pilot reported visual 4sec later. At 1403:10, TALKDOWN made the standard clearance request to TWR via the on-channel intercom, "*4 miles [GR4 C/S] low approach*"; coincident with this message at 1403:11, the F3 crew reported to TWR, "*..[F3 C/S] is repositioning behind instrument traffic*". TWR issued the clearance to TALKDOWN for the GR4 at 1403:12, "[GR4 C/S] *cleared low approach deadside only 1*

on [the RW],” and added 3 sec later, “*circuit clear.*” TALKDOWN relayed a clearance to the GR4 crew at 3½ miles and after TOWER corrected the message to “1 in” at 1403:19, TALKDOWN transmitted “*..low approach deadside only 1 in* [the cct],” which the GR4 crew read-back omitting the cct state. The F3 crew then queried at 1403:21 with TWR, “*is there any other further instrument traffic to affect?*” after broadcasting “*Tornado 4 miles low approach deadside only*”, TOWER requested the F3’s “*..present position*”, which was reported at 1403:31, about 48sec after the occurrence as “*currently [5] 5 miles on the extended centre line*”. The RPAR recording shows the F3 cleared out to 7¾ nm from touchdown before turning in again towards Initials some 3nm astern of the GR4; the F3 crew reported “*initials*” at 1404:25.]

Whilst DIR could have been more proactive in telling TALKDOWN earlier of the potential presence of the F3 joining visually, this also would not have prevented the Airprox. At the point that the TI was passed to the GR4 crew, the F3 appears on the PAR replay to have reversed his left-hand turn, in keeping with the pilot’s report that he had become visual with the GR4 crew and manoeuvred to avoid what he perceived to be a conflict. Only 4sec elapsed between passing the TI to the GR4 crew and the pilot becoming visual, with a further 2sec to the CPA. This gave the PAR controller no time in which to react further to the situation and pass avoiding action to the GR4 crew.

The Supervisor reports that TWR was busy and the tape transcript broadly supports this assessment, although the only airborne ac on TWR’s frequency was the F3. [UKAB Note (5): the ADC himself reports the workload as low.] DSATCO Lossiemouth reports that ‘*..visual joining traffic often does not paint in primary [radar] once they have squawked standby and been transferred to TOWER.*’ Bearing in mind this potential weakness, best practice would suggest that as the Supervisor was in the VCR to oversee the busy departure and recovery wave, he should be visually scanning to attempt to identify the F3, to aid the ADC in his integration of this traffic with the GR4. Whilst, the Supervisor reports that he was visual with ‘*an aircraft [the F3] orbit[ing] around the instrument traffic*’, it is not clear at what point he became visual with it and no mention is made as to whether he brought this to the attention of the ADC. The absence of any information passed by the ADC about the GR4 to the F3 crew would suggest that the SUPERVISOR had not made TWR aware of the potential for conflict and indicate that the ADC had not spotted it themselves. Whilst the potential lack of radar data, as suggested by the Lossiemouth DSATCO, can be viewed as an aggravating factor in this occurrence, the lack of timely TI to the F3 crew about the GR4 indicates a breakdown of visual scan, situational awareness and CRM of both the ADC team and, critically, the SUPERVISOR. The ATC team fulfilled their duty in making the 8nm broadcast and expecting the VFR traffic to sequence themselves accordingly, best practice suggests that as much information as possible be given to the aircrew to facilitate their rejoin. The SUPERVISOR had positioned in the VCR to assist the ADC because of the reported amount of traffic in the cct and the number of departures, yet the available evidence suggests that they did not become aware of the potential for conflict until it was too late to resolve the situation. Given that the only 2 ac airborne at the time were the GR4 and the F3, it is contended that the SUPERVISOR had not developed his situational awareness sufficiently such that they could perceive this potential for conflict and as a result, the opportunity to pass TI to the F3 crew was lost.

This occurrence highlights the criticality of visual monitoring of all ac within the visual cct environment and the utility of the Highbrite VRD in aiding IFR/VFR integration. HQ Air BM ATM recommended that Lossiemouth ATC conduct a safety survey of visual joining procedures and IFR/VFR integration.

Subsequent to this Airprox Lossiemouth ATC initiated a review of visual joining procedures and IFR/VFR integration, which found that there was mixed understanding amongst ATC personnel and aircrew of visual joining procedures. It was recommended that more definitive guidance be placed within ATC and aircrew orders. As a result, a change of operating procedures proposal was raised, which has defined the visual and radar-visual approach procedures and provides clear instruction on the provision of TI by ATC to ac recovering visually.

UKAB Note (6): Analysis of the RPAR video recording suggests that at the minimum horizontal separation displayed was in the order of 300m at 1402:49, as the F3 turned R to pass astern of the GR4. Non-linear expansion of the azimuth display does not facilitate a more accurate assessment.

Vertical separation at the same point appears to have been no less than 500ft but the same caveat applies.

HQ AIR (OPS) comments that this Airprox may have been avoided if the F3 had been made aware of the radar traffic earlier. The situation was exacerbated by the pattern speed of the GR4 conducting a simulated SE approach which eroded the separation perceived by APP to be sufficient, APP did not call the GR4 on PAR because they did not think it was a factor, this was proven to be an incorrect assumption. Given the F3 crew's requirement to position outside Lossiemouth town in accordance with the FOB, the track distance for both ac was relatively similar and it is disappointing that this was not assimilated. Consequently, best practice suggests that APP should have warned the F3 crew of the presence of the GR4 positioning for PAR.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

The HQ Air Ops fast-jet pilot Member reiterated the Command's view that this Airprox might have been avoided if the F3 had been made aware of the GR4 instrument traffic earlier. He was concerned that despite the F3 crew's request for information about any other traffic on recovery – and he stressed that these were the only two ac on recovery in the vicinity – APP did not pass TI about the GR4. Controller Members concurred that APP had an opportunity to warn the F3 crew and the controller had misjudged the potential for the two ac to fly into close quarters. The F3 had seemed well ahead at the outset and was reportedly faster, but the ATM Safety Analysis report indicated the track distance for both ac was actually relatively similar when the requirement for the F3 to remain clear of Lossiemouth town to seaward was taken into account, albeit that the absence of search radar data here did not allow the ac's track made good to be analysed at all. Military controller Members affirmed that in a normal aerodrome environment the visual cct traffic joining through the IP should avoid traffic conducting an instrument approach – see Post meeting Note below. However, APP's omission to all intents suggested that there was no other ac on recovery. Moreover this perception would have been reinforced when the F3 crew switched to TWR and was advised by the ADC that the cct was clear. Thus the crew would have had no inkling of any other ac airborne in the vicinity at the time. Whilst clearly the ultimate responsibility was on the F3 crew to 'see and avoid' other traffic whilst flying their visual recovery, the ATM Safety Analysis report reinforced the Board's view that the passing of a warning by APP to the F3 crew about the GR4 positioning for PAR was 'best practice'. Other than seeing it for themselves, the first occasion the F3 crew would have been aware of another ac close by was when the ADC broadcast the standard 8nm call – that was actually transmitted by TWR when the GR4 was at 7½nm from touchdown and barely 35sec before the Airprox occurred.

Perception of range and hence whether ac are actually in conflict can be difficult for controllers just by visual observation from the VCR and here the F3 was visible according to the SUP's account, albeit that the ac had not been identified to him. The ATM Safety Analysis report is critical of the SUP for a lack of SA and for not giving additional support to the ADC team whilst in the VCR, but the Board did not concur with this view. Whether the poor radar coverage reported might also have affected the Highbrite VRD was unclear, but controller Members agreed with the Command's contention that the ADC might also have spotted the potential conflict earlier from the Highbrite suggesting a breakdown in the ADC's scan and SA. Moreover, the aborted take-off and traffic preparing to depart might have focused the mentor ADC's attention at the time. As it was, no information was forthcoming from ATC before the regular TWR broadcast. The Board agreed that a lack of TI about the inbound IFR GR4 was a fundamental element within the Cause of this Airprox.

Whilst executing their instrument approach, albeit under a TS, Members agreed that the GR4 crew would expect timely TI on any traffic that was likely to affect their approach and that the onus was on the F3 to avoid the instrument traffic. As it was the GR4 crew was not warned about the F3 by TALKDOWN until they were at 5½nm from touchdown, just as the Airprox occurred, when they were

advised about a “..visual joiner on your left hand side”. Thus the F3 was not acquired by the GR4 safety pilot in the rear seat until he saw it at 9 o'clock in a RH descending turn belly up to his ac some 500ft away already taking robust avoiding action. Therefore, in the Board's view, the GR4 crew was not able to affect the outcome and did not contribute to the Cause. The F3 pilot reports that when he heard the ADC's broadcast he started to manoeuvre off his westerly heading in an attempt to gain visual contact with the instrument traffic. It was whilst in the turn that he spotted the GR4 for the first time at about ½nm away crossing from R – L. It was clear that that this late sighting by the F3 crew was the other important element. Following a comprehensive debate the Board agreed that the lack of TI led to a late sighting by the F3 crew and that was the Cause of this Airprox.

Whereas the GR4 pilot estimated the horizontal separation could have been as close as 200ft within this encounter, the RPAR recording suggests the minimum horizontal separation was in the order of 300m as the F3 turned R to pass astern. Vertical separation was about 500ft at this point and in accord with that reported by the F3 pilot after he had executed his avoiding action descent, who was probably in a better position to judge the separation accurately. Although the F3 pilot reported that the Risk was 'high' and the GR4 pilot had reported there was no time to react and evade the other F3, it was clear to the pilot Members that the F3 pilot was already taking robust and effective action to resolve the conflict. Whilst some Members contended that safety had not been assured here, the majority of the Members concurred that the F3 pilot had seen the other ac in time and that his manoeuvre had been effective in removing the actual Risk of a collision.

Post meeting Note: Extract from AP3456 - The Circuit – The Join From the Initial Point.

...the IP should be approached at a height which will provide vertical clearance from radar approach traffic in that vicinity. Once the aircraft is positively established as running-in on the airfield's deadside, height and speed can be adjusted to arrive abeam the runway threshold at circuit height and at a suitable speed to commence the decelerating turn onto the downwind leg.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Lack of TI led to late sighting by the F3 crew.

Degree of Risk: C.

AIRPROX REPORT No 2010050

Date/Time: 9 May 2010 (Sunday) 1019Z

Position: 5212N 00015E (3½ nm
E of Cambridge - elev
47ft)

Airspace: London FIR (Class: G)

Reporting Ac Reported Ac

Type: Robinson R44 Untraced Model ac

Operator: Civ Trg Civ

Alt/FL: 850ft NK
QNH (1013mb)

Weather: VMC CLOC NK

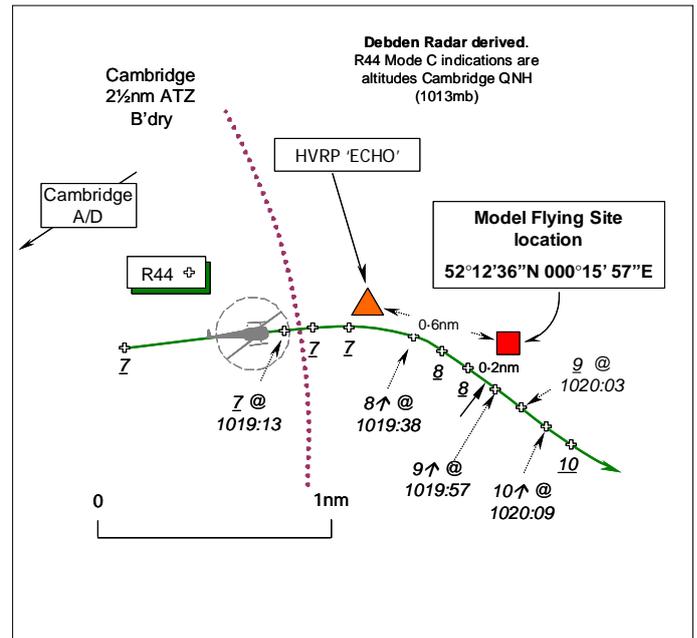
Visibility: 30km NK

Reported Separation:

Nil V/60m H NK

Recorded Separation:

Not recorded



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE ROBINSON R44 HELICOPTER PILOT, the P-i-C and flight instructor, reports he was supervising a type-rating student, who was executing a visual helicopter departure from Cambridge airport. He was in receipt of a BS from Cambridge APPROACH (APP) on 123.6MHz and a squawk of A7000 was selected with Mode C on. His helicopter has a dark blue livery and the HISL – situated on the tail boom – was on.

The normal VFR departure procedure is to remain at or below 700ft QFE until reaching the ATZ boundary, after which the helicopter can be climbed to the desired operating altitude. After his R44 had passed the ATZ boundary to the E they had commenced a climb at 80kt when he noticed a large model ac of about 6ft wingspan manoeuvring very close to his helicopter. The model ac was in a vertical climb whilst spinning and at the top of the climb it executed a number of flips/rolls before descending. When the model was at the top of its climb, he estimated that it was less than 200ft away at 10 o'clock, level with his own R44, which was climbing through about 850ft QFE [about 910ft QNH]. The position and altitude of the model was passed to APP. He thought the Airprox occurred at 1030UTC [UKAB Note (1): More probably just after 1019:38.]

Whilst avoiding action was not necessary it seems there are two possibilities:

- The model operator saw the helicopter and deliberately flew the model into close proximity.
- The helicopter was unsighted by the model operator.

In either case a Risk of collision cannot be ruled out in future encounters. This would almost certainly cause major damage to the helicopter, possibly catastrophic. He thought that a model flying club site is located almost directly underneath the eastern Helicopter VFRP (HVRP) known as point 'Echo'.

UKAB Note (2): Subsequent to enquiries through the BMFA, a model flying club was identified as operating in the vicinity of the Airprox. The owner provided a comprehensive response, complete with aerial photograph and maps of their Model Flying Site (MFS). The following is an extract of the main points noted in the owner's account.

THE OWNER OF THE MODEL FLYING CLUB reports that one model aeroplane pilot was present at the MFS at the reported Airprox time of 1030UTC [and when the Airprox occurred about 10min earlier], together with another person acting as a spotter for other ac. It is reported that no other ac, either military or civilian, was sighted whilst the model aeroplane was being flown at this time. Furthermore, no model 'runaways' occurred on this date. The R44 pilot reports the MFS as being located at HVRP 'Echo', which is not the case, the owner thought the MFS was 750m E of point 'Echo' [see UKAB Note (3)]. The position of the MFS, a grass mown area the size of a football pitch, is in the middle of a field at 52°12'36"N 000°15' 57"E - some 3.86 statute miles [3.3nm] E of Cambridge airport – and, he thought, 1.36 statute miles from the position of the Airprox originally reported by the R44 pilot – 2½nm E of Cambridge airport. Model ac flying only takes place around 250m E, W and N of the MFS.

The MFS has been established for 18 years; all club members are also members of the British Model Flying Association (BMFA) and comply with Club and BMFA rules. No free flight models are flown from this location and all models are under precise control at all times. They are 'always aware' of low ac in the vicinity and fly their models down to a low altitude or land them. No dangerous model flying is tolerated and safety is considered paramount within the club,

He concluded that another model ac, not that flown from this MFS, had been flying between the ATZ boundary and the VRP as none of the club members fly in this area. He vouched for the model ac pilot present at the MFS when the Airprox occurred as being a very responsible, safe and experienced model ac pilot, with a BMFA 'B' certificate.

Subsequent to this Airprox, he met with the Head of Training from the R44 pilot's company. A workable set of procedures (copy provided) was mutually agreed that were to be incorporated into the Company Flying Order Book and operations manuals.

UKAB Note (2): The UK AIP at EGSC AD 2.20 - LOCAL TRAFFIC REGULATIONS – para 5 Helicopter Operations states:

b. Helicopters are encouraged to join the circuit through one of three Helicopter Visual Reference Points (HVRP) north, east and south of the aerodrome. Request 'Join' one minute before HVRP and establish at 700 ft QFE.

HVRP E is noted as the plantation south of the A14 road at OS Grid TL 537 596 (52° 12' 46"N 000 15'E).

UKAB Note (3): The MFS is situated 0.8nm outside the ATZ boundary and HVRP Echo bears 290° (M) from the MFS at a range of 0.6nm – 1100m.

ATSI reports that the Airprox is reported to have occurred 2.5nm E of Cambridge Airport and just to the S of the designated HVRP Echo (OS Grid Ref: TL 537 596). HVRP Echo [the location of a tree plantation bisected by a country road] – is situated about 0.3nm to the E of the Cambridge ATZ boundary. This ATZ extends to a height of 2000ft above the aerodrome elevation of 47ft amsl and bounded by a circle 2½nm radius centred on the mid-point of RW05/23.

The Cambridge METAR for 1050Z was: 02010kt 330V060; >10km; BKN023 11/04 Q1013=.

The Robinson R44 helicopter departed VFR from Cambridge RW05 at 1017UTC on an easterly track, not above a height of 700ft QFE until crossing the boundary of the ATZ. At 1020:03 the R44 crew called Cambridge APP, "*Cambridge APPROACH [R44 C/S] request basic service*", and the controller responded, "[R44 C/S] *Cambridge APPROACH basic service Cambridge Q-N-H 1-0-1-3.*" This was acknowledged correctly by the R44 crew, "*QNH 1-0-1-3 helicopter [R44 C/S]*".

At 1020:41 the R44 pilot reported, "*Helicopter [R44 C/S] just to let you know again we've got..models operating up to about 1000 feet right hand..Echo*", which was acknowledged by APP.

Radar recordings show the helicopter departing the cct and leaving the ATZ to the E. No other radar returns are observed in the vicinity of the reported Airprox location. It is probable that the size of the model ac did not provide a sufficient reflective surface for an acceptable radar return.

Cambridge airport report that they were not aware of the MFS until the Airprox was reported. When questioned regarding the pilot's comment "*again we've got models*", Cambridge confirm that they had no prior knowledge of model ac operations from this site until the Airprox was reported and that they are now in the process of trying to establish a letter of agreement. Cambridge APP was providing the R44 with a BS, was not aware of the model ac activity and therefore unable to pass appropriate activity information.

MATS Pt1, Section 11, Page 4, Page 4, Para 3.1.1 states:

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.

UKAB Note (4): Analysis of the Debden Radar recording shows the R44 departing from Cambridge Airport to the E but the model is not shown at all. The Helicopter levels initially at 700ft Cambridge QNH (1013mb) and exits the ATZ boundary just after 1019:13, passing about 0.1nm – 185m - S abeam HVRP E before climbing to 800ft QNH and turning R onto a SE'ly course. Passing 0.2nm – 370m - SW abeam the MFS at the closest point, the R44 indicates a climb to 900ft at 1019:57. The helicopter was due S of the MFS when the R44 crew called Cambridge APP for a BS, the helicopter climbing further to an altitude of 1000ft as it cleared to the SE.

THE BMFA comments that the owner of the model-flying club remains adamant that there was no close conflict between a model aeroplane operated from his flying site and a full size helicopter on the day of the reported Airprox. Clearly from their location they are familiar with helicopters transiting nearby and it is difficult to see how a conclusion can be reached on this matter. The Club have already taken steps to improve communications with the operator of the R44 helicopter, so although they do not feel that the R44 pilot's report accurately reflects events on the day, they have taken the matter seriously. It would be unfortunate if this Airprox resulted in a negative impact on the club activities.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilot of the R44 and a model flying club, transcripts of the relevant RT frequencies, radar video recordings, a report from the appropriate ATC authority and comment from the BMFA.

In the Board's experience the investigation of Airprox that involve model ac is invariably complicated. It is often difficult to establish the location where the model was flown from and thus the identity of the model pilot, or obtain an account from the individual about what had occurred. Moreover, without the foregoing, determination of the actual size of the model involved was impossible. The vastly differing size of model ac therefore makes accurate judgement of their range – and hence the minimum separation and associated Risk - without prior knowledge of their actual size doubly difficult even to the experienced eye. The Board did not doubt the veracity of the R44 pilot's account but acknowledged that estimation of the actual separation that pertained was problematic and could not be verified independently from radar data.

The owner of the Model Flying Club that operates from the MFS situated 0.6nm to the SW of the HVRP refutes that the model ac seen by the reporting R44 helicopter pilot had flown from his club site or was operated by one of the club members. Nonetheless, analysis of the radar recording had shown the track of the R44 had passed some 370m SW the MFS at the closest point, just as the R44

climbed to an altitude of 900ft, the altitude the pilot reported he was climbing through when the Airprox occurred. Without doubt the helicopter flew past the location where model flying was reported to be taking place, yet the model ac operator to be on the ground at the MFS together with another person acting as a spotter for other ac did not see the R44 helicopter. Whilst the R44 is undoubtedly a small ac and quite difficult to see in the air, its dark colour-scheme silhouetted against the sky coupled with the noise of the engine and rotor should have made it readily conspicuous to observers on the ground. That the R44 was not seen at all was of great concern to the Members, but given that model ac flying only takes place from the MFS around 250m to the E, W and N, the Board had been advised, the model ac could have been flying to the N of the site, so it was feasible that those on the ground might have been looking the opposite way when the R44 flew by. This seemed to be the only potential explanation for this anomaly based on the information available.

Some Members contended that on the balance of probability the R44 pilot might well have seen the model flown from the MFS, but others were not of the same opinion. It seemed surprising to many Members that another model operator might have been flying his model between the ATZ boundary and the MFS, but the account by the owner suggested this. Without irrefutable evidence as to the identity of the actual model seen by the R44 pilot, Members believed that there was insufficient information available to come to any meaningful conclusions and in the end this was their unanimous view. The Board could only conclude therefore, rather unsatisfactorily, that this Airprox had resulted from a conflict with an untraced model ac. Furthermore, the Members agreed unanimously that there was insufficient information available upon which to base an accurate assessment of the actual Risk.

Despite the foregoing, however, the Board welcomed the positive stance taken by the MFS owner and the helicopter operator to effect a liaison to establish practical guidelines and workable procedures. Moreover, the Board was briefed that Cambridge ATC was also keen to be party to these arrangements and notified when model flying was taking place at the MFS so that pilots could be advised. It was envisaged that a letter of agreement would be drawn up between those involved to ensure the mutual safety of all concerned, which seemed to the Board to be eminently sensible.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Conflict with an untraced model ac.

Degree of Risk: D.

AIRPROX REPORT No 2010054

Date/Time: 24 May 2010 1530Z

Position: 5337N 00016E (14nm
ESE OTR)

Airspace: HMR7/LFIR (Class: G)

Reporting Ac Reported Ac

Type: AS365 Hawk

Operator: CAT HQ AIR (OPS)

Alt/FL: 1500ft 1300ft
(RPS 1010mb) (agl)

Weather: VMC CLNC VMC CLNC

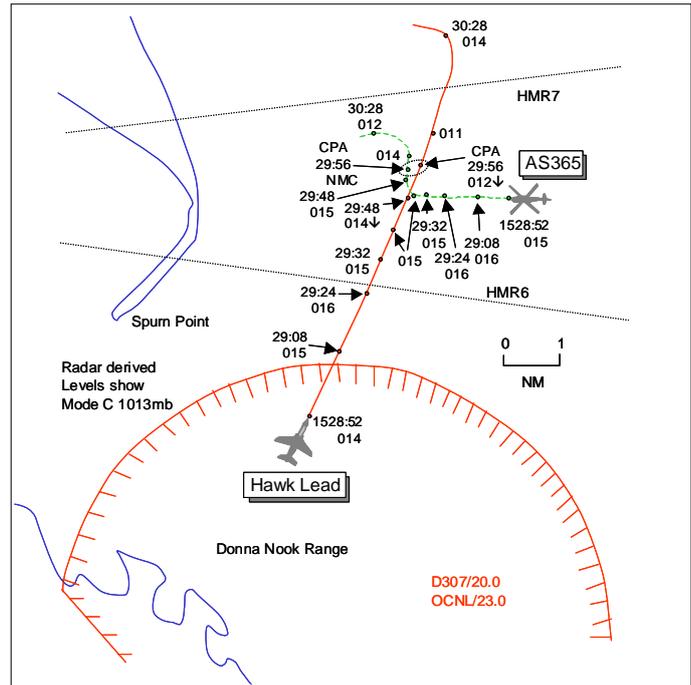
Visibility: >10km 20km

Reported Separation:

NR 500ft V/600ft H

Recorded Separation:

0-2nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE AS365 PILOT reports returning to Humberside from Amethyst A2D platform on HMR7 heading 265° at 1500ft Humber RPS 1010mb and 135kt, and in receipt of an Offshore DS (SSR) from Anglia Radar on 125-275MHz squawking 0234 with Mode C; TCAS was not fitted. The visibility was >10km in VMC and the ac was coloured red/white/blue with strobe, nav and searchlight all switched on. They were informed of activity in Donna Nook range of 2, possibly 3 ac; they set the range frequency on Box 2 to inform them of their position but before contact could be made Anglia informed them of possible conflicting traffic leaving the range. Flying into sun they saw this ac, a black Hawk, in their 10 o'clock range 2nm and closing, appearing to be level and at the same altitude. He immediately took avoiding action by turning N and descending 400ft but, owing to the AOB, visual contact was lost. At the same time they contacted Donna Nook range to advise that they were close to their outbound traffic. On a N'y track they became visual with a Hawk in their 3 o'clock below their level on a parallel track and then diverging. They re-established their course and height and made visual contact on a second Hawk which turned W'bound and climbed with no conflict. He assessed the risk as medium to high.

THE HAWK PILOT reports completing a training sortie in Donna Nook Lead range and initiating a 2-ship formation rejoin, and in receipt of a BS from Donna Primary squawking 7002 with Mode C. The visibility was 20km in VMC and the ac was coloured black with nose light and HISLs switched on. Heading 024° at 300kt and 1300ft QFE 1013mb his wingman had completed his safety checks and as they acknowledged they were told of helicopter traffic and to standby for further details. By the time the update on the helicopter was called they had already seen it 15° R of the nose and 1000m ahead about 200ft higher turning across his nose from R to L to roll out parallel to his heading, now in his 11 o'clock. He descended 300ft and maintained wings-level in order to remain visual with the helicopter, estimating they passed 500ft vertically and 600ft horizontally at the CPA. He rocked his wings as he passed the helicopter on its RHS to acknowledge the fact of his visual sighting. He assessed that there was no risk of collision.

THE ANGLIA RADAR CONTROLLER reports the AS365 lifted from Amethyst field climbing to altitude 1500ft inbound to Humberside and there was no traffic to affect. The flight was provided with an Offshore DS using SSR only. Two ac in Donna Nook range were observed orbiting at 1500ft so the AS365 crew were given a 'heads-up' as the helicopter would pass about 3-4nm N of Donna Nook; the crew acknowledged. As the AS365 approached the range he gave TI on the 2 ac at which point 1

of the ac turned N towards the helicopter and the pilot reported visual with the military ac. He asked the pilot if he was "happy to continue" and he replied, "affirm". The next radar sweep showed the AS365 turning hard R (90°) with the returns merging at similar levels. The AS365 Capt reported that he was, "...going to file on that one".

ATSI comments that the AS365 flight established communication with Anglia Radar (situated at Aberdeen) at 1521. The pilot reported airborne from the Amethyst inbound to Humberside, requesting 1500ft. The helicopter was identified and provided with an Offshore DS, SSR only; altitude 1500ft was approved.

Just over 2min later, Anglia Radar informed the pilot of the AS365, *"Just a heads up there's at least two aircraft in Donna Nook err might be three actually and all indicating er fifteen hundred feet at the moment doing the usual er up and down the coast so er keep a lookout that way."* The pilot reported copying the information. At the time, the helicopter was approximately 12nm ENE of Donna Nook, on a projected track that would pass about 1.5nm N of the Danger Area boundary.

At 1528:48, Anglia Radar contacted the AS365 flight, *"traffic in Donna Nook is er just er I was about to say maintaining quite a tight ????? about four miles south of Spurn but one's just er gone off towards you he's indicating thirteen hundred feet that's in your er ten o'clock about four miles."* The pilot commented, *"we're good VFR."* Anglia updated the TI at 1529:10, *"Okay he's tracking towards you now fourteen hundred feet if nothing sighted right twenty degrees report the heading."* The pilot responded, *"We are visual."* After the controller asked, *"are you happy to carry on"*, the pilot replied, *"Affirm."* Thereafter, the military traffic continued towards the AS365, resulting in the helicopter pilot taking avoiding action.

The AS365 pilot stated, in his subsequent filed report, that he had been inbound on HMR 7. By definition, HMRS have no lateral dimensions but in the Anglia Radar Area of Responsibility the vertical operational limits are from 1500ft amsl up to and including FL60. Inbound flights will normally plan to fly at 1500ft or 3000ft amsl. Under the MOU between Aberdeen ATC and the helicopter companies operating in the North Sea, the default FIS which will be provided, within surveillance coverage, is an Offshore DS. Signatory helicopters will automatically be provided with the appropriate default FIS and there is no need for a pilot to request the service.

The MATS Part 1, Section 1, Chapter 11, states the definition of a DS: 'A Deconfliction Service is a surveillance based ATS where, in addition to the provisions of a Basic Service, the controller provides specific surveillance derived traffic information and issues headings and/or levels aimed at achieving planned deconfliction minima, or for positioning and/or sequencing. However, the avoidance of other traffic is ultimately the pilot's responsibility'. Additionally: 'A controller shall provide traffic information, accompanied with a heading and/or level aimed at achieving a planned deconfliction minima against all observed aircraft in: Class F/G airspace, active TRAs, active MTAs. The deconfliction minima against uncoordinated traffic are: -

5nm laterally (subject to surveillance capability and CAA approval); or
3000ft vertically and, unless SSR Mode 3A indicates that the Mode C data has been verified, the surveillance returns, however presented, should not merge.

High controller workload or RT loading may reduce the ability of the controller to pass deconfliction advice and the timeliness of such information. Furthermore, unknown aircraft may make unpredictable or high-energy manoeuvres. Consequently, it is recognised that controllers cannot guarantee to achieve these deconfliction minima; however, they shall apply all reasonable endeavours'.

On this occasion, it was reported that the Anglia Radar workload was medium to high. The controller issued early TI about activity in Donna Nook and, subsequently, offered an avoiding turn to the pilot of the AS365. In the event, the pilot reported visual with the traffic and opted to continue with it in sight.

There is no LoA between Anglia Radar and Donna Nook. The Aberdeen MATS Part 2, with reference to the Donna Nook Danger Area, states 'The Range Controller is not providing an ATC

service to aircraft using the weapons ranges and coordination cannot be effected to assist in the resolution of traffic conflicts’.

THE DONNA NOOK RSO reports a pair of Hawks was booked traffic and had been on range for 20min prior to the incident. Both ac were requested to squawk 7002 (Danger Area conspicuity) on joining the range and were on Range Primary UHF frequency. The Hawk pair moved from the Southern cct into the Northern cct (closer to Spurn Head) at 1515 and then completed 4-5 patterns before Hawk 2 pilot reported downwind for a last pass before departing the range. As there was no conflicting traffic in the area he took no further action. As Hawk Lead pilot called ‘switches safe, departing N’ a helicopter flight called on VHF but, because of the overlapping transmissions, he misheard the c/s; however, he immediately informed Hawk Lead of the helicopter’s presence on the Heli-route and that he would obtain a height. He called the helicopter flight using the wrong c/s, however the pilot responded that he had a military ac flying directly towards his ac. He requested the helicopter’s height and then transmitted on UHF that 1 of the formation was flying directly at the helicopter. The helicopter pilot replied he was at 1500ft but that it was too late as the other ac had just missed him. He told Hawk Lead of this and was told that he had the helicopter visual and had taken avoiding action. This information was passed to the helicopter pilot who replied he too had taken avoiding action and because, “he was carrying passengers he would be filing”. He informed Hawk Lead of this before the formation left his frequency going enroute. He then called Humberside to ascertain the helicopter’s direction of travel and was told the helicopter’s correct c/s, that it was inbound and that the miss distance for the Airprox was very close. Anglia Radar then telephoned to ascertain the details of the range traffic. He opined that the first information about the helicopter’s presence had been the pilot’s initial call which coincided with the Hawks checking in with a ‘switches safe’ transmission, a mandatory call. He thought that there was not enough time to gain accurate position information from the helicopter flight and he had elected to notify the departing Hawks that it was in the area before interrogating the helicopter flight further.

HQ AIR ATM SAFETY MANAGEMENT reports the transmission from the AS365 pilot to Donna Nook at 1529:20 was co-incident with the transmission from Hawk Lead that they were, “departing to the N via Yankee.” [UKAB Note (1): At this point, the Claxby radar replay shows that the AS365 is approximately 15° R of the Hawk’s track at a range of 2.2nm, both ac showing FL016 (1500ft RPS 1010mb).] Approximately 5sec elapsed between the end of the Hawks Lead’s transmission and the beginning of the transmission at 1529:31 in which the RSO passed a warning to Hawk Lead on the AS365, “Hawk c/s roger the Barnsley 1009, the Humber 1010 one helicopter on the route just calling me now I’ll find out what he’s doing standby.” At this time, the relative bearing was similar, with approximately 1.5nm separation existing.

[UKAB Note(2): The RSO then asked the AS365 pilot to pass his details and was told that a military ac was pointing at them. The radar shows the AS365 is just passing through the Hawk’s 12 o’clock range 0.7nm both ac indicating FL015 (1400ft RPS 1010mb). The RSO then asked the AS365 pilot for his height which was given as 1500ft. Immediately afterwards at 1529:47 the RSO transmitted, “Helicopter’s at 1500ft on the route believed to be 12 o’clock to one of you;” the Hawk Lead replied, “Yeah, passing him now.” As the RSO starts his transmission the AS365 is seen to have executed a hard R turn rolling out on a N’ly heading at FL015 in the Hawks 11 o’clock range 0.3nm, the Hawk indicating FL014. The CPA occurs on the next sweep at 1529:56, the Hawk having overtaken the AS365 on its RHS, the AS365 showing NMC with the Hawk indicating FL011, separation 0.2nm. The Hawk levels at FL011 before then climbing up to FL014 and executing a L turn when 2.2nm to the NNE of the AS365, which is turning L through a heading of 260°, having descended to FL012.]

RSOs at AWRs operate without the aid of surveillance equipment. Consequently, their awareness of ac operating on the fringes of the AWR is wholly dependent upon the pilots of such ac making information calls to them, under the auspices of the Danger Area Activity Information Service (DAAIS). As a result of this limitation and the fact that ac operating within the area are unable to comply with Rule 17 (Rules of the Air and ATC Regulations, 1985), the Military AIP entry for EGD307 (Donna Nook) states that ‘pilots in the vicinity (of the range) are strongly advised to make use of a radar service’. Furthermore, whilst RSOs do not formally agree the provision of a type of service with aircrew using the ranges, in effect they provide a BS.

CAP 774 states that under a BS, 'if a controller considers that a definite risk of collision exists, a warning may be issued to the pilot'. In this case, the RSO recognised the c/s of the helicopter as being that of one of the North Sea ac that operated from Humberside airport. He quickly perceived the risk of collision with the Hawk formation departing the AWR to the N and passed this information to them as quickly as possible, before returning to the helicopter to ascertain further information. This further information, however, was obtained and passed at around the CPA and immediately after, thereby having no bearing on the occurrence.

From an ATM perspective, the RSO reacted quickly and correctly to what he perceived to be a risk of collision, under the terms of a BS within CAP774.

HQ AIR (OPS) comments that the AS365 was visual with the Hawk ac very early on and could have taken the DS suggested heading change to maximise separation, however he elected to continue on track until the separation margins were eroded beyond what he was prepared to accept. Unfortunately, his choice of turn direction for separation put him unsighted on the Hawk and on the same heading, this would have been an uncomfortable situation; maintaining track and adjusting height would have been far more effective at maximizing separation. The Hawk (on a BS) was nonetheless given TI on the helicopter and took avoiding action to achieve an acceptable separation. Greater separation would probably have been achieved were it not for the simultaneous transmissions of the AS365 and Hawk Lead.

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.

Although there had been a good exchange of information between Anglia and the AS365 flight, which gave the crew early warning of the Hawks presence on the AWR, a combination of the helicopter's planned track (3-4nm N of the range boundary) and the Hawk's rapid departure N'bound from the range led Members to agree that the time available to resolve the conflict was minimal. Anglia had passed updated TI at 1528:48, when the controller noticed Hawk Lead tracking N'ly, and had then immediately given a further updated TI and an avoiding action R turn of 20°; the Board noted that, although it did not affect the outcome, the controller did not use the term "avoiding action". One controller Member thought that Anglia, whilst providing an Offshore DS, was late in giving avoiding action and that it should have been passed during the first updated TI transmission when separation had already reduced to 4nm. Another Member believed that the service should have been limited owing to the helicopter's planned track passing less than 5nm from the Danger Area with known activity inside it as Anglia was endeavouring to provide Deconfliction minima. However, in the end Members agreed that owing to the short time period available Anglia, who was unaware of the Hawk pair's intentions, had discharged his responsibilities and when the AS365 crew reported that they were happy to carry on after sighting the Hawk, they then became responsible for maintaining their own separation from it. The AS365 crew had then become concerned about the Hawk Lead's flightpath and elected to turn hard R whilst they were trying to establish RT contact with Donna Nook. The RSO had done well in the limited time available and informed the Hawk Lead pilot that there was a helicopter on the HMR as the formation reported departing the range. Hawk Lead had seen the AS365 and had taken adequate visual separation on the helicopter as he passed clear to its R and below. The Hawk had become unsighted to the AS365 crew as they turned away until they re-sighted it passing on their RHS, understandably uncomfortable, as its proximity was closer than they expected. In the end Members agreed that all parties had acted appropriately during this rapidly unfolding evolution. This allowed the Board to conclude that the incident had been a conflict in the Class G airspace where the Hawk Lead's visual sighting and action had ensured that any risk of collision was removed. Although there is no compunction to do so, both flights could mitigate similar risks in future: the helicopter crew by adjusting their routeing and/or making an earlier call to the Range, and the Hawk crews by flying over or under the normal operating levels of the HMR.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Conflict in Class G airspace.

Degree of Risk: C.

AIRPROX REPORT No 2010057

Date/Time: 26 May 2010 1352Z

Position: 5025N 00458W (1½nm
SE of Newquay Cornwall
Airport - elev 390ft)

Airspace: Newquay ATZ (Class: G)

Reporting Ac Reported Ac

Type: DHC-8-311 Super Lynx

Operator: CAT MFT

Alt/FL: 1200ft↑ 1500ft
QNH (1009mb) QNH (1009mb)

Weather: VMC CLOC VMC CLOC

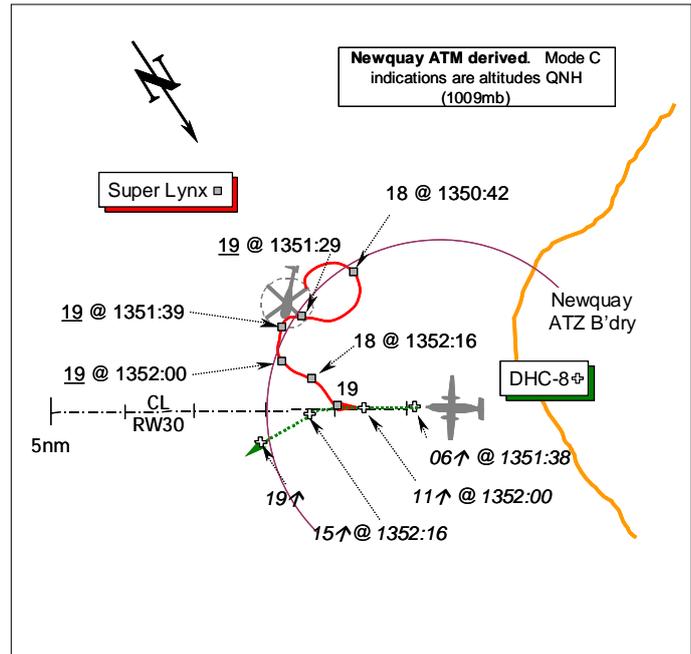
Visibility: 9km 5km

Reported Separation:

200ft V/500m H

Recorded Separation:

300ft V/0.5nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE DE HAVILLAND DHC8-311 PILOT reports he was departing from Newquay Airport bound for London/Gatwick under IFR and in receipt of an Aerodrome Control Service from Newquay TOWER on 134.375MHz. The assigned squawk of A1731 was selected with Mode C. Mode S and TCAS are fitted.

RW30 was in use with 2 helicopters in the LH cct, but on taxiing-out he thought [actually at start-up], he requested RW12, subject to traffic, to facilitate a more expeditious departure to the E. This was approved by ATC and they lined up for take-off on RW12. Shortly before departure they heard TOWER advising one of the helicopter pilots on RT that their DHC-8 would be departing from RW12 and to remain clear of the climb-out for RW12. However, after take-off, following a TCAS TA whilst executing their initial climb through 1000ft aal at 150kt he became very concerned about the proximity of this cct traffic. He asked his 1st Officer – the PF - if he could see the cct traffic, who said it was descending towards them in a turn onto the FAT for RW30 – to starboard. To avoid the cct traffic he instructed his 1st Officer to make an early L turn off the RW heading of 120° on track DAWLY, the standard noise abatement procedure being to climb straight ahead until passing 2400ft QNH. Advising TOWER whilst in the L turn that they had received a TCAS 'ADJUST VERTICAL SPEED' RA, they continued the turn whilst complying with the demanded RA. He added that the cockpit workload was high at the time, while setting climb power. The Lynx helicopter passed about 500m away 200ft above his ac with a 'high' risk of collision and he reported the Airprox after landing.

His ac has a purple and white livery; the HISLs and high-intensity landing lights were all on.

THE AGUSTA WESTLAND SUPERLYNX CAPTAIN reports that he was flying a VFR instructional sortie in the LH cct to the RW in use - RW30 - whilst operating at 70kt and in communication with Newquay TOWER on 134.375MHz. A squawk of A1746 was selected with Mode C.

TOWER instructed him to hold downwind L in a RH orbit, to enable the departure of a DHC-8, which had been cleared by ATC to depart from RW12. Once the DHC-8 was airborne, TOWER asked if they were visual with the departing ac, which they had been throughout the airliner's take-off, climb-out and departure. After reporting to TOWER they were visual with the DHC-8, the controller cleared them to continue with their approach to RW30, behind the departing DHC-8. Once the DHC-8

climbed through his helicopter's level, he thought, he resumed his L base-leg to RW30 behind the departing DHC-8. No avoiding action was necessary; they had been in a RH holding pattern with minimum horizontal separation of 2½nm when at the same altitude and the Risk was 'none'. He was informed of the Airprox by Newquay ATC on the telephone after landing. The helicopter has a grey and red colour-scheme and the HISLs were on.

THE NEWQUAY CORNWALL AERODROME CONTROLLER (ADC) reports that for expedition the DHC-8 was departing from RW12 while the Lynx helicopter that had been circuiting to the runway in use - RW30 - was held in a RH orbit on the LH downwind leg to RW30. The Lynx crew, who reported visual with the departing DHC-8, was told to 'give way' and to report final for RW30. This instruction was read-back correctly by the Lynx pilot but his subsequent flight-path was too close to the departing DHC-8, resulting in a TCAS RA and the DHC-8 crew requesting an early L turn, which was approved.

The Newquay 1350 METAR was: 010°/4kt; 9km nil Wx; Cloud SCT at 1700ft; 14/10; QNH 1009mb.

ATSI reports that the Airprox occurred between the DHC-8 and the Lynx helicopter, in Class G airspace, 1.75nm SE of Newquay within the Newquay ATZ. The ATZ extends to a height of 2000ft above the airport elevation of 390ft and is bounded by a circle 2½nm radius centred on the mid-point of RW12/30.

The Lynx crew was carrying out a training exercise in the cct and RW30 was the runway in use. The DHC-8 was a scheduled flight departing from Newquay to Gatwick. Both ac were in receipt of an Aerodrome Control Service from Newquay TOWER on 134.375MHz. Ground Movement Control (GMC) was not manned.

The ADC assessed his workload as moderate. All equipment was reported as being serviceable and the ADC had access to VDF and an ATM. The Newquay MATS Pt2, Page 112, states:

An ATM is installed in the VCR in order to achieve maximum runway utilization and aerodrome capacity. The ATM is slaved off the primary radar system and is overlaid with SSR data. The ATM is aligned in such a way that the ADC can view inbound/outbound traffic in the same relative position as the view from the VCR window. The normal range selected is 15nm although is variable by selection.

The information indicated can be used in the following circumstances:

- To determine the landing order, spacing and distance from touchdown of arriving ac;
- To enable the controller to confirm that the initial track of a departing ac conforms with the clearance issued;
- To assist in applying longitudinal separation for departing ac.
- To provide information to ac on the position of other aircraft in the circuit or undertaking an instrument approach.

The DHC-8 crew had requested RW12 for departure and would be expected to comply with the Newquay noise abatement procedures as specified in the UK AIP at AD 2-EGHQ-1-6: Runway 12 departures: 'Aircraft 5700kg or more: Climb straight ahead until above 2000ft aal'.

MATS Pt1, Section 2, chapter 1, page 1, Para 2.1 states:

Aerodrome Control is responsible for issuing information and instructions to aircraft under its control to achieve a safe, orderly and expeditious flow of air traffic and to assist pilots in preventing collisions between:

- a) aircraft flying in, and in the vicinity of, the ATZ;
- b) aircraft taking-off and landing;
- c) aircraft moving on the apron;

d) aircraft and vehicles, obstructions and other aircraft on the manoeuvring area.

Prior to the incident a Jet Ranger helicopter had been manoeuvring on the N side of the airfield, however, due to the impending Lynx departure and in order to conform with the cct direction, the Jet Ranger had been instructed to join the LH cct for RW30.

At 1341:12 the Lynx pilot called TOWER, “[C/S] for left hand circuit request 5 hundred feet for..autorotation to the northern.” Tower replied, “[C/S] that’s approved into the left hand circuit clear for take off wind 3-3-0/7.”

At 1341:45 the DHC-8 crew transmitted, “TOWER good afternoon...[C/S]...we’ve got information whisky 1-0-0-9 request start and if possible a departure off runway 1-2.” TOWER responded, “...start approved...I think 1-2 should be available for you”, which was acknowledged by the DHC-8 crew. Opposite runway departures are approved at Newquay, provided they can be accommodated safely within the prevailing traffic conditions. At 1345:04, the DHC-8 crew was cleared by the TOWER to taxi to the holding point for RW12. At this point the Lynx was on final and cleared for an autorotation landing for RW30. Following the DHC-8 crew’s request, at 1345:54, the ADC issued their departure clearance, “[C/S] after departure a left turnout on track DAWLY climb flight level 1-7-0 and squawk 1-7-3-1.” This was correctly read back by the DHC-8 pilot

At 1346:30 the Lynx crew was cleared for, “..take off into the left hand circuit [for RW30]...”. The Jet Ranger crew was then instructed, “...either pull away from the circuit the Lynx is joining the left hand downwind shortly again or overfly the runway.” The Jet Ranger pilot elected to position onto final for RW30 and overfly the runway and was instructed to report final with a Twin Otter departing ahead. Two pilots transmitted simultaneously at 1347:28 ready for departure; the DHC-8 crew was instructed to hold position whilst a Twin Otter was cleared for take-off on RW30. The Jet Ranger turned onto final approach for RW30 as the Twin Otter departed ahead and the Lynx turned LH downwind for RW30. The ADC’s plan was to orbit both helicopters in the downwind position before allowing the DHC-8 to depart from RW12. At 1349:23 the Lynx crew, now late downwind, was instructed to, “..orbit right at the end of the downwind leg”, which was acknowledged as, “orbit right [C/S].” After over flying the runway the Jet Ranger pilot requested, “[C/S] to turn left and tight in”, but the ADC missed this call and was asked to say again. The Jet Ranger pilot repeated his request to turn downwind, whereupon the ADC responded, “[C/S] approved hold at the..crosswind leg in a left hand or..right hand orbit got a aircraft...orbiting right at the end of the downwind leg,” The Jet Ranger pilot replied, “Roger copy looking.”

At 1350:16 the DHC-8 crew was instructed to, “..line up runway...1-2.” The controller stated that he was satisfied that the two helicopters orbiting in the LH cct to the S would not affect the DHC-8 departing from RW12 to the N and accordingly he cleared the DHC-8 crew for take-off - “[C/S] left turnout clear for take off wind 3-2-0/5.” The DHC-8 crew read-back their clearance at 1350:40, “with a left turnout clear for take off [C/S].” At 1351:10, with the DHC-8 rolling from RW12 the Lynx crew, having completed one orbit asked, “[C/S] further right hand orbit downwind?” Endeavouring to expedite the cct, the ADC stated rather than give the Lynx pilot a further RH orbit of 2min, he was asked, “..are you visual with the Dash 8 rolling to climb out 1-2?” The Lynx pilot replied, “Yeah got it visual.” TOWER then instructed the Lynx pilot, at 1351:20, “roger then give way to the Dash 8 and report final runway..3-0.” The Lynx crew read-back, “give way to the Dash 8 and report final runway 3-0 [C/S].” The controller believed that the Lynx pilot, an experienced instructor, sounded confident and the controller was reassured that the Lynx would position safely to ensure the DHC-8 passed well ahead. At 1351:39, the radar recording shows the Lynx late downwind and beginning a L turn, indicating an altitude of 1900ft, with the DHC-8 passing an altitude of 600ft. The ADC was monitoring the traffic both visually and on the ATM. The controller said that he then became concerned about the position of the Lynx and considered TI was now appropriate. At 1352:00, before the controller was able to pass TI, the DHC-8 pilot transmitted, using an incorrect C/S, “.. request an early tu-left turn due traffic.” This was approved by the ADC, who repeated the incorrect C/S, “..that’s approved early left turn to approach now 1-3-3-4 bye bye.” At this point the radar recording shows the outbound DHC-8 on the centreline indicating 1100ft ALT, with the Lynx indicating 1900ft ALT on L base for RW30, in the DHC-8’s 12:30 position at a range of 1.3nm, converging. Then, at 1352:16,

the radar recording shows the DHC-8 commencing a L turn to the E indicating 1500ft ALT, with the Lynx 0.5nm S of the centreline indicating 1800ft ALT at the CPA. It was noted that the DHC-8 pilot's use of the wrong callsign was probably a slip due to the urgency of the transmission and this was repeated by TOWER. The DHC-8 was transferred to the radar frequency immediately after the L turn was approved and before the Lynx had passed abeam. Because the DHC-8 was no longer following noise abatement the ADC considered it important to transfer the flight early so that the APR could deal with the non-standard turn. This was co-ordinated with the APR, the ADC being satisfied at this stage that the Lynx would pass S of the DHC-8.

The ADC said that traffic levels and workload had increased steadily just before the Airprox with a number of vehicle movements on the airfield and across the runway, together with other ac requesting start and taxi. In addition there seemed to have been an issue with a vehicle holding on the taxiway that the controller explained was due to work in progress and had since been resolved. It was noted that the controller made a couple of minor slips in the RT transmission that were corrected, but may have been an indication of the increased workload. The controller stated that he was comfortable and confident with the levels of traffic and whilst he had given some thought to opening GMC, did not consider it necessary at the time

The ADC was asked whether he would have allowed the Lynx to continue in the right hand orbit, had the pilot not mentioned a further orbit and he said that he would have allowed the Lynx to orbit, but when prompted was trying to be helpful and expeditious. Rather than let the Lynx carry out another 2min orbit, the controller had decided to change the plan and was confident that the Lynx would position appropriately. Reflecting on preventing the situation happening in the future, the ADC opined that he would think twice before changing a plan allowing traffic to continue downwind in such circumstances and would probably not use the term 'give-way'.

The ADC was comfortable and confident with the traffic workload and situation. There were no distractions and the controller was able to monitor the cct traffic both visually and on the ATM. There were only 2 helicopters in the visual cct but his workload increased steadily due to ground activity. Nevertheless, the controller considered traffic levels well within his ability to provide an appropriate level of service and did not consider that opening GMC was appropriate at that point. The DHC-8 crew requested a departure from RW12, with RW30 in use. This was approved and accepted practice at Newquay, provided it can be accommodated safely within the prevailing traffic conditions and with only 2 helicopters in the cct this was a reasonable plan. The controller instructed the two helicopter crews to orbit in the visual cct and determined that separation was assured, with the DHC-8 departing safely away from the helicopters and then turning L to the N. At this point the controller did not consider that TI was required, but accepted that if passed, may have increased the crews' situational awareness of the general traffic situation. Once the DHC-8 was rolling from RW12, the Lynx pilot's transmission, "[C/S] *further right hand orbit downwind?*" This prompted the ADC to reassess the traffic situation and resulted in the controller changing his plan. The Lynx crew reported the departing DHC-8 in sight and was instructed to give-way to the DHC-8, then report final. The dynamics of the situation had now changed. The controller had given approval for the Lynx to continue to final approach and give-way to the DHC-8. The controller recognised that passing TI to the DHC-8 was appropriate, but intended to wait until the ac was safely airborne. As the Lynx started to turn onto base-leg the ADC became concerned and was about to issue TI when the DHC-8 crew, having observed the Lynx closing from the R, became concerned about the safety of their ac and requested a L turn. This L turn was immediately approved, but did not conform with the standard noise abatement procedure. The controller, satisfied at this stage that the Lynx would pass to the S of the DHC-8, immediately transferred the DHC-8 to the APR so that he could deal with the non-standard turn. The Lynx passed 0.5nm S of the DHC-8 before positioning onto final approach.

Having established a safe and reasoned plan, the ADC then removed the restriction placed on the Lynx holding downwind. This late change in plan was not sufficient to allow for timely and appropriate TI to be passed to the DHC-8 crew and resulted in a much reduced level of separation. As a consequence the crew of the DHC-8 became concerned about the safety of their ac.

The controller did not fulfil his responsibility for issuing information and instructions to the respective flights in order to achieve a safe, orderly and expeditious flow of air traffic and to assist pilots in preventing collisions between:

- a) aircraft flying in, and in the vicinity of, the ATZ;
- b) aircraft taking-off and landing.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

The use of the opposite runway for departures when ac are circuiting to the RW in use can cause significant problems and requires additional positive steps by ATC to ensure that all the pilots concerned know what is happening. Here it was evident from ATSI's comprehensive report that the ADC was permitted by local procedures to allow departures from the opposite RW if they could be accommodated safely. Moreover the controller had a sound plan to deal with the two helicopters operating VFR in the visual cct to RW30, whilst still allowing the IFR DHC-8 to depart expeditiously from RW12. By placing the two helicopters in orbits on the downwind leg the ADC effectively removed any potential for a conflict with the DHC-8, until the point that he allowed the Lynx to leave the orbit too early without telling the departing DHC-8 crew what was happening. It was clear to Members that the Lynx crew was entirely cognisant of the presence of the DHC-8 and had kept track of it throughout its take-off and departure. Moreover, the ADC had confirmed this before he instructed the Lynx crew to *"..give way to the Dash 8 and report final...3-0"*, which the Lynx crew read-back. Whilst it was evident from his account that the DHC-8 crew heard some of these exchanges too, no TI was actually transmitted to them about the helicopter turning in towards final for RW30. CAT pilot Members understood why the DHC-8 Captain was concerned especially when a TCAS RA was subsequently triggered. A pilot Member suggested that the Lynx crew should have been more aware of the impact they could have on the departing IFR flight and whilst they were undoubtedly 'giving way', the perceived proximity of their helicopter without prior notification caused the DHC-8 pilot to take evasive action by turning L off the RW heading early. It may be that the DHC-8 Captain had assessed the separation from his TCAS display – he reported the helicopter was only 500m away – whereas the radar recording shows the Lynx at twice that range and no closer than 0.5nm at the CPA. In the Board's view, the VFR Lynx pilot was plainly 'giving way' to the IFR departure but without any visual separation criteria specified between IFR CAT ac and VFR flights, once they have been informed about the other ac, it is the VFR pilot's responsibility to afford appropriate separation. CAT pilot Members stressed that the DHC-8 crew has no option but to obey TCAS RA commands, which would undoubtedly have influenced the Captains views about raising a report, and the importance of affording TCAS equipped ac as wider berth as feasible. The helicopter pilot Member considered the separation here was entirely reasonable. Nevertheless, the Lynx Captain might have been more considerate over his positioning and this Airprox illustrated that allowing your ac's flight vector to sweep through the other ac's projected flight path will routinely result in a TCAS RA.

Notwithstanding the higher workload during this busy stage of the flight at take-off, a helicopter pilot Member thought that the two-pilot DHC-8 crew should have had sufficient SA from the RT exchange between TOWER and the Lynx crew to realise what was happening. Nevertheless, CAT pilot Members agreed that the key was the absence of TI from the ADC to the DHC-8 crew telling them that the Lynx crew had their ac in sight throughout and was remaining clear. Some Members suggested that it would have been preferable if TOWER had given TI before the take-off clearance was issued, then the DHC-8 crew could have made up their own mind before they initiated their take-off roll. Although it was plain to the Members that the ADC was trying to expedite matters with the best of intentions, in the absence of TI the DHC-8 crew was concerned by the proximity of the Super Lynx, which the Board concluded was the Cause of this Airprox. Nevertheless, with the separation evinced by the radar recording it was clear that the Lynx crew was indeed giving-way to the DHC-8

and, as they had the airliner insight throughout, the Members agreed unanimously that no Risk of a collision had existed in these circumstances.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: In the absence of TI, the DHC-8 crew was concerned by the proximity of the Super Lynx.

Degree of Risk: C.

AIRPROX REPORT No 2010058

Date/Time: 30 May 2010 1521Z (Sunday)

Position: 5111N 00102W (O/H Lasham
- elev 618ft)

Airspace: LFIR (Class: G)

Reporting Ac Reported Ac

Type: ASK13 PA28

Operator: Civ Club Civ Pte

Alt/FL: 1500ft↑ 2500ft
(QFE) (N/K)

Weather: VMC CLBC VMC CLBC

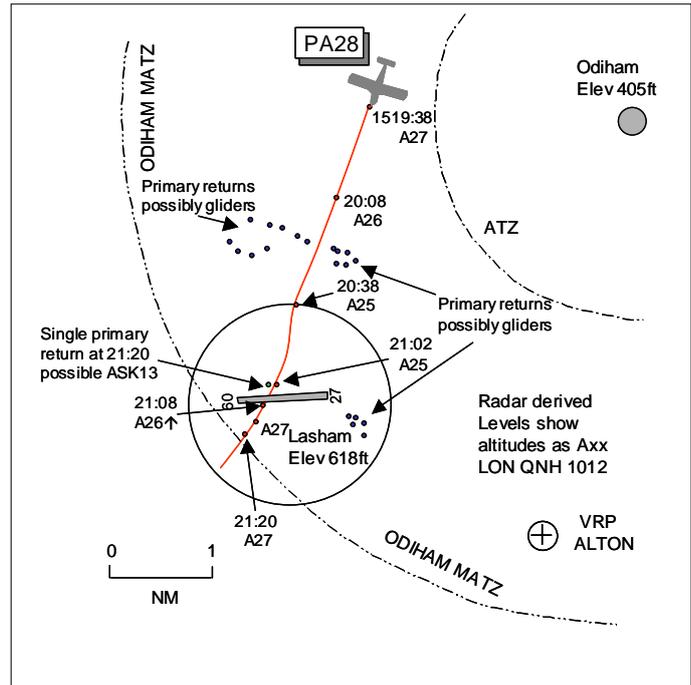
Visibility: 50km 20km

Reported Separation:

200-300ft V/Nil H Not seen

Recorded Separation:

NR



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE ASK13 PILOT reports that during the final phase of a winch launch in a strong crosswind with a pupil under instruction, the winch power was cut. Heading 270° at 60kt the pupil reacted slowly so he took control to lower the nose and ensure normal flying attitude and speed; he estimated his height as passing 1300-1400ft agl. At the same time he saw an ac, a single-engine type, coloured white/blue, pass directly O/H flying to the S with 200-300ft vertical separation. At the time the visibility was 50km flying 2000ft below cloud in VMC and his ac was coloured red/white. He assessed the risk as very high had the winch launch not been terminated.

THE LASHAM WINCH OPERATOR reports launching was taking place to the W alongside RW27 with a surface wind about 290° at 15kt and excellent visibility and about 5000ft cloudbase. He launched the ASK13 but when it was towards the top of its launch he noticed a single-engine low-wing ac approaching from the N (his LHS) apparently on a collision course. He immediately terminated the launch and the light ac, a single-engine low-wing type coloured white/blue, passed just over the ASK13 by about 200ft with no horizontal separation. He believed that there was a good chance of a collision if he hadn't chopped the winch power.

THE PA28 PILOT reports en-route to France VFR and in receipt of a BS from Farnborough on 125.25MHz squawking an assigned code with Modes S and C. The visibility was 20km in VMC and the ac was coloured white/maroon with nav, anti-collision and strobe lights all switched on. En-route to KATHY (IOW) he passed through the Odiham MATZ having received clearance from Farnborough, tracking W of the Odiham ATZ but through the Lasham O/H. He was informed that gliding was taking place at Lasham and he informed Farnborough that he would keep a good lookout. Heading 205° at 110kt and 2500ft QNH he saw 3-4 gliders about 5km distant all circling and climbing although none were in his flightpath so he judged the situation to be safe. The gliders passed to his L and R with 300ft vertical separation and 1000m lateral separation. He also saw a glider tug ac take-off on a W'ly direction but about 2000ft below. Later he heard the tug pilot call Farnborough stating that a light ac had passed through the Lasham O/H. In future, he will route around gliding sites, which he did on the return trip.

THE FARNBOROUGH LARS W CONTROLLER reports operating bandboxed with Approach with high traffic loading although there was no Approach traffic on frequency. The PA28 flight called and was given a BS and, at his request, Odiham MATZ penetration was given; he thought he informed

the pilot of gliding at Odiham and Lasham. The ac continued en-route and he thought he may have further re-iterated caution regarding gliding at Odiham and Lasham. Some time later a glider tug pilot called on frequency requesting details of an ac that may have flown close to Lasham but at the time he was unable to confirm or provide any further details on the frequency.

ATSI comments that the Airprox is reported to have occurred overhead Lasham Airfield at approximately 1521 (UTC). The PA28 was on a VFR flight from White Waltham to Cherbourg and the glider was in the process of being cable launched from Lasham airfield. The Farnborough LARS(W) controller was operating combined Approach and LARS(W) positions and reports that there was no approach traffic on frequency, but assessed that the traffic loading on LARS(W) was high. ATSI had access to written reports and radar recordings. Transcription of the RT was not possible due to tape damage caused by a faulty recorder, which has since been replaced. Farnborough had access to the RT recording prior to this damage occurring and in the absence of RT transcription, the timings and speech from the Farnborough unit report have been used.

METAR EGLF 301520Z 30014G26KT CAVOK 18/03 Q1012=

The Farnborough Manual of Air Traffic Services (MATS) Part 2 (17/11/09), Memorandum of Understanding, between RAF Odiham and Farnborough ATC, Page ANX-31, paragraph 3.9, MATZ Crossing Aircraft, states: 'All military aircraft require clearance to transit Odiham MATZ, even when under the control of Farnborough. Civilian aircraft are to be instructed by Farnborough to avoid the Odiham ATZ (2nm and 2000ft Odiham QFE/2500ft Farnborough QNH) unless otherwise cleared by Odiham ATC.'

At 1511:10 the PA28 pilot called 2nm W of WOD requesting a BS and penetration of the Odiham MATZ. The controller responded and cleared the PA28 flight to transit Odiham MATZ. The PA28 flight was issued with a squawk of 0430 and provided with the QNH. The PA28 pilot was also issued with a caution regarding gliding activity at both Odiham and Lasham airfields, which the PA28 pilot acknowledged. At 1517:29 the controller again issued a caution regarding gliders at Odiham and Lasham airfields and the pilot again acknowledged this. The radar recording shows a number of intermittent contacts in the area and at 1521:09 shows the PA28 on a SW'ly track, passing close to Lasham airfield, displaying a squawk 0430 and Mode C reporting altitude 2600ft.

The PA28 was informed about the gliding activity at Lasham in accordance with the Farnborough MATS Part 2 (17/11/09), Page APR-19, paragraph 6, which states: 'Aircraft on a LARS track that is on own navigation may continue over Lasham at the pilot's own risk. Best practice would be to warn the pilot'.

The PA28 was in receipt of a BS from Farnborough LARS(W). CAP493, MATS Part 1 (11/03/10), Section 1, Chapter 11, Page 4, Para 3.1.1 states: '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.'

UKAB Note (1): The Odiham MATZ was not active.

UKAB Note (2): The UK AIP at ENR 5-5-1-3 promulgates Lasham as a Glider Launching Site centred on 511112N 0010155W where aerotow launches take place and winch launches may be encountered up to 3000ft agl during daylight hours, site elevation 618ft amsl.

UKAB Note (3): The radar recording does not capture the Airprox. The PA28 is seen at 1519:38 3nm NNE of Lasham tracking 200° and indicating altitude 2700ft London QNH 1012mb. The PA28 continues on a steady track towards Lasham passing close to intermittent primary returns, believed to be gliders, 1.5nm to the N and NE of the glider site. At 1520:38, as the PA28 reaches a position 1nm N of Lasham, its Mode C indicates the ac level at 2500ft QNH and a slight L turn onto a more S'ly heading is then observed. Twenty four seconds later at 1521:02 the PA28 is again tracking 200° and

is just about to pass O/H RW27 at altitude 2500ft. The next sweep 6sec later at 1521:08 shows the PA28 just S of the RW having commenced a climb, passing 2600ft QNH, before leveling at 2700ft QNH on the next sweep. Six seconds later a single primary only return appears, which might possibly be the ASK13, just N of RW27 close to the PA28's radar track history.

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.

Members were disappointed that the PA28 pilot had chosen to fly through the Lasham O/H; the ac's passage at 2500ft QNH (approximately 1900ft aal) is clearly shown on the recorded radar. This had placed the ac well below the promulgated winch cable release height (3000ft agl) thereby exposing the transiting ac to the attendant risk of a rapidly climbing glider, whose pilot has a poor field view, and the launch cable. Lasham is clearly marked on UK 1:500000 and 1:250000 charts as a glider launching site with a maximum altitude of 3700ft amsl. Also, there is a promulgated frequency shown for Lasham where information about gliding activity can be obtained. An experienced gliding Member opined that Lasham can, and does, have multiple launches taking place at times which added extra potential risks to transiting traffic. Best practice is to plan a route to avoid glider sites by a wide margin. The PA28 pilot's flightpath had placed his ac into conflict with the subject ASK13 glider, which he did not see, which the Board agreed had caused the Airprox.

It was noted that the PA28 pilot was 'cleared' by Farnborough to transit the Odiham MATZ whilst under a BS, which one Member thought might have given its pilot the impression that he was getting a better level of service than he actually was. That said, LARS(W) had twice issued a warning to the PA28 pilot with respect to Lasham and Odiham gliding activity, although it appeared the pilot was content to continue on his planned track through the Lasham O/H. Under a BS in Class G airspace the pilot is responsible for maintaining his own separation from all other traffic through see and avoid.

Fortunately, the winch operator saw the approaching PA28 and, having assessed the potential confliction, terminated the launch by cutting power to the winch. Although this aborted take-off (simulated cable break) is practiced, it can still come as quite a shock to the pilot involved. The ASK13 instructor took control to establish the glider into a safe flight profile and then saw the PA28 as it passed O/H from R to L with separation estimated as 200-300ft vertically. These actions were enough to remove the actual collision risk but, with the glider passing unnoticed to the PA28 pilot, the Board believed that safety of both ac had not been assured during this encounter.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The PA28 pilot flew O/H a notified and active glider launching site below the promulgated winch cable release height and into conflict with the ASK13 glider, which he did not see.

Degree of Risk: B.

AIRPROX REPORT No 2010062

Date/Time: 27 May 2010 1456Z

Position: 5403N 00115W (Linton-on-Ouse A/D cct - elev 53ft)

Airspace: MATZ (Class: G)

Type: Tucano T Mk1 Tucano T Mk1
Reporting Ac Reported Ac

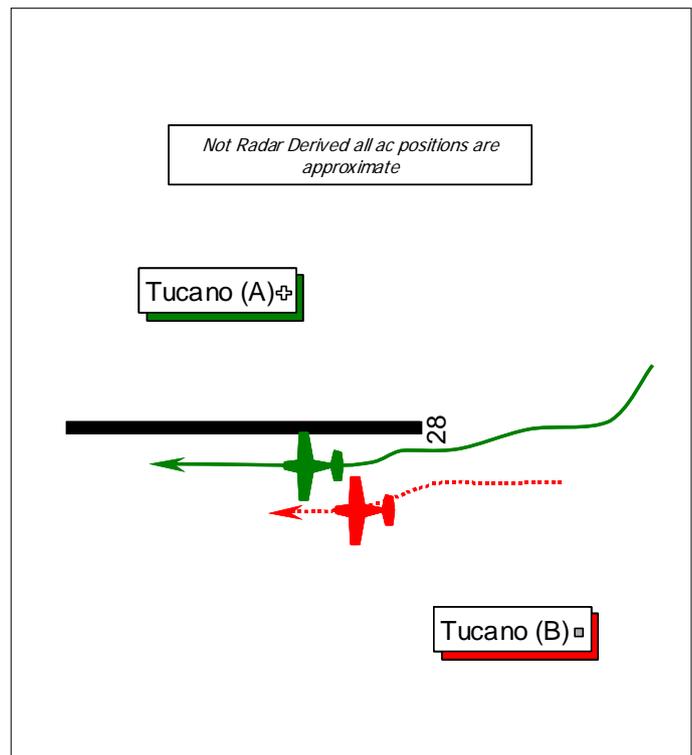
Operator: HQ Air (Trg) HQ Air (Trg)

Alt/FL: 1000ft 1000ft
QFE (1006mb) QFE (1006mb)

Weather: VMC NR
Visibility: 20km 10km

Reported Separation:
200m H 200ft H

Recorded Separation:
Not recorded



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE PILOT OF TUCANO T Mk1 (A), a QFI, reports he was conducting a training sortie in the cct at Linton-on-Ouse and in communication with TOWER (TWR) on 240-825MHz. SSR was selected on with Mode C; TCAS 1 is fitted.

When going around from a Practice Forced Landing (PFL) and positioning on the deadside to RW28RHC at 1000ft QFE (1006mb), he saw another Tucano in their 8 o'clock position at a range of about 200m turning away. This ac had previously been running in from Initials at high speed. No avoiding action was taken as the other Tucano was already turning away so, taking control of his aeroplane from his student, he positioned his Tucano wider on the deadside to allow the other Tucano to join ahead. His aeroplane was then flown back to Initials to regain SA before re-joining the cct to land. He assessed the Risk as 'medium', but opined that ATC RT distraction was a relevant factor.

His aeroplane has a black and yellow colour-scheme and the HISLs were on.

THE PILOT OF TUCANO T Mk1 (B), reports he was on recovery to Linton-on-Ouse from Topcliffe, whilst in communication with Linton TWR on 240-825MHz. A squawk of A4506 was selected with Mode C on. TCAS 1 is fitted.

His aeroplane was positioned via Initials for a visual Run-in & Break to RW28RHC. At Initials, he reported his position on the TWR frequency, however, the controller was slow in responding and there appeared to be some confusion over the position of traffic in the visual cct. He attempted to gain visual contact with the traffic reported by TWR – 1ac on Final, 1ac between High and Low Key. He could not identify any ac between High and Low Key, so he slowed down to 180kt and converted his Run-in & Break to a normal 1000ft QFE cct join. He remained on the Deadside attempting to acquire the traffic, however, there was no sign of any ac on Final. Whilst he was still on the Deadside heading 280° another Tucano – (A) - performed, he thought, a Touch & Go and then climbed to their height. It was first seen 200ft away and to avoid it he turned slightly L to fly further into the Deadside. Minimum separation was 200ft but the Risk was 'low'. TCAS 1 enunciated a TA. It was at this stage that the Captain of Tucano (A) reported the Airprox. Extending to allow Tucano (A) to join the cct, this ac then climbed above cct height.

The subsequent cct was not without incident, as more ac were joining, and TWR was struggling with the position of the ac in the cct. The visual cct was very busy, and he believes the TWR controller lost SA, which contributed to the Airprox.

His aeroplane has a black colour-scheme with yellow flashes and all the lights were on.

THE LINTON-ON-OUSE AERODROME CONTROLLER (ADC) had just taken over the TWR position. [UKAB Note (1): HQ Air Cmd ATM SAFETY ANALYSIS advises this was about 18min before the Airprox occurred]. The A/D cct state was 1 on Final [another ac], 1 between High and Low key - Tucano (A) and 1 other joining via Initials - Tucano (B). The crew of Tucano (B) reported Initials at the same time as the inbound call was made for a short pattern cct (SPC), the radar traffic broadcast was given and the cct state given to Tucano (B). Tucano (A) reported going around as no clearance had been given due to another ac being on the runway, shortly thereafter the Captain of Tucano (A) reported an Airprox.

THE LINTON-ON-OUSE ATC SUPERVISOR (SUP) reports that he was situated in the ACR when the ADC rang to inform him of an Airprox in the visual cct, so he immediately made his way to the VCR.

Having not actually witnessed the Airprox he spoke to the reporting pilot of Tucano (A), the ADC and GROUND controllers and listened to the RT tape recordings. It was evident that at the time of the Airprox, the crew of Tucano (A) had made two attempts at a PFL approach and having been previously baulked by another ac, had been told to continue approach, as once again another ac, which had been cleared to land, was ahead. At the same time Tucano (B) had joined the cct through Initials the ADC acknowledged a liaison call from the TALKDOWN controller about a SPC to land, subsequently making the broadcast on the Tower frequency. With Tucano (B) now Deadside, the Captain of Tucano (A) informed TWR that he was going around, whereupon he then called an Airprox against Tucano (B) on the Deadside.

HQ AIR BM ATM SAFETY ANALYSIS reports that the Unit has identified that the situation in the increasingly complex and busy visual cct was exacerbated by the handover of the operating position between the off-going controller and the ADC taking over the watch. This served to reduce the ADC's SA and will have contributed to the erroneous visual cct state passed by the ADC to the crew of Tucano (B). However, this erroneous cct information would not in itself have prevented the crew of Tucano (A) climbing into conflict with Tucano (B). Other than this erroneous information the actions of the ADC were appropriate to the situation.

[UKAB Note (2): The crew of Tucano (B) called TWR to join at 1453:22, whereupon the ADC responded "[Tucano (B) C/S] *Linton TOWER join runway 2-8 right-hand Q-F-E 1-0-0-6 2 in*" [the cct - Tucano (A) climbing for High Key and another ac downwind to land]. The first part of the response from the crew of Tucano (B) was unintelligible on the recording. The other ac in the cct reported downwind to land and a few seconds later the crew of Tucano (A) advised TWR at 1453:51, "*..High Key touch and go*". TWR replied 37sec later at 1454:28, "*..1 ahead [the other ac to land] surface wind 2-8-0 11 knots*". The other ac was cleared to land followed at 1455:26, by the crew of Tucano (A) reporting "*Low Key gear down*". TWR responded 2 sec later, "*..continue approach*", which was read back by the crew whilst awaiting the other ac to land and clear the RW. Some 11 sec later at 1455:41, the crew of Tucano (B) reported "*..initials*". Following a broadcast by TWR for the radar traffic executing a SPC and some 15secs after Tucano (B)'s Initials call, TWR responded to Tucano (B) at 1455:56, "*..two finals...correction one finals one between High and Low Key, surface wind 2-8-0 14 knots*", which Tucano (B)'s crew acknowledged with their C/S. Tucano (A) was not between High and Low Key but actually between Low Key and final for RW28RHC. Some 30sec later at 1456:26, the crew of Tucano (A) advised TWR, "*..going round [sic]*", that was acknowledged by TWR. A short while later at 1456:45, the crew of Tucano (A) commented, "*..we'll..come from the south and extend upwind to allow..the other aircraft [Tucano (B)] to join*"; after TWR's acknowledgement, the pilot added "*..we might need to declare an Airprox...*". An Airprox was subsequently declared on RT in answer to the ADC's enquiry. Tucano (B) then reported downwind at 1457:24.]

The SFSO has highlighted that the onus of responsibility for collision avoidance in the visual cct is primarily with the joining traffic. Furthermore, the pilot of Tucano (B) reports being visual with Tucano (A) conducting, he thought a Touch & Go, then climbing to his level. The purpose of RT calls between ATC and AC is to build the SA of all concerned on the frequency and this, coupled with a visual scan, should have presented enough information to the crews of the two Tucanos to assimilate the relative positions of each other's ac. Consequently, given the busy visual cct and the aircrew's responsibility to visually identify the cct ac and to take appropriate action to sequence themselves accordingly, it is reasonable to suggest that there is little that the ADC could have done to avert this Airprox.

HQ AIR (TRG) comments that the inaccurate TI passed to the crew of Tucano (B) made their task of identifying cct traffic very difficult. Consequently, having not identified all the ac in the cct the pilot of Tucano B sensibly slowed down and changed his Run & Break to a normal cct join rather than continue into the cct at high speed. As soon as Tucano (A) was seen the pilot of Tucano (B) took suitable avoiding action minimising the actual risk of a collision.

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, a report from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

A controller Member who had previously been qualified at Linton-on-Ouse TOWER explained that the Linton aerodrome cct can be quite demanding for controllers with the mix of ac types leading to a very dynamic cct. Here, however, the cct did not seem abnormally busy with 2 'in' and 1 joining and it was clear to the Board that the catalyst to this Airprox was the erroneous positions of visual cct traffic passed by the ADC to the crew of Tucano (B) when they called at Initials inbound to join the cct. The Captain of Tucano (B) had reported that he had attempted to gain visual contact with the cct traffic whose position was reported by TWR to be 1ac on Final and 1ac between High and Low Key, but could not identify any ac - Tucano (A) - between High and Low Key. The RT transcript reveals that Tucano (A) was in another part of the sky between Low Key and final for RW28RHC, not yet having called final. The pilot of Tucano (B) reported that he had prudently slowed down and converted his Run-in & Break to a normal 1000ft cct join, however, pilot Members recognised that he had still not identified Tucano (A) before he entered the cct area. This was unwise. Pilots have a duty to see and avoid other ac in the cct and Military pilot Members believed the crew of Tucano (B) should have taken more robust action to search for the unseen ac, including asking for an update from the ADC when they could not see it. Whilst Tucano (B) remained on the deadside as the crew attempted to acquire the ac, they still flew on in to the aerodrome without any sign of the other ac, despite the crew of Tucano (A) subsequently reporting going around. Better airmanship would suggest flying much wider on the deadside, alternatively returning to Initials to sort it out might have been preferable. As it was the crew of Tucano (B) finally sighted Tucano (A) a mere 200ft away, erroneously perceiving that the ac had executed a touch & go. The Board concluded that the Cause of this Airprox was erroneous TI from the ADC, which resulted in a late sighting by the crew of Tucano (B). However, when they did see Tucano (A), Tucano (B)'s crew took appropriate action to avoid it and the Board agreed unanimously that no Risk of a collision had existed in these circumstances.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Erroneous TI from the ADC, resulted in a late sighting by the crew of Tucano (B).

Degree of Risk: C.

AIRPROX REPORT No 2010065

Date/Time: 9 Jun 2010 1039Z

Position: 5857N 00317W (12nm W
Kirkwall - elev 58ft)

Airspace: SFIR/UKDLFS (Class: G)

Reporting Ac Reported Ac

Type: EC225 Tornado

Operator: CAT Foreign Mil

Alt/FL: 1500ft 1200ft
(QNH 1017mb) (Rad Alt)

Weather: VMC CLBC VMC CLBC

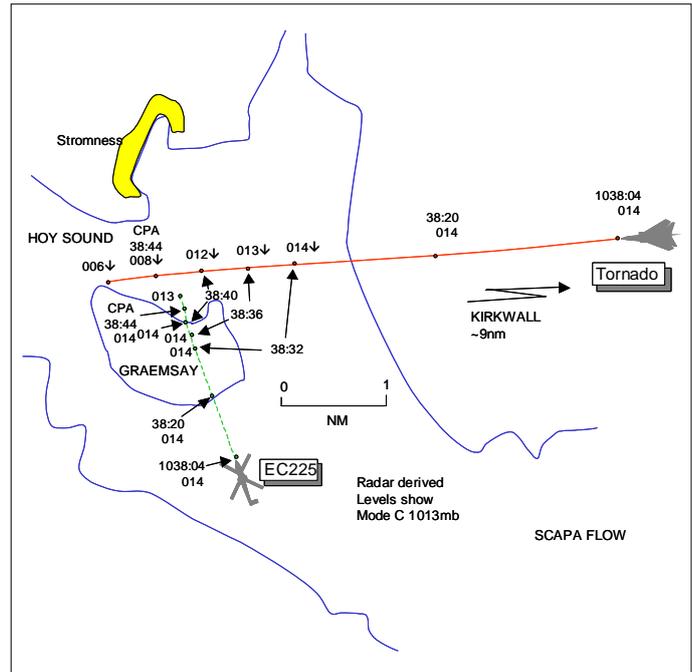
Visibility: 35km >10km

Reported Separation:

200ft V/O-25-0-5nm H 500ft V/800m H

Recorded Separation:

600ft V/O-4nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE EC225 PILOT reports flying en-route to an oil rig (about 90nm NW of Kirkwall) on a direct track from Aberdeen, VFR and in receipt of a BS from Kirkwall Approach on 118.3MHz, squawking with Modes S and C. The visibility was 35km flying 500ft below cloud in VMC and the ac was coloured red/grey with anti-collision, nav, flood and strobe lights all switched on. Approaching Stromness [12nm W of Kirkwall] heading 350° at 148kt and 1500ft QNH 1017mb, they became aware of a pop-up ACAS contact appearing 5-10nm to the E. They very quickly became visual with an ac and within a few seconds an ACAS aural TA sounded and the contact turned amber. They believed the other ac to be on a constant bearing and growing rapidly in the windscreen. The apparent speed and direction placed the other ac in their 2 o'clock on a converging course, slightly below. The PF started a deliberate action to reduce speed and allow the ac to climb. The other ac was identified as a military fast-jet, possibly a Tornado. The Tornado rolled to the L and appeared to descend passing an estimated 0.5nm ahead and approximately 400ft below. The PNF made a report to Kirkwall stating there was conflicting military traffic, however the controller had no reports of such ac in the area. The military jet pilot then called stating he was on frequency and had seen their helicopter at 1nm. They later informed Kirkwall that they would be filing an Airprox. They assessed the risk as medium.

THE TORNADO PILOT reports flying a low-level training flight in Northern Scotland with a minimum altitude of 1000ft and he was monitoring the Kirkwall frequency, 118.3MHz, squawking with Modes S and C. The visibility was >10km flying 2000ft below cloud in VMC and the ac was coloured grey with nav, obstruction and anti-collision lights all switched on. In the vicinity of Scapa Flow the heading was changed to 240° and to 1200ft Rad Alt. When steady on heading in straight and level flight at 400kt a helicopter was seen in his 11 o'clock range 1nm on a N'ly course slightly above. He descended to 700ft Rad Alt, and crossed 800m in front of the helicopter and 500ft lower. After the avoiding action a wing rock was initiated to indicate to the helicopter pilot that he had been seen and avoiding action had been taken. The helicopter pilot then reported his ac to Kirkwall so he replied on the frequency with his c/s. He assessed the risk as none.

THE KIRKWALL ADC/APP provided a report but the information given has been fully captured in the ATSI report so the controllers report has not been included for the sake of brevity.

ATSI reports that the EC225 was being provided with a BS by Kirkwall Approach. ATC is not equipped with any surveillance equipment at the unit. The pilot of the EC225 reported his flight

details to Kirkwall Tower/Approach at 1031. He was issued with the Kirkwall QNH and informed it would be a BS, with no reported traffic to affect. The pilot read back the pressure and ATC service. Some 6min later at 1039:00 the pilot reported, *"we just made visual contact with a fast moving like a Tornado in front of us and just in case you are aware of his position"*. The controller responded, *"no I had no information on that aircraft"*. After commenting about its position, a call was received from the pilot of the military traffic, *"The aircraft is on frequency Tornado is call sign XXXX we were visual with the helicopter and sorry for t- for the er close contact we saw you one mile out"*. The pilot of the EC225 responded, *"Okay thanks a lot yeah we did get you on ACAS er at the last minute but er yeah took us by surprise thanks"*.

With Kirkwall having no information about the presence of the Tornado, it is assessed that there are no ATC causal factors to the Airprox.

UKAB Note (1): The Tornado was authorised into LFA14 between 1015-1100. The LFH strongly recommends that aircrew should contact Kirkwall whilst within 15nm radius of Kirkwall airfield owing to the large number of inter-island flights.

UKAB Note (2): The radar recording clearly captures the incident. Prior to the Airprox the EC225 has remained on a generally steady NW'ly track whilst the Tornado has routed 9nm to E of the helicopter tracking 020° before turning 3nm SW of Kirkwall Airport on to a generally W'ly track. At 1038:04 the EC225 is seen 3nm S of Stromness squawking 0040 (N Sea conspicuity code) tracking 340° at FL014 (1520ft QNH 1017mb) with the Tornado in its 0230 position range 4.2nm tracking 265° squawking 3702 (Lossiemouth assigned code) indicating the same level. Both ac continue on converging tracks and by 1038:32 separation has reduced to 1.2nm. The next sweep at 1038.36 shows the Tornado descending through FL013 (1420ft QNH) in the EC225's 2 o'clock range 0.8nm. Four seconds later vertical separation has increased to 200ft whilst lateral separation has decreased to 0.5nm, the EC225 still at FL014 with the Tornado in its 1230 position at FL012. The CPA occurs on the next sweep at 1038:44, the Tornado descending through FL008 having crossed ahead of the EC225 and now in its 1130 position range 0.4nm, 600ft above at FL014. The Tornado then diverges and levels at FL006 with the EC225 in its 7 o'clock range 0.7nm which indicates FL013.

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 thought that the Tornado pilot would have been better informed if he had called Kirkwall for a service. Although he reported listening out on the frequency he was unaware of the EC225's presence, probably because there had been no exchange of RT after the EC225 flight's initial call over 6min prior to the Airprox. With both ac being in Class G airspace, each crew had equal responsibility for maintaining their separation from other traffic through see and avoid, although under the Rules of the Air the Tornado had right of way. The EC225 crew had been aware of the Tornado to the E from their TCAS equipment but became concerned when it approached rapidly on a constant bearing at the same level. Approaching the CPA the crew elected to slow down and climb before they visually acquired the Tornado as it descended before passing 0.5nm ahead and 400ft below. The Tornado crew saw the helicopter at 1nm range, slightly later than ideal but a range thought to be reasonable by a Mil fast-jet experienced Member, and had quickly descended whilst they passed 800m ahead and 500ft lower. Members agreed that the actions taken by both parties had removed the risk of collision but the Tornado crew had flown close enough to cause the EC225 crew concern.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Tornado crew flew close enough to cause the EC225 crew concern.

Degree of Risk: C.

AIRPROX REPORT No 2010066

Date/Time: 2 Jun 2010 1425Z

Position: 5059N 00238W (2nm S of Yeovilton A/D - elev 75ft)

Airspace: MATZ/FIR (Class: G)

Reporting Ac Reporting Ac

Type: Hawk T Mk1 PA28

Operator: HQ Navy Civ Pvt

Alt/FL: 3200ft 3000ft
QFE (1020mb) QNH

Weather: VMC CLBC VMC CLOC

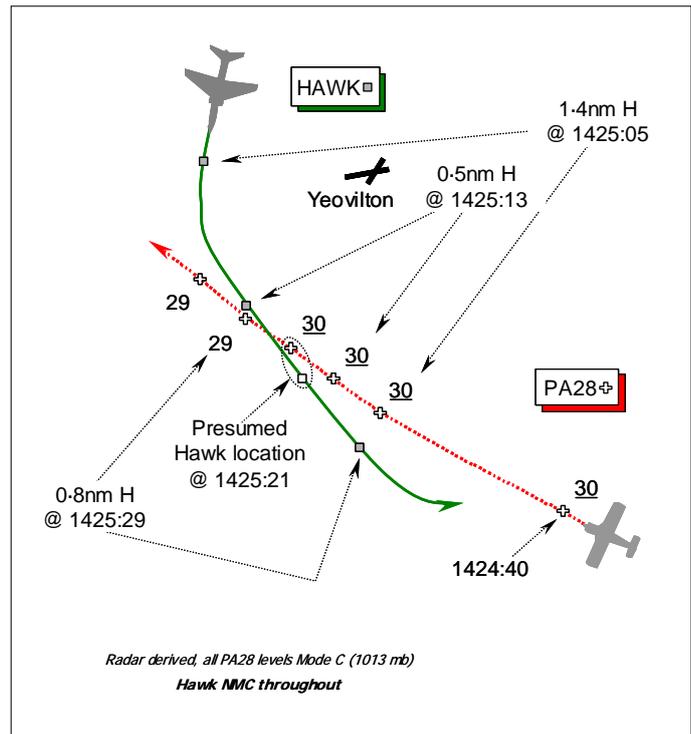
Visibility: 15km >10km

Reported Separation:

100ft V/nil H 100ft V

Recorded Separation:

Not recorded



BOTH PILOTS FILED

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE HAWK T Mk1 CAPTAIN, the PNF in the rear seat, reports he was conducting a local training sortie from Yeovilton and was operating in the visual cct to RW27 whilst in communication with TOWER on 375-575MHz. SSR was selected to off.

After rolling from a normal 1000ft visual cct the PF requested a climb to HIGH KEY - 4500ft QFE (1020mb) – for a PFL. An initial climb to 3000ft QFE was approved by TOWER before subsequent approval to climb to HIGH KEY. The PF called his position at HIGH KEY – but at only 3800ft QFE, his intentions being for a touch and go and was asked by TOWER to report when at LOW KEY. Whilst approaching LOW KEY his ac was in a LH turn at about 20° AoB through 120° at 180kt descending through approx 3200ft QFE some 800ft below cloud, when the ac captain suddenly saw a white civilian light ac pass 100ft directly beneath his Hawk, flying straight and level heading NW in the opposite direction. No avoiding action was taken because of the late sighting and he assessed the Risk as ‘very high’. TOWER was informed on RT about the civilian ac and the controller subsequently advised them that it was a MATZ overflight at 3000ft. He added that because of his banked L turn, coupled with the PA28’s direction of approach, the other ac was obscured by his ac’s fuselage. Furthermore, the focus of attention in his cockpit was towards the RW.

The Hawk has a black colour-scheme; the red HISLs and nose light were all on.

THE PA28 PILOT reports that he was in transit under VFR from Bournemouth Hurn to Perranporth and was in receipt of a BS from Yeovil Radar – located at Yeovilton – on 127-35MHz and the assigned squawk of A0245 was selected with Mode C on.

Cruising level at an altitude of 3000ft, in VMC with an in-flight visibility of >10km, he had requested MATZ penetration from Yeovilton ATC that had been approved. Heading 295° at 100kt overhead Yeovilton, a Hawk was first seen 500ft away, before passing 100ft port abeam and above his aeroplane flying straight and level; there was no warning from Yeovil Radar. He assessed the Risk of collision as ‘medium’, but if the Hawk had been on a reciprocal heading, a collision was possible. No avoiding action was taken as the jet passed abeam. Despite being under BS, he stressed he was

maintaining 3000ft in accordance with the MATZ penetration approval and opined that Yeovilton should have warned him of the Hawk's actions. The flight was continued but he had to divert to Plymouth due to bad weather at Perranporth. His ac has a white and purple colour-scheme; the HISL and anti-collision beacon were on.

UKAB Note (2): The Yeovilton 1350UTC METAR was: 360/04kt; Vis 9999; Cloud BKN 3000ft; QNH 1022mb BLU NOSIG. The Portland RPS 1400-1500UTC was 1018mb.

YEOVILTON ATC reports that the combined APPROACH/DIRECTOR (APP) had been closed up on console for about 1hr with low to moderate traffic intensity and had switched a Hawk pair to TOWER for a visual join on RW27. Some 5-10mins later the ADC rang to ask for HIGH KEY for a Hawk. After a cursory check of the radar display this was approved and the phrase 'local [TOWER] has High Key' shouted around the ACR. LARS had not passed TI to APP because the PA28 transit ac was correctly displaying a Mode A squawk with Mode C. Furthermore, because it was at 3000ft RPS it was above the MATZ and was not, therefore, technically a 'MATZ crosser'. Neither the LARS controller nor the Radar Supervisor heard the 'local has HIGH KEY' message. A subsequent replay of the Yeovilton ASR and voice recordings at the time of the request for HIGH KEY from the ADC, show the PA28 displayed about 1½nm S of Yeovilton, with Mode C information.

UKAB Note (3): Analysis of the radar recording is inconclusive as the Hawk is only shown as a primary contact (SSR off) for 3 sweeps over the period of the Airprox as it circles the aerodrome. The PA28 is clearly shown on a NW'ly course at 1424:40, maintaining a level cruise at 3000ft (1013mb), which equates to a height of about 3210ft QFE (1020mb) and therefore above the upper limit of the MATZ. First shown at 1425:05, the Hawk is 0.7nm W of Yeovilton in the PA28's 12:30 position at a range of 1.4nm. Horizontal separation between the two ac reduces to 0.5nm as the Hawk draws slightly L, but still ahead of the PA28. At the next sweep the Hawk is not shown at all; by interpolation the CPA, which cannot be determined, is presumed to have occurred with the jet passing just marginally to port as the ac crossed, as reported by the PA28 pilot. After the ac pass each other the Hawk is shown once again in the PA28's 7 o'clock, the latter having descended 100ft to an indicated 2900ft (1013mb).

SATCO YEOVILTON comments that this is a disappointing Airprox from the ATC perspective. Whilst it could be argued that this was a VFR encounter and that the onus was on the Hawk crew to clear their flight path in the Class G airspace above the MATZ before commencing the PFL, there was a procedure which should have given information to them on any traffic likely to conflict with their stated intentions. The ATC investigation has shown that the procedure was followed, but that APP did not notice the PA28 MATZ overflight nor did he get a positive acknowledgement from the LARS controller, who would have then alerted him to the presence of the MATZ overflyer. The question from the ATC perspective is why this information about the PA28 MATZ overflight did not reach the Hawk crew. The APP controller has confirmed he was fully aware of the procedure and he understood the reason why the ADC requests HIGH KEY, this understanding has also been tested amongst the other qualified controllers and all claim to be cognisant of the procedure and any required actions. APP claims he looked at the radar display but did not see the PA28; however, subsequent radar replays clearly show the ac displayed.

It appears there are Human Factors at work here. I suspect that there was an element of under arousal and of over familiarity, in that HIGH KEY is normally given to Local without any comment or restriction. This Airprox and the subsequent Safety Survey were the subject of lengthy discussions during a recent Safety Management Executive meeting. The main recommendation from the survey, that controllers be reminded of the relevance and importance of High Key requests, has been adopted; the other recommendations remain under review. In addition, the ATC Fixed Wing Liaison Officer will be discussing the procedure in detail with Naval Flying Standards Flight (NFSF) to ensure all parties are fully aware of what each other is intending to do and what they should be expecting from each other at all stages of the procedure; it is possible, though less likely, that this incident could have occurred whilst the Hawk was climbing to High Key.

Addendum:

The Safety Survey has now been submitted and whilst it was felt that overall the procedures in place are fit for purpose, it does make several recommendations that will enhance them. Firstly Yeovilton ATCOs will be reminded of the relevance and importance of High Key requests. Secondly when a Hawk is in the visual cct, traffic information will be passed to ADC for any traffic crossing through or over the MATZ at or below 5000ft. Finally all requests for High Key will be passed through the Radar Supervisor who will maintain an overview of both the APP and LARS positions. At RN Air Stations the Radar Supervisor's place of duty is in the ACR where they remain closed up for the whole period of their watch, therefore, this change of procedure will not necessarily read across to other military aerodromes where this isn't the case. Two other minor recommendations were made in the survey but these have not been adopted at this time. NFSF (FW) was consulted as part of the Survey process, as were CFS, RAF Valley and Boscombe Down.

HQ NAVY CMD endorses SATCO's comments. Whilst the circumstances leading to this AIRPROX are disappointing, the Unit should be commended for their thorough actions to mitigate the risk of further occurrences.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, radar video recordings, reports from the air traffic control unit involved and comment from the appropriate operating authority.

The Board commended the ATSU for their laudably frank report. It was plain they had identified a weakness in their local procedures and taken appropriate measures to reduce the potential for a recurrence by modifying their liaison arrangements between the ADC in the VCR and radar controllers in the ACR.

It was apparent that, despite both flights being in receipt of an ATS from controllers at the same unit, the APP controller had not been aware of the presence of the PA28 transiting overhead the aerodrome when he approved TOWER's request for the Hawk to climb for the PFL. The PA28 was evident on the Unit's radar recording and thus APP should have seen it before he approved the request for HIGH KEY and broadcast this in the ACR. Controller Members recognised that APP's message that 'local has HIGH KEY' had not reached the ears of LARS. Although this controller was only providing a BS to the PA28 pilot, LARS would undoubtedly have questioned the climb of a jet to HIGH KEY if he had known about it. Thus, unaware that local aerodrome traffic was going to climb out of the cct area in close proximity to his transit traffic, the non-squawking Hawk not being evident in the radar overhead, an opportunity was lost to forestall this close quarters situation and LARS was unable to warn the PA28 pilot about the Hawk, which the Board agreed was part of the Cause.

Following APP's approval, and without any knowledge of the PA28 transiting through the airspace between HIGH and LOW KEY above the normal cct area in the MATZ either, TOWER approved the Hawk pilot's PFL request. If the ADC had been aware of the PA28's transit from prior co-ordination, or had spotted the ac on the local Aerodrome Traffic Monitor (ATM) beforehand, then he might have been able to provide a warning. As it was the ADC had no knowledge of the PA28 until it was spotted by the Hawk pilot passing beneath his ac. The Board agreed that the Hawk pilot could reasonably have expected TI about ac known by ATC to be passing through the MATZ, or in the vicinity, and this lack of TI to the Hawk pilots was also part of the Cause.

Accepting that ATC should have played their part more fully in averting this Airprox, pilot Members emphasised the importance of lookout, both in the visual aerodrome cct and also whilst transiting Class G airspace. Ultimately, it was a pilots responsibility to 'see and avoid' other ac in this situation, with or without the assistance of ATC. A pilot Member noted that pilots in receipt of a BS should not expect TI as a matter of routine. Their lookout scan should be robust enough to see traffic in time to avoid it and even though the PA28 pilot had requested a MATZ penetration - but here was actually flying just above the MATZ - both ac were operating in Class G airspace where not all ac will be known to ATC. Notwithstanding the reasonable presumption that ATC was providing a service to

both pilots and should have told them about each other, each had a duty to lookout and sight the other in time to effect appropriate separation. In this instance the Hawk PNF had not seen the PA28 until it passed 100ft directly beneath his Hawk; no avoiding action was taken because of the late sighting thus, in the Board's view, he was unable to affect the outcome and this was, effectively, a non-sighting. Similarly, the PA28 pilot took no avoiding action as the jet passed 100ft port abeam after first sighting it 500ft away he reports. The radar recording reflects that the PA28 descended marginally after the CPA and that the jet was turning head-on; since the Hawk was also descending on its PFL, it was not flying straight and level as the PA28 pilot thought. Taking all these factors into account, the Board concluded that this Airprox had been caused because TI was not passed to either ac leading to effective non-sightings by the pilots in both ac.

Turning to the inherent Risk, the Board is charged with assessing Airprox on the basis of what actually happened and not what might have occurred if the situation had been slightly different. The Hawk pilot looking from above had assessed the Risk as 'very high' and some Members agreed that with no positive action to ensure separation an actual risk of a collision had existed. Other Members took the view that even though neither pilot had sighted the other's ac in time to take positive action, the PA28 pilot reports that about 100ft of horizontal separation had existed as the Hawk passed abeam. Despite the absence of a radar contact on the Hawk at the moment they passed each other, this seemed to be supported by the radar recording which suggested to Members that although safety margins had been eroded significantly the two ac would not have collided. Following considerable debate, the Board voted to conclude that the safety of the ac involved had been compromised.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: TI was not passed to either ac leading to effective non-sightings by the pilots in both ac.

Degree of Risk: B.

AIRPROX REPORT No 2010067

Date/Time: 10 Jun 2010 (Thursday) 1111Z

Position: 5143N 00414W (5nm
E Pembrey Range)

Airspace: Lon FIR (Class: G)

Reporting Ac Reported Ac

Type: Tornado GR4 PA28

Operator: HQ AIR (Ops) Civ Pte

Alt/FL: 1340ft 1500 - 2300ft
(QFE 1007mb) (SWANSEA QNH)

Weather: VMC CLBC VMC CLBC

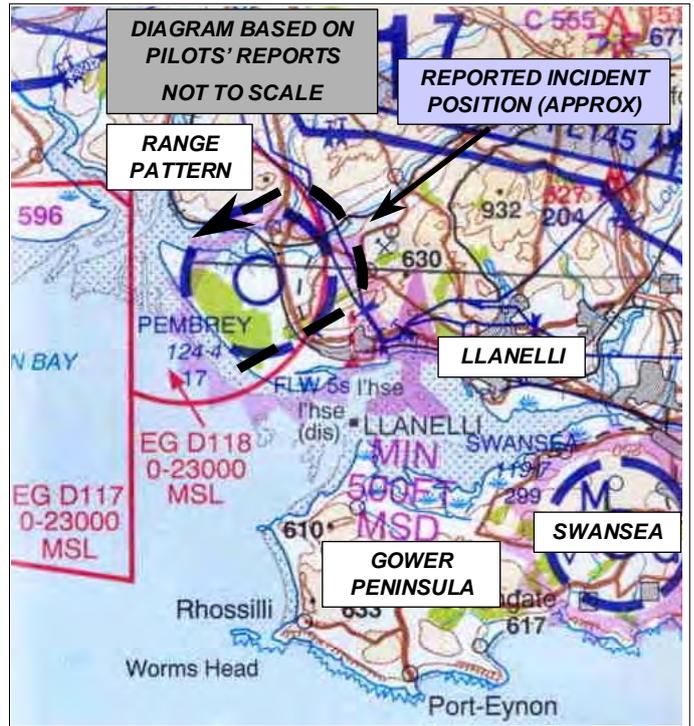
Visibility: 15km unltd

Reported Separation:

200ft V/ 0 H Not Seen

Recorded Separation:

NR



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE TORNADO PILOT reports that he was operating as No2 in a pair of Tornado GR4 ac with all lights switched on and squawking 7002 with Mode C. They were operating in Pembrey Range conducting dive attacks on an LOA of 240° to Target 4. While in the left hand base turn for a 5° dive attack, climbing slowly through 1100ft and passing through a heading of 010° at 420kt they nearly collided with a light ac, thought to be a PA28. They first saw the light ac at a distance estimated as 300m; it had a white top surface with a blue underside, was in straight and level flight and was tracking 020° at 1400ft amsl. He took avoiding action by overbanking to 135°, pulling to 4G and they passed about 200ft below and slightly left of the ac. Both crewmembers had been looking into the turn and the PA28 had been obscured by the canopy arch.

He assessed the risk as being very high.

The unit retained the HUD tape but was not able to supply a copy in a form viewable by the UKAB.

THE PA28 PILOT reports that they were first made aware of the Airprox incident 4 months after the event. He was with another pilot and they both fly predominantly in the locality of their home base Swansea. That being the case detail of individual flights is hard to recall, especially if nothing occurs to make any flight particularly noteworthy.

When in the Pembrey area, he always makes a point of not flying below 1500ft, as there is a bird sanctuary on the estuary.

They were flying on the day of the incident and at the reported time. On that day they initially flew at varying heights round the Gower Peninsular [10nm SE of Pembrey] and then turned N over Llanelli [2nm SE of the incident position] to intersect the Towy Valley E of the town of Carmarthen where they turned up the Valley before heading over Ammanford towards Swansea, maintaining a listening watch with Swansea A/G and squawking with Mode C, he thought.

UKAB Note (1): The recording of the Burrington radar intermittently shows the 2 Tornados operating in Pembrey Range squawking 7002 with Mode C. No other ac can be seen in the area during the period.

HQ AIR (OPS) comments that the dimensions of a Danger Area do not protect the aircraft operating there and they will often manoeuvre outside of the protected area. Regardless of the level of workload when flying VFR all crews must maintain a good lookout and continuously clear their flight path, especially in the vicinity of an air weapons range.

UKAB Note (1): There was a 4 month delay in contacting the PA28 pilot, much of which was caused the by inaccurate/incomplete information being passed to the RAC that there were no Swansea based ac in the Pembrey area at the time. When eventually traced, the pilot was on holiday but responded promptly on his return.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, a radar recording, and a report from the Tornado operating authority.

The Board noted that the incident took place in Class G Airspace outside Danger Area D118 where both ac had an equal right to operate. The HQ Air Member briefed the Board that the small lateral dimensions of D118 are appropriate to the weapons cleared for use there; aircraft transiting close by the range are likely to encounter military aircraft joining, departing or conducting weaponry patterns outside the lateral boundary of the Danger Area.

Range weaponry training is a high workload exercise requiring aircrew to concentrate on acquiring and aiming at the target and conducting challenge and response checks. In this case the pilot reported that both crewmembers had been looking into the turn towards the target and had not seen the PA28 until after it emerged from behind the canopy arch. While accepting this, Members observed that the crew still had a responsibility to see and avoid other airspace users.

Members were surprised that the PA28 pilot, being locally based, was apparently not fully aware of the high level of military traffic in Pembrey Airfield/Range and Gower area. Recent experience is that the level of fast jet traffic using the range remains high and there has been a slight increase in the level of rotary wing traffic.

In this incident the PA28 pilot did not see the Tornado and the Tornado crew did not see the PA28 in time to take early avoidance; Members considered this to be the cause of the incident and further, a combination of this and the relative proximity of the two ac had led to a reduction of normally accepted safety standards.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Non-sighting by the PA28 pilot and a late sighting by the Tornado crew.

Degree of Risk: B.

AIRPROX REPORT No 2010074

Date/Time: 19 Jun 2010 (Saturday) 1353Z

Position: 5158N 00031E (Vicinity of Wethersfield glider launching site cct)

Airspace: London FIR (Class: G)

Reporting Ac Reporting Ac

Type: Viking T1 Glider Hispano Form

Operator: HQ Air (Trg) Civ Comm

Alt/FL: 1200ft 1200ft
QFE QNH

Weather: VMC CLBC VMC CLBC

Visibility: 7km 10km

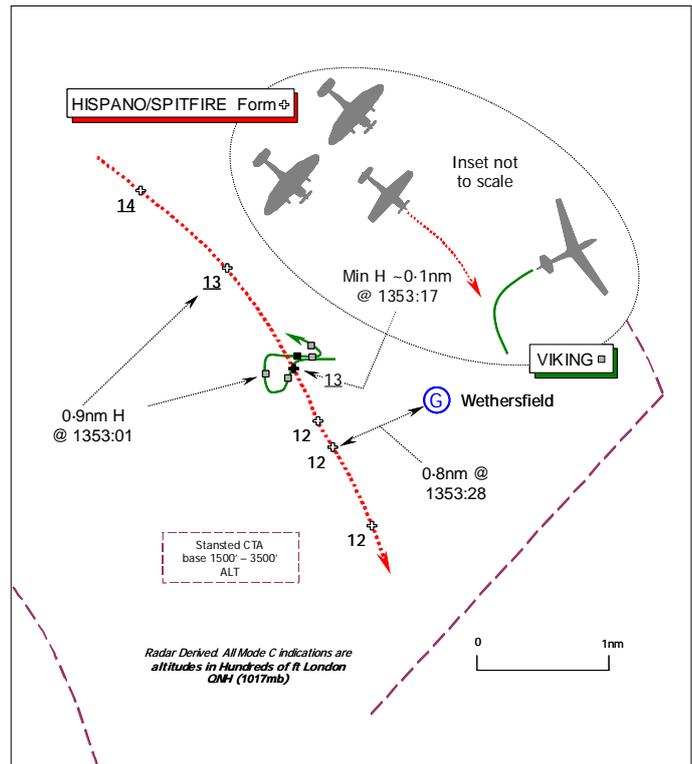
Reported Separation:

200-250ft V/Nil H 400-500ft V

500-1000m H

Recorded Separation:

~0.1nm H



BOTH PILOTS FILED

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE VIKING T Mk1 GLIDER PILOT, a gliding instructor, reports launching from Wethersfield on a basic training sortie in VMC and at the time of the Airprox was teaching a cadet the effects of controls, rolling R into a gentle R turn. Crosswind for RW33 in a LH cct at 50kt, at a height of 1200ft aal, the ac Captain spotted what appeared to be some birds in the distance. Only seconds later, as the glider turned through 050°, it became apparent that the birds were actually a formation of ac heading towards their glider at a range of about 1nm. To avoid confusing the other pilots about their intentions, they continued their right turn with the intention of steadying on 090° to maintain sight of the approaching aircraft while flying away from their flightpath. Unfortunately the formation approached much too quickly to be able to manoeuvre the glider off any collision course and they passed the glider only 10secs after the instructor first spotted them. The formation ac lost some height and passed about 200-250ft beneath the glider with a 'very high' Risk of collision. There was no indication that the pilots of the other ac had attempted to take avoiding action. No RT call was made during the Airprox as the ac Captain's primary concerns were to fly the glider and watch the conflicting ac. However, another pilot from Wethersfield made a call on 129.975Mhz to warn of the formation ac flying through. The student felt nervous after the Airprox and the Captain was also feeling unsettled, so they returned to the airfield as soon as the conflicting formation was clear. The Airprox was reported immediately to the OC, who had also observed the incident from the control caravan.

UKAB Note (1): The UK AIP at ENR 5-5-1-7 promulgates Wetherfield Glider Launching Site as active from Sunrise to Sunset (HJ) on Saturdays. Glider launching by winch may be encountered up to 2000ft above the site elevation of 321ft amsl.

THE HISPANO HA-1112 MIL (BOUCHIN) [LICENCE BUILT MESSERSCHMITT BF109] PILOT reports leading a dissimilar formation of three camouflaged historic fighter ac, which, in addition to his ac, included two Supermarine Spitfires. They were not in receipt of any ATS but a squawk of A7010 was selected with Mode C on.

Departing from Duxford under VFR at 180kt, he was leading the formation around the Stansted CTR. Flying at an altitude of 1200ft beneath a cloud-base of 3000ft there were heavy showers around but he was maintaining VMC and was some 5km clear of cloud with an in-flight visibility of 10km. Turning his formation to fly through the gap between Wethersfield and the Stansted CTR, heading 150° the white glider was seen in a gap above and ahead of the formation at a range of about 1000m. The formation was turned slightly R and descended to increase the separation. Minimum vertical separation was 400-500ft; horizontal separation was 500-1000m as the glider passed to port (E). He assessed there was 'no threat' and the Risk 'none'.

THE VIKING GLIDER PILOT'S unit added that subsequent to the Airprox, Essex Radar and Farnborough Radar were contacted by telephone in an attempt to trace the other ac involved, but it could not be confirmed whether they were in receipt of an ATS from either Unit. Southend ATC confirmed that a formation was routeing from Duxford to the S Coast for an airshow.

One of the formation pilots contacted the VGS to explain that they had to avoid a rain shower near Finchingfield [about 1½nm SSW of Wethersfield] which lead them to fly closer to Wethersfield glider launching site than they had intended. The formation had been aware that the VGS was active and had seen the glider. It was suggested that the Spitfire in the leader's 7 o'clock had moved away from the glider towards the Spitfire in the 5 o'clock position. The operating frequency of Wethersfield was given to the formation pilot so that a call can be made; they will in future avoid the site by a bigger distance.

UKAB Note (2): The Stansted Radar recording displays the track of a glider intermittently that is perceived to be the subject Viking glider, as the Hispano/Spitfire mixed formation leader approaches the vicinity from the NW indicating 1400ft unverified Mode C London QNH (1017mb). The Viking contact manoeuvres in a similar manner to that reported – turning R easterly – and passing ahead of the formation lead from R – L as the latter descends to 1300ft London QNH passing 0.1nm SW of the Viking at a position about 1nm WNW of Wethersfield Glider Launching Site when the Airprox occurred at 1353:17. The formation lead, now indicating 1200ft London QNH, makes a slight alteration of course before passing 0.8nm abeam Wethersfield at the closest point and clearing to the SE.

HQ AIR (TRG) comments that as the formation planned to fly close to the Wethersfield glider launch site it was disappointing that they did not have the Wethersfield operating frequency that would have given them an opportunity to make a call about the formation's weather avoid and enabled information to be exchanged. As the crews involved saw each other with sufficient time prior to the CPA they could formulate their actions to reduce the actual risk of collision. It is worthy of note that a member of the formation contacted the VGS to discuss the incident and explained first hand what they were trying to do. This has enabled those involved to have a better understanding of the occurrence and the formation now has the Wethersfield operating frequency.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, radar video recordings and a report from the appropriate operating authority.

Although momentarily mistaken, it was apparent from the Viking glider pilot's report that she had realized the true situation almost immediately when the 3ac formation was acquired approaching from the NW about 1nm away. The radar recording reflects that this was probably as soon as could reasonably be expected given the glider's right turn and overall geometry of the situation, but it gave the glider pilot little opportunity to manoeuvre away from the historic ac formation. Pilot Members agreed that the decision to stay predictable was a sensible reaction; however, it was stressed that it is often helpful to apply bank in these circumstances to display the largest possible aspect to the approaching pilot and thereby enhance the white glider's conspicuity against the background terrain. Nevertheless, the glider pilot's R turn through 050° onto E had some value as avoiding action and

expeditiously displaced the Viking glider away from the formation's flightpath. The Board concluded therefore that, despite the close quarters and limited ability to fly away from the threat, the glider pilot's actions had contributed to resolving the conflict.

Constrained in his ability to manoeuvre by the CAS above and the CTR to the SW, the Hispano HA-1112 formation leader had placed his formation in a difficult situation whilst avoiding rain showers in the vicinity. Whilst the formation had flown closer to Wethersfield Glider Launching Site than the leader might have wished under normal circumstances, it was clear he was entirely cognisant of his formations proximity to the Glider Launching Site and associated flying activity. It is never a good idea to fly close to a glider site where the winch cable provides an additional danger, but the Board agreed that, having spotted the Viking glider 1000m away, the Hispano HA-1112 formation leader took prompt and appropriate action to avoid it, by descending and turning to pass astern. The Board concluded, therefore, that this Airprox was the result of a conflict in the vicinity of Wethersfield Glider Launching Site, resolved by the Hispano HA-1112 formation leader and the Viking glider pilot.

The absence of any Mode C data from the Viking glider prevented determination of the actual vertical separation that obtained here and the pilots' accounts differed somewhat: the Viking pilot estimated it was 200-250ft, whereas the formation leader suggested it was 400-500ft. It might be that the formation pilots had the better view whilst they descended astern of the Viking glider, as it cleared to port. With the Viking glider in view the formation elements took action to maximise what horizontal separation there was by closing up it would seem; however, the radar recording reflected that the formation leader was somewhat over optimistic about the actual horizontal separation, which measured against his ac, was in the order of 0.1nm – broadly 200yd. Although it might have been a close call, the Board agreed unanimously that the avoiding action taken by the Hispano HA-1112 formation leader, coupled with the Viking glider pilot's predictable flight path ensured that any Risk of a collision was effectively ameliorated.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Conflict in the vicinity of the Wethersfield glider launching site resolved by the pilots involved.

Degree of Risk: C.

AIRPROX REPORT No 2010077

Date/Time: 27 Jun 2010 1450Z (Sunday)

Position: 5056N 00318W (5nm NNW
North Hill G/S - elev 921ft)

Airspace: LFIR (Class: G)

Reporting Ac Reported Ac

Type: PA31 ASK21

Operator: Civ Pte Civ Club

Alt/FL: FL50 2500-3500ft
(QFE)

Weather: VMC CLBC VMC CLBC

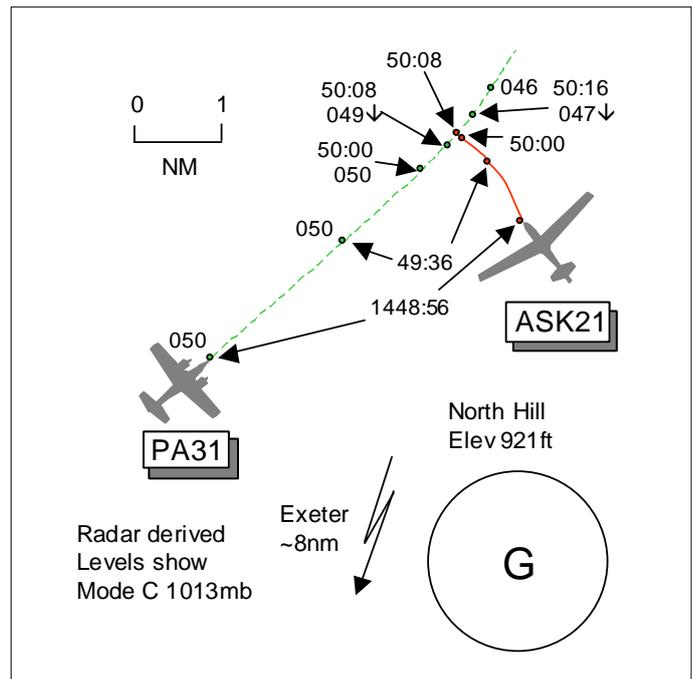
Visibility: 10km 50km

Reported Separation:

300ft V/Nil H 500ft V/Nil H

Recorded Separation:

<0.1nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE PA31 PILOT reports flying solo in the cruise at FL50 heading 050° at 180kt and in receipt of a TS from Exeter, squawking an assigned code with Modes S and C. The visibility was 10km flying 1000ft below cloud in VMC and the ac was coloured white/orange with nav and strobe lights switched on. There seemed to be a lot of gliding activity and he was given a series of traffic warnings, the latest being on 2 contacts "12 o'clock and 2 o'clock, height and type unknown". He spotted the one to his R (surprisingly) at the same level and probably about 1nm away but the other was not seen until a white glider appeared in his RH windscreen about 200m away flying straight and level at or slightly above his level. He took immediate avoiding action by diving his ac, estimating he passed 300ft below it, assessing the risk as high. He thought that he saw the second glider late as it was in the blind spot caused by the rib which divides the LH and RH windscreens. Also, his attention dwelt on the glider to the R rather than immediately resuming his scan for the as yet unseen one. He was surprised by the number of gliders that day at that altitude. He thought that the radar service provided by Exeter was of a high standard and believed that the controller repeated the call on the glider that was not seen initially. He offered 2 further observations. First, gliders are hard to spot so it would be safer if they were obliged to carry Mode C transponders so that ATC can better assess the risk of conflict. During this 1hr 15min flight he thought he probably received warnings on about 20-30 ac, most of which he never saw; this 'crying wolf' fosters inattention in the pilots so warned. Second, in order to mitigate blind spots when looking out, he has been reminded by this incident to move his head and not just his eyes in this and similar ac.

THE ASK21 PILOT reports flying dual on a local sortie with another pilot from North Hill and in communication with North Hill Radio on 129.9MHz. The visibility was 50km flying 500-1000ft below cloud in VMC and his ac was coloured white with green nose and wing-tips; no transponder was fitted. Heading 330° at 60kt and between 2500 and 3500ft QFE, he thought, he was flying a steady course between thermals on a good soaring day between North Hill and junction 27 on the M5 motorway (5nm NW of North Hill). They both became suddenly aware that a fast-moving light ac had passed underneath their glider by about 500ft having approached from the Exeter direction. It passed from behind their port wing and they first saw it when it was slightly ahead and to the R of the glider's nose.

ATSI comments that the PA31 was en route from Plymouth to an airstrip near Peterborough. The pilot contacted Exeter Approach just before 1442, already squawking the Exeter squawk 0424. The

flight was placed on a TS and the pilot confirmed maintaining FL50. TI was issued some 3min later at 1445:40, "PA31 c/s unknown in your half past eleven at five miles right to left slow moving no height information". The pilot reported looking. Shortly afterwards at 1446:15, further information was issued, "PA31 c/s they're numerous primary contacts all unknown to me in your one o'clock between eight and thirteen miles probably gliders as North Hill is active." The PA31 pilot replied, "Er we're looking PA31 c/s." At 1448:55 the TI was updated "PA31 c/s two unknown primaries in your half past twelve both at four miles probably gliders no height information"; again the pilot replied, "Er looking PA31 c/s". About 30sec later at 1449:35 the pilot was informed, "PA31 c/s one of those unknowns is now in your half past twelve at one and a half miles". After the pilot reported visual, shortly afterwards, the controller continued, "...roger in fact there's a pair there". Initially, the pilot reported sighting one but not the other before he then reported visual with both, just after 1450:00.

The MATS Part 1, Section 1, Chapter 11, Paragraph 4, defines a TS: 'A Traffic Service is a surveillance based ATS, where in addition to the provisions of a Basic Service, the controller provides specific surveillance derived traffic information to assist the pilot in avoiding other traffic. Controllers may provide headings and/or levels for the purposes of positioning and/or sequencing; however, the controller is not required to achieve deconfliction minima, and the avoidance of other traffic is ultimately the pilot's responsibility. The controller shall pass traffic information on relevant traffic, and shall update the traffic information if it continues to constitute a definite hazard, or if requested by the pilot. However, high controller workload and RTF loading may reduce the ability of the controller to pass traffic information, and the timeliness of such information.'

On this occasion, the Exeter controller passed appropriate and timely TI to the PA31 pilot, about the unknown ac he could observe on his radar display.

UKAB Note (1): Met Office archive data shows the Exeter METAR as 1450Z 27/06/10 EGTE 271450Z 18009KT 140V230 9999 FEW045 25/14 Q1018=

UKAB Note (2): The Burrington radar recording at 1448:56, when Exeter Approach passed updated TI to the PA31 flight, shows the PA31 4.25nm NW of North Hill tracking 050° level at FL50 with a primary return, believed to be the ASK21 glider, in its 1230 position range 3.8nm tracking 330°. The ac continue to close on a line of constant bearing, separation reducing to 1.8nm at 1449:36 when the TI is again updated. At 1450:00, just as the PA31 pilot reports seeing the second glider as well, the ASK21, separation is 0.5nm. Eight seconds later the PA31 is seen commencing a descent passing FL49 with the ASK21 just L of its 12 o'clock range 0.2nm. On the next sweep at 1450:16 the ASK21 is not seen whilst the PA31 is descending through FL47 0.25nm NE of the ASK21's last seen radar return. Taking into account the ASK21's speed up to the Airprox, it is estimated the ac passed within 0.1nm of each other during the incident.

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.

A gliding Member advised that it was not unusual to find gliders at such height, flying below but up to the cloud base, during the summer months. Given that this encounter occurred in Class G airspace, both pilots had equal responsibilities for maintaining their own separation from other ac through see and avoid. Exeter Approach gave good TI to the PA31 pilot, which supplemented his lookout, and it facilitated him acquiring the subject ASK21, albeit late, a part cause of the Airprox. This was possibly owing to the glider initially blending into the cloud backdrop but may have been exacerbated by obscuration by the ac's structure, which the pilot alluded to. Members concurred with the pilot's 'lesson learnt' of moving ones head to mitigate the risk from known blind spots. The ASK21 pilot only saw the PA31, as it appeared just ahead, below and diverging, having already passed, which was effectively a non-sighting, another part of the cause. Although the PA31 pilot's sighting had been

late, his prompt and robust action was enough to allow the Board to conclude that the risk of collision had been quickly and effectively removed.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Effectively a non-sighting by the ASK21 pilot and a late sighting by the PA31 pilot.

Degree of Risk: C.

AIRPROX REPORT No 2010078

Date/Time: 27 Jun 2010 1342Z (Sunday)

Position: 5137N 00404W (1nm N
Swansea - elev 299ft)

Airspace: ATZ (Class: G)

Reporting Ac Reported Ac

Type: Vigilant PA28

Operator: HQ AIR (Trg) Civ Club

Alt/FL: 1000ft ↑
(QFE 1009mb) (QNH)

Weather: VMC CLBC VMC NR

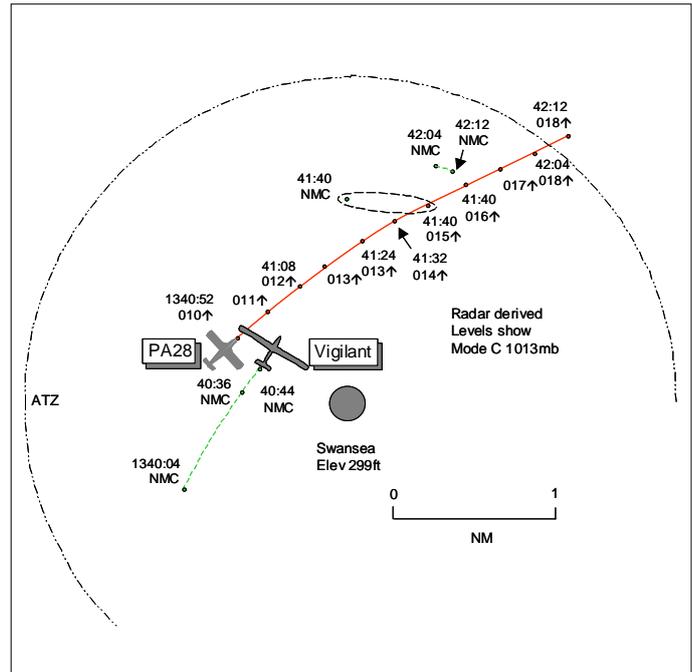
Visibility: 20km >10km

Reported Separation:

100ft V/10m H NR

Recorded Separation:

100ft V/<0.1nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE VIGILANT PILOT reports flying a local sortie from Swansea VFR and in receipt of an A/G service from Swansea on 119.7MHz squawking 7000 with Mode C, he thought. The visibility was 20km flying 1000ft below cloud in VMC and the ac was coloured white with day-glo wing panels and HISLs were switched on. He was a Grade 1 pilot conducting a Gliding Induction sortie to the SW of Swansea before he recovered to the cct for RW22 RH cct by joining downwind and making the call "downwind full stop" at the appropriate position. Approaching the mid-point downwind heading 050° at 60kt and 1000ft QFE 1009mb he saw a PA28 which had just taken off make a sharp R turn placing the ac behind and below him. This was observed by the A/G operator who advised the PA28 pilot about the position of his Vigilant; the PA28 pilot confirmed he was visual with the Vigilant. The PA28 passed from R to L behind and then climbed on a parallel course to his W before it made a sharp R turn and flew across and above his ac, estimating it passed within 100ft vertically from the rear LH side of his ac. The PA28 made no course corrections at any time prior to or during this incident which he reported to the A/G operator. The PA28 continued in a NE'ly direction crossing the extended FAT for RW22. He assessed the risk as medium.

THE PA28 PILOT reports flying with another pilot and a passenger and departing Swansea for Shobden VFR and in receipt of a BS, he thought, from Swansea on 119.7MHz, squawking with Modes S and C. The visibility was >10km in VMC and the ac was coloured white/blue; no lighting was mentioned. Having completed his power checks at holding point A [mid point of RW] he was 'cleared' to enter and backtrack RW22 whilst an Autogyro flight behind him called ready for departure from the intersection and subsequently took-off before him. Parachuting was taking place to the S of the field and there was plenty of other traffic. He was cleared for take-off RW22 at his own discretion and at 500ft he turned R and continued to climb. As his heading for Shobden was 048° he turned towards downwind but initially onto 020°, to widen his cct outside that of the Vigilant, before turning onto to 040° at 80kt. He caught up a Motorglider [the subject Vigilant], which had joined downwind to land RW22 and continued to climb through cct height. His co-pilot maintained sight of the Vigilant whilst he concentrated on his lookout ahead. He was advised of other traffic and had 3 ac in sight; the second was another Motorglider late downwind and a third was on final. After he departed the zone to the NE he also saw another ac crossing from R to L, which he avoided by climbing above it. He was contacted by Swansea at Shobden and was told that both ATC and the pilot of a military trainer, presumably one of the Motorgliders, had filed an Airprox. He was unsure which of the ac he saw was flown by the reporting pilot.

THE PA28 CO-PILOT reports that whilst climbing and turning R, having flown clear of the Autogyro, onto a heading parallel to the RW he saw a Motorglider downwind ahead, to the R and above. They continued climbing and remained on heading passing well clear and to the L of the Motorglider, which by this time was abeam the RW22 threshold. He was visual continuously with this ac and with another Motorglider well ahead in the cct, which was by then on final. He recalled that both of these ac were practising ccts. He thought no more of what was to him, an unremarkable situation. When the ac was established at 2000ft just outside the zone he saw an ac approaching from their R so he warned the pilot and they avoided by climbing above it. He was not sure which of the ac was flown by the reporting pilot but if it was the Motorglider downwind he thought its pilot might not have been aware of their PA28 turning downwind and climbing behind them until they passed above and to their L. He had seen all four ac throughout and had made appropriate information comments to the pilot to aid his decision-making.

THE SWANSEA AIR GROUND OPERATOR reports the PA28 departed RW22 initially following a RH cct pattern. He asked the pilot if he was visual with a Vigilant downwind and he replied that he was. The PA28 continued the climb on the downwind leg and passed over the top and L to R of the Vigilant within close proximity before departing the cct to the NE through the RW22 approach without making radio calls as to his intentions. The subject Vigilant pilot reported that the PA28 had just passed O/H within 100ft and that appropriate reporting action would be taken.

Unofficial Wx observation for Swansea was surface wind 240° 12KT 8Km SCT020 OAT 20°.

ATSI reports that Swansea Airport provides an Air/Ground Communications Service (AGCS), callsign Swansea Radio. CAP452 describes an AGCS. Of particular importance: 'Personnel providing an AGCS shall ensure that they do not pass a message which could be construed to be either an air traffic control instruction or an instruction issued by Flight Information Service Officers (FISOs) for specific situations'.

An ATZ (Class G) is notified in the UK AIP for Swansea. Its dimensions are a circle radius 2nm centred on longest notified runway (04/22). The vertical limits are surface to 2000ft aal (aerodrome elevation 299ft).

When the PA28 flight requested to taxi for departure on its flight to Shobdon, the pilot was informed the runway in use was 22, RH cct, and was passed the QNH, which was all read back correctly. When the ac reached holding point Alpha, the pilot reported ready for departure and requested to backtrack the RW. It was suggested that he should hold position due to traffic on base leg, shortly turning final.

[UKAB Note (1): The RT transcript timings do not correlate with the recorded radar, the RT timing is approximately 1 min ahead of the radar timing.]

Shortly afterwards, at 1334:44, the Vigilant reported at 2700ft, at Oxwich Bay (approximately 4nm SW of the airport), for rejoin. The pilot was advised of the RW and circuit direction and issued with the QFE. He reported, "...we're coming downwind for Two Two".

Once the ac in the circuit was clear of the RW, the pilot of the PA28 was advised there was no known traffic to affect his backtrack. Thereafter, after a departing Autogyro had cleared the departure path, which the pilot of the PA28 had previously reported visual with, he was informed, at 1338:13, "...no known traffic to affect your departure". The PA28 pilot reported departing. Shortly afterwards 2 ac reported RH downwind i.e. a light ac late downwind, followed by another Vigilant, who reported visual with the traffic ahead. At 1339:32, the subject Vigilant reported downwind for Two Two full stop, which was acknowledged.

The AGCS operator, noticing that the PA28 was turning R towards the downwind position, asked the pilot "...are you visual with the traffic err in just in front of you and right hand side". This message referred to the subject Vigilant. The PA28 pilot reported "...we have the traffic in sight". Less than one minute later at 1340:30, the pilot of the Vigilant commented, "I had an aircraft just go right above me erm on late downwind". He estimated the distance from his ac as less than a hundred feet. The

AGCS operator later confirmed that he thought that this was consistent with what he had observed. The view from the control room to the RW22 RH cct is unobstructed. It appeared to him that the PA28 passed behind the subject Vigilant and then turned R to pass O/H it in the late downwind position. In view of the very basic service provided by an AGCS, the operator did well to try and establish whether the PA28 was visual with the subject Vigilant downwind.

HQ AIR (TRG) comments that the departure profile flown by the PA28 pilot appeared non-standard to the Vigilant pilot and resulted in the A/G operator advising the PA28 pilot of the Vigilant traffic. The separation distance throughout this incident was controlled by the PA28 pilot and as he had the Vigilant in sight throughout there was little risk that a collision.

UKAB Note (2): The recorded radar does not capture the CPA as the Vigilant fades from radar whilst the PA28 passes the Motorglider in the downwind leg. The radar recording at 1340:04 shows a 7000 squawk NMC, believed to be the subject Vigilant, 1.1nm SW of Swansea tracking 040° before it fades after the sweep at 1340:44 when the ac is 0.6nm WNW of Swansea downwind RH for RW22. On the next sweep at 1340:52 the PA28 is first seen 0.2nm NW of the last radar point of the Vigilant, the PA28 indicating FL010 (1180ft QNH 1019mb or 880ft QFE 1009mb). The PA28 tracks generally NE'y and reaches FL013 (1180ft QFE 1009mb) at 1341:24. A single SSR only response is seen at 1341:40, believed to be from the Vigilant, 1.2nm N of Swansea with the PA28 0.5nm to its E climbing through FL015 (1380ft QFE). Thereafter the PA28 tracks 065° and is about to leave the ATZ at 1342:04 climbing through FL018 (1680ft QFE) 1.9nm NE of Swansea. At the same time the Vigilant reappears 0.6nm to its W tracking 120° on base leg RW22.

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/Ground operator involved and reports from the appropriate ATC authorities.

The Board discussed whether it would have been possible for either of the pilots on board the PA28 to have maintained continuous visual contact with the Vigilant during their 'climb-through' on the downwind leg. The radar recording indicates that at some point the Vigilant would have probably disappeared under the PA28 as they apparently crossed over it tracking NE'y, the Mode C data indicating the ac was climbing through cct height just to the NW of the aerodrome. That said, the majority of the Members accepted the PA28 pilots' perspective, believing that although the ac passed closer than ideal - a wider margin would have been better - the PA28 pilot had been content with the chosen separation distance. However this close passage had caused concern to the Vigilant pilot prompting him to file an Airprox report. Notwithstanding the 'miss distance' reported by the Vigilant pilot and A/G operator, the Board believed that, on the balance of probability, the visual contact maintained by the pilots on board the PA28 effectively removed any risk of collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The PA28 pilot flew close enough to cause the Vigilant pilot concern.

Degree of Risk: C.

AIRPROX REPORT No 2010080

Date/Time: 30 Jun 2010 1332Z

Position: 5109N 00105W (2.5nm
SW Lasham - elev 618ft)

Airspace: LFIR (Class: G)
Reporting Ac Reported Ac

Type: DR400+K13 PA28
combination

Operator: Civ Club Civ Pte

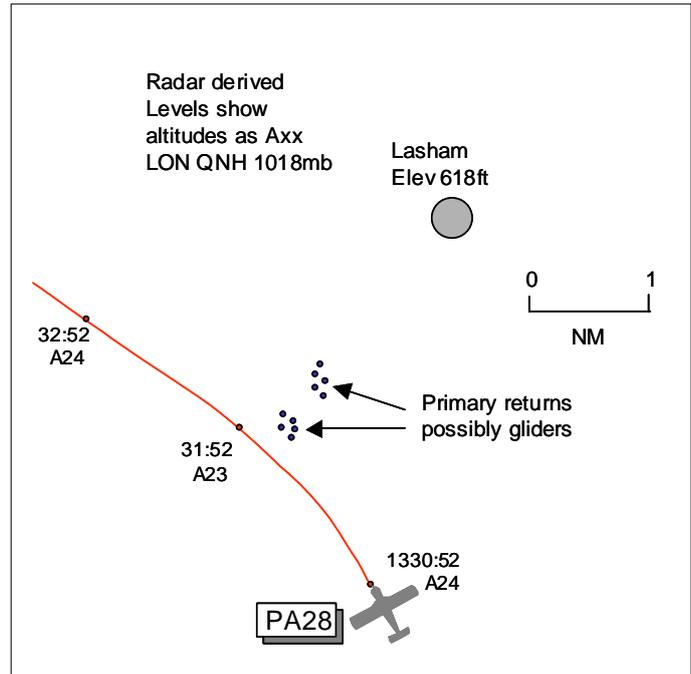
Alt/FL: 2600ft↑ 2500ft
(QNH) (QNH)

Weather: VMC CLBC VMC CLBC

Visibility: 20km >20km

Reported Separation:
100-200ft V Not seen

Recorded Separation:
NR



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE DR400 PILOT reports towing a K13 glider from Lasham and in communication with Lasham Ground on 131.025MHz; no transponder was fitted. The visibility was 20km flying 1000ft below cloud in VMC and the ac was coloured black/yellow; no lighting was mentioned. About 2-3nm SW of Lasham heading 240° climbing through 2600ft QNH, he thought, at 60kt the K13 instructor pilot pointed out traffic, simultaneously with him noticing, a PA28 about 0.5nm away to his L on a converging course. He waited to see what avoiding action the PA28 flight would take but when he saw it was maintaining course he reduced power to reduce his ROC – he needed to maintain 60kt with the glider under tow – and passed 100-200ft beneath the PA28. He was aware that abrupt avoidance was to be avoided if possible whilst aero towing. He attempted to contact Farnborough to report the Airprox but was told to standby and he then had to change back to Lasham frequency during his approach back into Lasham. He assessed the risk as high.

THE PA28 PILOT reports that he was unaware of being involved in an Airprox until contacted by UKAB. He was flying en-route from the Channel Islands to Beverley VFR and in receipt of a BS from Farnborough on 125.25MHz, squawking an assigned code with Mode C. The visibility was >20km flying 1000ft below cloud in VMC and the ac was coloured blue/silver/grey; no lighting was mentioned. He had routed initially to Bembridge and then E of Portsmouth to avoid a restricted area. He rejoined his planned track (Bembridge to O/H Sywell) about 14nm S of Lasham and then changed from Solent Radar to Farnborough. At the time he was heading 010° cruising at 2500ft QNH at 95kt. It was always his intention to avoid the immediate area of Lasham and track to the W to avoid any gliding activity. Farnborough advised him of gliding activity around Lasham, which he acknowledged informing ATC that he was routing to the W to avoid the area; he believed this course change occurred about 5nm S of Lasham. He was visual with several gliders in the area that did not pose any risk. He routed to the W edge of the Odiham MATZ stub and rejoined his original planned track 12nm N of Lasham. He did not see the glider tug with a glider under tow.

THE FARNBOROUGH LARS W CONTROLLER reports that he was acting as an OJTI to a trainee at the time of the incident. It was only much later on that a Lasham tug pilot telephoned ATC stating that he was filing an Airprox against an ac that LARS W had worked during the period. He had no particular memory of any outstanding relevant event during that period.

ATSI reports that the PA28 flight contacted Farnborough LARS (West) at 1328, requesting a BS. After initially being requested to standby, at 1329:58 the pilot was asked to pass his message. He reported at 2500ft, approximately 5nm S of Odiham, again requesting a BS. This service was agreed and the flight was issued with a Farnborough squawk 0436. At 1331:00, after the pilot reported squawking 0436, the controller transmitted, *“caution intensive gliding around Lasham”*. The pilot commented, *“we’re going to detour round to the west as we are visual with some of the gliders”*. Approximately 3min later, the pilot of the subject DR400 contacted the frequency and was requested to standby and told he would be called back shortly. However, not receiving a further response, the pilot reported, about 2min later, returning to the Lasham frequency.

In the meantime, the pilot of the PA28 had requested to cross the Odiham MATZ stub and this was approved, avoiding the ATZ. No further comments were made to or from the PA28 pilot, about the vicinity of any gliding activity, until it left the frequency at 1351. The radar at 1330:53, at the time the PA28 was establishing contact with Farnborough, shows the aircraft, tracking NNW, 3.2nm SSW of Lasham. Thereafter, it makes a L turn and remains at least 2.5nm from the airfield.

[UKAB Note (1): The Airprox is not captured on recorded radar as the DR400 and K13 glider combination does not show at all.]

The Farnborough MATS Part 2, Page APR 4.3, states, with reference to Lasham, ‘Aircraft on a LARS track that is on own navigation may continue over Lasham at the pilot’s own risk. Best practice would be to warn the pilot’. On this occasion, the controller did warn the pilot of activity at Lasham and the pilot advised routeing to its W. The controller also complied with the procedures for the provision of 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. 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 and a Deconfliction Service, the provider of a Basic Service is not required to monitor the flight. 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 ATZ, and the pilot remains responsible for collision avoidance at all times. A controller with access to surveillance derived information shall avoid the routine provision of traffic information on specific aircraft, and a pilot who considers that he requires such a regular flow of specific traffic information shall request a Traffic Service’.

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.

Both pilots had equal responsibility for collision avoidance within this Class G airspace by maintaining a thorough lookout scan and taking appropriate action if necessary. It was clear that the PA28 pilot had avoided the Lasham O/H and had received a warning from LARS W of the gliding activity, and although he saw gliders in the immediate area he did not see the DR400 combination, which was a part cause of the Airprox. The DR400 tug pilot reported seeing the approaching PA28 0.5nm away, which Members thought was a late sighting and another part cause. The opportunity for both pilots to see each other’s ac was there for some time prior to the Airprox. The DR400 would have been approaching from below but within the PA28 pilot’s field of view, although the dark coloured DR400 may have blended into the dark background of the surrounding countryside. Conversely the PA28 would have been sky-lined throughout the DR400 combination’s climb-out. The Board understood the dilemma facing the DR400 pilot and agreed that his sighting and subsequent action of reducing his ROC whilst maintaining visual contact with the PA28 had been most effective in removing any risk of collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Non-sighting by the PA28 pilot and a late sighting by the DR400 pilot.

Degree of Risk: C.

AIRPROX REPORT No 2010085

Date/Time: 29 Jun 2010 1430Z

Position: 5418N 00132W (Visual
Circuit to Leeming
RW34RHC - elev 132ft)

Airspace: Leeming MATZ (Class: G)

Reporting Ac Reporting Ac

Type: Hawk T Mk1 Grob Tutor II

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

Alt/FL: 500ft 500ft
QFE (1012mb) QFE (1012mb)

Weather: VMC CLOC VMC CLOC

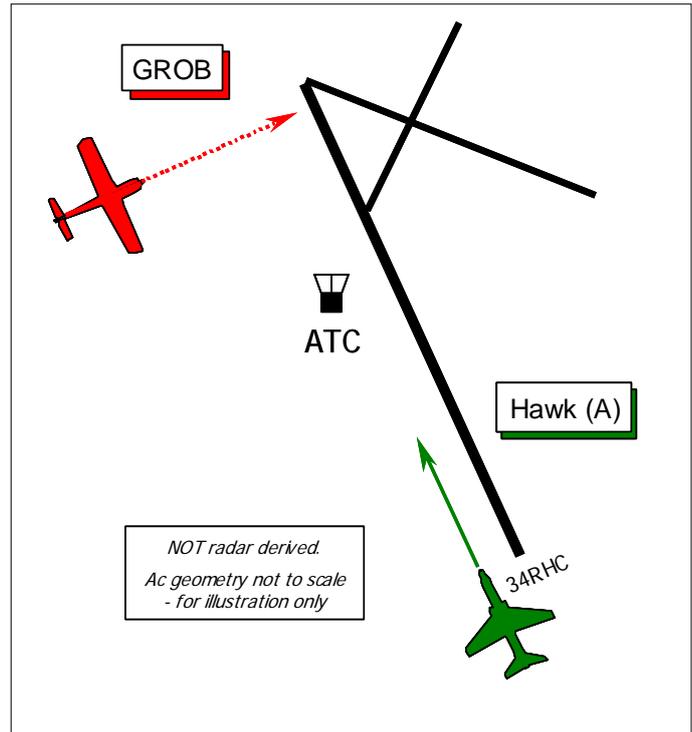
Visibility: 20km NR

Reported Separation:

50ft V/Nil H 20-50ft V/Nil H

Recorded Separation:

NR



BOTH PILOTS FILED

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE HAWK T Mk1 PILOT - HAWK (A) - reports that he was flying in a mixed traffic cct to RW34RHC at Leeming – active with his Hawk and 1 Tutor [flown by a solo student], whilst in communication with Leeming TOWER (TWR) on 368-925MHz. SSR was selected to standby.

He executed an overshoot [sic] from 200ft during the Final turn due to the runway being occupied by the solo Tutor on a Touch & Go. Positioning his ac to the Deadside and levelling at 500ft QFE, he was aware of another Hawk joining Deadside at 1000ft that had already passed through Initials. He was also aware of another Grob cleared by TWR to join the cct via an overhead join and subsequently to enter the light ac (LA) hold. His lookout was initially concentrated into the cct to gain visual contact on the other Hawk (which had passed overhead) and then to assess spacing on that traffic and the solo Tutor that had just completed its touch and go. Heading 340° at 200kt, as he transferred his lookout back to the forward sector, the joining Tutor was seen close aboard less than 50m away in the front L quadrant, crossing at the same height from L - R on a perpendicular flight path. He assessed there was a 'high' Risk of collision and initiated a maximum pull to 'break' the collision. At the same time the Tutor was seen to bunt aggressively as it passed directly underneath his ac. The separation between the 2 ac was assessed as about 50ft vertically and nil horizontally.

The ac has a black colour scheme and the landing light and HISLs were on.

THE GROB TUTOR II PILOT (GROB) reports he was conducting a student instructional sortie and as the Captain of the ac he was occupying the LH seat. Returning to his base at Leeming from the NW he had requested a visual rejoin whereupon APPROACH (APP) requested that he maintain FL40 due to an IFR departure from RW34 that would not be above FL30. He maintained FL40, as requested, and became visual with the departing traffic [an HS125]. The controller then asked if he was visual with further traffic on recovery into the cct, to which he responded, 'negative'. Still maintaining FL40, he then contacted TWR and requested an overhead join - part of his instructional sortie profile - although he explained to his student that they would probably not be able to complete the overhead join due to other traffic. To his surprise, TWR cleared them to join from the overhead and asked him to report Deadside descending. He positioned his ac to cross over the threshold to RW34 at 1800ft

QFE and called “Deadside descending”. When halfway along the Deadside in the descent to circuit height, TWR advised that there was a fast-jet joining the cct and instructed the other Tutor pilot in the cct [a solo student] to fly not above 500ft. As a second Hawk crew called to join, he was descending through approximately 1100ft QFE. TWR then requested that he join the LA hold (500ft on the live side). This is an abnormal procedure as ATC would normally usually ask LA to join the LA hold from the live side. The RT was busy at this stage, and he was unsure of how to achieve the transition from the Deadside through the RW34RHC centreline to the LA hold on the Liveside; he assumed that ATC wished him to be at 500ft crossing the upwind end of RW34RHC (instead of the normal 800ft for an overhead join) and then fly straight into the LA hold. Therefore, he continued his descent on the Deadside to achieve this. At the same time, the Hawk already established in the cct went around from Final, it’s pilot declaring that he was remaining at 500ft Deadside (he assumed to provide vertical separation against the Hawk joining). Immediately, he warned his student that there was a possible conflict and to lookout to the R, the ‘threat’ being to starboard behind his student and canopy arch. Still in the descent aiming to cross the upwind end of RW34RHC at 500ft QFE, heading 090° at 100kt, he became aware of a Hawk in his peripheral vision at less than 200yd away; he instinctively bunted and pushed -2g to break the collision. The Hawk pilot appeared to pull at the same time and both ac separated as he passed 20-50ft vertically beneath the Hawk with a ‘very high’ Risk of collision. He did not declare an Airprox to ATC at the time as he did not wish to alarm his ab-initio student. However, once he had landed he contacted ATC and the Hawk pilot in order to discuss the occurrence.

THE LEEMING AERODROME CONTROLLER (ADC) reports that the weather conditions were Colour Code BLU and he conducted a routine hand-over with the outgoing ADC. Before 1330Z, the traffic intensity in the visual circuit to RW34RHC had been low. At about 1325Z, a Tutor flown by a solo student pilot was in the visual circuit [not the subject Grob Tutor], the student’s instructor being present in the VCR. The solo Tutor student was given as much priority as possible with the intention of causing the least disruption to his sortie, within the extant rules. The crew of an HS125 then requested departure, but was subject to a release call from APP, so the crew was initially instructed to line-up and wait, whilst a release was requested from APP. During the same landline call with APP, the subject Grob and another Hawk [Hawk (C)] were pre-noted as recovering visually. The HS125 crew was passed a climb-out restriction of FL30 against the ac in the overhead not below FL40 [the subject Grob] and was subsequently cleared for take off, conducting a normal departure before being transferred to APP.

The solo Tutor student was instructed to operate not above 500ft QFE due to the inbound fast jet traffic. Then the crew of Hawk (A) executed a join through Initials, requesting a low-break. The low-break was denied due to the presence of the solo Tutor already in the visual circuit and the crew of Hawk (A) was passed the position of the cct traffic. The Hawk (A) crew reported on the break for a Touch & Go and was informed they had 1 ac ahead, the solo Tutor student who then reported Finals and was given a clearance for a Touch & Go. The subject Grob crew then called requesting an overhead join and were asked their height, which was 4000ft descending, so they were instructed to report deadside descending and passed the visual cct state. [UKAB Note (1): The TWR transcript reflects that at 1330:11, the ADC cleared the Grob crew to “..join overhead runway 3-4 right-hand Q-F-E 1-0-1-1..”, before requesting their height.] Reporting Final, Hawk (A) was initially instructed to Continue, but a short time later was given a clearance for a low approach not below 200ft, but the pilot subsequently reported going around.

Another Hawk crew [Hawk (B)] reported ready for departure, but was instructed to line-up & wait behind the solo Tutor student conducting a Touch & Go. As the solo student climbed away, he was instructed to operate not above 500ft QFE on his next cct because of the jets, which he acknowledged. Hawk (A) crew reported Downwind for a Touch & Go and the subject Grob crew reported Deadside descending in quick succession. Just after the Grob crew was passed the position of all the visual circuit traffic [UKAB Note (2): At 1351:55 TWR advised the Grob Crew “..one downwind, one upwind, one on for departure”] a third Hawk crew [Hawk (C)] requested to join the cct. Following Hawk (B)’s clearance to take-off, the Grob crew was asked if they would accept entry into the LA Hold, which was agreed and to report established. During this time, a broadcast was made of the new QFE – 1012mb. The crew of Hawk (A) reported Finals and was instructed to Continue

against the departing Hawk (B). At this point, the third Hawk [Hawk (C)] reported at Initials requesting a Low-Break; this was also denied due to the Tutor traffic, the position of visual circuit traffic and that on the runway for departure being given. As Hawk (B) departed, the crew of Hawk (A) was issued a clearance for a Touch & Go but shortly afterwards reported going around [maintaining 500ft], followed by the solo student reporting downwind low-level for a Touch & Go. Hawk (B) was transferred to APP before the crew of Hawk (C) reported on the Break for a Touch & Go and was passed 1 ac ahead. The Grob crew reported entering the LA Hold and Hawk (C) subsequently reported going around. The crew of Hawk (A) reported downwind to land and subsequently did so following a normal clearance. At no stage did either Hawk (A) or the Grob crews report any incident or concerns on RT to TWR during the period.

UKAB Note (3): This Airprox occurred outwith recorded radar coverage.

SATCO LEEMING comments that in parallel with the Ops Wg review of the Leeming Flying Order Book (FOB), the current rules with respect to multi-type ops within the visual cct have been re-briefed to all controllers. Whilst the visual cct is operated on a 'see & avoid' basis, Unit controllers have been directed to review the levels of TI offered to crews operating in the visual cct.

OC OPS WG LEEMING reports that the Unit conducted a full investigation into this Airprox. The following contributory factors were identified:

The Grob pilot was flying an overhead join, a procedure rarely practised at Leeming, which, whilst acknowledged, was not detailed in the FOB. Lacking defined geographical references, it proved difficult for FJ aircrew unfamiliar with the procedure to anticipate the subject Grob's positioning.

Given the disparity in speed and height profiles, the FOB limits the number of ac in the visual circuit to 3 when there is mixed FJ/Piston traffic. On this occasion the ADC permitted a fourth ac [Hawk (C)] to join the visual circuit.

It is conceivable that both the pressure to complete the recovery profile and the imminent arrival of the fourth ac into the visual circuit distracted aircrew from the primary task of ensuring safe separation.

It was noted that the FOB currently requires fast-jet crews recovering to Leeming to call APP at a range of 20nm; the ADC's action range to address visual circuit traffic is 15 miles. There are circuit diagrams in the FOB, but no geographical depiction of the visual circuit and light aircraft hold.

Following the investigation of this Airprox the following actions have been implemented at Leeming:

Overhead Join. The overhead join procedure offers no material training benefit to UAS/AEF students. Given the identified shortfalls in the procedure, it has been suspended forthwith and the FOB amended accordingly.

Deconfliction. The SFSO has been tasked to brief every flying unit on the specific responsibilities for de-confliction within the visual circuit.

1. The ADC is responsible for providing information and instructions to achieve a safe, orderly and expeditious flow of traffic and assist pilots in preventing collision between aircraft flying within the visual circuit area.
2. Aircrew, particularly when joining and flying the visual circuit, are responsible for spatial de-confliction and must maintain full SA.

FOB. The FOB was amended to include:

An additional Annex detailing the geographic position of the visual circuit, the light aircraft hold and the local avoid areas.

Clarification of a maximum of two dissimilar types allowed in the visual circuit at any one time.

Instruction that FJ ac on recovery are to call APP by 15nm, consistent with the ADC's action range for the assessment of the visual circuit.

HQ AIR BM ATM SAFETY MANAGEMENT reports that Leeming undertook a wide-ranging investigation following this Airprox. As stated in OC Ops Wg's report, given the disparity in speed and height profile of the jet and piston ac in the visual cct at Leeming, the FOB limits the number of ac in the visual cct to 3 when mixed FJ/piston flying is taking place. On this occasion, the ADC permitted a 4th AC, Hawk (C), to join the visual cct.

OC Ops Wg states that although the overhead join procedure was rarely practised, it was acknowledged as a Leeming procedure yet did not appear in the FOB. This lack of information relating to overhead joins and specifically how to route from Deadside to Liveside, forced the Grob pilot to adopt a course of action that he considered best. This included a further descent to 500ft QFE, arguably to mirror the height of the solo Tutor student who had been restricted by TWR to 500ft because of the imminent arrival of the next recovering Hawk (C). However, the arrival of Hawk (C) caused the pilot of Hawk (A) to remain at 500ft QFE on the Deadside to provide vertical de-confliction, which, having executed a go-around from his approach, placed the Hawk in confliction with the subject Grob crossing at the upwind threshold.

The use of an overhead join can be viewed as a system induced violation, where the ADC was placed in a situation where the controller was expected to provide a service to ac joining through the overhead, yet the procedure itself had not been integrated into the wider visual cct operation. Furthermore, SATCO Leeming confirmed that the Controllers' Order Book contained no reference to overhead joins or how to manage an ac transitioning from Deadside to Liveside, nor were there any specific training objectives related to such.

The ADC correctly restricted the two Hawks from conducting a low-break due to the presence of the solo Tutor student in the low-level cct, but did not recognise the potential risk for a confliction between the subject Hawk and Grob once the former crew had stated that they would remain at 500ft QFE on the Deadside.

Best practice would suggest that as the Grob pilot had not reported established in the LA hold at the point that the crew of Hawk (A) had reported at 1332:49, "*..going around maintaining 5 hundred feet*", that TWR should have broadcast a warning about the presence of the subject Grob, whose pilot had earlier reported at 1331:52, "*..deadside descending.*" The fact that TWR did not broadcast such a warning suggests that the ADC felt no need to do so, or that the controller had lost SA as to the position of the Grob and did not perceive the risk of a confliction. Comments from SATCO Leeming support this view insofar as from the ADC's operating position in the VCR the controller is unsighted on ac routeing W - E across the upwind end of RW34 as they pass through a 'blind spot' above the Tower. Given the lack of visual cues and the system induced lack of familiarity with the procedure, specifically the movement of the Grob from the Deadside to the Liveside, the ADC was unable to recognise the Risk of confliction between the subject ac and was ill-equipped to deal with the situation.

This occurrence is a classic example of a series of latent failures awaiting an active trigger – the acceptance by the ADC of the 4th ac into the cct – Hawk (C).

HQ AIR (OPS) comments that the non-standard actions of both incident pilots attempting to be helpful unfortunately contributed to this AIRPROX. Hawk (A) should have flown a standard go around and subsequent circuit pattern. Hawk (C) had the responsibility to integrate into the circuit and avoid established circuit traffic, this is much easier if established circuit traffic follows normal

procedures, Hawk (A)'s unpredictable action could have had adverse effects on Hawk (C)'s joining profile. The Tutor's chosen method of circuit join (not in the flying order book) and his subsequent decision to cross to the LA hold at 500 combined with Hawk (A)'s non-standard actions brought the 2 ac into conflict. Prohibition of overhead joins at Leeming will prevent a recurrence.

HQ AIR (TRG) comments that this incident was so serious the Unit conducted an investigation into this Airprox that revealed several areas where things could have been done better and subsequently has taken appropriate action to reduce the risk of this incident happening again. The ADC accepting the 4th ac into the circuit contributed to the Airprox but there is also a responsibility on the aircrew in the cct to maintain the cct pattern and separation with other ac in the cct, likewise joining ac are to integrate into the cct pattern safely.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

The HQ 22Gp pilot Member explained that whilst the Unit might consider that the overhead join procedure offered no material training benefit to UAS/AEF students, that was not the Command's view. Whilst its use was not commonplace at operational fast-jet units, the overhead join is in common usage at civilian aerodromes and when flown correctly is another valuable and recognised cct joining method, enabling pilots to join high and sight all the other cct ac before descending to cct height on the deadside and entering the cct via the upwind threshold. Whilst military fast-jet pilots would have been taught an overhead join at some stage in their training, the HQ Air fast-jet pilot Member agreed that it would have been used little operationally and pilots might therefore not be particularly familiar with it, especially if no detail was available in the Unit FOB – see AP3456 extract within the Post Meeting Note below. Therefore, military pilot Members understood why the pilot of Hawk (A) might not have been intimately familiar with the Grob pilot's positioning to join from overhead and then transit through to the LA hold in accord with the ADC's instructions. There was, therefore, potential for confusion, but it seemed to the Board that the crew of Hawk (A) was more concerned about the fast-jet joining through Initials behind them – Hawk (C) – rather than the slower piston-engine Grob joining from overhead.

The fast-jet pilot Member explained that the Grob pilot was responsible for gaining visual contact on all notified cct traffic before he descended on the deadside or crossed at the upwind end, crossing the approach end well above any cct traffic. Therefore, the Grob pilot should have been visual with Hawk (A) before crossing the upwind end and should not have committed to crossing into the liveside before he was. In his view, the pilot of Hawk (A) could reasonably expect that joining pilots will not join the cct until visual with all of the cct traffic. A CAT pilot Member concurred that the Grob pilot joining the cct must give way to ac already established in the cct and it was emphasised that this was a visual cct, which demanded that all pilots look-out and sequence themselves in the pattern with due consideration for other traffic. The lesson to aircrew here is that you must give the circuit a wide berth until visual contact is obtained with all traffic established in the pattern.

This also applied to the pilot of the Hawk (C) joining through initials who was responsible for visually identifying all cct traffic before entering the pattern and maintaining his own separation accordingly. In the Board's view, the pilot of Hawk (A) should not have levelled his ac at 500ft because of Hawk (C) joining behind him, which unknown to the pilot of Hawk (A) at the time, placed his ac in conflict with the Grob, whose pilot had elected to descend to 500ft, unannounced, because he perceived that was what the ADC wanted him to do to join the LA hold on the liveside. Whilst accepting this was a busy traffic situation, because the ADC had elected to permit a 4th ac to join, if the Grob pilot was at all confused as to what was required of him he could have asked. However, the Grob pilot could not have anticipated that the Hawk pilot would also level his ac at 500ft QFE and it was providential that the Grob pilot heard the RT call and was alerted to look out for Hawk (A). This resulted in the conflict at the upwind end of the runway with the Grob about to cross on to the live side because both the

Grob pilot and the pilot of Hawk (A) were flying non-standard cct procedures. The laudably candid account from the pilot of Hawk (A) revealed that he was looking for Hawk (C) joining rather than the Grob ahead, which he only spotted 50m away when he transferred his scan forward, which the Board agreed was a late sighting on his part. Furthermore, the Grob pilot was not well placed to see Hawk (A) at this point – cross-cockpit behind his student and the canopy arch – he only became aware of a Hawk in his peripheral vision he reports less than 200yd away - and a late sighting on his part also. The Board concluded, therefore, that this Airprox had resulted from late sightings by the crews of both aircraft.

Turning to the inherent risk, it was fortunate that the Grob pilot elected to bunt to -2g to avoid the Hawk, whose pilot fortunately pulled when the Grob was seen close aboard at the same height. This instinctive avoiding action only achieved a reported separation of 50ft, which convinced several members that an actual Risk of collision had existed. However, the overwhelming view of the Members was that each crew had seen the other ac just in time to take action that whilst robust, was effective in forestalling a collision, but at these distances the Board agreed safety had indeed been compromised.

Post meeting Note: Extract from AP3456 - The Circuit – Overhead Join.

The airfield should be approached at a height of 1000ft above circuit height, and circuit speed should be achieved before reaching the airfield boundary. The pilot should cross onto the deadside of the airfield from a position overhead the runway threshold, and commence a descending curved let-down on the deadside of the airfield, aiming to re-cross the runway over the upwind end, at circuit height and circuit speed. During the curved descent, particular attention should be given to lookout.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Late sightings by the crews of both aircraft.

Degree of Risk: B.

AIRPROX REPORT No 2010107

Date/Time: 12 Aug 2010 1401Z

Position: 5140N 00014W (3nm E
Elstree - elev 332ft)

Airspace: Lon FIR (Class: G)

Reporting Ac Reported Ac

Type: C150 PA46

Operator: Civ Pte Civ Pte

Alt/FL: 1300ft ↓ NR
(QFE 1003mb) (NK)

Weather: VMC CLBC VMC NK

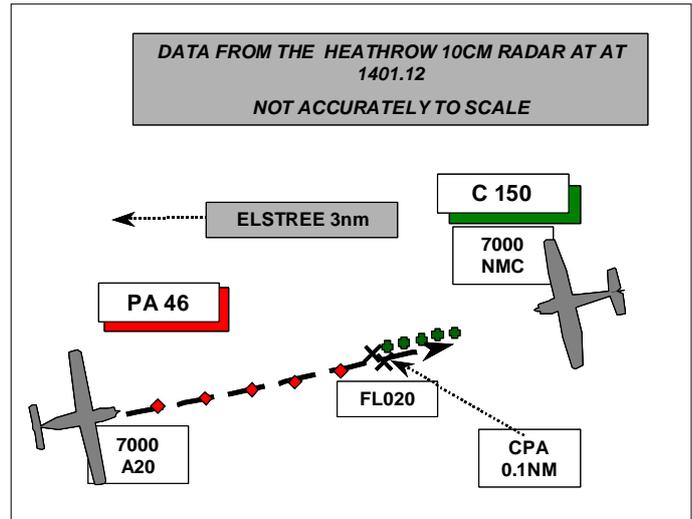
Visibility: 5nm NR

Reported Separation:

100-150ft V/100mH NK

Recorded Separation:

NR V/0.1nm H (See UKAB Note: (1))



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE C150 PILOT reports flying a red white and blue ac with the tail HISL switched on, on a local private flight in communication with Elstree Information and squawking 7000, but Modes C and S were not fitted. He was heading 260° at 75kt, passing 4nm descending on the approach to RW26, having called at the Golf Course VRP, with patches of rain not affecting forward visibility to the N. He was concentrating on maintaining a stable approach when he became aware of a Piper Malibu, or similar type, flying straight and level on a reciprocal track slightly above and to the left of his track. Its landing light and white wingtip lights considerably aided his visual acquisition against the dark grey sky. He was perhaps too surprised to take avoiding action, though it was obvious that the ac would pass clear above and to the left, though as both ac maintained their respective courses, it would be very close.

He reported the reciprocal traffic to Elstree Information but initially heard no response from Elstree or the other pilot; later the FISO asked him for the height of encounter, which he estimated as being 1300ft QFE and at three miles (before the Tall Building VRP). The FISO informed him that he was in contact with a PA46, passing eastbound routing from Bournemouth to North Weald above the airfield cleared not below, 2000ft. Until entering the Elstree cct at Kings Langley, he had been squawking 5030 while in receipt of a BS from Farnborough North on the Regional QNH of 1017mb.

He assessed the risk as being Medium.

THE PA46 PILOT reports flying a new ac delivery flight from Bournemouth to North Weald under VFR in receipt of a BS from Elstree Squawking with Modes C and S.

He was not aware of any other ac in the Elstree area.

The FISO and ATSI did not comment

UKAB Note (1): The incident shows clearly on several radars. The Heathrow 10cm recording shows the PA46 squawking 7000 with Mode C and S approaching the incident area from the W tracking

about 085° at an Alt of 2000ft (QNH 1017mb). The C150 squawking 7000 with no Mode C data displayed is initially tracking about 140° before turning right onto S initially then further right onto the centreline for RW26 at 1400:50 tracking towards the PA46. The CPA is at 1401:11 with the C150 less than 0.1nm N of the PA46, which is still indicating 2000ft amsl (as it does throughout the period). If the C150 was at 1300ft QFE as the pilot reported this equates to 1630ft amsl indicating the calculated vertical separation was of the order of 370ft.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac and radar recordings.

The Board noted that both ac had been in receipt of a BS from Elstree at least for part of the incident period but, in the absence of a timed RT transcript, they assumed that neither pilot was aware of each other's presence from hearing one another's transmissions on the RT. Further, it appeared that despite being on opposing tracks, neither pilot had been given information by the FISO regarding one another; although he was not required to do so, one civil controller Member suggested that, in these circumstances it would have been good practice to do so.

The incident took place in an area of slightly reduced VMC conditions in Class G airspace where 'see and avoid' pertains. Despite the conditions the C150 pilot had first seen the PA46's lighting 600m away. Notwithstanding that he was surprised by its presence, he opted not to take any avoidance, indicating to Members that despite having time to react he considered that no risk of collision existed. The Board thought that the PA46 (solo) pilot had not seen the C150 possibly because it was obscured slightly below the nose of his ac.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Non-sighting by the PA46 pilot and a late sighting by the C150 pilot.

Degree of Risk: C.

AIRPROX REPORT No 2010110

Date/Time: 19 Aug 2010 1507Z

Position: 5239N 00008W (12nm
E RAF WITTING)

Airspace: Lon FIR (Class:G)
Reporting Ac Reporting Ac

Type: HARRIER T12 PA28

Operator: HQ AIR (OPS) Civ Club

Alt/FL: 2000ft NK
RPS (1006mb) QNH (NK)

Weather: VMC CLBC VMC NK

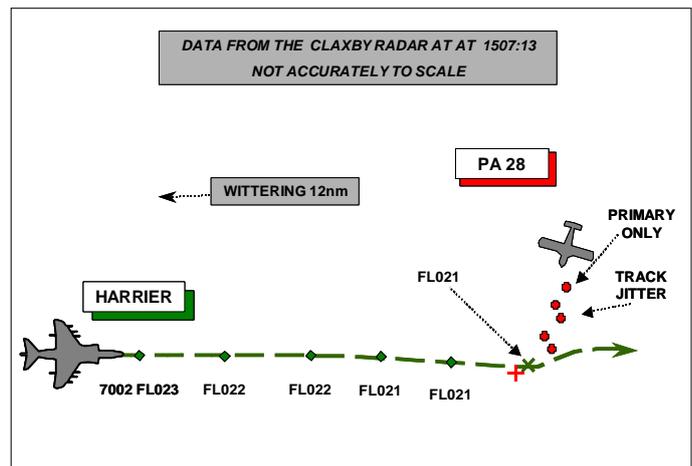
Visibility: 20km NK

Reported Separation:

50ft V/O H Not Seen

Recorded Separation:

NR V/ 0.1nm H (subject to severe track jitter)



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE HARRIER PILOT reports flying a standard transit from RAF Wittering to Holbeach Air Weapons Range with an instructor in the rear seat. On exiting the MATZ heading 091° at 2000ft and 360kt he called "en-route", Cottesmore Departures acknowledged but did not call any conflicting traffic so they switched to the Range frequency but did not check in at that stage. They then accelerated to 420kt, selected a Squawk of 7002 and shortly after had a very close encounter with low-wing civil light ac passing from their left to right at the same alt. The ac was white with a dark lower half, the registration was painted in white and it was first seen 300ft away. He took avoiding action by performing a break manoeuvre up and to the left [behind it] into the clear airspace. The civil ac continued on its previous course throughout, the pilot having apparently not seen them. He assessed the risk as being Medium.

THE PA28 PILOT reports that she was advised by telephone and then email on 6th Oct that she had been involved in an Airprox while on a of a private flight on 19th August. She no longer had the Log for the route, but took the details from her logbook. She took off at 1450 and landed at 1600. She was not given any detail of the flight other than that an incident had occurred as she was departing from Fenland; that being the case she was the handling pilot for that leg of the flight. She has 200 hours flying time and her front-seat passenger has 14000 hrs and rear seat passenger, also a pilot has over 200hrs. The front seat passenger was acting as mentor and was conducting the lookout and monitoring the radio; the rear seat passenger was also looking out.

Prior to leaving Fenland she called Fenland Radio to advise of their departure and continued with them until they transferred to Conington for an overhead transit at 2000ft. The wind was 090/25 and the outbound track from Fenland was planned as 206°. The flight was under VFR in Class G airspace and no other ac was seen or heard. All three POB were unaware of an Airprox or any conflicting traffic. This was a private flight and although the Log was fully completed, it was not retained; hence she cannot be more precise.

UKAB Note (1): The delay in contacting the pilot flying was caused by late and incorrect information being passed to RAC by the registered owners of the ac who lease it to the flying club concerned;

they, in turn, hire it to other users. When she was eventually traced and contacted, the handling pilot responded without delay.

UKAB Note (2): The recording of the Claxby Radar shows the incident. The Harrier can be seen getting airborne from Wittering at about 1504, squawking 3743 with Mode C. At that time a primary only contact, presumed to be the PA28, can be seen just to the SW of Fenland tracking about 220°. After TO the Harrier rolls out on a track of 065° before turning right onto 090° at FL021, changing Squawk to 7002 and tracking directly towards the PA28. The CPA is at 1507:13 when the PA28 is in the Harrier's 11 o'clock at 0.1nm but it suffers from significant track jitter; the Harrier is at FL021 but the PA28 is not squawking. On the next 2 sweeps the Harrier can be seen to have turned hard left and climbing to FL025 before reversing back onto track and descending.

HQ AIR (OPS) comments that it is incumbent on all operating in Class G airspace to maintain a good lookout, especially in congested airspace. It is unclear from the above if the PA28 was equipped with a transponder, the use of which could have prevented this Airprox, as it would have made the PA28 more visible to Cottesmore Departures.

UKAB Note (3): The PA28 pilot reported that she was transponder equipped and was squawking 7000 with Mode C. This cannot be seen on any of the radar recordings available, the ac showing only as a primary contact.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, radar recordings and a report from the Harrier operating authority.

In light of no transponder data from the PA28 being displayed on the radar recording, a Member asked if any had shown on the outbound leg; the radar data, however, does not cover that period so it could not be determined whether or not the PA28's transponder was unserviceable or not switched on.

Members were briefed on the circumstances that led to the lengthy time taken to locate the PA28 pilot.

Both ac had been operating legitimately in Class G airspace and, at the incident time, neither pilot was in receipt of an ATC service to assist them with their 'see and avoid' responsibility. Members were surprised that the PA28 pilot or her passengers had not seen or heard the Harrier, bearing in mind its close proximity when the ac crossed.

Since the incident took place while the PA28 was not squawking and some time after the Harrier left the Wittering APP frequency, Members thought it reasonable that the that the controller did not warn the Harrier crew of the primary contact (the PA28) on leaving the frequency for Holbeach Range. A military pilot Member also suggested that at the time the crew might have been engaged in pre-range checks or instruction and allowed their lookout to have become degraded. The crew did, however, see the PA28, albeit at a distance they estimated as 100m. Had it actually been 100m away and the closing speed was, as reported, 420kt (215 m/sec) the Board agreed that the avoidance 'break' would not have had time to take effect before the ac crossed, as shown on the radar recording. That being the case, Members agreed unanimously that there had been a degradation of normally accepted safety standards.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Non-sighting by the PA28 pilot and a late sighting by the Harrier crew.

Degree of Risk: B.

AIRPROX REPORT No 2010115

Date/Time: 13 Aug 2010 (Friday) 1321:27Z

Position: 5504N 00346W (5nm W Dumfries)

Airspace: UKDLFS (Class: G)

Reporting Ac Reporting Ac

Type: HAWK HAWK

Operator: HQ AIR (Trg) HQ AIR (Ops)

Alt/FL: 250ft 350ft
(RPS 1010mb) (RPS 1010mb)

Weather: VMC NR VMC CLBC

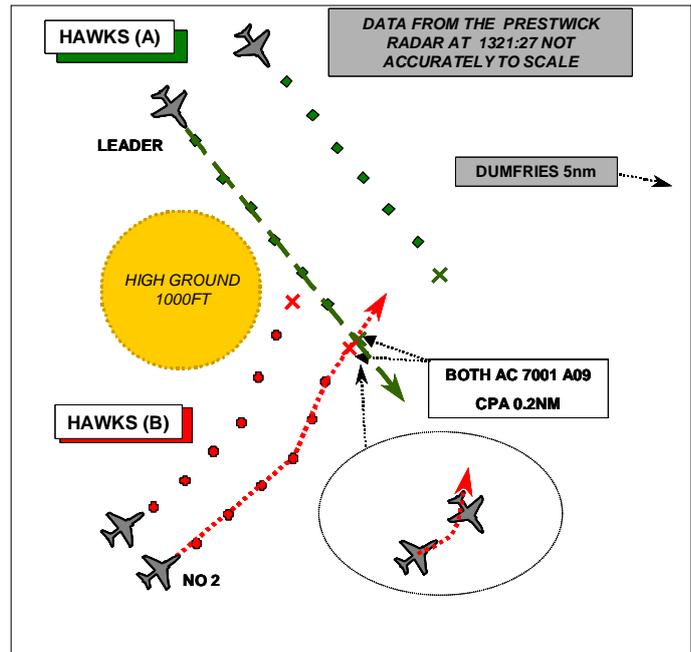
Visibility: NR 30km

Reported Separation:

150ft V/500ft H V 100ft/H 100ft

Recorded Separation:

0 V/ 0.2nm H



BOTH PILOTS FILED

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE HAWK T Mk1 (A Leader) PILOT reports that he was leading a pair of black Hawk ac with HISL switched on, squawking 7001 with Mode C, on a low-level training flight in LFA16 operating on a tactical frequency. While heading 150° at 420kt and at a nominal 250ft agl, he initially saw the northerly ac of a pair of Hawks about 1.5nm away. He immediately searched for a second ac and saw another Hawk at a range of about 1nm away at a similar height in his 2 o'clock position and coming directly towards him. He immediately banked to the left before rolling out and commencing a climb and he saw the southerly Hawk passing below and behind him.

THE HAWK (B No2) PILOT reports that he was a student pilot of the No2 of a pair ac on a 2v1 low-level evasion flight with an instructor in the rear seat of black Hawk ac with HISL switched on, squawking 7001 with Mode C and operating on a [different] tactical frequency. While 5nm W of Dumfries in LFA 16 and about 30min into the sortie in a very high workload situation, heading 020° at 440kt, he was expecting to be engaged as part of the exercise and an ac was seen in the left 11 o'clock at 10km [See UKAB Notes (2) and (3) – the Bounce]. Shortly after this another ac [See UKAB Note (2) – Hawk (A) Leader] was seen to cross the nose of the leader and then his own ac at approx 2-3km; assuming this ac to be the bounce both formation members took 'practice air-to-air shots' on it. He did not have time to assimilate the status of the distant ac. Very shortly afterwards a previously unseen ac passed from left to left to right very close ahead of him (estimated as 100ft), at the same height. The timescale from first sighting to the Airprox was approx 5-7sec [See UKAB Note (3)]. He saw the other ac too late to take any avoiding action and estimated the risk as being very high. After discussion in the debrief he thought that the ac he had the Airprox with was not the Bounce but the wingman of the other formation.

UKAB Note (1): The recording of the Prestwick radar shows the incident. Hawk (A) formation is line abreast just over 1nm apart, tracking 140° at low level with the leader on the right (to the S). Meanwhile Hawk (B) formation is to the S of Hawk (A) formation, also in line abreast formation with leader on the left (to the W) tracking initially 050° before turning left onto 005°. The ac track towards one another until the CPA at 1321:27 when Hawk (A) Leader passes through Hawk (B) No2's 12

o'clock, from left to right, at the same alt (A09), 0.2nm (360m) ahead. Hawk (A) Leader's climb is only noticeable on the recording 10 sec after the ac cross. Hawk (B) Bounce is 6nm to the N of Hawk (B) formation.

UKAB Note (2): From the radar recording it appears that the first ac reported by Hawk (B) No2 was most likely Hawk (B) Bounce (another ac squawking 7001 with Mode C), which was 3nm to the N of Hawk (A) formation, also on a similar SSE track and possibly 'skylined'. The second one mentioned was Hawk (A) No2 and the third, the one involved in the Airprox, was Hawk (A) leader.

UKAB Note (3): Seven sec before the CPA the Bounce ac was in Hawk (B) No2's 11 o'clock at a distance of about 6nm (11km) probably on a ridge. Hawk (A) No2 was also in his 11 o'clock but at a distance 2nm and probably on the far side of a valley and Hawk (A) Leader was in his 1030 at 1½ nm in the same valley.

HQ AIR (Ops) comments that the low level tactical environment is dynamic and challenging, hence the emphasis on training and achieving a mandated standard for Fast-Jet aircrew. This is a timely reminder of the importance of maintaining a good lookout and not assuming that you have seen all relevant traffic; it's the one you haven't seen that shoots (or hits) you. The Student pilot in Hawk (B) No.2 was looking for, expecting to see and aiming to negate the threat from a single Hawk Bounce, therefore it is considered that having seen the first Hawk he became fixated on neutralising that threat and his wider lookout scan was reduced as a result.

HQ AIR (TRG) comments that operating in the low level environment is all about avoiding detection which these formations achieved and being from different units they would not have known the exact routing of each others formation. With both formations terrain masked and flying at 420kt or faster the crews did well to spot each other before CPA. This Airprox highlights the need for crews to maintain a high level of lookout at all times in the dynamic inhospitable low-level environment.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, radar recordings and reports from the respective Hawk operating authorities.

The Board noted that both pairs of ac had been operating legitimately in the UKDLFS but, being from different units, when 'booking out' they would only have been warned of 'mixed traffic' in the LFA and therefore there had been no route deconfliction.

Military ac practise low flying in order to use terrain screening, i.e. to shield each other from visual and/or electronic detection by opposing forces by using the terrain. In this, as with many other cases, it can also have the undesired effect of screening ac from non-opposing forces. However, the instructor pilot in of Hawk (A) leader saw the conflicting Hawk ((B) No2) about 1nm away and was able to take effective avoiding action, despite that the manoeuvre could not be seen on the radar recording. Hawk (B) No2 pilot, a supervised student, was concentrating on engaging Hawk (A) No 2 while under the mistaken impression that it was their bounce ac, and did not see Hawk (A) leader significantly closer to him but out to his left, until a distance he estimated as being 100ft and therefore too late to take any effective avoiding action.

The Board determined that, bearing in mind the terrain, both pilots had seen the conflicting ac without undue delay, but later than optimum and that this incident had been a conflict in the UKDLFS between 2 ac (pairs) both entitled to operate there. They also agreed that the existing height separation, probably assisted by the climb by Hawk (A) Leader, had ensured that there was no risk of collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Conflict in the UKDLFS resolved by Hawk (A) Leader.

Degree of Risk: B.

AIRPROX REPORT No 2010130

Date/Time: 8 Sep 2010 (Wednesday) 2044Z
(Night)

Position: 5544N 00233W (4nm
SE Galashiels)

Airspace: UKNLFS (Class: G)

Reporting Ac Reported Ac

Type: Tornado GR4 Tornado GR4

Operator: HQ AIR (OPS) HQ AIR (OPS)

Alt/FL: 600ft 450ft
(Rad Alt) (N/K)

Weather: VMC CLBC VMC NK

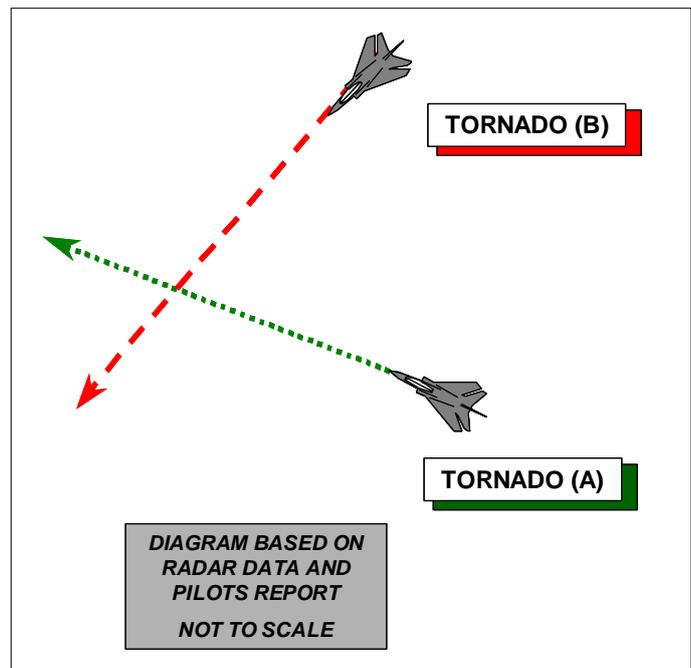
Visibility: 10km NR

Reported Separation:

V 0ft/H NK Not seen

Recorded Separation:

Estimate from FLIR video 0 V/60m H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE TORNADO GR4 (A) PILOT reports flying a singleton night training flight with red strobes, obstruction lights and nav lights switched on. Initially they were conducting GH, from surface to 12000ft (QNH 1011mb), under a TS from ScACC (Mil) but were also booked traffic for Night Sector 2A between 1930 and 2045 as per the Lossiemouth Wing Night Deconfliction Plan.

On requesting descent, ScACC (Mil) advised them that terrain avoidance would be their own responsibility below the Safety Alt and they commenced a TFR descent from 12000ft to conduct a 'Show Of Force'. At 600ft agl and 450kt, on a track of 285° at position 5534N 00233W (in Night Sector 2A), an ac was encountered directly in the 12 o'clock crossing from right to left at very close range and at the same height. They immediately climbed out from Low Level, re-contacted ScACC (Mil) and asked if they were aware of any other ac descending into Night Area 2; ScACC (Mil) advised that they had previously been talking to another Tornado [C/S]. After landing the pilot of that ac was contacted by telephone and it was confirmed that he flew the ac involved in the Airprox, but he was unaware of the incident.

He assessed the risk as being very high.

THE TORNADO GR4 (B) PILOT reports that on return from a routine night training flight, he was informed of a close encounter with another Tornado GR4 in Night Sector 2A. Neither crewmember saw the other ac while airborne. At the reported time he thought that they were heading 220° at 450kt in the position reported.

UKAB Note (1): RAF Lossiemouth provided a copy of the Night Deconfliction Plan. This confirms that Area/Sectors 2A and 2B were allocated to Tornado (A)'s unit from 1930 to 2045. The sectors were allocated to Tornado B's unit from 2046-2200.

UKAB Note (2): The UK Low flying handbook at Sect 3 Para 18 states:

'Crossing Boundaries. Aircrew are to plan to cross boundaries in accordance with the following rules:

- a. Night Sector Boundaries are to be crossed so as to ensure that ac are always operating within their allocated time slots
- b. Ac may leave the UKNLFS by climbing above 2000ft AGL/ASL, direct to airfields or danger areas within the System (when cleared) or by crossing any seaward boundary at low level.

Para 19 states:

‘Joining the NLFS. Ac may join the UKNLFS from above 2000ft AGL/ASL, direct from airfields or danger areas within the System or across a seaward boundary.

And Para 25 states:

‘DECONFLICTION

FW/FW. Deconfliction of FW ac sorties is achieved by the allocation of sectors to units for fixed time periods for use by single, streams or formations of ac (formation sizes as per the regulations in Sect 1). Units are free to utilise the sectors as they wish, but are responsible for their own deconfliction within the sectors. Where ac from different operating bases require use of the same sectors simultaneously, a deconfliction fax (Annex C) is to be sent by the owning unit to LF Ops Sqn to confirm that coordination has been effected between the units concerned. Use of sectors is possible irrespective of whether the units’ activity is associated or independent of the other user(s).’

UKAB Note (3): Although both ac show intermittently on the recording of the Prestwick radar, neither ac shows while at low level. Tornado (B) shows intermittently to the N of (A) but displays only one Mode (C) return, showing an alt of 1900ft amsl at 2043:41, but the contact disappears at 2043:56; Tornado (A) disappears at 2044:17 (entering low-level at approximately the time of the Airprox) and reappears at 2044:43 climbing out of low level in a NNE direction. Tornado (B) reappears at 2046:35, 15nm SW of the incident position, tracking SW, level at an alt of 4200ft amsl.

UKAB Note (4): A video of the Tornado (A) FLIR was provided. It showed Tornado (B) pass from right to left, almost at right angles (estimated to be 70° and confirmed by pilots’ reports) to Tornado (A)’s track, directly ahead at a distance estimated to be 60m, but does not show the incident time. Tornado (A) is at 595ft agl and at 471kt G/S. Allowing for the crossing angle, at that rate of closure it takes about ¼sec to travel 60m.

HQ AIR (OPS) comments that this AIRPROX occurred as a result of Tornado B entering the night LFS outside its booked and deconflicted time; an investigation was conducted to ascertain the reasons for this. Lessons Identified by the investigation have been implemented to significantly reduce the likelihood of reoccurrence.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, radar photographs/video recordings, and reports from the Tornado operating authority.

UKAB Note (5): The results of a comprehensive RAF Flight Safety/Human Factors inquiry were made available to the UKAB but after the draft Part (A) had been distributed to Members for consideration. The full report of the RAF Inquiry was not distributed to the Board but the Board was briefed on its salient points.

The Board noted that this was a very serious occurrence where neither crew had seen the other ac at the time of the event. Tornado B crew were unaware that an incident had occurred until they were

informed after landing, while the crew of Tornado (A) felt the wake turbulence of Tornado (B) but did not see the ac. Members were briefed on the (procedural) area/time deconfliction system used when operating in the UKNLFS and agreed that these measures, if adhered to, should prevent any confliction between Military users; they will not, however, prevent routine conflictions between Military ac and other legitimate VFR or IFR operations such as Police, Coastguard or other civilian ac operating legitimately, in Class G airspace under the provisions allowed by the ANO (and exemptions).

That being the case, the Board agreed unanimously that the UKNLFS [outside the Highlands Restricted Area] is Class G airspace where 'see and avoid' pertains. In this case, despite that the ac had been appropriately lit, the weather below cloud was good and terrain imagery showed that the ac had most likely not been obscured by the terrain, neither crew had seen the conflicting ac and this, Members agreed unanimously, had been the prime cause of the incident.

One Member observed that from the data available to the Board (not including the findings of the RAF Inquiry) it was not possible to determine the time of the incident or the time of entry into the LFS of either ac. At this stage, the Secretariat gave Members a short résumé of pertinent parts of the RAF Inquiry outlined below.

UKAB Note (6). Based on the data recorded on the respective ac Mission tapes, the RAF investigation established that Tornado (B) had entered Night Sector 2(A) at 2038:21, 7min39sec before its deconflicted (earliest) entry time of 2046:00 and that Tornado (A) was within its deconflicted time 'slot'. This was independently verified from the radar recording which shows Tornado (A) leaving the LFS in the climb (as permitted by LFHB procedures above) at about 2044:43, 17sec before the end of its 'slot'; Tornado (B) can be seen squawking 7001 in the area before the start of its slot (albeit from only one Mode C return). It also determined from the mission tapes that the CPA, where Tornado (B) crossed (A)'s nose, was at 2044:15.

In light of this information, Members agreed that the crew of Tornado B had not complied with the Deconfliction Plan and this was also part of the cause of the Airprox.

Notwithstanding this however, Tornado (A) crew had been in, or emerging from, a high-workload TFR-descent which requires both crewmembers to spend most of their time monitoring ac systems. For the descent they had terminated the radar service from ScACC (Mil), that apparently revealed no conflictions, had been within their deconflicted NLFS time 'slot' and had just passed through a cloud layer, so understandably they would not have expected to encounter any other ac and may have reduced the priority normally afforded to lookout.

The RAF Inquiry revealed that, although correctly qualified, the crew of Tornado (B) was relatively inexperienced and was on a Night EO (electro-optical) familiarisation flight. Although the EO equipment (both FLIR and NVGs) is capable of revealing other ac, the field of view of both is limited, the crew were not fully familiar with its use and their first priority would have been, again understandably, terrain avoidance at low level.

Members agreed however, that fully understanding and adhering strictly to a deconfliction plan is vital if night, low level, military operations are to be conducted safely; they were unable to determine why the crew of Tornado (B) had not afforded sufficient priority to the apparently sound and properly promulgated deconfliction plan.

When reviewing all the information available to them, Members agreed unanimously that, in this incident, there had been an actual risk that the ac would have collided.

The Board noted that the RAF Inquiry had produced a number of recommendations but agreed that consideration and implementation was a matter for the MoD.

PART C: ASSESSMENT OF CAUSE AND RISK

- Cause:
1. Non-sightings by the crews of both aircraft.
 2. The crew of Tornado (B) did not adhere to the deconfliction plan.

Degree of Risk: A.

AIRPROX REPORT No 2010142

Date/Time: 21 Sep 2010 (Tuesday) 1530Z

Position: 5106N 00038E (3nm
S Headcorn)

Airspace: London FIR (Class: G)

Reporting Ac Reported Ac

Type: MD902 Untraced small

Unmanned ac

NO DIAGRAM POSSIBLE

Operator: Civ Comm NK

Alt/FL: 1200ft NK
(QNH 1019mb) (NK)

Weather: VMC CAVOK NK

Visibility: unltd NK

Reported Separation:

0ft V/ 35m H NK

Recorded Separation:

NK

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE MD902 PILOT reports flying an a blue and white helicopter on a VFR non-emergency flight with all lights switched on squawking 0014 with Mode C and listening out with Headcorn Radio. He was in level flight over Biddenden [5km S of Headcorn airfield], heading 280° at 120kt and at 1200ft QNH [about 1000ft agl] when the pilot saw what he believed to be a sports glider in his 12 o'clock at some distance. Some 2 to 3sec later the 'glider' passed down the starboard side at the same level about 100ft away. It was not a full sized ac and he estimated its wingspan as being 10-12ft. He decided to follow the ac to investigate; initially it flew at the same height and then descended 200-300ft, before climbing away up to 1300ft. It was pure white in colour with turned-up wing tips at 45°, had a high tail and no other visible markings. Although, obviously powered, he could not see an engine and no operator was seen on the ground in the vicinity. He was later informed it could not be seen from the ground. They reported the incident at the time to Headcorn Radio and then returned to base.

He was initially shocked and due to the short timescale involved was unable to take any avoiding action so he assessed the risk as being high.

He provided a detailed diagram of the aircraft.

THE SMALL UNMANNED AC OPERATOR could not be traced. The MD902 pilot suggested that the ac had been a new type of sensor-equipped small Unmanned Aircraft System (UAS) designed to view and monitor agricultural crops. The owner of the land over which the incident took place was contacted and was most helpful but she does not use such ac nor does she permit models to fly over her land. The manufacturer of the type of UAS is based overseas and declined to provide any details of UK based users.

UKAB Note (1): The drawing and description provided were very detailed and were similar in all respects to the type of UAS manufactured by the company contacted above. The machine is controlled from a laptop computer, is hand launched, is 4ft long with a wingspan of 8ft and is electrically powered by a small propeller in the nose. It operates between 400 and 2200ft but its alt can be adjusted to comply with national regulations. It is manufactured in Canada and, although

there is British TV news coverage showing its use in Sussex, there are no UK dealerships listed on the company's web site.

UKAB Note (2): CAP 722 covers civil UAV/S operation in the UK. Civil ac of under 20kg are classified as 'Small Unmanned Aircraft' and are covered by UK National regulation. The National Regulation is at CAP 722 Para 2.2. In essence this states that such ac must comply with the ANO (specifically Articles 166 and 167) or request exemptions from the CAA. Relevant sections of the ANO Articles are as follows:

'166(2) The person in charge of a small unmanned aircraft may only fly the aircraft if reasonably satisfied that the flight can safely be made.'

'166(3) The person in charge of a small unmanned aircraft must maintain direct, unaided visual contact with the aircraft sufficient to monitor its flight path in relation to other aircraft, persons, vehicles, vessels and structures for the purposes of avoiding collisions.'

'166(5) The person in charge of a small unmanned aircraft must not fly the aircraft for the purposes of aerial work except in accordance with a permission granted by the CAA'.

Article 167 confirms that small unmanned ac used for surveillance purposes are considered to be performing aerial work. It follows therefore that operators require permission to be granted by the CAA.

CAA Flight Operations Inspectorate (GA) has no record of any exemption for this type of ac.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included a report from the MD902 pilot and radar recordings.

While the Board normally discourages strongly pilots from following conflicting ac to determine their identity, in this case without the detailed description provided by the MD902 pilot, it is most unlikely that the UKAB would have been able to identify the type of UAS involved with any degree of certainty. Based on the detailed drawings the pilot provided, that match closely the photographs and description on the UAS manufacturer's website and a video of a TV news article, the Board was satisfied that the UAS involved was almost certainly of the type identified by the UKAB. It therefore followed that the UAS was hand launched, its flight programmed from a Laptop Computer, and was capable of flying 'beyond visual range' and therefore out of sight of the operator. Further, based on website information, it would seem that the type of control from the Laptop is indirect and limited in its effect.

The Board was therefore most concerned that this was a conflict with a hitherto unseen type of commercially available UAS, apparently being flown in contravention of the provisions of Articles 166 and 167 of the ANO. Members agreed that flying at such altitudes, apparently out of line of sight of the operator and with very limited manoeuvrability, poses a significant risk to other legitimate lower airspace users. That being the case, the Director of the UKAB decided to take the unusual step of informing the CAA of his concern over this type of aviation activity.

Members understood the concern of the Helicopter pilot when the perceived distant 'glider' approached so quickly and that he was unable to manoeuvre until after it had passed. Since he then followed the UAS, determining accurately its actual rather than perceived size, Members agreed that, although it could not be verified by any other information, his estimate of the 35m miss-distance was most likely correct. They also agreed that in the case of the MD902, due to the short time between the pilot's first visual detection to the object to the ac passing and since apparently the (unseen) operator had no direct control of the UAS, neither ac had taken any action to resolve the conflict. That being the case, Members agreed unanimously that there had been a degradation of normally accepted aviation safety standards.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Conflict with an untraced UAS.

Degree of Risk: B.