

## AIRPROX REPORT No 2010020

Date/Time: 1 Mar 2010 1604Z

Position: 5253N 00023W (7½nm  
SE of Barkston Heath -  
elev 367ft)

Airspace: Lincolnshire AIAA (Class: G)

Reporting Ac      Reported Ac

Type: Grob Tutor T Mk1 Tornado GR4

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

Alt/FL: 3500ft↓      3500ft  
QFE (998mb)      QNH (1012mb)

Weather: VMC      VMC

Visibility: >20km      20km

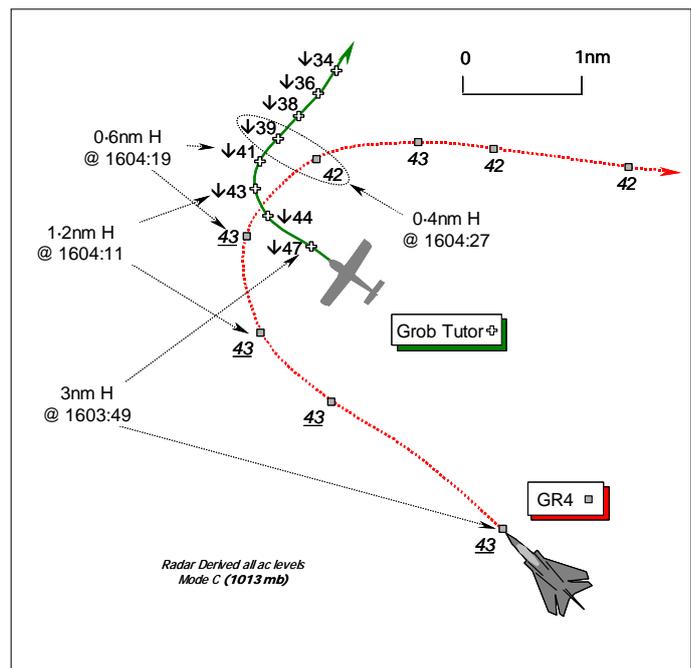
Reported Separation:

50ft V/100-150m H      Not seen

Recorded Separation:

300ft @ 0.4nm Min H

1.2nm H @ nil V



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE GROB 115E TUTOR T Mk1 PILOT**, a QFI, reports he was flying VFR in CAVOK conducting an instrument training sortie under simulated IFR for his student who was flying the Tutor for a radar recovery to Barkston Heath for an SRA. They were in receipt of a TS from Cranwell APPROACH (APP) on UHF and the assigned squawk of A2620 was selected with Mode C on; elementary Mode S is fitted.

During the recovery they complied with an instruction from APP to descend from 6000ft to 1800ft Barkston QFE. About 8nm SE of Barkston Heath heading 030° at 100kt, descending through 3500ft QFE (998mb) [about 3950ft (1013mb)], he identified a fast-jet closing from astern, which passed to starboard at the same height whilst banking hard to the R in a descending turn. He took control of the aeroplane from his student and advised APP of the Airprox. The jet – a grey Tornado – was first seen 100-150m away and passed some 50ft above his Tutor at the closest point with a 'high' Risk of a collision. He did not take avoiding action himself as the Tornado was seen to be taking action, he thought. The SRA into Barkston Heath was then completed without further incident.

The ac has a white colour-scheme; the HISLs and landing light were on.

**THE TORNADO GR4 PILOT** reports they had transited the Cranwell/Coningsby gap, VFR and in receipt of a TS from Waddington APP. During this transit they received TI on a contact in their 12 o'clock (due south), which they identified as a Tutor ac, northbound and well above them [not the subject Tutor]. Having completed the low-level portion of the sortie they climbed the ac whilst they discussed the pre-requisites of conducting a 'Show of Force' (SoF) into Holbeach Range - EGD 207. During the climb, they terminated the TS from Waddington APP and free-called Holbeach on Range Secondary prior to range entry. They circled [L] at 4000ft QNH (1012mb) at 350kt in VMC, whilst RT and pre-range/SoF checks were completed, before turning R and heading eastbound into Holbeach Range, descending to 2000ft in the process. At no stage were they aware of their proximity to any other traffic during the transition from Waddington APP to Holbeach Range Secondary or whilst descending from 4000 to 2000ft amsl.

UKAB Note (1): The GR4 crew had already switched from Waddington APP, and subsequent to loitering some 12-15nm SSE of Barkston Heath - and SSE of the Airprox location - the Airprox occurred as they were setting course eastbound towards Holbeach Range.

**THE CRANWELL APPROACH CONTROLLER (APP1)** reports that he was handing over the operating position to the relief controller, having been on console for 2 hours. He was acting as a mentor to a trainee controller who had been working within his capacity, the IFR traffic having decreased from 3 tracks to 2. His trainee was concentrating on another ac close to the Tutor operating at a similar level, but not a threat. [UKAB Note (2): At about the time of the position handover at 1604:18, another Tutor is shown 1½nm E of the subject Grob Tutor, westbound maintaining FL88.] He – the mentor - completed the hand over of the position to the relief controller. At no time was the conflicting ac seen prior to the Tutor pilot declaring an Airprox.

**THE CRANWELL APPROACH CONTROLLER (APP2)** reports that he was in the process of taking over the Approach position from an experienced mentor (APP1) and his trainee controller. Prior to plugging in, APP1 provided a brief of the traffic situation: a King Air downwind in the Cranwell radar pattern and a Tutor about 10nm SE of Barkston Heath, heading 030° in the descent to 1800ft QFE. Once content with the overall scenario, APP1 unplugged and he plugged in. As the trainee was unplugging he sat down whereupon the Tutor pilot reported a close Airprox with a Harrier and asked if he had seen anything. At the time of the handover there was no traffic that was deemed to be conflicting with the 2 ac on frequency, and therefore he did not ascertain whether any TI had been passed to the Tutor crew. There was a considerable amount of garbling of squawks and label overlap and he had to rotate the SSR labels prior to being able to respond with TI on what he perceived to be the reported ac (the only fast moving contact in that vicinity) which was wearing a range squawk and tracking away to the E indicating FL41 Mode C. At this point the Tutor was indicating FL31 Mode C.

**THE CRANWELL ATC SUPERVISOR** reports that the Watchman ASR and MSSR were fully serviceable; the Watchman Ground Clutter Filter (GCF) was selected on. The Cranwell Aerodrome Weather State Colour Code (CC) was: BLU – min 8km; lowest cloud SCT 2500ft agl; the workload on the Unit was assessed as 'low'. After arranging a controller change for APP, at the time of the position handover he was dealing with an administrative issue. After this had been dealt with the UHF APP RT frequency - Stud 5 - was then selected for monitoring purposes, whereupon the Grob Tutor crew immediately reported the Airprox. The other ac – the GR4 - appeared to be a fast moving contact, well above and passing behind him.

**HQ AIR ATM SAFETY MANAGEMENT** reports that the Tutor was recovering to Barkston Heath under a TS from Cranwell APP on UHF 280.775MHz. The initial vectoring for the Tutor crew was given by a trainee controller under instruction from an experienced mentor – APP1. At 1602:26, the Tutor crew called Cranwell APP, "*Cranwell APPROACH [C/S] request radar recovery to Barkston with Juliet*". The Tutor crew was asked to report their position, to which they responded "*squawking 2-6-2-0 [C/S] a Tutor 2 P-O-B currently 5 miles south east of Barkston heading 3-0-0 flight level 5-0 request traffic service radar to SRA*". At 1603:02 a TS was applied and the Tutor crew was instructed to descend to a height of 1800ft QFE (998mb). The conflicting ac – the Tornado GR4 - was about 6½nm SSE of the Tutor in a L turn at this point, squawking A7002 [Danger Areas General that was selected at 1600:26 - 4min before the CPA] and indicating FL49 Mode C [deemed verified]. At 1603:42, when the GR4 was about 5nm SE of the Tutor heading NW, the Tutor crew was instructed to turn R onto a heading of 030°. Between 1603 and 1604:18 various transmissions were made in relation to the SRA but no TI was given. At 1604:11 the conflicting Tornado was 1.2nm S of the Tutor just commencing a R turn. The handover of the APP control position was carried out at about 1604:18, when another experienced controller – APP2 - took over responsibility for the position from APP1. At 1604:19, the radar recording shows the Tornado GR4 turning R through NE indicating FL43 – 0.6nm astern and 200ft above the Tutor – the latter descending through FL41. [UKAB Note (3): The CPA occurred at 1604:27, as the Tornado GR4 passed 0.4nm abeam the Tutor that had steadied on 030°; vertical separation of 300ft Mode C was apparent, the Tornado GR4 indicating FL42 some 300ft above the Tutor that was descending through FL39.] From this point the range opens but still no TI was given. At 1604:30 the Tutor crew reported "[C/S] *we've just had a..close*

*Airprox..with a Harrier [sic – but actually the GR4] did you see him on radar?’. APP responded “[Tutor C/S] traffic now indicating East of your position 3 miles tracking East 4 thousand feet descending”, whereupon the Tutor crew reported the Airprox on the RT.*

This Airprox occurred in Class G airspace between traffic under a TS and the GR4 operating VFR without an ATS. The incident was further complicated by the controllers involved conducting a position handover in the time frame of the Airprox - initially by the trainee as part of his training and then completed by his mentor. No TI was passed on the fast moving VFR traffic. From the controllers’ accounts, it would appear that the CPA and turn that caused the Airprox happened during the handover. This Command believes that there was ample time before the handover to call the traffic and, given the speed and direction of the GR4 towards the Tutor, would have been best practice. It is clear that the process of a trainee handing over a control position was a contributory factor to this Airprox. It is also noted that due to the difference in performance of the ac involved and the geometry of the encounter, it would have been difficult for the crew of the Tutor to take effective avoiding action against the fast-jet, even with accurate and timely TI. Shortly before the CPA the much faster jet turned directly at the Tutor and passed close enough to cause concern.

SATCO Cranwell has highlighted the issues surrounding this Airprox in a recent Unit Standards Bulletin; controllers have been reminded to pay particular attention to the traffic situation during the handover of operating positions. This Command has also recommended that this scenario is incorporated into Unit training simulations.

**HQ AIR (TRG)** comments that under a TS the Tutor crew could have expected TI on the Tornado. The GR4 crew were going about their business VFR and it seems that they did not see the Tutor. With a recorded minimum horizontal separation of 0.4nm there was little Risk of collision but as the Tornado approached from behind the Tutor, the crew may have been concerned by the fast moving GR4 passing close aboard.

**HQ AIR (OPS)** comments that, while it is disappointing that TI was not passed to the Tutor concerning the GR4, it would not have materially changed the circumstances of the reported Airprox. The GR4 maintained a traffic service until required to change to the range frequency; the reported position of the Airprox is less than 2min flying time from the range boundary and the crew would have needed to be talking to the range. It is unclear whether the GR4 saw the subject Tutor or not; they report seeing a northbound Tutor and avoiding it but there is no certainty that the Tutor they saw was the subject aircraft. Additionally the GR4 crew were not aware of a proximate pass. However, just inside ½nm is not unreasonable if visual and this may be a matter of perception. If the subject Tutor was indeed seen by the GR4 then there was no risk of collision, and the Tutor perceived the proximity of the GR4 to be too close.

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

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

It was clear from the radar recording that the Grob crew were not able to see the GR4 approaching from astern without any prior warning from APP, until it overtook them on the starboard side. A military controller Member was disappointed that the controllers had not spotted the GR4 and that TI had not been passed in this situation. With three pairs of eyes focusing on the display at various stages during the handover of the operating position it was surprising that none had detected the GR4 closing steadily on the Tutor from the S. The Board was briefed that no fewer than 6 other Tutor ac were operating to the E of the Airprox location at the time, so there was a lot to look at and assimilate, plus significant potential for SSR label overlap to mask the presence of the GR4 after the CPA, but the GR4 was readily discernable as it approached from the S. Moreover, the GR4 had spent over 4min loitering to the S of the Airprox location before heading N and then E into the range, so the effectiveness of the controllers’ scans and consequently the TS provided to the subject Tutor

crew was questionable. Clearly there is plenty of scope for distraction during a position hand-over by a trainee controller, but this should not be detrimental to the overall provision of the ATS and a lesson to all Mentors who must guard against this.

The HQ Air Member explained that the GR4's holding position was not an unusual location prior to range entry for a SoF exercise. Whilst recognising that the crew would need to be speaking to the Range Controller before entry, an HQ Air Member opined that holding at about 4000ft ALT adjacent to the southern boundary to the Lincolnshire AIAA, with the preponderance of training ac operating in the vicinity, it might have helped the GR4 crew's SA if they had obtained a TS, but clearly it remained the crew's responsibility in this Class G environment to 'see and avoid' other ac. The HQ Air Trg Member reinforced the Command's view that with the GR4 approaching from astern of the Tutor, even if Cranwell APP had passed TI then it might have had little impact on the outcome. There was not a lot the Tutor QFI could do if he could not see the traffic beforehand apart from request further updates as any sudden manoeuvre to help acquire the jet visually might have placed him in a worse predicament. Nevertheless, if the Tutor crew had been forewarned, when they eventually sighted the jet to starboard, it would not have been so much of a surprise. The HQ Air pilot Member opined that fast-jet pilots might not necessarily be concerned at the separation distances replicated by the radar recording here. The CPA of 0.4nm was not in his view a close call and it was not entirely clear if the GR4 crew actually saw the Tutor and discounted it as being too far away to be of concern, or alternatively, they did not see it at all. With a very small cross-sectional area Tutor ac are notoriously difficult to see and even more so when viewed stern-on. The consensus was that the GR4 crew probably had not seen the small white training ac, initially tail-on with little crossing motion to draw attention to it, as throughout their R turn to the E they would have been 'belly-up' to the Grob. The Board agreed that this Airprox had stemmed from a conflict in the Lincolnshire AIAA, but at the distances recorded here no risk of a collision had existed.

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

Cause: Conflict in the Lincolnshire AIAA.

Degree of Risk: C.