

UKAB Note (1): The pilot of Grob Tutor (A) also submitted a supplementary HF report:

The canopy arch is a physical obstruction to visibility from the Tutor cockpit reducing the effectiveness of peripheral vision when monitoring attitude and instruments. The Tutor requires active body movement to clear the canopy arch blind spots.

Both before and after the Airprox he missed a number of traffic calls from ATC, which he attributes to two factors:

Although he was fit to fly he considered that fatigue reduced his cockpit work-rate including lookout and situational awareness while trying to maintain effective teaching.

During the sortie he had been adjusting both RT and intercom volumes to attempt to achieve lower levels than he would have routinely used in the past. They had been advised to use 'the minimum communications volume commensurate with ensuring full intelligibility of speech' following work to identify cockpit noise levels. Utilizing the cockpit communications at too low a level led to lower situational awareness through missed calls; ATC did re-call some traffic.

He added that the use of a TS is not a panacea to deconfliction in the local airspace, more especially so when traffic density is high due to military training users whose movements are not predictable by ATC or other pilots.

THE PILOT OF GROB TUTOR II (B) reports he was conducting a Staff Continuation Training (SCT) A2 workup sortie with another QFI, the PF, in an area some 10-15nm E of Church Fenton. Throughout the sortie he thought he had been receiving a TS from Linton ZONE on local Stud 12. The assigned squawk was selected with Mode C. Elementary Mode S is fitted, TCAS is not.

Visibility in his operating area was in excess of 10km, but throughout the sortie traffic called to them had proved difficult to see. Just prior to the final part of the air exercise a manoeuvring contact 3nm to the N had been called by APP. No visual contact was established with this traffic so he positioned his aeroplane to the S to attempt deconfliction with the reported ac. On completion of the exercise he elected to carry out a visual recovery to Church Fenton.

The PF informed Linton ZONE they were freecalling Fenton APP on 233.45MHz and squawking A7000. No further update was given by ZONE on the previously called traffic - Tutor (A). About 10nm E of Church Fenton they requested and were cleared for a visual recovery to RW24 by APP. The PF then initiated a descent from 4000ft QFE and pointed the ac to position at about 8nm on the extended centre line of RW24. Heading 340° at 120kt, passing 3400ft QFE in the descent, the PF noticed another aeroplane in close proximity and leveled their ac, passing just overhead the other aeroplane - Tutor (A). He estimated the minimum separation as some 200m horizontally and 200ft vertically. The pilot of Tutor (A) then reported an Airprox; they replied that it was with them and that they were visual with his aeroplane. They then completed a normal visual recovery.

THE CHURCH FENTON APPROACH CONTROLLER (CFN APP) reports that at no time did she hear an Airprox report transmitted on either of the two frequencies in use at the time. Between 7 and 8 speaking units were on frequency, 4 of which were under a TS, with 3 operating in Area "C". All traffic in the vicinity had been called under the conditions of the TS.

THE LINTON-ON-OUSE ATC SUPERVISOR (SUP) reports that having spoken to the pilot of Tutor (A) and listened to the RT recording it is evident that both UHF and VHF were very busy. The APP controller was calling a number of tracks to the crew of Tutor (A) and then focused her attention to an ac calling on VHF. Whilst this ac was being answered the pilot of Tutor (A) declared the Airprox, but this was not acknowledged due to the high workload and the RT frequency being distorted by dual transmissions.

HQ 1Gp BM SM reports that a report from Linton-on-Ouse (LOO) ZONE was not available, as the controller had been posted OOA. CFN APP is responsible for the provision of an ATS to ac

recovering and transiting close to Church Fenton. ZONE is responsible for the provision of ATS to other ac transiting within LOO's LARS area, whilst Departures (DEPS) is responsible for ac departing both LOO and CFN.

Following a hand-over from Linton DEPS the crew of Tutor (A) initially contacted CFN APP at 1233:57. APP's workload was high within a complex air situation, the controller reporting they were controlling between 7 and 8 speaking units at the time of the Airprox, of which 4 were under a TS. However, at no stage did APP 'reduce' the service offered due to controller workload.

At 1242:08, APP passed TI to the crew of Tutor (A), which was updated at the pilot's request at 1242:18 and acknowledged. By comparing the pilot's reports, RT tape transcript and radar recording it is evident that the subject of this TI was Tutor (B). The crew of Tutor (B) was in receipt of an ATS from ZONE, who passed TI on an ac subsequently identified as Tutor (A) at 1240:39, which was updated at 1242:48 and acknowledged by Tutor (B). At 1244:41, when ZONE acknowledged the crew of Tutor (B)'s call that they were, "*freecalling stud 4*", Tutor (A) was about 2½nm WNW of Tutor (B) in a RH turn. When Tutor (B) selected A7000 at 1244:48, Tutor (A) was 1.9nm NW of Tutor (B), indicating 600ft below the latter in a gentle R turn. Moments later the crew of Tutor (B) freecalled CFN APP on UHF at 1244:52, for a visual recovery, co-incident with a call on VHF from a civilian light ac (LA) leaving the Church Fenton cct. CFN APP responded to the crew of Tutor (B) first, by passing the A/D details. Although APP does mention this in their report, it is reasonable to suggest that the controller will have looked away from the radar display to the Electronic Tote to read the A/D details, and then looked at the fps to log the details of the flight.

Contrary to the report from the pilot of Tutor (B), who states that at the time of the Airprox he was in receipt of a TS, the RT tape transcript shows that the provision of an ATS was not established between the pilot and controller. The Linton-on-Ouse FOB states that pilots requiring a visual recovery will receive a BS, but that in order to reduce RT, the type of ATS will not be stated. CAP774 states that:

“..whether traffic information has been passed or not, a pilot is expected to discharge his collision avoidance responsibility without assistance from the controller.”

Furthermore, whilst CAP774 permits controllers to pass a warning to aircrew in receipt of a BS when they perceive a definite risk of a collision, in this case there is no evidence to suggest that APP was aware of Tutor (B)'s position and thus any risk of a collision. ZONE had passed TI on Tutor (A) to the crew of Tutor (B) twice and, at the point when Tutor (B) left ZONE's frequency, the pilot did not request an update of the TI. Consequently, in terms of the provision of a TS within CAP774, ZONE fulfilled their duties with respect to the provision of TI to Tutor (B).

At 1245:11, the radar recording shows Tutor (B) turning R onto a NW'ly track which, based upon the pilot's report, is the positioning turn onto the extended centreline of RW24. At this point, Tutor (A) is 1.1nm NW of Tutor (B), indicating 500ft below it.

CAP774 states that:

“the controller shall pass traffic information on relevant traffic, and shall update the TI if it continues to constitute a definite hazard, or if requested by the pilot.”

Following APP's initial transmission of TI to the crew of Tutor (A) about Tutor (B), both ac continued to manoeuvre, at one stage to within approximately 1.6nm and 300ft indicated Mode C; however, given the relative speeds of the ac and their track history, this did not constitute a definite hazard. Furthermore, CAP774 states that: 'controllers may also use their judgement to decide on occasions when such traffic is not relevant, e.g. passing behind or within the parameters but diverging.' From studying the radar replay it is clear that at no point does a further definite hazard exist between Tutor (A) and Tutor (B) until 1245:12 when Tutor (A) can be seen to have rolled out of his R turn onto a SE'ly track. Consequently, whilst there is a period of 2min 9sec, during which no transmissions or

landline conversations are evident on the APP transcript, there was no requirement for APP to have updated the TI until 1245:12.

APP's transmission to Tutor (B) regarding the A/D details was completed at around 1245:05, with Tutor (B) responding immediately. Whilst APP was listening to Tutor (B)'s readback, they will have been completing their logging on the fps, selecting a further fps for the departing civilian LA and arranging it – bearing in mind the number of fps already likely to be in front of them – deselecting the UHF and then selecting the VHF in order to respond to the civilian LA pilot. Although supposition, it is likely that while APP was engaged in these activities the confliction between Tutor (B) and Tutor (A) arose and became evident on radar.

At 1245:15, when APP responded to the civilian LA pilot horizontal separation between Tutor (A) and Tutor (B) was about 0.85nm. The civilian LA is probably the A7000 contact around 8nm SW of the location of the Airprox. The APP controllers focus will have been attracted to the area to the E of the MATZ and specifically Selby [about 7nm SW of the Airprox location] by the civilian pilot's call, the lateral separation between Tutor (A) and the civilian LA will have further served to attract APP's attention away from the confliction. Furthermore, the high workload will have served to raise the level of cognitive arousal in APP, the result of which will have been to induce attentional tunnelling such that they will have had a tight visual focus onto the LA's location on the radar display. After APP first responded to Tutor (B), the last opportunity that APP had in which to pass TI to Tutor (A) was at 1245:15. Had APP done so at this late stage, it would have left only 5-6sec before the CPA for the crew of Tutor (A) to have assimilated the information, spotted the conflicting traffic and taken suitable action. The CPA occurred at 1245:26 with Tutor (B) passing approximately 0.1nm down the port side of Tutor (A), an indicated 200ft above it on Mode C.

It is contended that once APP responded to the civilian LA pilot's call at 1245:15, the opportunity had effectively been lost to provide advice or TI to resolve this confliction. Whilst APP did not reduce the provision of a TS due to controller workload, given the statement by the captain of Tutor (A) that his lookout and SA was compromised through the effects of fatigue, it is unlikely that a 'reduced' TS would have had an effect on the outcome of the occurrence. Consequently, it is not considered to be a contributory factor. Whilst in hindsight APP could have utilised the window of opportunity at 1245:15 to pass TI to Tutor (A), it is impossible to determine where the focus of the controller's attention was at the point a confliction might have become evident at about 1245:12. APP was engaged in a number of tasks at the time that appeared to be of a higher priority, given that they were unaware of the building confliction and had discharged their TI responsibilities. The spike of workload presented by the co-incident calls on UHF and VHF will have interrupted APP's normal workcycle of dividing their attention between their ac and will have compelled them to complete a number of actions that required them to look away from the radar screen.

The LOO FOB states that:

“the Vale of York is notified as an Area of Intense Aerial Activity (AIAA) and thus it is paramount that robust see-and-avoid measures are employed in order to reduce the risk of collision.”

As such, the FOB details procedures relating to the provision and usage of operating sectors, in order to provide an element of de-confliction between LOO AIAA users.

SATCO has commented that whilst the recommendations for Tutor crews to obtain a TS whilst general handling in the Vale of York AIAA are adequate, the separation of ac in the clearly defined operating areas (A, B and C) is not being correctly utilised, resulting in several ac operating simultaneously in close proximity to each other in one area, whilst having no ac operating in either of the 2 remaining areas.

Whilst weather considerations will have a significant impact upon the utilisation of specific areas of airspace, SATCO's comment suggests that there may be a more significant issue with the lack of airspace de-confliction.

The UFSO at LOO highlights that the workload on CFN APP is an ongoing issue that ATC are trying to resolve in consultation with the resident flying units and it is certain that the workload faced by CFN APP was a contributory factor in this occurrence. This issue may have arisen following the decision by the controlling authority - HQ 22 (Training) Gp – to mandate that Tutor ac operate under a TS whenever available and practicable; however, LOO has not made this Command aware of any issue to do with excessive workload.

It is recommended that LOO undertake a review of airspace de-confliction procedures. Furthermore, it is recommended that LOO ATC conduct a safety survey on workload issues for CFN APP, in order to provide a considered safety assessment on which they may progress their work with the resident flying units.

UKAB Note (1): Analysis of the Claxby Radar recording at 1245:03, shows Grob Tutor (A) maintaining 3000ft (1013mb) in a R turn through E with Grob Tutor (B) 1.6nm to the SE descending through 3500ft (1013mb) steadying NW'ly following a R turn. The two ac converge on broadly reciprocal tracks to a CPA of 0.1nm at 1245:26, when both ac are shown passing port to port, Tutor (A) maintaining 3000ft as Tutor (B) descends to an indicated 3200ft. Thereafter Tutor (B) climbs to 3400ft, turns about and follows Tutor (A) on a SW'ly course, whence Tutor (A) executes a RH orbit at 3000ft as Tutor (B) crosses 0.2nm ahead from L to R descending through 3300ft some 300ft above Tutor (A), which heads S as Tutor (B) clears to the WNW. From the RT transcript it is clear that the Airprox was initially reported at 1245:30, referring to the first occurrence at 1245:26.

HQ AIR (TRG) comments that this Airprox occurred in the Vale of York AIAA, Class G airspace, where the primary method of avoidance is 'see and avoid' supported by TI provided by ATC. TI was passed but the constantly changing air picture in the AIAA quickly nullifies this information. Both crews saw each other albeit late and neither considered that avoiding action was required.

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 two of the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

This Airprox had occurred in the busy airspace of the Vale of York AIAA and in regard to the local internal airspace issues, the HQ Air Ops Member explained that Linton-on-Ouse has been directed to review de-confliction measures, which reassured the Board. It was evident from the comprehensive reports filed by the Captains of both ac that to help them discharge their responsibilities to 'see and avoid' other ac they had supplemented their own lookout capabilities with a TS from ZONE and APP during their sorties. However, Members agreed that both accounts represented late sightings by the respective crews, which in the Board's view was the crux of the issue. The report from HQ 1 Gp ATC showed that TI had indeed been passed to each pilot about each other's ac under the TS provided before the Airprox occurred. In the case of Tutor (A), APP transmitted TI 3min and 8sec before the CPA. Whereas ZONE passed TI to Tutor (B) that was updated 2min 38 sec before the Airprox, this was before Tutor (B) switched to APP and was thus 'deemed' to be under a BS for their visual recovery to base. The report also showed that the APP controller was focused on another ac moments before the Airprox occurred; consequently, no further updates were forthcoming from APP about each other's ac before they sighted one another. Therefore, TI had been passed but the manoeuvres of the two ac subsequently brought them back into conflict, which was not immediately apparent to APP and who was fully occupied with another flight under service on VHF to the SW. The Tutor crews on UHF would not have heard APP's transmissions on VHF and a controller Member explained that it was unfortunate that no form of cross-coupling of the frequencies was possible with current equipments at RAF Terminal ATSU's, which would have allowed the crews here to hear how busy the controller was at the time. As it was the PF of Tutor (B) saw and levelled his ac above Tutor (A), which was when the crew of Tutor (A) spotted Tutor (B). The Members agreed unanimously that the cause of the Airprox was late sightings by the pilots of both ac.

Whilst the crew of Tutor (A) had probably seen Tutor (B) a little later, they had not felt avoiding action was warranted and it was plain that the PF of Tutor (B) had sufficient time to level off and forestall the developing conflict. Both crews agreed that the vertical separation was 200ft at the closest point of 200m, which was broadly substantiated by the radar recording showing 200ft from the Mode C indications at the minimum range of 0.1nm. The Board agreed therefore, that despite the relatively close distances evident here, the avoiding action taken by Tutor (B) had been sufficient to remove any Risk of a collision.

Although APP had not specified the ATS when the crew of Tutor (B) called on their recovery to base, local regulations within the Unit FOB covered this issue and the crew was 'deemed' to be under a BS from APP during their visual recovery, not a TS as the Captain of Tutor (B) had reported. It was not clear to the Board whether the Captain of Tutor (B) had made an error in his report or whether he was under the impression that, having been in receipt of a TS from ZONE he would automatically continue under a TS with APP. Whilst not questioning in any way the principle of applying a BS automatically to traffic recovering visually, controller Members suggested that the implementation of this local modification to the regulations was unwise; an experienced controller Member observed that it took no time at all to say 'Basic Service', and doing so removed any uncertainty and reaffirmed to the pilot the exact nature of the ATS applied by the controller. Members agreed that it was unwise not to state the ATS clearly when the 'contract' was established between pilot and controller. Consequently, the Board were moved to make a Safety Recommendation through HQ (Air) AO BM to the MoD: It is recommended that outside CAS where local procedures deem that a specified ATS may be provided automatically, that controllers state the actual service on the RT as a reminder to pilots of the ATS actually being given.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Late sightings by the pilots of both ac.

Degree of Risk: C.

Safety Recommendation: It is recommended that outside CAS, where local procedures deem that an ATS may be automatically provided, that controllers state the actual service on the RT as a reminder to pilots of the ATS actually being given.