

AIRPROX REPORT No 2013175

Date/Time: 12 Dec 2013 1226Z

Position: 5150N 00119W
(Oxford NDB)

Airspace: London FIR (Class: G)

Reporter: Oxford Approach Radar Controller

Aircraft 1 Aircraft 2

Type: PA34 Tutor T1

Operator: Civ Trg HQ Air (Trg)

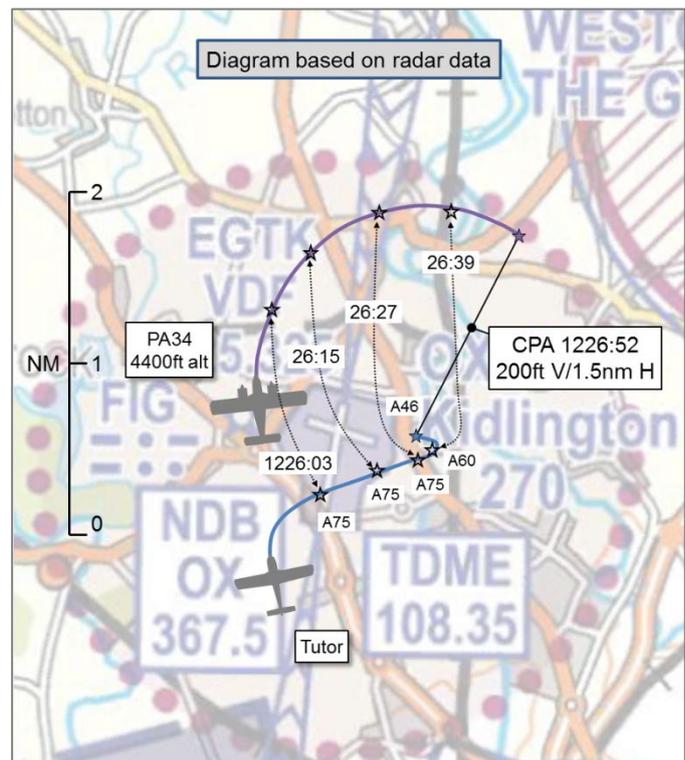
Alt/FL: 4500ft NK
 QNH (NK) QNH (1023hPa)

Conditions: IMC VMC

Visibility: NIL 10km

Reported Separation:
 Not Seen Not Seen

Recorded Separation:
 200ft V/1.5nm H



Controller Reported Separation: 300ft V/0nm H

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE OXFORD APPROACH RADAR TRAINEE CONTROLLER reports that he was providing the PA34 pilot with a Traffic Service. He observed a Benson squawk 3612 (subject Tutor registration shown on Mode S) route from overhead the Brize Norton CTR towards the Oxford Airport (OXF) overhead at FL73. The PA34 pilot was established in the OX NDB hold at 4500ft; with overhead transit traffic at 3500ft and departing traffic climbing to 2500ft. He also had traffic pre-noted from Boscombe Down at 5000ft which was due to be allocated 5500ft to return to the OX NDB for a hold and procedural approach. Danger Area D129 was active up to FL80 with a 'para-drop' aircraft airborne at the time. The 3612 squawk entered the OXF radar overhead and re-appeared briefly, still in the airport overhead, indicating FL69 before disappearing again. The aircraft then re-appeared some time later just to the east of the overhead indicating 4800ft on Mode C before climbing and re-entering the OXF radar overhead. Traffic Information was passed to the pilot of the PA34 and Benson Zone was contacted so that they could advise their aircraft about his aircraft. The 3612 squawk re-appeared some time later west of the OXF overhead at FL58 on Mode C still manoeuvring. He was subsequently advised by Benson ATC that the Tutor pilot had been conducting spinning and general handling in training area 'BRIZE EAST'. The Tutor pilot continued to manoeuvre in the vicinity of OXF at FL73 before routing towards Farmoor Reservoir. He reported the minimum separation between the two aircraft as 0nm horizontal and 300ft vertical.

THE PIPER PA34 SENECA (PA34) PILOT reports that he was operating an IFR training flight from OXF and was holding at the OX NDB at 4500ft. His aircraft was coloured blue and white; wing and strobe lights were illuminated. SSR Modes C and S were selected. He commented that he had 'little memory' of the incident. All he could recollect was being informed by OXF Radar of an unknown aircraft (possibly working Benson Radar) above his aircraft in the hold. He was IMC at the time and did not see the other aircraft.

THE GROB G115E TUTOR PILOT reports operating a VFR training flight from RAF Benson, in receipt of a Traffic Service from Benson ATC. HISLs and navigation lights were illuminated; SSR

Modes A, C and S were selected. On completion of spin training in the Brize Norton Eastern Area, not below 5500ft amsl, and in the vicinity of OXF, a message was received from Benson ATC stating that Oxford ATC were filing an Airprox against him. Whilst he was aware of other aircraft in the Brize/OXF areas, at no time did he receive information from the Traffic Service he was receiving from Benson of any aircraft that could be considered a confliction for his routine training activities. All training was completed clear of known airfields, and at no time did he receive any warnings from the 'TCAS' [aircraft is equipped with TAS] fitted to the aircraft.

He perceived the severity of the incident as 'Low'.

Factual Background

The Brize Norton weather was:

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METAR EGVN 121150Z 0000KT 5000 3500S BR SCT035 BKN200 07/07 Q1023=
METAR EGVN 121250Z 16003KT 7000 4500S BR SCT040 BKN150 09/08 Q1022 GRN BECMG 6000 HZ=
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CAP774, UK Flight Information Services¹, states:

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.

Traffic is normally considered to be relevant when, in the judgement of the controller, the conflicting aircraft's observed flight profile indicates that it will pass within 3 NM and, where level information is available, 3,000 ft of the aircraft in receipt of the Traffic Service. However, 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. Controllers shall aim to pass information on relevant traffic before the conflicting aircraft is within 5 NM, in order to give the pilot sufficient time to meet his collision avoidance responsibilities and to allow for an update in traffic information if considered necessary.

Distances displayed on ATS surveillance systems can be at variance to the actual distances between aircraft due to the limitations in accuracy of surveillance systems. Furthermore, some aircraft may not be displayed at all by ATS surveillance systems.

Analysis and Investigation

CAA ATSI

ATSI had access to area radar recordings, written reports from both pilots and the OXF Radar trainee together with an RTF recording and a transcript of the OXF Radar frequency. Controller training was in progress on the OXF Radar position.

The PA34 pilot was established in the OX hold at 4500ft (QNH 1023hPa) and at 1223:44 the PA34 pilot was advised of "traffic [the Tutor] southwest of Oxford two miles northeast bound indicating er flight level seven three manoeuvring with Benson" by OXF Radar.

The Tutor pilot maintained FL73, manoeuvring in the vicinity of the OX hold, until 1226:37 when the Mode C from the Tutor changed to FL68 (Figure 1).

¹ Chapter 3, Paragraph 5

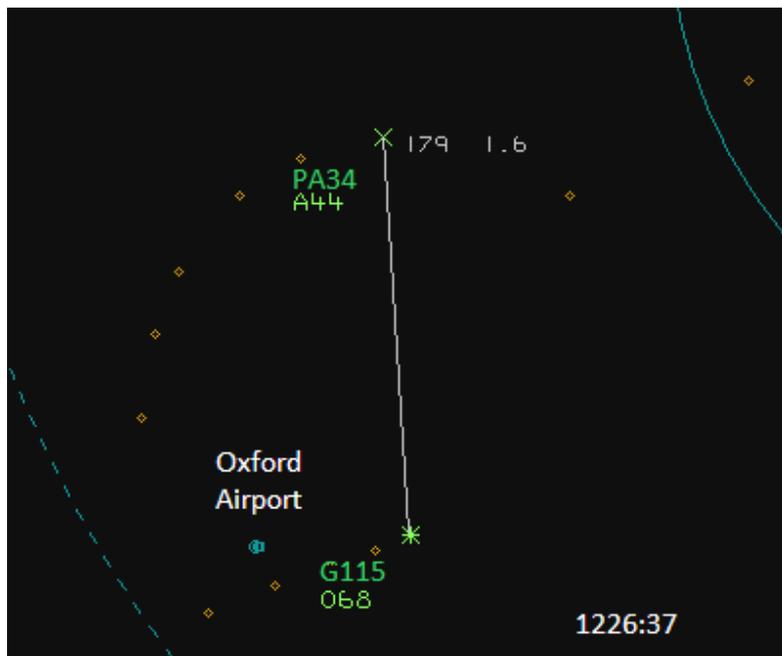


Figure 1.

On the next update of the area radar recording the Tutor was shown at altitude 6100ft with the Mode S rate of descent indicating 7600fpm (Figure 2).

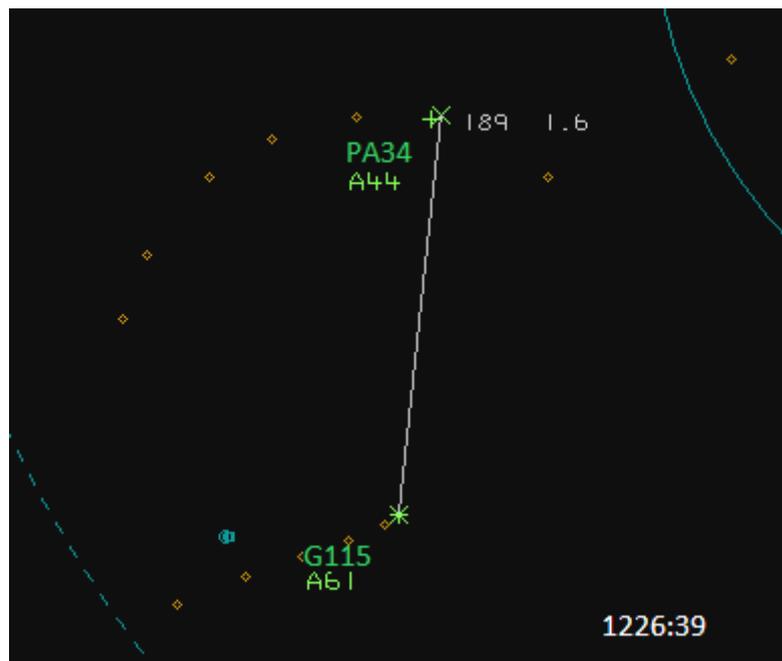


Figure 2.

At 1226:47 the Tutor was shown 1.5nm south-southwest of the PA34 at altitude 4800ft with the Mode S rate of descent indicating 9800fpm (Figure 3). The Tutor pilot subsequently climbed away to the west at approximately 500fpm.

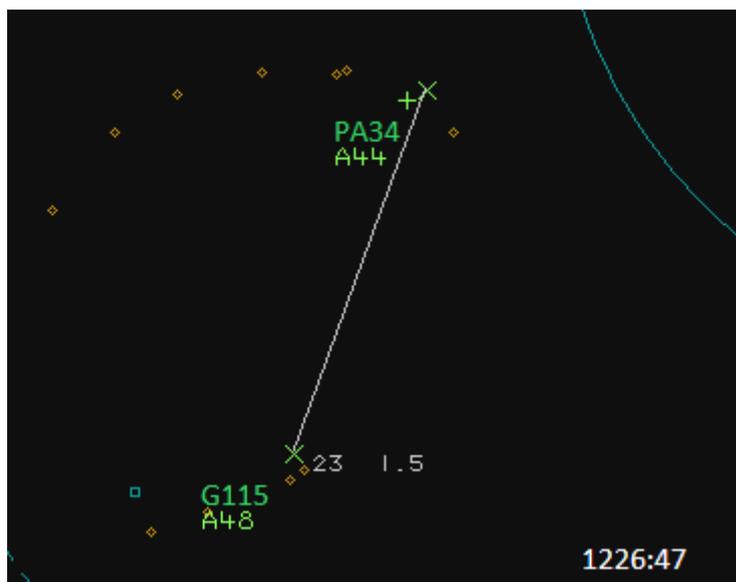


Figure 3.

At 1227:04 OXF Radar informed the PA34 pilot that “*the previously reported traffic the er Tutor is now indicating altitude five thousand feet descending in the overhead I’m just speaking to Benson now*”. OXF initiated a telephone call to Benson ATC to ask if they were working a Tutor in the Oxford overhead and to inform them that OXF had traffic in the OX hold at 4500ft. Benson stated that the Tutor was working them and OXF requested that the Tutor remain not below 5500ft and 5nm east of OXF.

At FL073 the Tutor was 3070ft above the PA34 (using 1hPa=27ft) and the OXF Radar controller was not required to pass traffic information to the PA34 pilot on the Tutor, although Traffic Information was issued. When the Tutor pilot descended and became relevant traffic it is likely that Traffic Information was delayed due to the Tutor pilot operating in the vicinity of the OXF radar overhead and the resultant erratic display of the Tutor’s primary return and associated secondary label.

Military ATM

The Tutor pilot was conducting spin training in the Oxford area, which required operating in Class G airspace under VMC conditions. The Tutor pilot did not receive any TCAS indications and did not recall receiving any Traffic Information during the incident; the incident severity was classified as ‘negligible.’

The Approach (APP) controller described the task difficulty as ‘medium’ and his workload as ‘high-to-medium’. The Benson Supervisor was assisting the Aerodrome Controller because of a potentially serious emergency aircraft recovering; the Supervisor agreed with the APP controller’s assessment of workload due to numerous Tutor sorties.

At 1224:55 the APP controller provided Traffic Information to the Tutor pilot, “[Tutor C/S] *traffic south east one mile tracking north west indicating three thousand feet below.*” The radar replay at 1224:55 (Figure 1) demonstrates accurate Traffic Information was issued by the APP controller. The Closest Point of Approach for horizontal separation was at 1225:27 at 0.3 nm, at which point vertical separation was 2900ft.

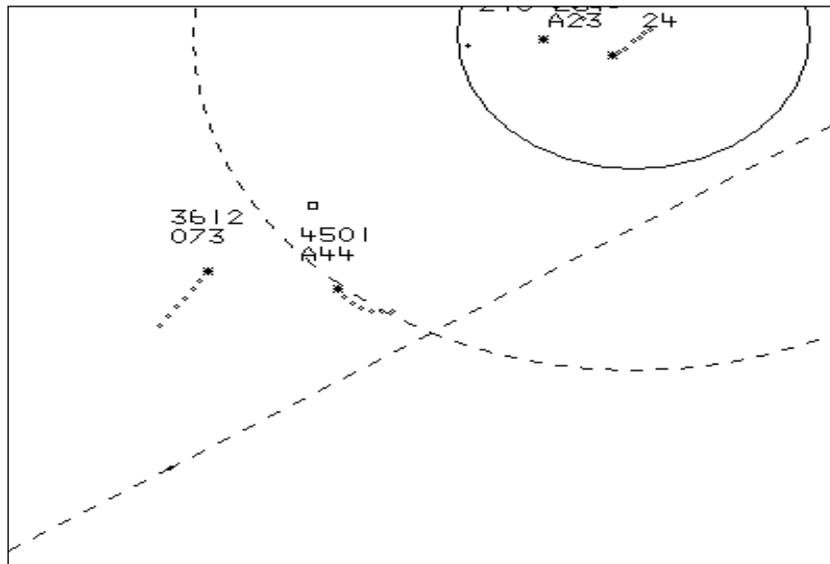


Figure 1: Aircraft geometry at 1224:55 (3612 Tutor, 4501 PA34).

At 1226:47 the aircraft were at their closest points vertically at 300ft, at which point horizontal separation was 1.5nm (Figure 2). At 1228:11, the APP controller attempted to call the Tutor pilot to provide an update; he made seven broadcasts to the Tutor pilot and was eventually answered at 1229:15. The update from the APP controller at 1229:16 was “[Tutor C/S] *traffic south east two miles tracking north, indicating two thousand feet below. He is operating in the Oxford hold, they are requesting if you could manoeuvre away from their overhead, understand you’re above it but their hold’s up to 4000 feet.*” The Tutor pilot replied with, “*Approach, [Tutor C/S] we’re trying to complete ??? exercise so whilst we’ll do our best err this is the err best area where the weather as it is right now.*”

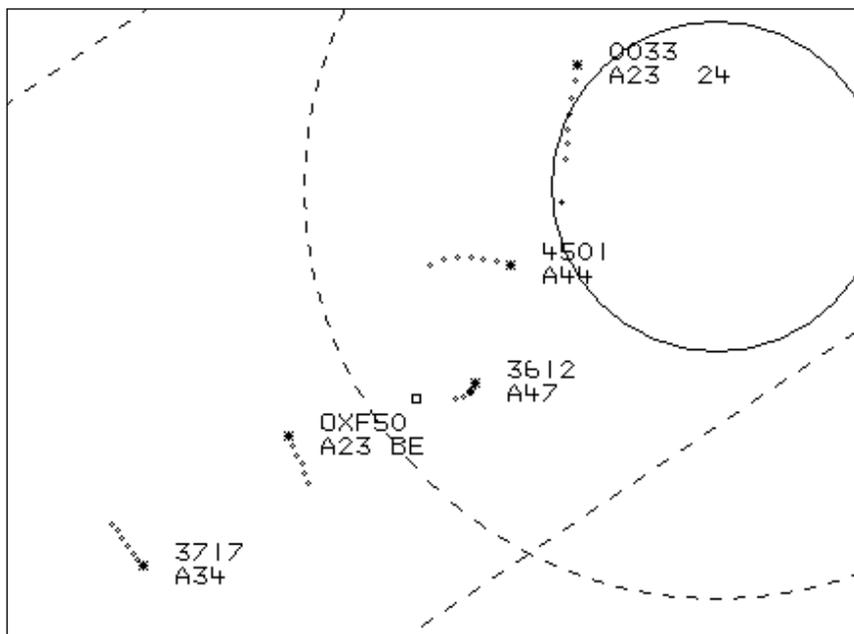


Figure 2: Aircraft geometry at 1226:47.

At 1230:38 the Benson APP controller and the OXF Radar controller discussed the Tutor and the OX Hold. No co-ordination was agreed but Traffic Information was passed on the Tutor by the APP controller and OXF advised of an inbound at 5000ft from the south. At 1232:51, the APP controller contacted the Tutor pilot to advise of the OX Hold activity up to 5000ft and requested him to route to the east of Oxford. The Tutor pilot agreed to route on a more easterly heading to find a gap; the APP controller reminded the Tutor pilot of D129 Weston-On-The-Green parachute

dropping site at a range of 0.25nm. Figure 3 outlines the Oxford Hold for RW19 and the local airspace.

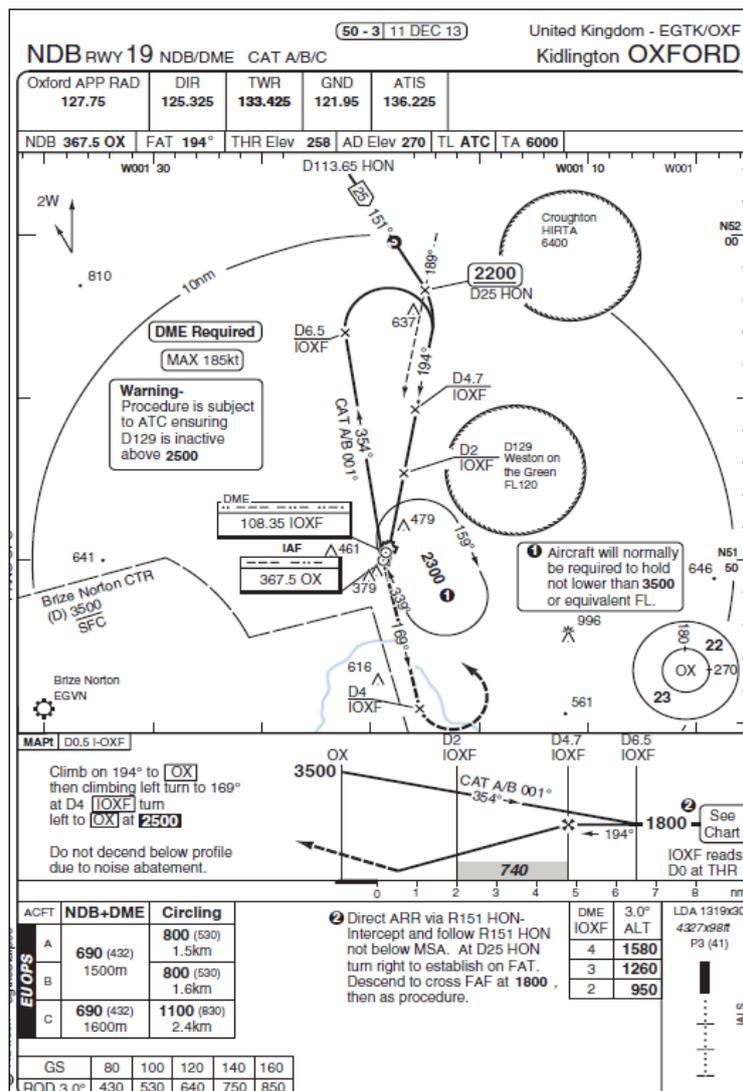


Figure 3: Oxford NDB procedure RW 19.

There is limited protection for an aircraft in IMC, in an NBD Hold in Class G airspace, particularly in an area where traffic gets funnelled due to airspace constraints.

The Tutor crew were involved in spinning exercises; the radar replay showed the Tutor descended to a lowest altitude of 4800ft on the London QNH 1028hPa. Their workload would have been high considering the difficulties in finding suitable meteorological conditions to successfully conduct the sortie. To add to the context, the Tutor crew had to avoid controlled airspace and 'para-dropping' sites and they were entitled to operate in the Class G airspace above the OX Hold. The Tutor operators have commented that the OX Hold was a 'bespoke' one and not the one promulgated in the Flight Information Publications.

The airspace constraints and the meteorological conditions can lead crews to operate in the same portions of Class G airspace. The issue is well known and discussed at the well established Oxfordshire Airspace Users' Group; in addition, RAF Benson ATM visited Oxford on the March 14 Flight Safety Day to develop a better understanding of procedures and issues. BM SPA recommended that RAF Benson ATM produce guidance to station-based crews on the holds actually used by Oxford and highlight procedures that may differ to those promulgated in publications.

Comments

HQ Air Command

This incident once again highlights the constraints of operating in busy Class G airspace where the prevailing weather conditions funnel VFR operations into a confined area. ATC provided timely and accurate Traffic Information to both aircraft but it was perhaps not immediately apparent just how busy the OX holding pattern was becoming. The Tutor pilot could have limited the base of his vertical manoeuvring to remain clear of the traffic in the vicinity of OXF or, given the weather conditions and traffic density, may have been better served by terminating the spinning exercise in such a congested area. It is worth noting that high rates of climb and descent may well exceed the parameters within which the TAS fitted to the Tutor will give timely indications of possible conflicting traffic.

Summary

The Airprox occurred in Class G airspace, when a Tutor descended rapidly whilst spinning in the vicinity of the OX NDB Hold down to a height of 4800ft whilst a PA34 was in the hold, IMC, at 4500ft. Their respective controllers passed Traffic Information to both crews: the OXF Radar controller issued Traffic Information to the PA34 pilot about 3 minutes before CPA, when the Tutor was at FL73; the Benson APP controller passed Traffic Information to the Tutor pilot approximately 2 minutes before CPA, when the PA34 was 3000ft below his aircraft. Neither crew reported a visual sighting of the other aircraft. The minimum recorded separation was 300ft vertically and 1.5nm horizontally.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from both pilots, transcripts of the relevant RTF frequencies, area radar recordings, reports from the Oxford controller and reports from the appropriate ATC and operating authorities.

The Board first discussed the airspace in which the event occurred and noted that the Tutor pilot had described operating within the 'Brize Norton Eastern Training Area', which appeared to be an 'in-house' description of a portion of Class G airspace that was designed for the deconfliction of Benson-based Tutors only. Although recognising that this was Class G airspace (within which the Tutors were clearly entitled to operate), the Board wondered how much thought had gone into considering other airspace factors when delineating this as a training area, especially due to the fact that it was established in the vicinity of the Oxford holding pattern, which can be very busy airspace, and it being in the OXF radar overhead where aircraft are not continually visible to the OXF radar controllers. This was especially relevant when aircraft, as on this occasion, might be tempted to carry out highly dynamic flight profiles such as spinning exercises above other traffic that might be conducting IMC procedural flight. The Board considered that the designation of this airspace as a training area was a contributory factor to the Airprox, and decided that a recommendation should be addressed to HQ Air Command to consider reviewing the location of the Brize East training area with respect to its suitability and coordination with other airspace users.

The Board then turned its attention to the actions of the Tutor pilot. Military members opined that the he would likely have been very aware that he was operating in the vicinity of the holding pattern and could have better coordinated his activities by informing ATC about the intended start of his spinning exercise so that updated Traffic Information could have been passed to him about other aircraft that might affect. Had the Tutor pilot known that another aircraft was in the hold, IMC, at 4500ft, they opined that it would have been unlikely that he would have continued his spinning exercise down to 4800ft. A Military ATC member reported that, after a previous Airprox concerning an aircraft carrying out a spinning exercise, it had been recommended that pilots should report to ATC 30 seconds prior to starting such exercises. The Board commented that the Tutor pilot could have better conveyed his intentions to ATC (either direct to OXF or through Benson) and that this should also be considered a contributory factor. Given that the PA34 pilot had reported being IMC at 4500ft, and the Tutor had been spinning down to 4800ft, the Board wondered what the actual weather conditions were in the

area, and whether the Tutor pilot would have been better served by terminating his exercise or raising his base height.

The Board then discussed the ATC aspects of the Airprox. Members wondered whether the OXF controller could have provided a Deconfliction Service to the PA34 pilot as he was operating in IMC. However, it was pointed out that the Airprox occurred within the OXF Radar overhead, therefore the aircraft would not have been visible on the controller's radar display at the time. The Board noted that the Benson controller had issued Traffic Information to the Tutor pilot some two minutes before the Airprox was reported to have occurred. Although realising that the Benson controller's workload was reported as 'high-to-medium', members thought that the Benson controller could have been more proactive in informing the Tutor pilot of the number of aircraft in the OX holding pattern. Moreover, a Civil ATC member commented that if Benson and Oxford ATC had communicated with each other about their respective aircraft earlier, this might have prevented the Airprox occurring. The Board agreed and opined that it would have been appropriate for both controllers, being aware of each others' aircraft, to discuss a plan of action in order to try to control the situation; this was only carried out after the Airprox had occurred.

The Board then discussed the cause and risk of the Airprox. For the former, they determined that it had been the rapid descent of the Tutor in the vicinity of the OX hold that had caused the OXF controller concern. For the latter, they noted that although the two aircraft were 1.5nm horizontally apart at CPA, this somewhat belied the fact that they were only 300ft separated vertically, and that the Tutor pilot would have had little scope for adjusting his horizontal separation in a spin. Nevertheless, although neither pilot had sighted the other aircraft, and the Tutor was in a highly dynamic manoeuvre, the Board considered that there had, in this specific geometry, been no risk of actual collision. Some members thought that an aircraft spinning to a height of 300ft above an IMC holding pattern was not normal operation and that the event should be categorised as Risk C whilst others considered that normal procedures, safety standards and parameters pertained and that the risk should be categorised as E. Following a vote, the Board determined, by a narrow majority, that the Airprox should be categorised as Risk E.

[UKAB Note: After the Board had discussed and assessed this report further information came to light, which was directly relevant to the actions of the Benson APP controller:

The Benson APP controller provided accurate TI, at 1224:55, to the Tutor pilot, regarding the PA34 in the hold. Fifteen sec after the Tutor pilot acknowledged the TI, a helicopter with an engine fire declared an emergency on the APP Controller's frequency, and the controller became very busy due to the helicopter pilot having difficulty acquiring the airfield visually. Concurrently, the Benson APP Controller was managing the break-off of an instrument recovery and conducting liaison with the Benson Tower controller to facilitate the arrival of the emergency aircraft. The Supervisor had repositioned to the Visual Control Room to manage the emergency services' response in preparation for the helicopter's arrival. As soon as the APP controller relinquished control of the emergency aircraft at 1228:06, updated Traffic Information was passed to the Tutor pilot at 1228:11, although the CPA had passed at 1226:22. It took 7 attempts to contact the Tutor pilot and, after being passed Traffic Information, the Tutor reported "*we're trying to complete (???) exercise so whilst we'll do our best err this is the err best area where the weather as it is right now*". At 1231:19 the Benson App Controller had a discussion with the Oxford controller regarding the Tutor and the activity in the OX hold. On being made aware that the number of aircraft in the hold was to increase, the Benson App Controller contacted the Tutor pilot in an effort to create a solution that would facilitate both the Oxford Hold and the Tutor pilot's requirements.

Having reviewed the additional information, the Board agreed that the Cause and Risk were still correct but the Board members wished to record that the Benson APP controller had clearly been confronted with a very challenging sequence of events. All agreed that APP had correctly prioritised the handling of the emergency helicopter over further Traffic Information to the Tutor pilot but had, nonetheless, continued to assist the pilot as much as possible and, given the circumstances, had performed extremely well, and could not have been expected to have done more.]

PART C: ASSESSMENT OF CAUSE AND RISK

<u>Cause:</u>	The Tutor pilot manoeuvred in such a way as to cause the Oxford APR concern.
<u>Contributory Factors:</u>	<ol style="list-style-type: none">1. The Tutor 'Brize East' operating area overlays the OX hold.2. The Tutor pilot did not adequately convey his intentions to ATC.
<u>Recommendation:</u>	HQ Air Command considers reviewing the location of the Brize East training area with respect to suitability and coordination with other airspace users.
<u>Degree of Risk:</u>	E.
<u>ERC Score²:</u>	2.

² Although the Event Risk Classification (ERC) trial had been formally terminated for future development at the time of the Board, for data continuity and consistency purposes, Director UKAB and the UKAB Secretariat provided a shadow assessment of ERC.