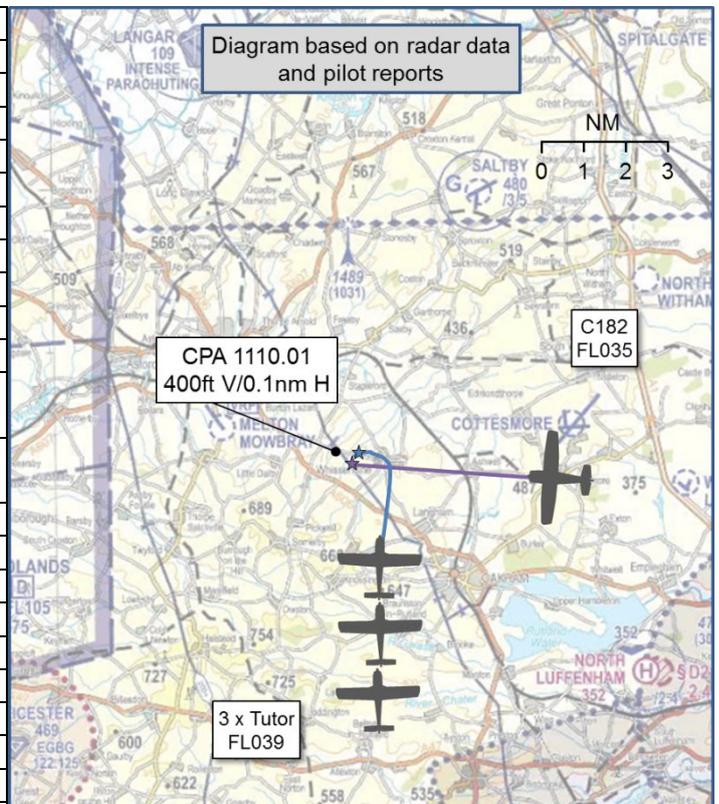


**AIRPROX REPORT No 2015193**

Date: 19 Oct 2015 Time: 1110Z Position: 5242N 00048W Location: 15nm N Wittering

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	Tutor	C182
Operator	HQ Air (Trg)	Civ Pte
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Traffic	Basic
Provider	Wittering Zone	East Midlands
Altitude/FL	FL039	FL035
Transponder	A, C	A, C, S
Reported		
Colours	White, blue	White, Burgundy, grey
Lighting	HISL, Nav, Landing	Beacon, strobes, Nav
Conditions	VMC	VMC
Visibility	20km	>10km
Altitude/FL	NR	4000ft
Altimeter	RPS (1022hPa)	NK
Heading	290°	275°
Speed	NK	140kt
ACAS/TAS	TCAS I	TCAS I
Alert	TA	TA
Separation		
Reported	50ft V/75m H	400ft V/NK H
Recorded	400ft V/0.1nm H	



**THE TUTOR PILOT** reports the lead aircraft in a 3-ship of Tutors in line-astern formation. They were above a broken layer of convection CU, with excellent visibility and receiving a Traffic Service from Wittering. The controller called traffic 1 o'clock at approximately 2nm. The Tutor pilot saw the traffic and turned the formation away, putting the conflicting traffic in his 6-7 o'clock. About 1 min later, the conflicting traffic was seen to pass down the left-hand side of the formation with approximately 75m lateral and 50ft vertical separation and an overtake speed of 30kts. No avoiding action was taken because the aircraft approached from 6 o'clock and was sighted as it passed abeam when collision risk was diminishing. The aircraft registration was taken and an Airprox called on frequency.

He assessed the risk of collision as 'Medium'.

**THE C182 PILOT** reports he was transiting from the Marham area towards Wittering and receiving a Basic Service from Wittering. When northeast of Wittering he asked the controller if he could call East Midlands early to arrange clearance for a direct crossing of their airspace. The Wittering controller asked whether he would be maintaining heading and height, which he confirmed he was. Wittering were then happy for him to continue with East Midlands. Soon after he had called East Midlands he saw three aircraft cross in front of him, slightly higher, (TCAS indicated 400ft), and they then turned left and climbed. No avoiding action was necessary. The passenger in the C182 was



**Figure 1.**

able to take photographs (Figure 1). A short while later he received a message asking him to call Wittering when he landed, which he did and he spoke to the controller concerned, who explained that an Airprox had been reported.

He assessed the risk of collision as 'Medium'.

**THE WITTERING ZONE CONTROLLER** reports that he was providing a Basic Service to the C182 pilot and a Traffic Service to the Tutors. At 1100, the C182 pilot was approximately 6nm northeast of Wittering heading 270° at 4000ft. At the time, the Tutor formation was manoeuvring 10-12nm west in a block 2000-8000ft. At 1101 the C182 pilot requested an early frequency change to East Midlands so that he could arrange a crossing of their airspace. After confirming that he would be remaining at 4000ft (and therefore above the MATZ), at that stage there was no confliction with any traffic, so he was released to East Midlands. When the C182 was due north of Wittering, the controller noticed that the Tutors had taken up a track that took them towards it, when they were 5nm away and still on a northerly heading he gave Traffic Information, stating that the conflicting traffic was at a similar level. They were not in sight at this range and once the distance closed to 2nm the controller called the traffic again and this time they reported visual. The C182 was indicating FL35 and the Tutor FL38. The radar returns merged and it looked as if the Tutors were flying around the track of the C182. The lead Tutor pilot again called "visual with the civvy", which the controller thought unusual, and once the aircraft had separated by about 1nm, the Tutor pilot reported an Airprox. The time was 1110z. The controller was the ATCO i/c so he handed the frequency and the Tutors over to the Approach controller and proceeded to arrange for the RT recordings and radar screen shots to be impounded. He later contacted the C182 pilot who confirmed that he had remained straight and level, had seen the Tutors, and his passenger had taken photographs of them.

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

## Factual Background

The weather at Wittering was recorded as follows:

METAR EGXT 191050Z 03009KT 9999 FEW021 13/09 Q1025 BLU=

## Analysis and Investigation

### Military ATM

The C182 was released early to East Midlands at 1100:40, 6nm to the northeast of Wittering. Traffic Information was provided to the Tutor pilot at 1107:47 (Figure 2), "[Formation C/S], *further traffic northeast 5 miles, tracking west, indicating slightly below.*" The pilot responded immediately with "not sighted".

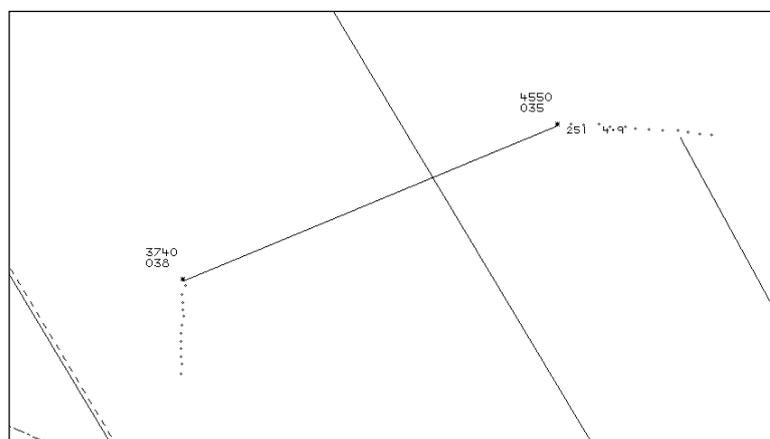


Figure 2: Traffic Information at 1107:47.

At 1108:38 (Figure 3), Traffic Information was updated to the Tutors, “[Formation C/S], *previously called traffic, northeast 2 miles, tracking west, indicating 300ft below.*” The Tutor pilot reported with, “*Sighted*”. Figure 4 outlines the aircraft geometry at 1109:31.

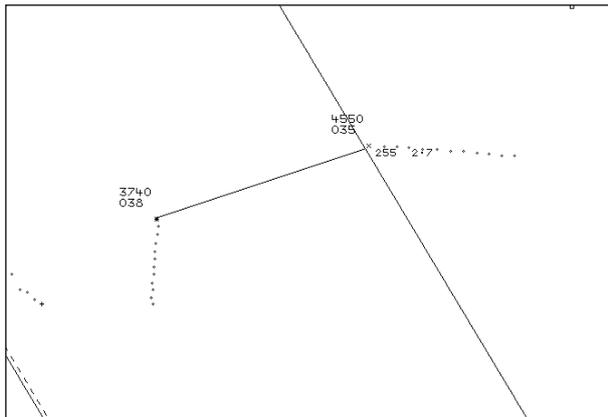


Figure 3: Traffic update at 1108:38.

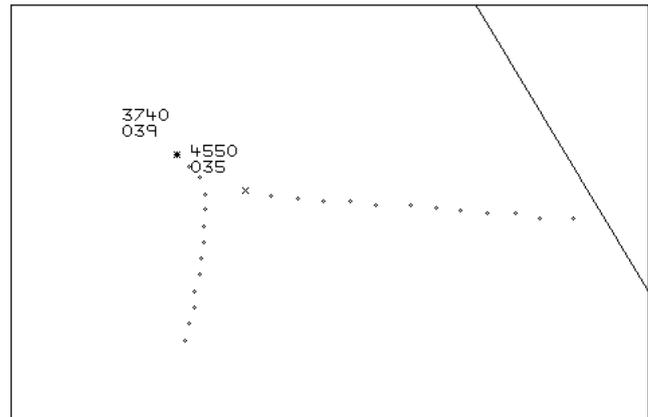


Figure 4: Geometry at 1109:31.

The Tutor formation called visual again with the C182 at 1109:59 (Figure 5); CPA was estimated between 1109:59 and 1110:04 with 400ft height separation and 0.1nm horizontal separation. At 1110:51, the Tutor pilot declared an Airprox.

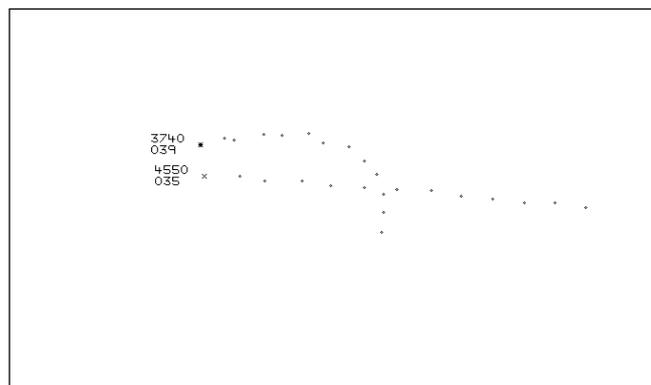


Figure 5: CPA at 1109:59.

The Wittering controller had allowed the Cessna to change to East Midlands, with no traffic to affect, approximately 7min prior to the Traffic Information to the Tutor formation. As the situation changed, the Wittering Zone controller had called two sets of accurate and timely Traffic Information, allowing the Tutor formation to become visual. The controller acted in accordance with the rules of a Traffic Service to assist the crews with collision avoidance. The Tutor crews then appear to have lost sight of the C182 as they entered a left-hand turn. The next sighting by the Tutor crews was at the CPA as the C182 was overtaking from astern.

### UKAB Secretariat

The Tutor and C182 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard<sup>1</sup>. If the incident geometry is considered as converging then the Tutor pilot was required to give way to the C182<sup>2</sup>. An aircraft that is obliged to keep out of the way of another shall avoid passing over, under or in front of the other, ...<sup>3</sup>. If the incident geometry is considered as overtaking then the Tutor pilot had right of way and the C182 pilot was required to keep out of the way of the other aircraft by altering course to the right<sup>4</sup>.

<sup>1</sup> SERA.3205 Proximity.

<sup>2</sup> SERA.3210 Right-of-way (c) (2) Converging.

<sup>3</sup> SERA.3210 Right-of-way (c).

<sup>4</sup> SERA.3210 Right-of-way (c) (3) Overtaking.

## Comments

### HQ Air Command

This incident highlights the importance of maintaining visual contact with conflicting traffic until the situation is resolved. Although the Tutor pilot was provided with sufficient TI to become visual with the conflicting traffic, it appears that he lost contact with the C182 during the manoeuvre to provide separation for his formation. As a result, he may have been surprised by the proximity of the traffic as it passed the formation shortly after his manoeuvre; this reaction may also account for the discrepancy in the reported separation. Had both pilots been listening to the same frequency, there may have been an opportunity for them to maintain situational awareness and pass their intentions, therefore preventing this occurrence.

### Summary

An Airprox was reported when a formation of Tutors and a C182 flew into proximity at 1110 on Monday 19<sup>th</sup> October 2015. Both pilots were operating under VFR in VMC, the Tutor pilot in receipt of a Traffic Service from Wittering and the C182 pilot not in receipt of an ATS.

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

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

The Board first looked at the actions of the C182 pilot, he was transiting through airspace close to RAF Wittering and was in receipt of an appropriate ATS from them. Keen to organise his clearance through controlled airspace, he acted correctly in asking the controller if he could leave the frequency early and, this having been agreed, he was perfectly entitled to then speak to East Midlands. As the Tutors subsequently approached from his left, he received TCAS-derived Traffic Information and clearly saw them early as they turned ahead of him. Members noted that, at that point, the Tutors were required to give way to the C182, that he had assessed that no avoiding action was necessary, and that he was content to continue on track.

For their part, the Tutors were receiving a Traffic Service whilst operating in a block of airspace. The Traffic Service was appropriate to the conditions; both pilots reported that the visibility was good. The Board noted that the workload for a lead pilot in formation-flying is high, and that this could well have contributed to the Tutor pilot not sighting the C182 when Traffic Information was first given at 5 miles. The Tutors continued to track towards the traffic, and the controller updated the information at 2 miles (about the same time that the on-board TAS also provided information). This time the Tutor pilot was visual and, in accordance with Rules of the Air, he was required to give-way; he did this by turning the formation to the left in front of the C182. Board members wondered why he chose this direction, noting that an aircraft that is obliged to keep out of the way of another shall avoid passing over, under or in front of the other. Some members opined that it would have been better to have turned slightly right to go behind the traffic, although they acknowledged that he may have felt constrained by the reduced manoeuvrability of the formation and didn't want to make a tight right turn. Having turned left, the Board surmised that the Tutor pilot probably lost situational awareness on the exact position of the C182 and expected that the formation would now be clear and perhaps accelerating ahead. As a result, he was surprised and perhaps startled when the C182 suddenly appeared on their left-hand-side. This 'startle-factor' probably caused the pilot to assess the C182 as much closer than it actually was; in his report he assessed it as 50ft and 75m when in fact radar derived separation indicated that it was 400ft and 0.1nm (185m). Although interpreting photographs with unknown focal length can be prone to error, the picture provided at Figure 1 appeared to corroborate the latter assessment of separation.

The Board then debated at length whether the C182 pilot should have, subsequent to the Tutor formation turning in front of him, avoided them by a greater margin, and flown to their right in what

was now ostensibly an overtaking situation. However, the consensus was that the Tutor pilot had been the architect of his own Airprox and had left the C182 pilot with few options as the Tutors rolled out to his right and he closed on the formation from behind. Being 400ft below the Tutors, and having been placed in this situation by the Tutor formation, the Board considered that this was not specifically an overtaking situation and that the C182 pilot had acted with due care and caution by ensuring he remained offset and well below the formation.

The Board briefly looked at the actions of the Wittering controller, at the time that he was asked by the C182 pilot if he could leave the Wittering frequency, the Tutors were to the west of Wittering and were not a factor, so the controller had no reason to keep him on frequency. Once the Tutors had begun tracking on a northerly heading, the controller gave timely and accurate information to the Tutor pilot, which he then updated as the aircraft closed. The Board agreed that he had acted in accordance with ATC regulations and discharged his duty of care towards both pilots.

Turning to the cause of the Airprox, it was quickly agreed that the Tutor pilot had flown into conflict with the C182. However, a long discussion ensued about the risk, with some members believing that, with 400ft separation, normal safety standards had pertained (Category E). Others thought that this was closer than desired, albeit with no risk of collision (Category C) because the C182 pilot had seen the Tutors cross ahead and had assessed that no avoiding action was necessary. In the end, the Chairman put it to a vote and, by a narrow majority, the Board assessed the Airprox as Category E.

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

Cause: The Tutor pilot flew into conflict with the C182.

Degree of Risk: E.