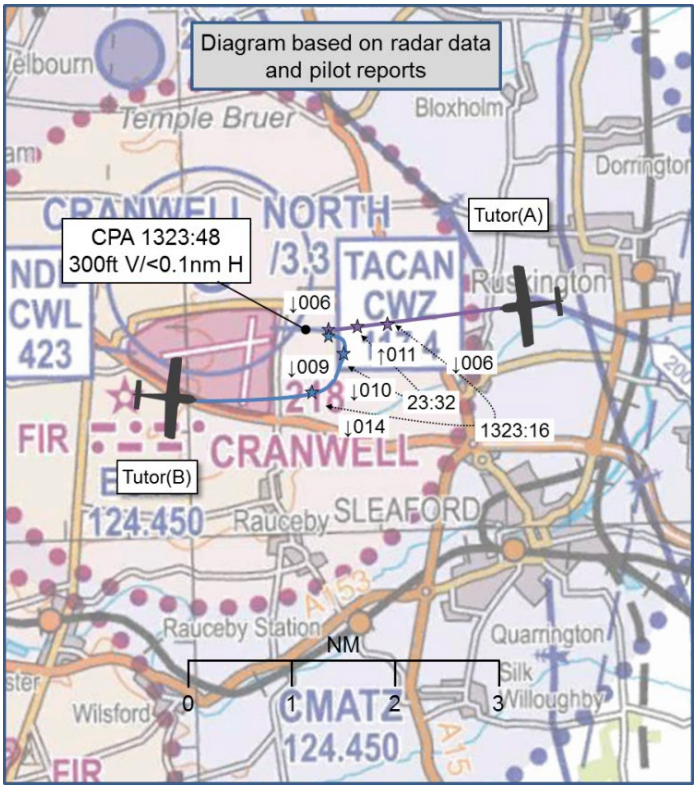
AIRPROX REPORT No 2015219

Date: 16 Dec 2015 Time: 1323Z Position: 5301N 00029W Location: 1nm final Cranwell

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Tutor(A)	Tutor(B)
Operator	HQ Air (Trg)	HQ Air (Trg)
Airspace	Cranwell ATZ	Cranwell ATZ
Class	G	G
Rules	VFR	VFR
Service	Traffic	Aerodrome
Provider	Cranwell Approach	Cranwell ADC
Altitude/FL	FL006	FL009
Transponder	A,C,S	A,C
Reported		
Colours	White	White
Lighting	HISLs, Nav, Landing	
Conditions	VMC	VMC
Visibility	20km	
Altitude/FL	Not known	1100ft
Altimeter	QFE (1007hPa)	QFE (1007hPa)
Heading	259°	NK
Speed	NK	NK
ACAS/TAS	TAS	Unknown
Alert	None	Unknown
Separation		
Reported	75ft V/75ft H	
Recorded	300ft V/<0.1nm H	



THE TUTOR(A) PILOT reports that he was instructing a student cleared for a low approach from an SRA, to depart on runway track climbing to 2500ft for further radar. The aircraft was levelled at 490ft as it approached the Missed Approach Point and the instructor looked ahead to clear the airspace directly ahead and either side of the predicted flight-path for the go-around before telling the student 'simulated not visual'. The student then executed a go-around. Shortly after the aircraft had transitioned from level flight at 100kts to 10° pitch-up with speed stabilising at 80kts, the instructor looked up to see a Tutor aircraft belly up, approaching their flight-path rapidly from the left and very close. The instructor took control and bunted to avoid the other Tutor's flight path. He levelled the aircraft at 300ft over the threshold and looked again to clear the flight-path and recommence the departure as previously cleared. He did not note the height at which the Airprox occurred, but emphasized that in transitioning from 100kts to 80kts climbing at full power in a strong headwind, circuit height would be achieved very swiftly.

He assessed the risk of collision as 'High'.

THE TUTOR(B) PILOT reports being at 1100ft on final for a glide circuit when he was informed about radar traffic. He immediately turned right simultaneously applying full-power to go around onto the deadside. When he dropped the left wing to try to get visual contact he saw a Tutor about 800ft below, which had previously been obscured by the airframe. He had no recollection of being warned about this traffic from ATC.

He assessed the risk of collision as 'Low'.

THE CRANWELL ADC reports the circuit was not full, but was busy with a number of departures and arrivals, and a high volume of radio transmissions. This, combined with multiple radar traffic integration and land-line calls made the workload high. Tutor(B) was downwind in the glide circuit for a touch-and-go with Tutor(A) ahead on radar for a low approach. The 3-mile broadcast had been made but, due to the strong headwind, the Tutor radar traffic was taking longer than usual to get to the threshold. Another aircraft requested a join downwind and was in the circuit by the time Tutor(B) was downwind at glide height. Tutor(B) was late downwind and appeared to be turning final, so the ADC asked whether he was visual with the radar traffic, which was now on short finals. He responded 'negative, finals' and had at this point turned belly-up to the radar traffic which was lower and on final. The ADC gave Tutor(B) Traffic Information in the hope that he would see the radar traffic, at the same time Tutor(A) appeared to descend in apparent avoiding action and Tutor(B) turned onto dead-side. The controller noted that, with hindsight, Tutor(B) pilot would not have been able to see the traffic at the point at which he gave Traffic Information, but he believed that an instruction to go-around at this point would have had little effect on the outcome. The strong headwind also contributed because Tutor(A) had not been in the expected position for an aircraft going around on radar.

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

THE CRANWELL SUPERVISOR reports that he did not witness the event and first learned of it when the App controller informed him that Tutor(A) reported an Airprox with aircraft in the visual circuit. He immediately requested that the RTF tapes be impounded and spoke to all of the controllers involved to get their perspective on the event.

Factual Background

The weather at Cranwell was recorded as follows:

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METAR EGYD 161250Z 24021KT 9999 BKN019 BKN025 13/10 Q1014 WHT TEMPO FEW020 BLU=
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Analysis and Investigation

Military ATM

The incident took place between a Tutor under an Aerodrome Service with Cranwell Tower and a Tutor under a Traffic Service with the Cranwell Surveillance Radar Approach (SRA) Controller. At 1318:11, the Aerodrome Controller transmitted, "*Tutor, 7 miles, low approach further*." At 1219 a non-Airprox Tutor reported finals and was passed position reports on all traffic including the radar traffic at 3.5 miles. At 1321:27, Tutor(B) had a glide circuit approved.

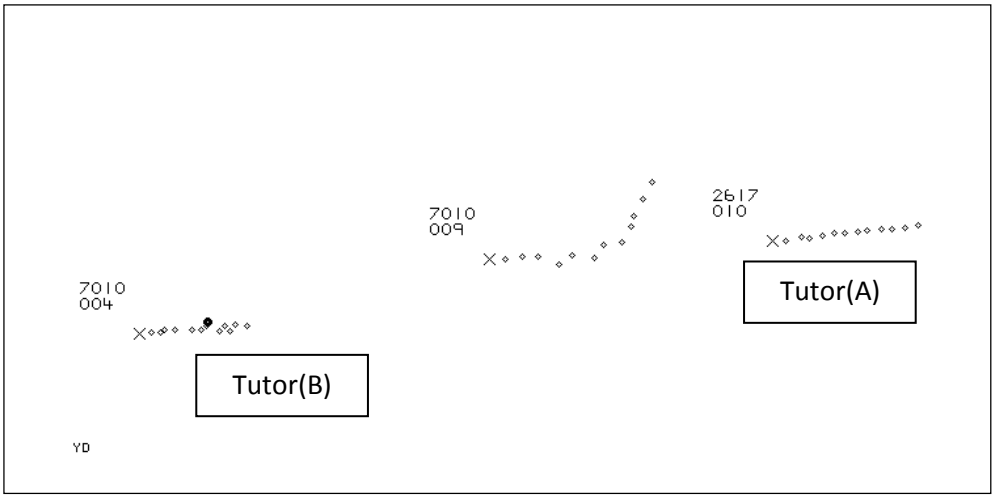

Figure 1: Glide circuit approved at 1321:27 (Tutor(A) 2617; Tutor(B) 7010 Mode C 004).

At 1321:46, the Aerodrome Controller broadcast to all stations, "*Tutor 3 miles, low approach*." At 1322:13 another non-Airprox Tutor called for a downwind join and was passed traffic position reports with the radar traffic Tutor(A) at 2.5 miles. At 1322:24 (Figure 2), Tutor(B) reported downwind and the Aerodrome Controller replied with, "*1 ahead, radar traffic 2 miles, surface wind…"* The transmission was acknowledged by Tutor(B).

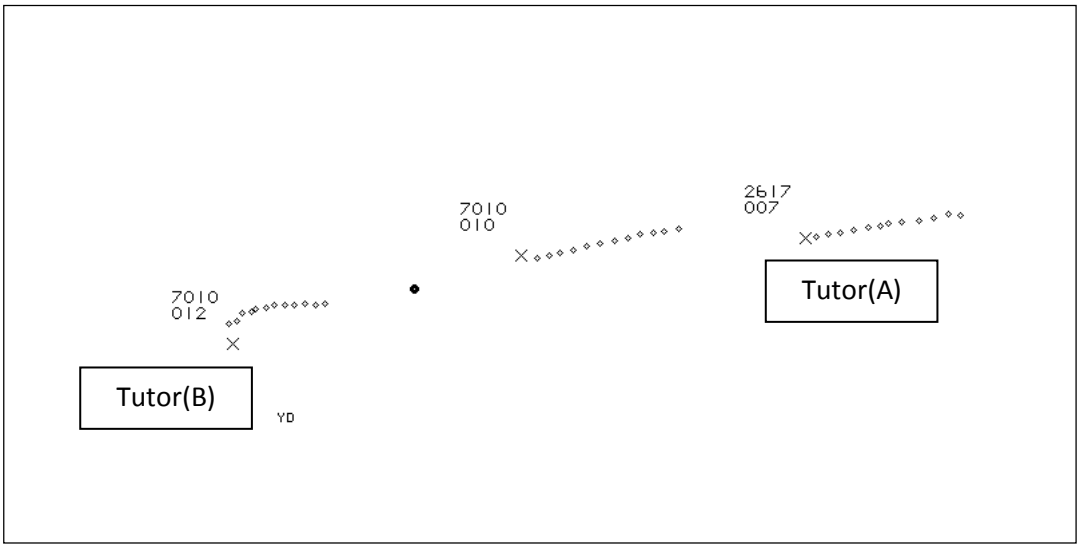

Figure 2: Tutor(B) downwind; radar traffic passed as ahead at 1322:24.

At 1323:16, the Aerodrome Controller requested, "{Tutor(B)} *are you visual with the radar traffic*?" At 1323:20 (Figure 3), Tutor(B) pilot called finals without answering the question from the controller.

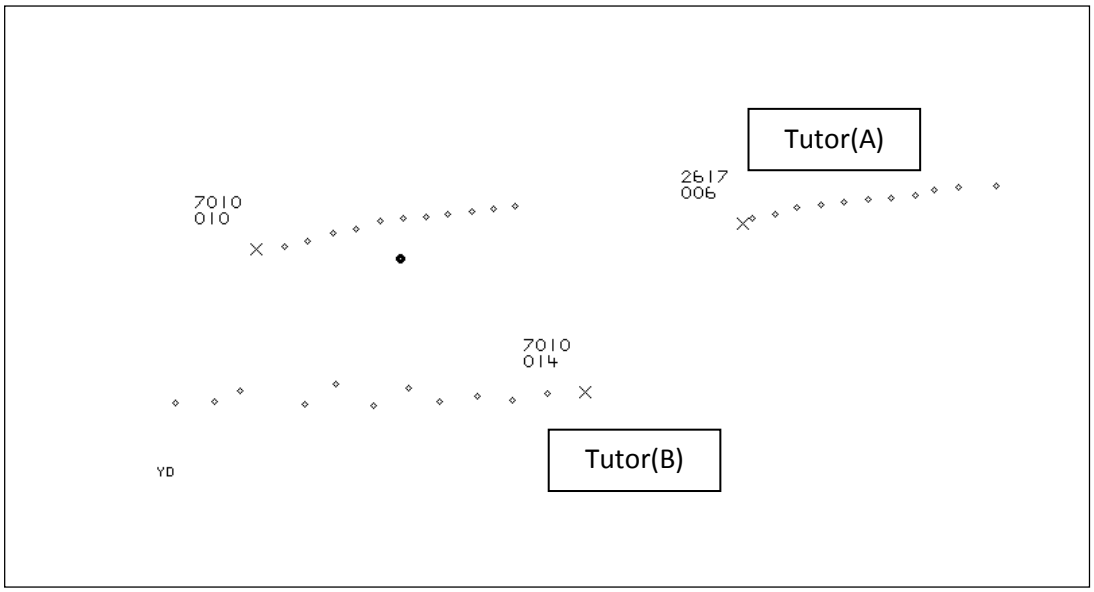

Figure 3: Tutor(B) called finals at 1223:20.

At 1323:22, the Aerodrome Controller repeated, "{Tutor(B)} *are you visual with the radar traffic?*" Tutor(B) pilot reported negative and Traffic Information was provided at 1323:26 (Figure 4) with, "*the radar traffic is going around this time, over the 26 threshold-ish*." Tutor(B) pilot acknowledged and reported going-around at 1323:46.

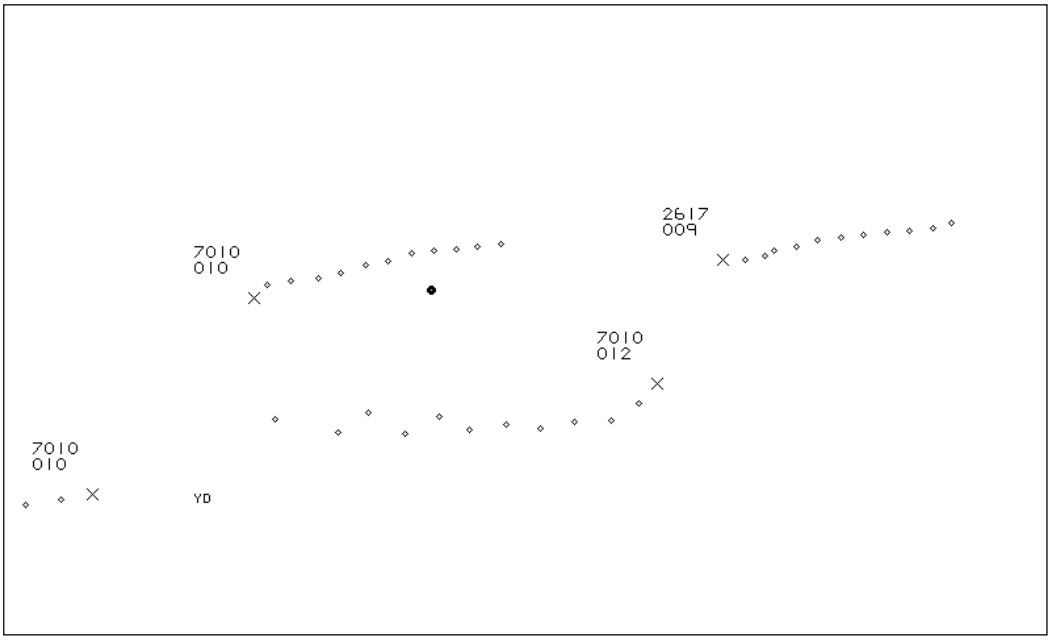

Figure 4: Traffic Information passed at 1323:26.

The CPA was estimated between 1323:40 and 1323:49 (Figure 5) with an estimated height separation of 100ft vertically and 0.1nm horizontally.

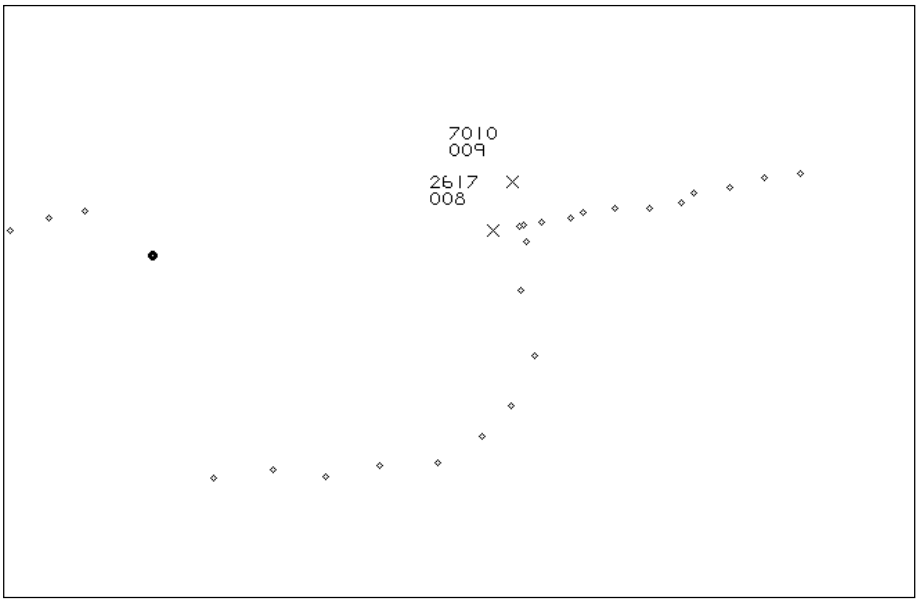

Figure 5: Just after CPA, 1323:49.

The Cranwell Aerodrome Controller reported a high workload; the circuit was not full but the RTF exchanges had increased the task difficulty. Tutor(B) was downwind on a glide circuit (the glide circuit involves aircraft descending on the downwind leg from 1500ft and the finals turn can be earlier than normal circuits). The controller provided a 3nm call for Tutor(A) on an IFR approach and the controller was aware of the effect of the strong headwind slowing the approach of Tutor(A). Tutor(B) was asked if visual with Tutor(A) and the Tutor(B) pilot responded with 'negative'. The controller realised that Tutor(B) was 'belly-up' to the radar traffic and the Air Traffic Monitor was used to provide Traffic Information. No mention was made of the incident on the SRA frequency by Tutor(A). As Tutor(A) was executing a missed approach, the Airprox was declared on the Radar Approach frequency at 1323:39.

Tutor(A) had been on a low approach for a further radar circuit. The aircraft had been levelled at 490ft QFE approaching the Missed Approach Point. The instructor was clearing the airspace visually and instructed the student to simulate not being visual with the runway. As Tutor(A) initiated the Missed Approach with a 10° pitch-up, Tutor(B) was spotted 'belly-up' and very close. The instructor took control and bunted to avoid Tutor(B).

Tutor(B) recalled being at 1100ft on finals from a glide circuit. The crew were informed of the Tutor on radar. The crew of Tutor(B) turned right and applied power to go-around onto the deadside. When the crew dropped the left wing to get visual contact, a Tutor was spotted 800ft below; the crew reported that they had no recollection of ATC warning of traffic.

The Aerodrome Controller made broadcasts about Tutor(A) at 7 and 3nm and passed further information on the position of Tutor(A) from touchdown at 3.5 and 2.5nm. Furthermore, Tutor(B) was informed that Tutor(A) was at 2nms finals and was ahead for the runway. At 1323:16 (33 seconds prior to CPA), the crew of Tutor(B) were asked if they were visual with Tutor(A) and the controller passed further Traffic Information when Tutor(A) was over the threshold. There was an abundance of Traffic Information from ATC and for Tutor(B) pilot not to recall being passed information may indicate that the crew did not fully appreciate Tutor(A)'s position on finals as they had positioned 'belly-up'. The visual circuit was busy, particularly with RTF calls, and Tutor(B) was involved in a training sortie. The crew of Tutor(B) had to be called twice to ask if they were visual with Tutor(A) and it is possible that the crew of Tutor(B) had not processed the earlier Traffic Information or had not received the RTF call. Once the crew of Tutor(B) had turned onto finals, Tutor(A) would be obscured from view. The instructor of Tutor(A) maintained lookout and was able to take an avoiding action bunt to increase separation.

UKAB Secretariat

The Tutor(A) and Tutor(B) pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[1]. An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation[2], additionally:

> **Order of landing**
> **9.**—(1) If an air traffic control unit has communicated to any aircraft an order of priority for landing, the aircraft must approach to land in that order.[3]

The RAF Cranwell Defence Aviation Manual states:

> **Circuit Priorities**. Ac on final approach will have priority over other aircraft (in this context final approach can be considered to be within 3 nm of an IFR approach or after the entry to the final turn on a visual circuit). In all other circumstances, the following priorities will be applied to air traffic operating to and from CWL: …
>
> f. Approach to land (instrument traffic to have priority over visual traffic)….
>
> h. Approach to touch and go/ go around (instrument traffic to have priority over visual traffic)….[4]

[1] SERA.3205 Proximity.
[2] SERA.3225 Operation on and in the Vicinity of an Aerodrome.
[3] Rules of the Air 2015 3-9-1.
[4] RAF Cranwell DAM, Annex Q Part 2 Order B208 para 7.

Comments

HQ Air Command

Clear communication and the maintenance of situational awareness is key to safe deconfliction between integrated visual and instrument patterns. Although an abundance of TI was provided to the pilot of Tutor(B), both directly and to other aircraft in the circuit, it is apparent that this information was not assimilated; possibly due to over-concentration when conducting a glide circuit in a busy traffic environment. As a result, Tutor(B) turned finals during his glide approach towards the approaching instrument traffic, which had priority. Ultimately, this incident was resolved by the actions of the safety pilot in Tutor(A) and the intervention of the Tower Controller directing Tutor(B) to go around.

Summary

An Airprox was reported when Tutor(A) and Tutor(B) flew into proximity at 1323 on Wednesday 16th December 2016. Both pilots were operating under VFR in VMC, Tutor(A) pilot was in receipt of a Traffic Service from Cranwell App and was going around following an SRA. Tutor(B) pilot was in the Cranwell visual circuit.

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 Tutor(B) pilot. Although the visual circuit was busy and the frequency was busy with RTF calls, ATC had given him Traffic Information both individually (telling him 'one ahead, radar traffic 2 miles' when he called downwind) and by broadcasting the radar clearances as normal; the Board considered that the information on Tutor(A) was there for him to note. The Board wondered why he did not assimilate the information on the radar traffic and noted that it was two very experienced pilots flying on staff continuation training; this led them to wonder whether the pilots had become task-focused, concentrating on their internal cockpit communication during glide-circuits in a strong headwind. Noting that, despite being asked twice, the Tutor(B) pilot didn't reply to the controller questioning whether he was visual with the radar traffic, the Board wondered whether the pilot had a high cockpit work-load, had become saturated and had simply lost situational awareness. Tutor(A), as IFR traffic, had priority over the visual circuit traffic and, as an experienced pilot, Tutor(B) pilot would have been aware of this and known that he would need to give way had he assimilated the information. The military members confirmed that, although in military visual circuits ATC will not generally send aircraft around from the downwind position, pilots are aware of the need to integrate with radar traffic and Tutor(B) pilot should have expected to give-way, either by going-around or by extending down-wind, the decision was his, but that this depended upon him appreciating that the radar traffic was ahead in the first place.

Turning to the Tutor(A) pilot, he was conducting an instructional SRA approach and was intending to follow the missed-approach procedure. He was given clearance to make his approach and, having levelled off at the decision height of 490ft, the instructor looked out to check the way was clear to continue to climb. He assessed it as clear, and instructed the student to simulate a missed approach. Some members wondered how effective his lookout had been, and whether he had seen Tutor(B) which must have been on, or approaching, finals at this point. Notwithstanding, they noted that shortly afterwards he had seen Tutor(B) ahead on finals, very close, and had taken control and bunted to avoid. Tutor(A) was on the SRA frequency at the time and, although he had been given the number in the circuit with his 3 mile clearance, was not given the positions of the traffic. The Board felt it was therefore fortuitous that the instructor saw Tutor(B) and was able to take avoiding action.

Finally, the Board discussed the actions of the ADC. He had reported that the circuit was busy and that there were numerous RTF transmissions. Noting that he had made all radar broadcasts and

Traffic Information calls correctly, ATC members wondered nevertheless whether, having noticed that Tutor(B) looked like he was about to turn finals and having not received a reply from his question to ascertain whether the pilot was visual with the radar traffic, he should have told him to go-around at that point. That said, the Board acknowledged that they were commenting with the benefit of hindsight, that the controller probably couldn't see the exact geometry from the tower, and that having provided the pilot with the information about the radar traffic, he would not have expected the Tutor(B) pilot to act as he did.

In discussing the cause of the Airprox the Board decided that Tutor(B) pilot had flown into conflict with Tutor(A), with a contributory factor that Tutor(B) pilot had not assimilated ATC Traffic Information. Assessing the risk, they discussed the actions of Tutor(A) pilot and decided that his emergency avoiding action had materially increased the separation between the two aircraft and therefore they judged the Airprox to be Category B, safety margins had been much reduced.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Tutor(B) pilot flew into conflict with Tutor(A)

Contributory Factor(s): The Tutor(B) pilot did not assimilate ATC Traffic Information.

Degree of Risk: B.