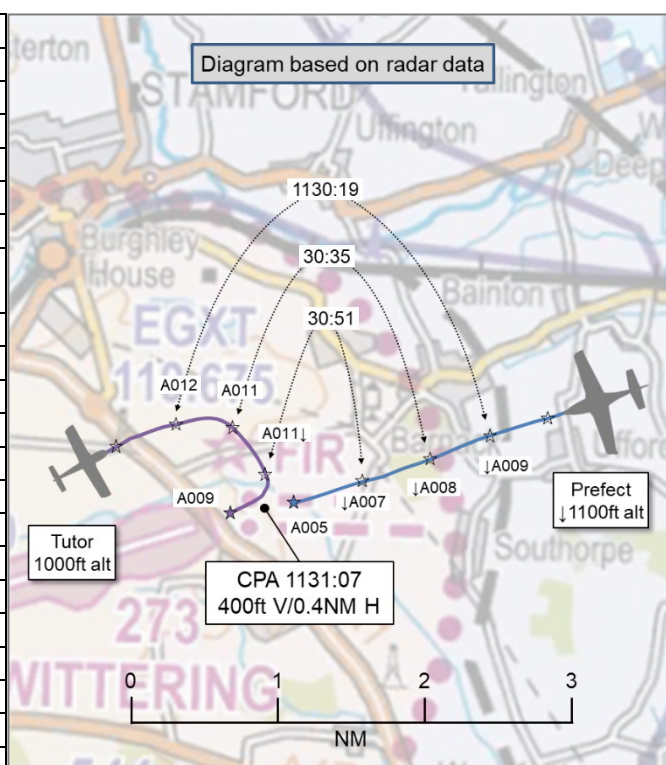


AIRPROX REPORT No 2021231

Date: 12 Nov 2021 Time: 1131Z Position: 5237N 00027W Location: Wittering ATZ

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Prefect	Tutor
Operator	HQ Air (Trg)	HQ Air (Trg)
Airspace	Wittering ATZ	Wittering ATZ
Class	G	G
Rules	IFR	VFR
Service	Traffic	ACS
Provider	Wittering Talkdown	Wittering Tower
Altitude/FL	500ft	900ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White, RAF marks	NR
Lighting	NR	NR
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	350ft	800ft
Altimeter	QFE (NR hPa)	QFE (998hPa)
Heading	250°	025°
Speed	120kt	80kt
ACAS/TAS	TAS/FLARM	TAS
Alert	TA	Unknown
Separation at CPA		
Reported	0ft V/400m H	NR V/NR H
Recorded	400ft V/0.4NM H	



THE PREFECT PILOT reports that during a PAR to RW25 on the Talkdown frequency, with the student in the right-hand seat head-in flying the approach, they were cleared for a low approach not below 200ft, which was read back by the student. At approximately 400ft they spotted a Tutor to their right, half past 1 o'clock, high and the [compatible EC equipment] audio sounded. The Tutor was approximately 600m away and closing, turning final and descending in front of them. As the student approached decision-height at 240ft the TAS traffic alert sounded as the Tutor crossed in front to the dead side with closest approach estimated at approximately 300m and at the same level. Avoiding action was not taken as they were unsure if the Tutor pilot had Situational Awareness on them, so, with a desire to remain predictable, they elected to let the student fly the planned missed approach heads in, whilst they maintained sight of the Tutor. The student flew the planned missed approach and began climbing away from decision height at 240ft while the tutor continued onto the deadside approximately 400m in front. As they began to climb away the tutor turned cross wind in front of them and they lost sight as it passed below the nose. With maximum-continuous power set and at maximum rate of climb they were content this was the safest course of action to create separation from the Tutor. They then changed to the Approach frequency and reported an Airprox, with the rest of the sortie continuing without further incident.

The pilot assessed the risk of collision as 'Medium'.

THE TUTOR PILOT reports that they were the handling pilot and, after completing a go-around from a PAR approach, they had joined the visual circuit at 800ft on the deadside. Tower called them stating "radar traffic, 7 miles", therefore they called "extending upwind" and did so before turning downwind. They called "downwind to land" at the usual position and Tower informed them that the radar traffic was now at 5NM. As a result, when abeam the threshold they called "going around at circuit height, with radar traffic in sight". Once positioned deadside at 800ft and at 80kts they requested an update on the

location of the radar traffic. ATC stated "*radar traffic over the ramp*". They became visual with the radar traffic in their 5 o'clock and turned downwind, They remained visual with the Prefect throughout the downwind turn. When they were perpendicular to the runway they could see the Prefect on their right-hand side with safe separation. They continued and landed as normal. During the in-brief they were advised that the Prefect pilot had filed an Airprox.

They recall that they were ahead of the Prefect during the go-around and their downwind turn, maintaining Situational Awareness of the Prefect and other traffic in the visual circuit at all times. Separation was maintained throughout and they were visual with the Prefect before, during and after the downwind turn. At no point did they consider the separation to be unsafe for the visual circuit.

The pilot assessed the risk of collision as 'Low'.

THE WITTERING TALKDOWN CONTROLLER reports that the Prefect [pilot] did not declare the Airprox on the frequency and as such they have nothing to report.

The controller perceived the severity of the incident as 'Low'.

THE WITTERING APPROACH CONTROLLER reports that they had just taken over the Radar position with a Screen controller sat behind them at 1130. [The Prefect pilot] was in contact with the Talkdown controller conducting an instrument recovery terminating in a low approach, go-around and then departing VFR to the north. At 1132, [the Prefect pilot] called on the approach frequency and declared an Airprox involving circuit traffic, describing the separation as being 500m, above, crossing overhead.

The Controller perceived the severity of the incident as 'Low'.

THE WITTERING APPROACH ATCO IC reports that they were the ATCO IC at the time of the occurrence and were also screening the RA controller. Following a low approach PAR, the [Prefect pilot] was climbing out and made contact on the Approach frequency and, after the Approach controller had informed the [Prefect pilot] that they were identified and agreeing a Traffic Service, the [Prefect pilot] informed the controller that they were declaring an Airprox involving a Tutor that was in the visual circuit. The [Prefect] pilot stated that a Tutor had crossed in front of them at a range of approximately 500m. This was then passed immediately to the Tower controller via the Radar clearance phone-line for their awareness. They then informed the under-training controller that they had control of the position and instructed them to file a DASOR straight away as it would be fresh in their mind.

THE WITTERING TOWER CONTROLLER reports that there were two Tutors in the visual circuit (one being the Tutor involved in the Airprox) and a Prefect inside 6NM on a PAR for a low approach and depart. A further Tutor was on the runway, having just landed. They had one other aircraft on frequency which was another Tutor joining overhead, whose pilot had yet to call descending deadside. [The pilot of the Tutor involved in the Airprox] reported downwind and they informed them that the Prefect was ahead on PAR together with the Prefect's range and instructed them to report visual or going around. At the 3NM call, they instructed the PAR controller to delay the clearance to 2NM as the runway was still occupied. At the 2NM call, the runway had still not been vacated so they cleared the Prefect for a low approach not below 200ft, with 1 aircraft on the runway. Whilst they were transmitting they heard [the Tutor pilot] call going-around, so they gave the circuit state to the PAR controller as 2 in, 1 going-around. As the Prefect pilot commenced their go-around, [the Tutor pilot] asked for the position of the radar traffic. They were visual with the Prefect and passed the aircraft's position and informed [the Tutor pilot] that the Prefect was in the climb. As the Prefect pilot departed upwind, radar used the radar clearance phone-line to inform them that [the Prefect pilot] had reported an Airprox involving an aircraft in the circuit.

The controller perceived the severity of the incident as 'Low'.

THE WITTERING TOWER SUPERVISOR reports that they were in the manager's position at the time of occurrence and have nothing further to add to the narrative.

Factual Background

The weather at Wittering was recorded as follows:

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METAR EGXT 121050Z 20012KT 9999 SCT013 BKN060 13/11 Q1007 GRN
SPECI EGXT 121116Z 20013KT 9999 FEW013 BKN060 14/12 Q1007 BLU
METAR EGXT 121150Z 21014KT 9999 BKN014 BKN060 14/10 Q1006 GRN
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Analysis and Investigation

The Prefect training organisation conducted an investigation, the salient points from which are summarised here.

The Prefect pilot was on an IFR approach to conduct a low approach/go-around and then a VFR departure. There are 3 aircraft in the circuit, one was occupying the runway, and two others, one of which was the Tutor in question, airborne in the visual circuit. This series of events has been established using RT tape transcripts:

1129:07 The Tutor pilot called downwind and Tower notified them that they were number 2 to radar traffic which was approaching 3NM. They were instructed to either call visual with the traffic or to go around.

1129:24 The Tower broadcast the 3NM call to the circuit traffic. 14sec later, the Tutor pilot called going-around, but this was initially not acknowledged due to a clearance phone-line discussion with talkdown (passing Prefect's clearance to low approach, and stating that there were two in, one on).

1131:00 Tower broadcast the 2NM call to the circuit traffic. The Tutor pilot called going around at circuit height with traffic in sight.

The Airprox occurred.

The Tutor then crossed to the deadside and requested position of Prefect when the latter was approximately over the threshold. The Tutor pilot turned crosswind and was visual with Prefect in their 5 o'clock position, crossing ahead (and below) of Prefect. The Prefect pilot selected maximum continuous power to maintain clear and passed above Tutor.

The investigation resulted in the following findings

- The Tutor pilot stated that they had full Situational Awareness throughout and were visual with the Prefect, both at the point of going around, and turning crosswind. However the Prefect pilot deemed there to be a confliction and perceived the Tutor to be descending directly ahead of their position (500m ahead) whilst on the latter stages of their Instrument Approach and took action to increase their rate of climb when the Tutor was turning downwind.
- After discussing the event, the reporting [Prefect pilot] is content that the situation was not as they initially perceived.
- The Prefect pilot was informed of the circuit traffic numbers, but not their intentions or location. Therefore the Prefect crew were not aware that the Tutor would be going-around whilst they were approaching the 2NM point and, upon looking out, the Prefect pilot became visual with the Tutor and perceived the Tutor to be descending directly in front of them. The event occurred approaching the 2NM point on the PAR (around 600-800ft) and the Tutor pilot was flying at circuit height of 800ft so it is possible that this was a perspective issue, aggravated by the TAS alert sounding, and the changing from "head-in" to "head-out" of the flight-deck. Additionally, the Prefect circuit height at Cranwell is 1000ft, and the Tutor 800ft, with the Tutor pilots having not been flying recently the 800ft circuit height could have appeared abnormal. **Recommendation:** Both operating groups to consider inclusion of details of local procedures and circuit altitudes in the safe circuit brief,.
- Local procedures (but not stated in FOB) discourage an extended downwind leg therefore the Tutor pilot turned ahead of the Prefect rather than passing behind. The Flying Order Book does not provide clear guidance on the actions to take if performing a go-around in IFR conditions or integration of VFR and IFR traffic.
- Wittering ATC state that they could have sent the Tutor pilot around earlier, or chosen to break off the Prefect at 2.5NM, but, having been criticised for over-controlling in the circuit previously, they refrained from doing so on this occasion.
- The tower controller did not provide positive control in sequencing the VFR and IFR traffic, due to them considering that application of the MAA reg stating "The pilots of both aircraft

shared an equal responsibility for collision avoidance and not to operate in such proximity to the other as to create a collision hazard” was applicable. **Recommendation:** Engagement with Wittering ATC to request a review of procedures with regard to VFR/IFR traffic integration.

The Tutor training organisation investigation concluded that the Tutor pilot did not significantly descend on final and was visual with the Prefect and that at CPA, the separation was no closer than one would regularly experience with other aircraft in a visual circuit. Additionally, both pilots were visual with each other at all times.

Military ATM

The Wittering Talkdown controller was providing a routine Talkdown-approach to the Prefect pilot. The controller requested a clearance from the Aerodrome controller at 3NM however, a delay was required. As expected, the controller requested a clearance at 2¼NM. The clearance was given by the Aerodrome controller which included a limitation on the approved low-approach height and the number of aircraft in the circuit including the fact that one was going around. The Talkdown controller passed the clearance to the Prefect pilot however, omitted that the Tutor was going around. The Talkdown-approach continued as expected.

The Prefect pilot reported the Airprox on the Approach frequency after the completion of their talkdown.

Figures 1 – 4 show the positions of the Prefect and the Tutor at relevant times during the Airprox. The screenshots are taken from a replay using the NATS Radars which are not utilised by the Wittering controller, therefore, may not be entirely representative of the picture available to the controller.

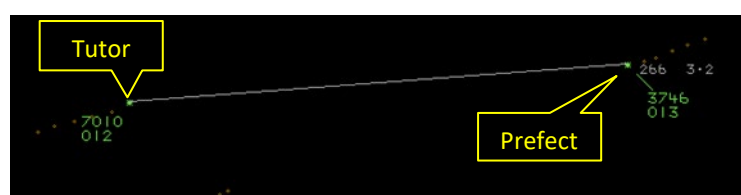


Figure 1 - 2NM broadcast to the visual circuit.

Four seconds after the Talkdown controller had passed the clearance to low approach to the Prefect pilot the Aerodrome controller broadcast on the Tower frequency that the Prefect was at 2NM and was cleared to low approach not below 200ft. Separation was measured as 3.2NM and 100ft.

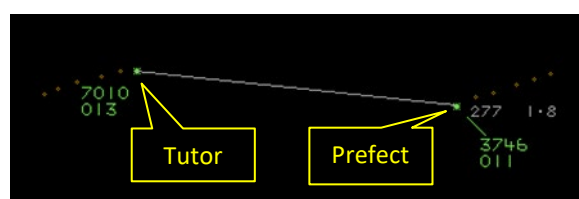


Figure 2 - Tutor pilot reports visual.

Nine seconds later the Tutor pilot reported visual with the Prefect and stated they would go-around at circuit height. The Tutor pilot had previously reported that they would go-around at circuit height but this was not acknowledged by the Aerodrome controller as they were passing the clearance to the Talkdown controller. Separation decreased to 2.8NM and 0ft.

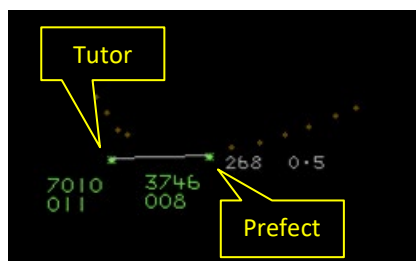


Figure 3 - Tutor pilot requests an updated position of the Prefect.

Fifty seconds later the Tutor pilot requested an update on the Prefect position and were advised that they were abeam the ramp going around. Separation was measured at 0.5NM and 300ft.

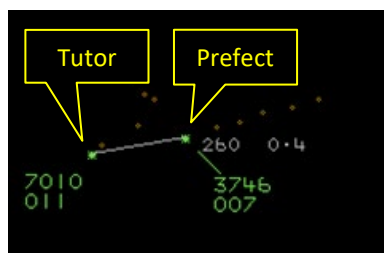


Figure 4 – CPA.

CPA was measured at 0.4NM and 400ft.

The Talkdown controller did not specifically provide a Radar Service and was not responsible for providing deconfliction minima, they were only required to pass Traffic Information if there was a risk of collision. However, the Approach controller did retain overall responsibility for retention of deconfliction minima if required however, it is not known whether the Approach controller was listening to the clearance being given.

The Talkdown controller did not pass the clearance to the Prefect pilot verbatim as given by the Aerodrome controller, which was not corrected by the Aerodrome controller, neglecting to inform the pilot that one of the aircraft was going-around. Had this information been passed to the Prefect pilot their situational awareness would have been improved. The Talkdown controller's DASOR is considered as unacceptable, regardless of whether the Airprox was declared on their frequency or not a sufficient narrative should have been provided.

Additionally, there does not appear to have been a BM investigation completed of the event which would potentially have addressed why information regarding the circuit situation was omitted. It would have also identified if anyone else was listening to the clearance exchange between the Aerodrome and the Talkdown controller in a supervisory capacity.

UKAB Secretariat

The Prefect and Tutor 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 If the incident geometry is considered as converging then the Prefect pilot was required to give way to the Tutor.²

Comments

HQ Air Command

This occurrence was subject to Local Investigations by both the Tutor and Prefect operators. Integrating instrument traffic with visual circuit traffic can present challenges, especially when the visual circuit is busy, but it is the responsibility of each crew to remain clear of the other and not

¹ MAA RA 2307 paragraphs 1 and 2.

² MAA RA 2307 paragraph 12.

operate in proximity to present a collision threat. The requirement to meet training objectives may present some reluctance of the instrument (Prefect) traffic to break off an approach early and, whilst the Tutor pilot was content they were visual at all times, the Prefect pilot's perception was of eroded safety margins with both [compatible EC equipment] and TAS alerting, and uncertainty that the Tutor pilot had Situational Awareness on them. The Prefect pilot was informed of the circuit traffic numbers, but not their intentions or location, so was unaware that the Tutor was going around; local procedures discourage an extended downwind leg. Whilst the investigation concluded that no change in procedures is required, both instrument and visual circuit traffic should be mindful of each other's options and limitations when integrating.

Summary

An Airprox was reported when a Prefect and a Tutor flew into proximity in Wittering ATZ at 1131Z on Friday 12th November 2021. The Prefect pilot was operating under IFR in VMC, the Tutor pilot was operating under VFR in VMC. The Prefect pilot was in receipt of a Traffic Service from Wittering Talkdown and the Tutor pilot was in receipt of a ACS from Wittering Tower.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate operating authorities. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

The Board first considered the actions of the Prefect pilot. Members discussed that this would have been a busy stage of flight for the Pilot. It was noted that, as is usual practice, they had been in contact with the Talkdown Controller and as such, had not been able to monitor circuit traffic communications to aid their Situational Awareness. The Board agreed that, at the point at which the Prefect pilot had become visual with the Tutor, they had had an inaccurate mental model regarding the circuit traffic and as such had perceived that the Tutor had been descending onto final ahead of them (**CF3**). Members noted that, at a point after the Prefect pilot had become visual with the Tutor, the TAS that had been carried on the Prefect had issued an alert (**CF4**), which had served to reinforce the Prefect pilot's misperception that it had been descending ahead, and had contributed to them being concerned by the proximity of the Tutor (**CF5**).

The Board next considered the actions of the Tutor pilot and discussed that they had been operating in accordance with local procedures however, these procedures are not detailed in the Prefect operating group's Flying Order Book, nor does the Flying Order Book provide clear guidance on the actions to take if performing a go-around in IFR conditions or integration of VFR and IFR traffic (**CF2**).

Board members then discussed the role of air-traffic in this event and a Military ATC member stated that, as the circuit traffic and approach traffic had been operating on different frequencies, it had been essential that the controllers correctly pass relevant information to pilots. Members agreed that the Talkdown controller had omitted details regarding the Tutor pilot executing a go-around, and so had not passed all the information to the Prefect pilot. The Tower controller had not then highlighted the omission to the Talkdown controller (**CF1**).

Finally, the Board considered the risk involved in this Airprox. The pilots of both of the aircraft had been conducting training at the time of the event and had been operating to the same runway but on different ATC frequencies. Both pilots had been operating in accordance with their published procedures however, although the Tutor pilot had been visual with the Prefect and aware of the Prefect pilot's intentions, the Prefect pilot had not been made fully aware of the Tutor pilot's actions, resulting in an inaccurate mental model for the Prefect pilot. When the Prefect pilot had become visual with the Tutor, they had perceived that there had been a risk of collision however, Board members agreed that on this occasion, although safety had been degraded, there had been no risk of collision. Consequently, the Board assigned a Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**Contributory Factors:**

	2021231			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Ground Elements				
• Regulations, Processes, Procedures and Compliance				
1	Human Factors	• ATM Regulatory Deviation	An event involving a deviation from an Air Traffic Management Regulation.	Regulations and/or procedures not fully complied with
Flight Elements				
• Regulations, Processes, Procedures and Compliance				
2	Organisational	• Flight Operations Documentation and Publications	Flight Operations Documentation and Publications	Inadequate regulations or procedures
• Situational Awareness of the Conflicting Aircraft and Action				
3	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
• Electronic Warning System Operation and Compliance				
4	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
• See and Avoid				
5	Human Factors	• Perception of Visual Information	Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: C

Safety Barrier Assessment³

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Ground Elements:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the full clearance, as issued by the Aerodrome controller, had not been passed to the Prefect pilot by the Talkdown controller, omitting the fact that the Tutor pilot would be going around.

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because local procedures, which discourage an extended downwind leg, are not stated in Flying Order Book and that Flying Order Book does not provide clear guidance on the actions to take if performing a go-around in IFR conditions or integration of VFR and IFR traffic.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the mental model which had been formed by the Prefect pilot had been inaccurate as they had not been informed that the Tutor pilot would be going-around.

³ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

Airprox Barrier Assessment: 2021231		Outside Controlled Airspace						
Barrier		Provision	Application	Effectiveness				
				Barrier Weighting				
				0%	5%	10%	15%	20%
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✗					
	Manning & Equipment	✓	✓					
	Situational Awareness of the Confliction & Action	✓	✓					
	Electronic Warning System Operation and Compliance	○	○					
Flight Element	Regulations, Processes, Procedures and Compliance	⚠	✓					
	Tactical Planning and Execution	✓	✓					
	Situational Awareness of the Conflicting Aircraft & Action	⚠	✓					
	Electronic Warning System Operation and Compliance	✓	✓					
	See & Avoid	✓	✓					
Key:		<u>Full</u>	<u>Partial</u>	<u>None</u>	<u>Not Present/Not Assessable</u>	<u>Not Used</u>		
Provision	✓	⚠	✗	○				
Application	✓	⚠	✗	○				
Effectiveness								