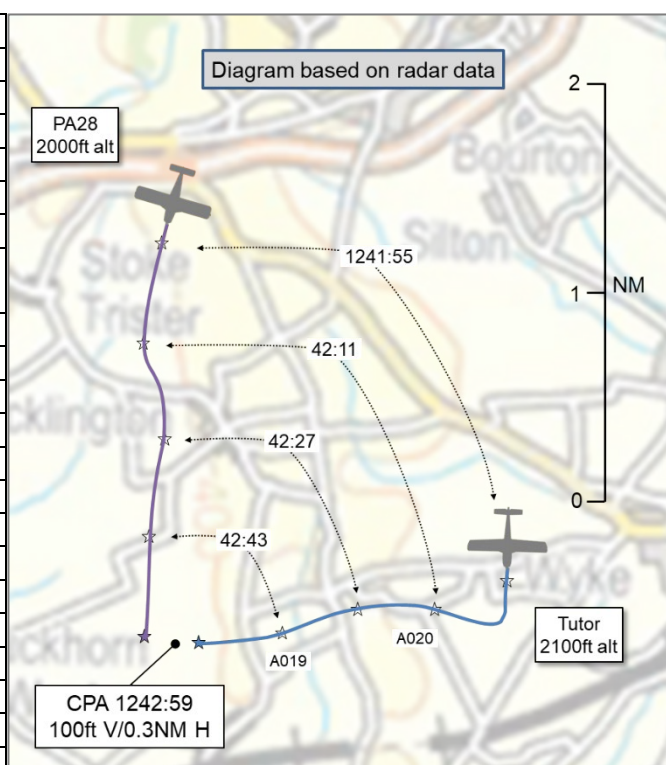


AIRPROX REPORT No 2021213

Date: 13 Oct 2021 Time: 1243Z Position: 5102N 00221W Location: 2.5NM N Henstridge

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Tutor	PA28
Operator	RN	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	VFR
Service	Traffic	None
Provider	Yeovilton Approach	N/A
Altitude/FL	1900ft	2000ft
Transponder	A, C, S	A, C
Reported		
Colours	White and blue	White and blue
Lighting	Nav, Strobe, HISL	Nav Anti-col
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	2000ft	2500ft
Altimeter	QFE (1025hPa)	QNH (NK hPa)
Heading	220°	180°
Speed	NR	100kt
ACAS/TAS	TAS	Not fitted
Alert	Information	N/A
Separation at CPA		
Reported	0ft V/0.5NM H	500ft V/2NM H
Recorded	100ft V/0.3NM H	



THE TUTOR PILOT INSTRUCTOR reports that whilst they were being marshalled for an SRA at Yeovilton, a contact was reported to them by Yeovilton Approach. Both aircraft were at similar heights (2000ft on Yeovilton QFE). As they were being [vectored] on to the instrument approach on 'base leg' the SEP aircraft was identified [by air-traffic, as being in their] right, 4 o'clock, heading south. The aircraft was reported as being 'in sight' and they noted the position. They were then turned inbound to Yeovilton to intercept the SRA glideslope [sic]. The Approach controller again reported the SEP traffic and used the word 'converging'. They watched the aircraft close them on a steady bearing and allowed the student, who was under test, to continue flying as directed by the Approach controller. The SEP aircraft remained on a steady bearing and drew closer as they flew towards Yeovilton. At 0.5NM range [they estimated] they took control from their student and turned right to 'jink' behind the SEP aircraft before returning to the originally passed heading from the controller. They declared an Airprox on the frequency and the instrument recovery continued without further incident.

The Tutor instructor later added that their recollection (now) was that when they were turned towards the traffic by ATC, they were not visual with it. At this time the controller told them that they had been turned towards it and it was now converging. They expected ATC to 'rectify the situation' that their heading changes had created. When they became visual and it became clear that there was going to be no ATC direction they took control and flew behind/around the other aircraft. They then returned the aircraft back towards the centreline and gave the student control to resume their instrument flying test.

THE TUTOR STUDENT PILOT reports that the event occurred whilst flying their instrument flying test. They were flying an SRA recovery to RW26 under Yeovilton Approach. They were under the hood to simulate IMC for the test. ATC reported traffic to the right of their position. The traffic was identified on their TAS and they maintained their course on the SRA (under vectoring from ATC). They had control of the aircraft and the radios at that point. Due to being under the hood, the instructing pilot was

conducting the lookout and would prompt them to report traffic not sighted/in sight to ATC as appropriate. Once visual with the traffic the instructing pilot took control of their aircraft and diverted them to the right in order to pass behind it. At this point they looked up from the hood for their own situational awareness and could see the traffic as they passed behind it. When safely clear, the instructing pilot repositioned them on the glideslope [sic] and passed control back to them to continue the SRA.

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

THE PA28 PILOT reports that they had climbed to 2500ft and everything was going okay. They switched to Yeovilton radar before passing Frome. They continued with their flight until they reached Wincanton when they switched to their next frequency. After a couple of minutes they saw an aeroplane coming from their 9 o'clock at about 2NM. After that the aeroplane turned to the right and they turned right as well.

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

THE YEOVILTON SCREEN CONTROLLER reports that they were the Screen controller for the trainee Approach controller with only a small number of aircraft on frequency. [The Tutor pilot] called up for an instrument recovery when they were just north of the aerodrome, the trainee gave a heading of 085° and an initial descent to 2000ft QFE. The heading would have kept the Tutor quite tight so an initial delaying turn to 080° was given. As the Tutor pilot took a while to get their height off they were extended out to the east before being turned south for checks on a base leg. They discussed with the student controller a better alternative course of action to get [the Tutor] back more expeditiously. Once [the Tutor] was level, heading south and had called checks complete, the student passed Traffic Information regarding aircraft to the northwest at a similar level. Not long after, the student turned [the Tutor] pilot right, ready to be handed over to Talkdown. At this point the Mode C of the previously called traffic showed it to be below [the Tutor] and descending and, given it was following a commonly used track into [its destination], they were not concerned that there would be a risk of collision. They believed that [the Tutor] would be passing sufficiently above and behind the traffic. However, the Mode C readout of the other traffic then levelled off at the same height [as the Tutor]. They immediately told the student to update the Traffic Information [to the Tutor pilot] which they did. [The Tutor pilot] initially called not visual but, before they could either tell the student to turn [the Tutor] or instruct a turn themselves, [the Tutor pilot] reported visual with the traffic. The Tutor pilot later said that they were going to turn to avoid the traffic and the student told them to report steady with heading. [The Tutor pilot] called an Airprox on frequency and was then handed over to Talkdown without any further incident.

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

THE YEOVILTON RADAR CONTROLLER reports that they were working the [PA28] as the Yeovilton LARS controller. The pilot was transiting north-to-south, inbound for [destination] airfield. Having recently conducted the handover to take the position, they were working multiple aircraft on a busy frequency. [The PA28 pilot] was in receipt of a Basic Service. The [PA28 pilot] requested to change to their next frequency and they instructed them to squawk 7000 and change en-route. Shortly afterwards, the [PA28] was involved in an Airprox with a Tutor aircraft being worked by Yeovilton Approach.

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

THE YEOVILTON SUPERVISOR reports that just prior to the Airprox being called on frequency they were assisting the Yeovilton LARS controller as they were busy with multiple civilian aircraft on frequency. They heard the Approach controller passing Traffic Information to the Tutor pilot and were aware that the traffic in question was a light aircraft recently released by LARS that was descending into [its destination] airfield. After assisting the LARS controller, they heard the Approach controller update the previous Traffic Information given to the Tutor pilot and then shortly afterwards the Tutor pilot called visual, immediately followed by Airprox. When they looked at the radar display, they could see the Tutor pilot had turned to the right and at that time they believe there was approximately a half to one mile between the aircraft with Mode C indicating the same level.

Factual Background

The weather at Yeovilton was recorded as follows:

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METAR EGDY 131220Z 28001KT 9999 FEW020 BKN040 17/11 Q1028 NOSIG RMK BLU BLU
METAR EGDY 131250Z 24002KT 9999 FEW020 BKN040 17/11 Q1028 NOSIG RMK BLU BLU
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Analysis and Investigation

Yeovilton Air Traffic Unit Investigation

A unit investigation was carried out by Yeovilton ATC as part of which the reports from the Tutor crew and ATC personnel were reviewed along with RT transcripts and radar replays. Interviews were also conducted with the Tutor crew and with the Yeovilton ATC staff involved. The outcome of the investigation is summarised below.

There had been a discrepancy between the Tutor pilots initial report narrative and the screen controllers report narrative but, following a review of the RT transcript, it was determined that the reporting Tutor pilot only became visual [with the PA28] after being instructed to turn onto the final converging heading, not before, as stated in their initial narrative. When the Tutor pilot was interviewed they updated their account saying that they only became visual on their final heading, not on base leg as stated in their report. The instructing pilot was maintaining the Situational Awareness for the aircraft. The training pilot was head down, under a hood and had control of the aircraft and the communications with ATC, but upon Traffic Information being passed, the instructing pilot would scan and report visual / not visual to the handling pilot, who would pass on to ATC as appropriate.

The Tutor pilot was being vectored for an SRA recovery RW26 and on an easterly heading, under control of RNAS Yeovilton Approach. Conflicting traffic was tracking north-to-south, under control of the RNAS Yeovilton Lower Airspace Radar Service (LARS) controller.

1239:15 Traffic Information regarding the conflicting traffic was passed to the Tutor pilot, which the Tutor pilot acknowledged but did not report visual.

1239:50 The Tutor pilot was instructed to turn right heading 190° for base leg, the Tutor had now transited to the east of the conflicting traffic which was now northwest of the Tutor and continuing to track south.

1241:04 The Yeovilton LARS controller informed the PA28 pilot to squawk 7000 and free-call en-route. The PA28 pilot had not been informed of the Tutor and did not deviate from their previous heading.

1241:18 The Approach controller passed updated Traffic Information regarding the conflicting traffic to the Tutor pilot stating it was northwest, one mile, tracking south and at similar height.

1241:26 The Tutor pilot states they are not visual with the conflicting traffic.

1241:28 The Tutor is turned on to final, west (heading 260°) on a converging heading with the southerly tracking PA28 traffic.

1242:00 Traffic Information was passed again to the Tutor pilot as being in their right one o'clock, 1NM, indicating 100ft feet below.

1242:09 The Tutor pilot stated that they did not have the traffic in sight.

1242:13 The Tutor pilot confirmed they were visual with reported traffic.

1242:33 The Tutor pilot took avoiding action right turn to avoid previous traffic.

1242:56 The Tutor passed behind the PA28 and informed Approach of their intention to submit an Airprox report.

The investigation resulted in the following findings and recommendations or actions:

- The Tutor was being flown in accordance with ATC instructions (heading allocation) whilst conducting an instrument recovery to RNAS Yeovilton. By following these headings, the Tutor came into conflict. Procedure states that controllers will not vector aircraft pilots into

situations where risk of collision exists. **Recommendation/Action:** Stop-Press released highlighting the regulations involved in preventing aircraft being vectored into conflict.

- Both the Screen controller and the trainee failed to identify the hazard and vectored the aircraft pilot into conflict. **Recommendation/Action:** ATC are to produce [guidance material] and brief all ATC personnel on the next flight safety day regarding this exact scenario and highlight the shortcomings and reinforce that the proper procedure to be conducted in the future.
- The Screen controller did not intervene when the trainee controller turned the Tutor pilot towards the conflicting traffic. **Recommendation/Action:** Stop-Press released detailing and mandating the necessity for Screen controllers to interject when they believe safety has been, or there is a risk of safety being, compromised.
- The trainee controller's lack of experience in a radar environment hindered them in identifying and resolving the situation.
- The PA28 pilot was under a Basic Service from Yeovilton Lower Airspace Radar Service (LARS). The pilot requested a frequency change, which the controller approved. Shortly afterwards, and on the same heading and level as when released, the PA28 pilot came into conflict with the Tutor, resulting in the Airprox. The hazard of releasing the aircraft pilot in proximity to the Tutor was not identified by the LARS controller. The LARS controller had limited capacity to identify the hazard at the time of incident.
- The LARS controller was operating with a high workload prior to the time of Airprox. As aircraft pilots operating under a Basic Service are not required to be monitored by radar, the controller did not deem they had sufficient capacity to monitor the track before releasing it.
- The LARS Controller had only achieved their qualification in position a few months prior. **Recommendation/Action:** A radar supervisor is present within the radar room to assist controllers with limited experience.
- The LARS Controller did not identify that the Tutor pilot was being vectored for recovery. Given the information available to the LARS controller, it would be reasonable to assume that the Tutor pilot may not have been in the receipt of vectors for a radar recovery as they were still displaying their approach squawk, instead of a Director's squawk given to most recovering aircraft.

Comments

Navy HQ

An investigation was conducted by Yeovilton ATC using DASORs submitted by ATC and the Tutor pilot along with radar replays, RT transcripts and interviews with controllers and pilots from both aircraft.

Whilst the Yeovilton Approach controller discharged their responsibilities under a Traffic Service to provide specific surveillance-derived Traffic Information to assist the pilot in avoiding other traffic, the investigation highlights assumptions by the controllers and the Tutor pilots which resulted in the situation continuing to evolve and culminating in the Airprox.

The Yeovilton Approach controller assumed that the PA28 pilot would continue descending and therefore that there was not a risk of collision. The final inbound vector issued to the Tutor pilot by the Approach controller put the aircraft in conflict with the PA28. Given the non-prescriptive nature of class G airspace, if the barrier of not knowingly introducing a risk of collision under a Traffic Service had been more cautiously applied or if the controller had asked the Tutor pilot if they were visual with the PA28 before issuing the inbound vector, the situation could have been resolved sooner.

Following the first Traffic Information call to the Tutor pilot, the Tutor pilot assumed that the Approach controller would resolve the situation. However, given they were not visual, if they had a concern about the confliction, they should have requested deconfliction advice.

Had the Yeovilton LARS controller been more experienced or had they had more capacity to appreciate the situation that was developing, they could have kept the PA28 pilot on frequency until there was no longer a conflict. This would have added another barrier for the prevention of the Airprox or potential MAC and enabled the option of coordination.

The investigation highlighted multiple recommendations which, although should already have been occurring, should help prevent similar situations in the future.

The ATS provided by the Yeovilton Approach controller coupled with the lookout by the Tutor and PA28 crews acted as effective barriers in the prevention of MAC. However, stricter adherence to the application of a Traffic Service and better situational awareness by the Yeovilton controllers would have prevented the Airprox from occurring.

AOPA

This event occurred in Class G airspace with the Tutor pilot conducting IFR training, utilising a Traffic Service, where possibly a Deconfliction Service would have been more appropriate. We appreciate the Tutor pilot raising an Airprox to highlight the apparent deficiencies in the separation provided between IFR flights under a Traffic Service and VFR traffic on a Basic Service along with the controller responsibilities. This incident highlights the issues of IFR traffic converging with VFR traffic and the right of way under SERA 3210, the separation requirements of aerial systems under Traffic and Basic Services, and requirements of controllers to highlight traffic.

UKAB Secretariat

A review of the NATS radar replay was undertaken on which both aircraft can be identified, however shortly before CPA the altitude information had been lost, however, Yeovilton Approach were able to provide a screenshot from their radar replay at CPA (Figure 1) which had recorded the Mode C flight level readout information for both aircraft. This has been combined with the NATS radar replay to determine the vertical separation at CPA.

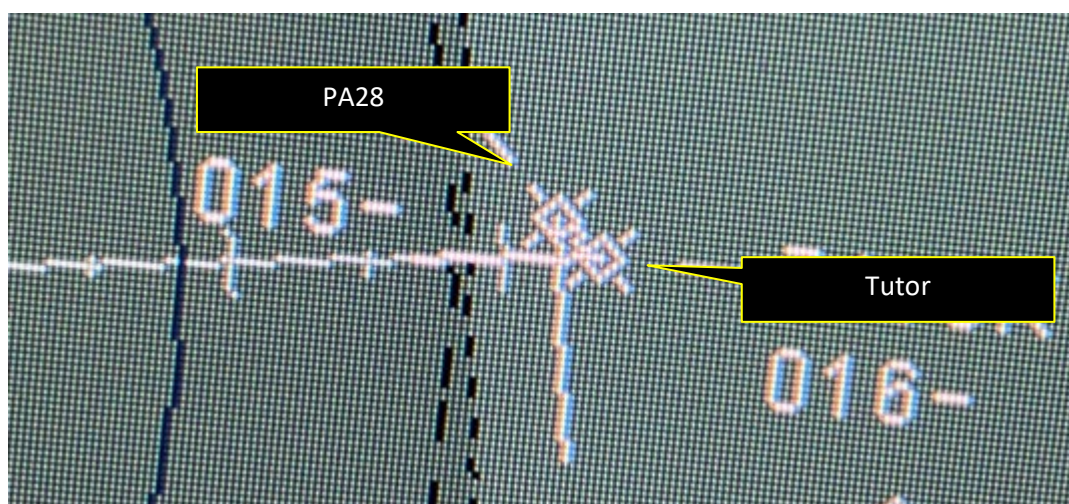


Figure 1 - Yeovilton radar screenshot

The Tutor and PA28 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 Tutor pilot was required to give way to the PA28.²

¹ (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

² (UK) SERA.3210 Right-of-way (c)(2) Converging. MAA RA 2307 paragraph 12.

Summary

An Airprox was reported when a Tutor and a PA28 flew into proximity 2.5NM north of Henstridge at 1243Z on Wednesday 13 October 2021. The Tutor pilot was operating under IFR in VMC, the PA28 pilot was operating under VFR in VMC. The Tutor pilot was in receipt of a Traffic Service from Yeovilton Approach and the PA28 pilot was not in receipt of an ATS.

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 discussed the actions of the Tutor pilot and noted that their student had been conducting an SRA as part of an instrument flight test. Members agreed that this would have been a high workload situation for the pilot and considered whether utilising a Deconfliction Service rather than a Traffic Service to help with collision avoidance may have been beneficial. The Tutor pilot had been given Traffic Information regarding the PA28 and had received a TAS indication of its presence (**CF12**) however, they had still turned on to the final approach track toward it when instructed by ATC which had put them on to a conflicting heading (**CF10**). Members also discussed balancing the need to complete the instrument flight test with the need to maintain appropriate safe separation from other aircraft. Members agreed that the Tutor pilot had not immediately given way to the PA28 (**CF8**) and had elected to continue toward the PA28 in the expectation that air-traffic would issue an instruction which would have provided separation. Yeovilton ATC were not required to provide a deconflicting heading and so his had not been forthcoming, resulting in a late decision by the pilot to give way (**CF9**), although members agreed that this had been a reasonable course of action at the time. The late decision however had meant that the Tutor pilot had continued toward the PA28 in to such proximity that it had caused the Tutor pilot concern (**CF13**).

The Board next considered the actions of the PA28 pilot and had been encouraged that the pilot had been utilising an air-traffic service from Yeovilton. Members agreed that the pilot had asked to change frequency at an appropriate point but had not been made aware of the Tutor traffic by Yeovilton LARS and, as such, had had no situational awareness regarding its presence or potential for conflict (**CF11**).

The Board then considered the involvement of Yeovilton ATSU and agreed that the instruction that had been given to the Tutor pilot by the under-training Approach controller, instructing them to turn on to the final approach track, had put the Tutor onto a conflicting heading (**CF1, CF7**). The instruction issued by the under-training Approach controller had not been corrected by Approach Screen controller (**CF3**), who had assumed that the PA28 pilot would be descending (**CF6**) which would have resulted in sufficient separation. Discussing the actions of the LARS controller, who had been providing a Basic Service to the PA28 pilot, members agreed that they had not recognised the developing potential for conflict (**CF5**). The controller had facilitated the PA28 pilot's frequency change, removing any opportunity for them to have been able to coordinate the PA28 with the Tutor (**CF4**). Members noted that the Supervisor had been assisting the LARS controller and that they had become aware of the Tutor, and the developing conflict, and members agreed that there had been an opportunity to intervene which had not been acted upon (**CF2**).

Finally, the Board considered the risk involved in this Airprox. Members noted that the PA28 pilot had had no situational awareness of the presence of the Tutor and that, although the LARS controller had not been required to pass information regarding the Tutor to the pilot of the PA28, it would have been best practice for this to have occurred. Members also considered that after the Tutor pilot had become visual with the PA28 and that, although their action had been delayed, the Tutor pilot had given way in sufficient time to remove any risk of collision but that there had been a degradation in safety. Consequently, the Board assigned a Risk Category C to this event.

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

	2021213			
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
• Manning and Equipment				
2	Human Factors	• ATM Leadership and Supervision	An event related to the leadership and supervision of ATM activities.	
3	Human Factors	• Recurrent/OJT Instruction or Training	Events involving on the job training of individuals/ personnel	
• Situational Awareness and Action				
4	Human Factors	• ATM Coordination	Coordination related issues (external as well as internal)	
5	Human Factors	• Conflict Detection - Not Detected	An event involving Air Navigation Services conflict not being detected.	
6	Human Factors	• Expectation/Assumption	Events involving an individual or a crew/ team acting on the basis of expectation or assumptions of a situation that is different from the reality	
7	Human Factors	• Traffic Management Information Provision	An event involving traffic management information provision	The ANS instructions contributed to the Airprox
Flight Elements				
• Regulations, Processes, Procedures and Compliance				
8	Human Factors	• Use of policy/Procedures	Events involving the use of the relevant policy or procedures by flight crew	Regulations and/or procedures not complied with
• Tactical Planning and Execution				
9	Human Factors	• Late Decision/Plan	Events involving flight crew making a decision too late to meet the needs of the situation	
• Situational Awareness of the Conflicting Aircraft and Action				
10	Human Factors	• Lack of Action	Events involving flight crew not taking any action at all when they should have done so	Pilot flew close enough to cause concern despite Situational Awareness
11	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late or only generic, Situational Awareness
• Electronic Warning System Operation and Compliance				
12	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
• See and Avoid				
13	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:

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

Ground Elements:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the action of the controller, turning the Tutor pilot on to the final approach track towards the PA28, had reduced separation and had introduced a risk of collision.

Manning and Equipment were assessed as **partially effective** because developing conflict had not been detected by either the OJTI nor the Supervisor within Yeovilton ATC.

Situational Awareness of the Confliction and Action were assessed as **ineffective** because, in the mental model of the Yeovilton LARS controller, the PA28 pilot would be descending, and as such they had not recognised the developing situation resulting in a lack of coordination with the Radar controller who had then turned the Tutor toward it.

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the Tutor pilot was required to give way to the PA28 but they had elected to maintain their track due to an expectation that ATC would issue an instruction which would have provided separation.

Tactical Planning and Execution was assessed as **partially effective** because, once made aware of the conflicting PA28, the Tutor pilot initially maintained their track toward it.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the PA28 had had no awareness of the presence of the Tutor prior to becoming visual with it and, despite them being aware of the presence of the PA28, the Tutor pilot maintained their track toward it.

Airprox Barrier Assessment: 2021213		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:								
	Full	Partial	None	Not Present/Not Assessable	Not Used			
Provision	✓	!	✗	○				
Application	✓	!	✗	○	○			
Effectiveness	■	■	■	■	□			