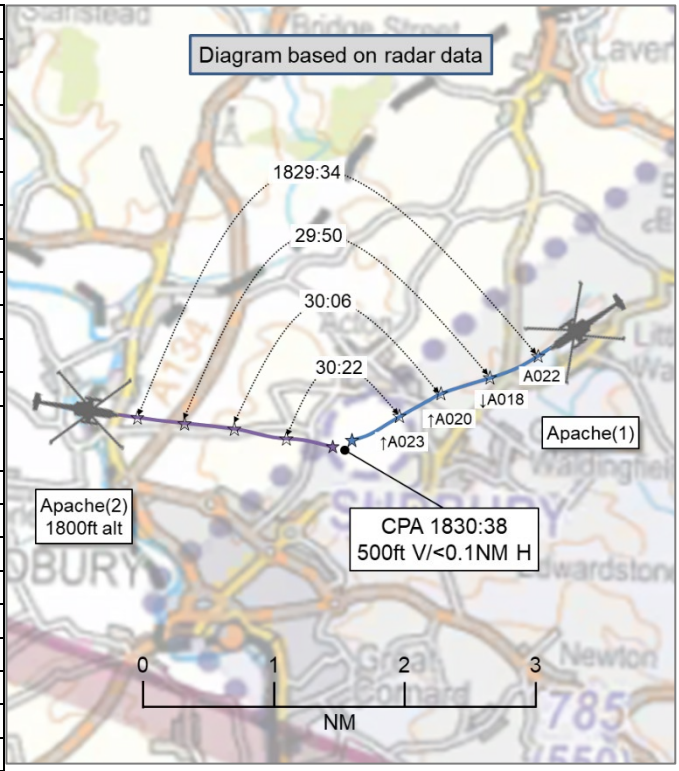
AIRPROX REPORT No 2022070

Date: 03 May 2022 Time: 1831Z Position: 5203N 00045E Location: Sudbury

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Apache(1)	Apache(2)
Operator	HQ JHC	HQ JHC
Airspace	Wattisham MATZ	Wattisham MATZ
Class	G	G
Rules	IFR	IFR
Service	Traffic	Traffic
Provider	Wattisham Appr	Wattisham Appr
Altitude/FL	2300ft	1800ft
Transponder	A, C, S	A, C, S
Reported		
Colours	NR	Black, green
Lighting	NR	HISLs, Landing, Nav
Conditions	NK	VMC
Visibility	NR	>10km
Altitude/FL	NR	1500ft
Altimeter	NK (NR hPa)	QFE (1010hPa)
Heading	NR	100°
Speed	NR	100kt
ACAS/TAS	Unknown	Not fitted
Separation at CPA		
Reported	NR V/NR H	400-500ft V/300m H
Recorded	500ft V/<0.1NM H	



THE WATTISHAM APPROACH CONTROLLER reports that [Apache(1)] was on a local VFR sortie, operating to the west of Lavenham (some 7-8 miles to the west of Wattisham) up to altitude 1000ft, under a Basic Service. [Apache(2)] was inbound IFR from the west, initially carrying out some IFGH up to altitude 5000ft under a Traffic Service, with the intention of conducting a PAR approach to land when complete with the IFGH. [The pilot of Apache(1)], complete with the GH to the west, requested climb to altitude 3500ft with an upgrade to Traffic Service, and own navigation to the WTZ in order to conduct a TACAN approach to RW05. A Traffic Service was agreed, and own navigation approved, climbing to altitude 3500ft. The controller believes they initially phrased it as "own navigation to the TACAN hold", but the pilot confirmed they wished to overfly the WTZ beforehand, rather than route direct to the hold, and the controller acknowledged this. (Overflying the WTZ prior to routing to the hold/IAF has shown to be the operators' standard procedure over the recent weeks, with the introduction of the 'Echo' model Apache and increased 'procedural' (i.e. not vectored) approaches flown.) [The pilot of Apache(2)] called complete with their IFGH and requested vectors for the PAR. The controller instructed [the pilot of Apache(2)] to set the QFE 1010hPa and descend to standard pattern height of 1500ft. They then turned [Apache(2)] right onto a heading of 130° for left base. [Apache(1)] overflew the WTZ at altitude 3500ft then turned south-westbound, towards one of the two TACAN hold joining points (at this point, the controller was unsure how [the Apache(1) pilot] intended to join for the approach but they prioritised turning [Apache(2)] before questioning [the pilot of Apache(1)]). Level at height 1500ft and checks complete, the controller turned [Apache(2)] left heading 100° as an initial close. They passed Traffic Information to [the pilot of Apache(1)] on [Apache(2)] as being in their right 1 o'clock, six miles, opposite direction, 1700ft below (going off the Mode C information with mixed QFE/QNH being used (the 'Echo' models are flying all approaches on the QNH). [The Apache(1) pilot] acknowledged this and requested descent to maintain 2290ft. Working on 1hPa = 27ft, they approved the descent as requested by the pilot and advised that this would give 500ft separation from the inbound PAR traffic, which was acknowledged. They passed Traffic Information to [the Apache(2) pilot], now steady heading 100°, on [Apache(1)], as being in their left 11 o'clock, five miles, opposite direction, descending to 500ft above

their level, which the crew acknowledged, but reported not visual. The controller then asked [the pilot of Apache(1)] if they required to hold, to which the reply was in the negative and clearance to fly the approach was requested. They asked [the Apache(1) pilot] how they intended to fly the approach, since there are two ways of joining to commence the procedure, and the pilot advised they wished to route to the 10 DME point and pick up the final approach fix. The controller felt this would have worked, as by the time [Apache(1)] had reached the 10 DME point, there would have been approximately seven miles between them and [Apache(2)] ahead, but they also contemplated instructing [the pilot of Apache(1)] to carry out a hold. They decided on the latter and, as they began to transmit this to [Apache(1)], they noticed that their Mode C was showing A18-, not A23-, so they immediately asked [the pilot of Apache(1)] to confirm their level and issued a traffic warning as they were now in direct confliction with [Apache(2)] (also showing A18- on the Mode C), approximately one mile apart. [The Apache(1) pilot] appeared to take prompt rectification action and their Mode C increased back up to A23-. The controller then gave a traffic warning to [the Apache(2) pilot], now approximately half a mile from [Apache(1)], and the crew reported visual. Somewhat unnerved by this event having taken them by surprise, the controller instructed [the Apache(1) pilot] to take up the hold, which was acknowledged with the crew also reporting they had [Apache(2)] in sight. [The Apache(2) pilot] was transferred to TALKDOWN, and both aircraft conducted their respective approaches without further incident. The controller subsequently spoke with the commander of [Apache(1)] on the telephone, who gave the impression of not being particularly disconcerted by the event as they had acquired [Apache(2)] via their onboard radar systems, but witnessing the event on their surveillance system, the controller felt this met the definition of an Airprox.

The controller perceived the severity of the incident as ‘Medium’.

THE APACHE(1) PILOT reports that they were on the final portion of an AH64E training flight, 7NM west of Wattisham, and contacted Wattisham Approach for a climb to altitude 3500ft for the TAC RW05. They were cleared to climb and resume own navigation for the setup of the approach. The initial approach entry was flown as published, overhead the WTZ TACAN and outbound on the 241° radial to 10DME. The controller was a bit confused by the setup and so, between vectoring calls to [Apache(2)], they were attempting to clarify intentions. Although the TACAN RW05 approach has been around for some time, it was seldomly used prior to AH64E IF training.

Established outbound on the 241° radial, air traffic advised them that [Apache(2)] was in their 1 o'clock approximately 6 miles. They were visual with [Apache(2)] through on board sensors, and so requested a descent for 2290ft (minimum altitude for the hold on the approach). Air Traffic Control approved the request, and they began the descent. The aircraft was allowed to descend below the intended 2290ft, internal CRM caught the error and a climb was established. Air Traffic Control issued an alert during their climb and requested their level, by which point they were back to the required altitude. The pilot called visual with [Apache(2)] still in their right one o'clock , approximately 1 mile, and below their altitude. They then entered the hold as requested and carried out the approach.

The pilot assessed the risk of collision as ‘Low’.

THE APACHE(2) PILOT reports being on the recovery phase of a pairs training sortie that had been conducted from Wattisham, London Heli Lanes, east of RAF Benson, round the north of Luton and return to Wattisham. They split the formation at the Cambridge/Duxford gap where they climbed up to conduct Instrument General Handling in a block 3000ft to 5000ft between Newmarket and Wattisham whilst in receipt of a Traffic Service from Wattisham ATC. Once they were complete with this, they asked for vectors for a PAR back to Wattisham. They were instructed to descend to 1500ft QFE heading 130° and were aware of [Apache(1)] working in the vicinity of the MATZ due to RT traffic. Once they descended clear of cloud, they started to look for [Apache(1)] and became visual with a contact to their east as they were turned onto 100°. They heard ATC advise [the Apache(1) pilot] that they were in their right one o’clock at six miles, which confirmed to them that the contact was [Apache(1)] and they remained visual throughout. The next call they got from ATC was a traffic warning of [Apache(1)] in their left 1 mile that they acknowledged and called visual. [Apache(1)] passed on their left and slightly behind, visually judged to be 400-500ft above. They continued the approach and landed the aircraft.

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

THE WATTISHAM ATCO I/C reports that they were ATCO i/c and the PAR controller at the time of the incident. They were sitting at the PAR console in preparation for [Apache(2)] and listening to the traffic situation on the Approach VHF frequency of 125.800MHz, although not actually looking at a search radar screen until they heard the Approach controller ask [the Apache(1) pilot] to confirm their level. The controller's tone of voice conveyed some urgency, which made them look at the Director console screen, where they recall seeing [Apache(1)] and [Apache(2)] approximately 1NM apart, head-on and indicating similar levels on Mode C. Thereafter, they recall the events to be the same as stated in the [controller's] report narrative.

Factual Background

The weather at Wattisham was recorded as follows:

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METAR EGUW 031750Z 14006KT 9999 FEW024 SCT030 11/06 Q1020 NOSIG RMK BLU BLU=
METAR EGUW 031850Z 15006KT 9999 FEW023 SCT030 10/06 Q1020 NOSIG RMK BLU BLU=
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Analysis and Investigation

NATS Wattisham

At the time of the incident, there was a standard seating configuration of three ATCO positions open (TWR, APS and Talkdown). There were three Apache helicopters on the Approach frequency. There was no adverse weather or technical issues with the operational equipment, and no reported distractions or any other relevant HF considerations.

Based on the RT transcription and the Swanwick radar replay,[1] the following is the estimated sequence of events:

At 1822:45 [the pilot of Apache(2)] (Mode A = 4525) was instructed to set the QFE 1010hPa and to descend to 1500ft. At the time of the incident, it was maintaining this height (converted on the radar display to A18).

At 1826:41 [the pilot of Apache(2)] was given a heading of 100°, which was maintained during the incident.

At 1828:13 [the pilot of Apache(1)] (Mode A = 4523) requested to descend and maintain 2290ft, which was agreed by the ATCO, with the remark that this level would offer a 500ft separation with [Apache(2)], on which Traffic Information had already been passed. [The pilot] also informed the controller that they were outbound from the WTZ [Wattisham TACAN] (on a SW track).

At 1828:36 [the pilot of Apache(2)] was passed Traffic Information on [Apache(1)], as "*descending to 500ft above your level*"

At 1829:48, after a series of transmissions trying to establish the intentions of [the Apache(1) pilot], the controller noticed that [Apache(1)] had descended below the agreed level of 2300ft and was now indicating 1800ft, on a converging track with [Apache(2)] (at the same level). The controller then passed Traffic Information and requested confirmation of [Apache(1)]'s level.

[1] Note – Surveillance data is not recorded at Wattisham, hence the inclusion of screenshots from the Swanwick en-route radar system. These screenshots are not necessarily representative of the picture displayed to the Wattisham Approach ATCO at the time of the event.

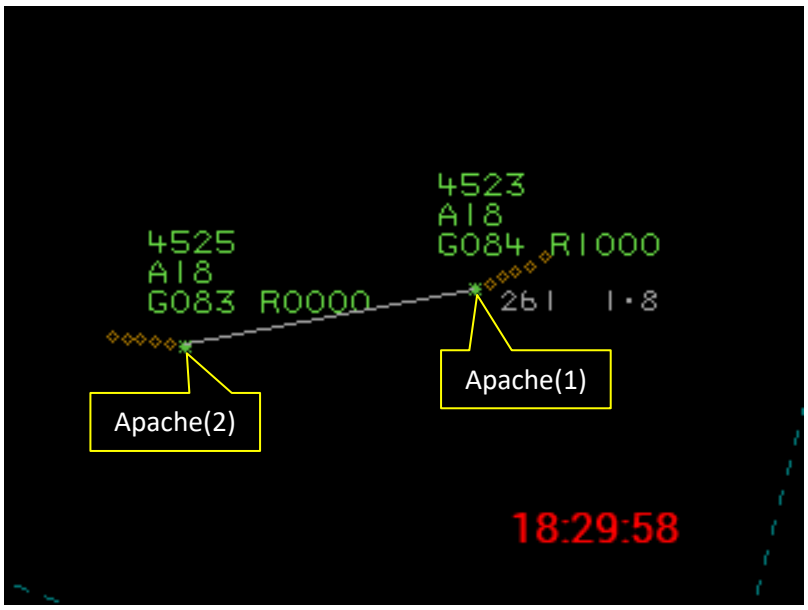


Figure 1 – Both aircraft at 1800ft; lateral distance 1.8NM

At 1830:01 [the pilot of Apache(1)] reported passing A20 climbing to A23. The controller acknowledged this and updated Traffic Information to [the pilot of Apache(2)] on [Apache(1)].

At 1830:15 [the Apache(2) pilot] reported visual and [the Apache(1) pilot] did likewise shortly afterwards.

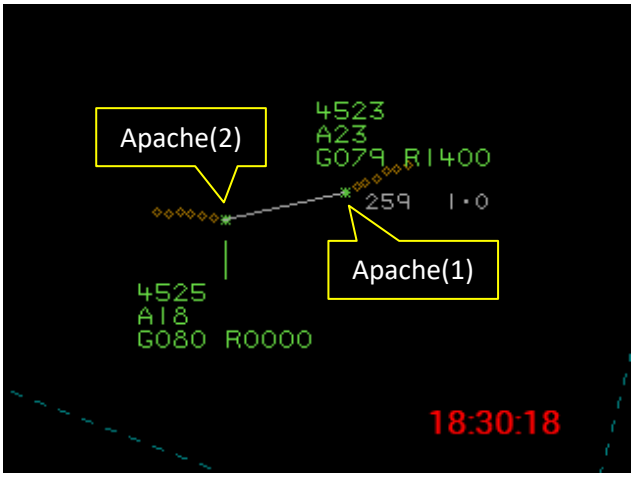


Figure 2 – 500ft vertical separation restored

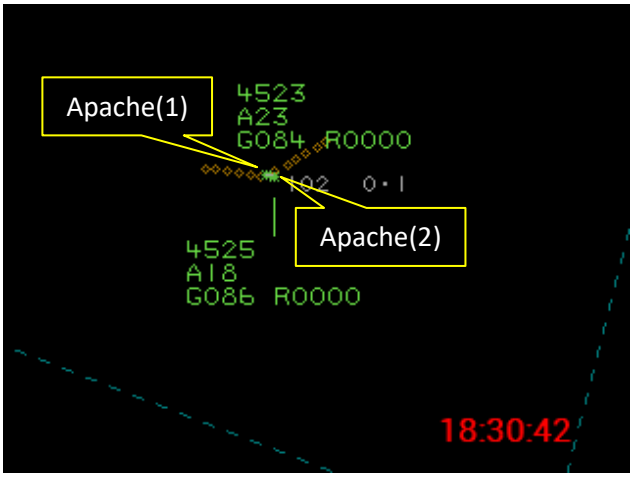


Figure 3 – CPA

It is concluded that [the Apache(1) pilot] deviated from the level agreed with the controller (2290ft) and descended to 1800ft instead, placing the aircraft in confliction with [Apache(2)] at the same level. This was quickly spotted by the controller, who asked the pilot to confirm their level and passed Traffic Information to [the pilots of] both aircraft. At this point, the pilot of [Apache(1)] reported climbing to 2200ft. Both pilots reported visual with each other and continued their approaches without further incident.

Actions taken – the Air Safety Cell on unit has been reminded to promulgate to all aircrew that calling visual with traffic called to them under ATSOCAS means that they have acquired that traffic in the first person, not by electronic sensors on the aircraft and displayed on the FCR.[2]

[2] Fire Control Radar.

CAA ATSI

The controller should be commended for the use of good defensive controlling techniques. They passed timely and accurate Traffic Information to the pilots of both aircraft. The level information provided within the Traffic Information was delivered in a manner where there could be no confusion created by one aircraft having the QNH set and the other the QFE. ATSI has noted that Wattisham is in the process of changing their procedures, such that all aircraft will soon be operating on QNH; whilst this was not a factor in this Airprox event, it should simplify the application of vertical separation in the future. When monitoring the level readout of [Apache(2)], the controller identified the level bust and the potential hazard and being aware that neither pilot had reported visual with the other aircraft, they took timely action.

UKAB Secretariat

Both Apache pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[3] If the incident geometry is considered as converging then the Apache(1) pilot was required to give way to the Apache(2).[4]

Occurrence Investigation

The operating authority conducted a thorough Occurrence Safety Investigation (OSI) into this Airprox. In the interests of brevity, the full report is not included; relevant findings (and remediation activity) are as follows:

- [The Wattisham Approach controller] noted the Mode C of [Apache (1) and Apache(2)] were both in the vicinity of 1800ft when the aircraft were at 1.8NM and closing on a potential collision course. ATC was expecting [Apache(1)] to be at 2290ft which caused them to perceive a Loss Of Safe Separation (LOSS) was developing and that safety may have been compromised. At this point, neither callsign had called 'visual.'

- The investigators concluded that a verbal agreement existed between [The Apache(1) pilot] and [the Wattisham Approach controller], and that this became the process/procedure. It was not [Apache(1) pilot]'s intent to descend below the requested/assigned altitude and therefore an unintentional deviation resulted in the aircraft being 481ft being below that agreed with [the Wattisham Approach controller].

- [The Apache(1) pilot] did not receive a '100ft to go' call from [the Apache(1) NHP] iaw IMC SOP. This was found to be due to [the Apache(1) NHP] being distracted by several concurrent tasks.

- An increase in RT traffic was generated for [the Wattisham Approach controller] to facilitate a safe separation between [Apache (1)] and [Apache(2)]. [The Apache(1) pilot] assumed that [the Wattisham Approach controller] knew they would wish to join through the overhead of the WTZ TACAN in order to go outbound on the 241° radial but, as other AHTT[5] crews hadn't in the recent past, [the Wattisham Approach controller] was seeking clarity of [the Apache(1) pilot]'s intent. This increased the RT which reduced both [the Apache(1) pilot]'s and [Apache(1) pilot under training]'s capacity to deliver/assimilate instruction and monitor the aircraft parameters. The investigators concluded the increase in RT contributed to the distraction of [the Apache(1) crew].

- Wattisham TACAN RW05 procedures have not been flown by AAC aircrew nor practised by ATC since the departure of the Lynx Mk9 15 years ago. A substitution test identified some AHTT aircrew had differing methods/terminology to join the procedure whilst Wattisham ATC was attempting to understand but also deliver their service IAW CAP 413 – RT Manual and

[3] MAA RA 2307 paragraphs 1 and 2.
[4] MAA RA 2307 paragraph 12.
[5] Attack Helicopter Transition Team.

the TACAN plate. In most cases there was no conflicting traffic and ATC was able to allow aircraft under a Traffic Service to continue own navigation and call ready for the procedure.

  - An immediate safety review was conducted between ATC, AHTT and Aerodrome Operations. The procedure and terminology were discussed, and a standardised policy was agreed. The sortie standardisation notes were reviewed which will be further developed as required.

  - Concurrently, discussion was made regarding the suitability of the TAC RW05 procedure which is a legacy from the Phantom/Lightning era. Aerodrome Ops agreed to conduct a review and proposed to introduce an amendment at the next annual review – due Oct 22.

- The crews of [Apache(1)] and [Apache(2)] were aware of each other's presence and had noted each other using the Fire Control Radar (FCR) – Air Surveillance Mode. [The Apache(2) pilot] claimed to have been visual throughout but had only articulated this in cockpit and not to ATC. [The Apache(1) pilot] claimed to have had intermittent visual contact with [Apache(2)] whilst descending through cloud but was not visual at the moment the ATCO identified both aircraft at the same level on reciprocal tracks. [The Apache(1) NHP] stated they had their seat slightly lower to conduct IF and were using the aircraft's shields as IF hoods. This restricted [their] view outside the cockpit when acting as NHP. Overall, the investigators concluded there was no risk of collision as [the Apache(2) pilot] had sufficient situational awareness to take avoiding action. [The Wattisham Approach controller] stated that had either callsign called 'visual' when notified of proximity traffic then their perception of a developing LOSS situation may have been different.

- The investigators concluded that the 'Lookout' Barrier was effective for [Apache(2)] but not for [Apache(1)] due to a higher-than-normal workload – the instructor was flying the aircraft whilst drawing the [pilot under instruction]'s eyes into the cockpit to reference the instruments during a procedural join. This was also a contributor to both crew missing the assigned level whilst descending.

- [The Wattisham Approach controller] noticed that [Apache(1)] had descended through its assigned altitude whilst starting a sentence to [the Apache(1) pilot] to suggest they may need to enter the hold (to sequence [Apache(2)]). This sentence was interrupted to request [Apache(1)]'s altitude and give a warning of a confliction. Concurrently, the crew of [Apache(1) had identified the aircraft was low and commenced a climb. This barrier was deemed effective.

- [The Apache(2) pilot] noted that both aircraft were operating within the MATZ on different pressure settings – QFE and QNH. They added that there was a potential for confusion especially when listening out for the purpose of SA.

  - Wattisham procedures are in the process of changing such that all aircraft will soon operate using the QNH only.

Comments

JHC[6]

The Occurrence Investigation by Wattisham has confirmed the ATCO report of a level bust by [Apache(1)], which caused both aircraft to be co-level. Whilst [the Apache(1) pilot] acknowledged this in their DASOR, they climbed once the level bust was identified. The Wattisham Safety Cell is going to promulgate a 'Pilots to See' to remind crews that first person visual should be communicated to ATCOs confirming that traffic called is not just acquired by onboard sensors. This

[6] Joint Helicopter Command.

ensures that crews are not reliant on an FCR which gives no alert of a traffic confliction in surveillance mode.

Summary

An Airprox was reported when Apache(1) and Apache(2) flew into proximity over Sudbury at 1831Z on Tuesday 3rd May 2022. Both pilots were operating under IFR in VMC and both pilots were in receipt of a Traffic Service from Wattisham Approach.

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 Wattisham Approach controller and quickly agreed that they had taken the appropriate actions when they had perceived the 2 helicopters to be at the same altitude with a reduced horizontal separation. A controller member added that they were somewhat surprised that 2 aircraft conducing instrument approaches to the same airfield had been operating on different altimeter settings (Apache(1) had been operating on QNH and Apache(2) had been operating on QFE). Although not directly a factor in this Airprox, the Board was reminded of a recent Safety Recommendation made in relation to Airprox 2021202, namely that: '*The MAA re-examines the safety implications at military airfields of aircraft operating in the visual circuit on QFE*.' Members considered that the continued mix of altimeter settings in use at military airfields provides an environment for Human Factors errors to occur and so Director UKAB undertook to furnish the MAA with the details of this event such that the findings of the UKAB could be taken into account during their deliberations over the Safety Recommendation related to Airprox 2021202.

The Board then considered the actions of the Apache crews and heard from a JHC member that neither crew had been particularly concerned by the event. The Board noted that the Apache(2) pilot had been visual with Apache(1) throughout the event, but there was some uncertainty as to whether the Apache(1) pilot had become visual with Apache(2) other than for fleeting moments through breaks in the cloud. Members noted that the Apache(1) pilot had had radar contact on Apache(2) through their FCR and heard from a JHC member that Wattisham was in the process of issuing a local reminder to pilots to announce to controllers when they are visual with the aircraft called to them, and that having radar contact with the other aircraft does not constitute visual contact (rather, pilots should announce "contact" if their situational awareness is generated from a contact on the FCR). This is particularly important since, if a pilot calls 'visual' with an aircraft, it is highly likely that the controller will cease passing Traffic Information on that traffic. Returning to the Airprox itself, the Board agreed that the Apache(1) pilot had descended below the altitude agreed with the Wattisham controller, and also below the minimum altitude for the TAC RW05 procedure at the point at which the Airprox occurred, and that this inadvertent descent had been contributory to the Airprox (**CF1**, **CF2**, **CF3**). Members did, however, note that the Apache(1) handling pilot had been delivering instruction to the non-handling pilot and that this instruction had diverted the crew's attention during the descent such that the pilots had, between them, not noticed that the aircraft had descended below their cleared altitude (**CF5**, **CF6**). Members also noted that the Apache(1) pilot had been passed Traffic Information on Apache(2) by the Wattisham controller, and that they had also had contact with Apache(2) on their FCR, and so the Board agreed that the Apache(1) pilot had not correctly integrated with Apache(2), even though they had had sufficient situational awareness of the position of Apache(2) (**CF4**).

Finally, the Board considered the risk involved in this event. Members noted that radar CPA had been measured at <0.1NM horizontally but that 500ft vertical separation had been restored by the time aircraft passed each other. Additionally, members noted that the Apache(1) crew had recognised their excursion from their cleared altitude at approximately the same time as the Wattisham controller and had regained the correct altitude whilst the aircraft were still 1NM apart. Therefore, the Board was

unanimous that, although safety had been degraded, there had been no risk of collision. Accordingly, the Board assigned a Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022070			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Flight Elements			
	• Regulations, Processes, Procedures and Compliance			
1	Human Factors	• Flight Crew ATC Clearance Deviation	An event involving a deviation from an air traffic control clearance.	
2	Human Factors	• Flight Crew ATM Procedure Deviation	An event involving flight crew deviation from applicable Air Traffic Management procedures.	
	• Tactical Planning and Execution			
3	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
	• Situational Awareness of the Conflicting Aircraft and Action			
4	Human Factors	• Incomplete Action	Events involving flight crew performing a task but then not fully completing that task or action that they were intending to carry out	Pilot did not sufficiently integrate with the other aircraft despite Situational Awareness
5	Human Factors	• Interpretation of Automation or Flight Deck Information	Interpretation of Automation or Flight Deck Information by the flight crew.	Pilot engaged in other tasks
6	Human Factors	• Mentoring	Events involving the mentoring of an individual	

Degree of Risk: C

Safety Barrier Assessment[7]

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

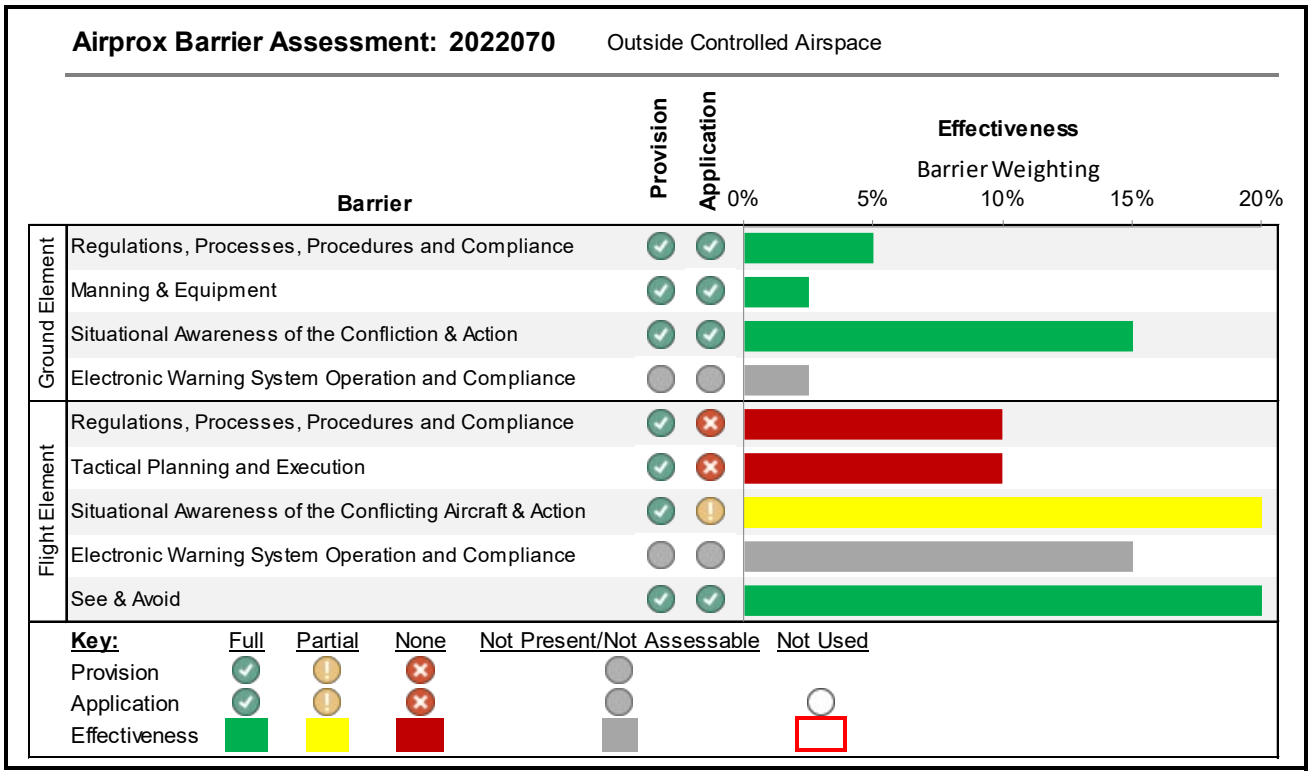
Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the Apache(1) pilot did not comply with the cleared level instruction issued by the Wattisham Approach controller.

Tactical Planning and Execution was assessed as **ineffective** because the Apache(1) pilot did not comply with the minimum altitude for the portion of the TAC RW05 procedure that they were flying at the time of the Airprox.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the Apache(1) crew, due to being engaged in multiple other tasks, did not assimilate that they had descended below their cleared altitude and potentially into confliction with Apache(2).

[7] 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: 2022070
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