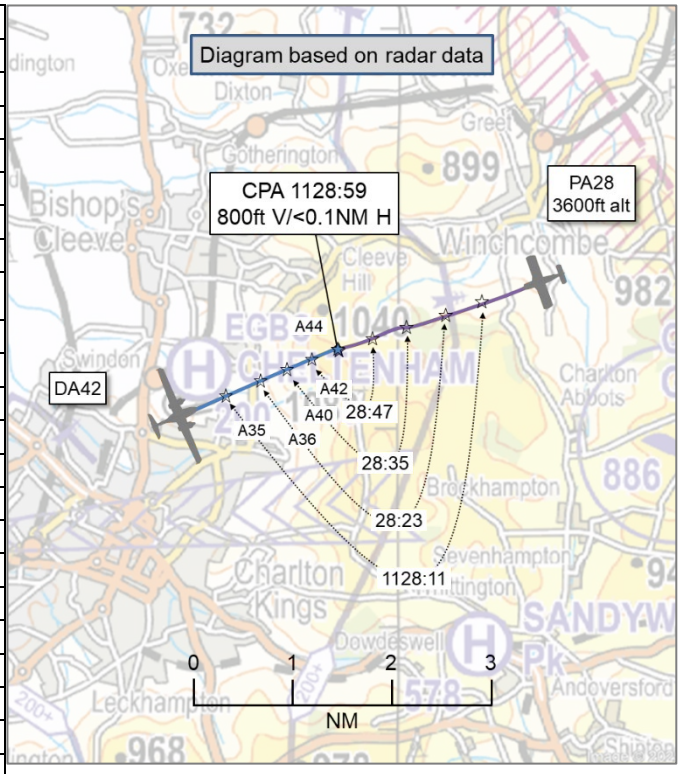
AIRPROX REPORT No 2025016

Date: 16 Feb 2025 Time: 1129Z Position: 5156N 00201W Location: 6NM ENE Gloucester

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DA42	PA28
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	IFR
Service	Procedural	Procedural[1]
Provider	Gloucester	Gloucester
Altitude/FL	FL042	FL034
Transponder	A, C, S+	A, C, S
Reported		
Colours	White	White, orange
Lighting	Strobe, nav	'standard'
Conditions	IMC	VMC
Visibility	NR	<5km
Altitude/FL	3600ft	3400ft
Altimeter	QNH (1020hPa)	QNH (1020hPa)
Heading	NK	252° track
Speed	100kt	114kt
ACAS/TAS	TAS	None
Alert	TA	N/A
Separation at CPA		
Reported	300ft V/0.5NM H[2]	Not seen
Recorded	800ft V/<0.1NM H	



THE DA42 INSTRUCTOR reports they departed Gloucester Airport on an IFR training flight, cleared to climb to FL050 on a Procedural Service from Gloucester Approach. They entered IMC around 1000-1500ft. About 5-10min later an alert was triggered on the aircraft TAS. [The pilot of] an aircraft callsign [PA28 C/S] had been heard on frequency asking for a Procedural Service, flying at 3600ft towards Gloucester from the northeast. The traffic had been noticed on [a converging course on the TAS]. The instructor took control and used maximum aircraft climb performance to avoid. The target appeared to pass directly behind/underneath within 300ft vertically. Accurate avoidance was only possible with the use of the TAS on the DA42, combined with the climb performance available. Other factors: controller handover had taken place recently, when asked for an altitude report the trainee gave the correct passing altitude of 3300ft. With rate of climb and time taken to negotiate they were nearly at the same level as the other aircraft. The controller gave instructions to descend to 3000ft, but was overruled. The trainee gave some confusing reports to the previous controller using flight level instead of the requested altitude. [The PA28 pilot] was not flying at a semicircular level and appeared to have some difficulty understanding ATC.

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

THE PA28 PILOT reports they were completely unaware of another aircraft as at the reported time they were already flying partly in IMC and entering into a solid [cloud] layer while establishing on the approach, anticipating for an RNP. They were in contact with Gloucester Approach with squawk 4530, 6NM from the airport. The passenger, who always routinely helped to spot traffic in VMC, also didn't [see the other aircraft]. Unfortunately, their TAS experienced a temporary disconnection on power-on

[1] Not yet agreed but in effect.
[2] Not seen, estimated from the TAS.

and hence they were flying by instruments on the aircraft's built-in GNS430 without using the secondary backup 'TAS+SkyDemon system'.

THE GLOUCESTER CONTROLLER reports an inbound flight [the Airprox PA28] was scheduled to be on an instrument slot for 1130.[3] The [pilot] made their initial call at around 1125, which at the time was combined with the Approach frequency. The [pilot] reported to be at 3600ft altitude with the previous controller, TWR only ATCO at the time. The reporting controller then plugged in at 1128. There was a departing DA42 [the Airprox DA42] tracking to DTY climbing to FL050 also on frequency. According to the FPS the flight was airborne about 2min before they plugged in. They immediately asked [the PA28 pilot] to report level and range for confirmation (given as 3600ft altitude and 13.5NM northeast although they could not remember what exact range they confirmed), and did the same to the [DA42 pilot], giving them a Procedural Service, to which [the DA42 pilot] replied passing altitude 3300ft. They instructed the [DA42 pilot] to descend immediately to altitude 3000ft. Their thoughts at the time were not to descend it further due to Unit Terrain Safe Level of 2800ft, and passed Essential Traffic Information (ETI) to them about the PA28. They also mentioned the aircraft in conflict would be 600ft above when they reach 3000ft. They then asked [the PA28 pilot] what service they required, to which they said Procedural Service, at which time the [DA42 pilot] jumped in reporting they would not descend to 3000ft, but continue the climb as they were now passing 4300ft and had the other traffic on TCAS [sic]. The controller then advised [the DA42 pilot] that the climb would be under their own discretion, and passed again ETI, and returned to [the PA28 pilot] and instructed them to descend to 3000ft, expedite and route to UVNOP (Initial Approach Fix point for an RNP RW09, about 12NM northwest of Gloucester), and passed again the new ETI with updated info from [the DA42 pilot]. [The PA28 pilot] was asked to report reaching 3000ft, and [the DA42 pilot] to report reaching FL50. The controller made an entry into the ATC watch-log immediately, and contemplated [reporting on] the refusal from complying with Procedural Service instructions by [the DA42] pilot, but then decided to let it go, as they weren't aware of the lateral position of either aircraft to know whether it was an Airprox situation or not. Subsequently, around 1600, the VCR received a phone call from an instructor who had been onboard [the DA42], asking to speak with the ATCO at the time. The instructor said they had a TCAS TA alert of the aircraft 300ft from their level to the northeast, with the PA28 about 1NM away. The call was very pleasant, and they called to get more info about the other flight, to which they explained [the PA28 pilot] called initially maintaining altitude 3600ft, 15NM northeast of the field, as [the DA42] was already airborne towards DTY, and that they had just plugged in and tried to ascertain the situation. The instructor asked them to confirm what they had heard the student report, to which they replied "passing altitude 3300ft", which the instructor confirmed. The instructor then explained that, by the time the controller had finished the instruction for them to descend to 3000ft and given the ETI, they were already at or slightly above 3600ft, so the instructor then decided to continue to climb to FL050 due to aircraft performance difference from that of the PA28, whilst the controller was also passing ETI to the PA28 [pilot], and trying to ascertain what service they required. The instructor said the TCAS TA alert they received indicated they were about 300ft from the PA28 and 1NM away from it or so. The instructor then asked the controller what they would advise them to do; whether to file an Airprox or not, to which they recited to them the definition of an Airprox, and said they would not say anything to try to deter them from making the right decision for safety with regards to the reporting action. They told the instructor that they had made a report in the Watch Log, as they weren't aware of their lateral [separation] at the time of the incident, not being aware it was around 1NM lateral from each other. They said they would also report it to management via email. The instructor said they would report it via their internal [company] reporting system and would think about whether to 'upgrade' it to an Airprox or whether to let their management make the call, as was "concerned by the amount of Airprox the airport has been under lately" and "didn't want to cause more trouble" (to use their words). The controller responded that the instructor had 'made the right call' with climbing despite their instruction to descend, because the instructor 'knew info' they did not (that they were then at the same height as the PA28 or slightly higher), and they trusted them to 'make the right call' with regards to their reporting action, but that they refused to give an opinion or attempt to influence their decision on whether they should report it as an Airprox or not.

[3] The Gloucester controller stated that their report was made with approximate times, not exact times, based on the entry times of the ATC Watch Log and to the best of what they could recall. They also had not listened to R/T recordings.

Factual Background

The weather at Gloucester was recorded as follows:

```
METAR EGBJ 161150Z 09006KT 9000 BKN013 04/01 Q1020=
METAR EGBJ 161120Z 10006KT 9000 BKN013 04/02 Q1020=
```

Analysis and Investigation

CAA ATSI

The Airprox involved a DA42, operating on an IFR flight plan outbound from Gloucestershire, and a PA28 registration [PA28 C/S], a pre-booked flight, operating on an IFR flight plan to Gloucestershire.

Gloucestershire ATC was using RW09 as the active runway. There were three controllers on duty, two were dual (ADI/APP) rated, and one was single rated (ADI). One of the dual-rated controllers had just started shift at 1100 and was also taking over the role of Senior Controller on Duty (SCoD) from the other dual-rated controller.

In this report the controllers are referred to by number, with the first dual rated (ADI/APP) controller, who was controlling at the beginning of the period running up to the Airprox, identified as ATCO-1. The single rated controller (ADI), who then took over from ATCO-1, is identified as ATCO-2, with the remaining dual rated (ADI/APP) controller identified as ATCO-3.

Factual History

At 1057:03, ATCO-1 was providing combined Aerodrome and Approach services (ADC/APC) and the DA42 pilot called for start clearance, reporting being in receipt of ATIS Information Golf. Start clearance was approved by ATCO-1. Shortly afterwards the Gloucestershire Air Traffic Service Assistant (ATSA) contacted London Control to request an IFR joining clearance which was passed as *"Remain outside controlled airspace, Squawk 1430. Contact London 121.030,"* which was readback correctly by the ATSA.

According to the ATC watch log, at 1110 the operational position was handed over to ATCO-2 and the ATC services were reduced to an Aerodrome Control (ADC) service. ATCO-2 then instructed the pilot of an aircraft in the circuit to continue approach and departed one aircraft on a Basic Service ahead of this circuit traffic, with a training helicopter cleared to cross the runway to the helicopter training area on the northside behind the departing aircraft. They also took calls from an inbound [pilot] at 5NM on an instrument approach, providing a Basic Service.

At 1112:05 the DA42 pilot and another pilot called simultaneously, with ATCO-2 responding to the DA42 pilot: *"(callsign) hold position. After departure Runway 09 left turn on track Daventry. Climb FL50. Remain outside controlled airspace. Squawk 1453. Next frequency when instructed is er Western Radar 121. Correction, London 121.030."*

At this time the inbound PA28 was visible on the area radar replay, incorrectly transponding an invalid SSR code of 1200, […] (Figure 1).

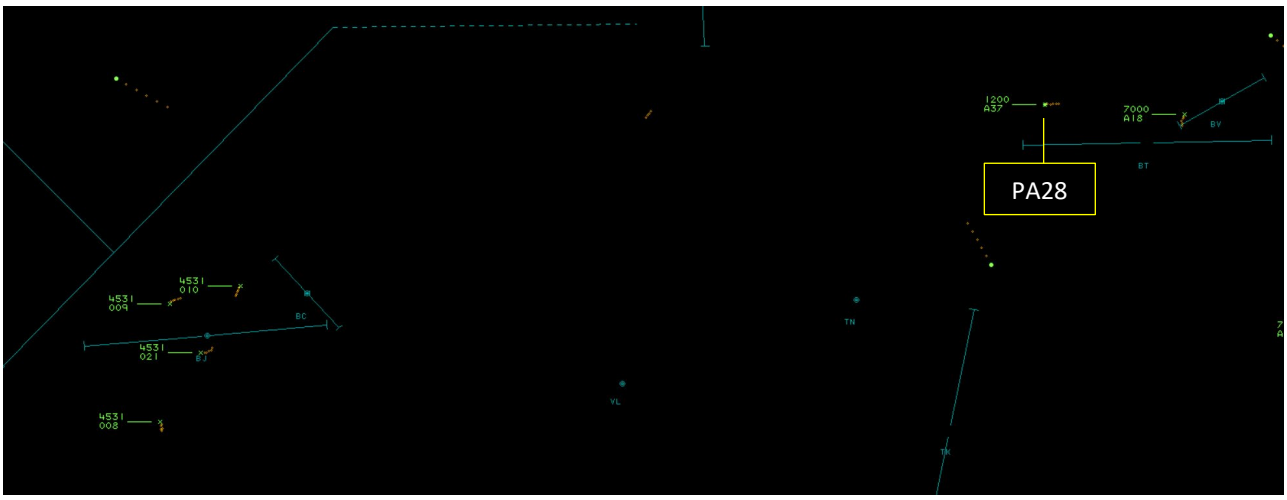


Figure 1 - 1112:05 area radar – add 200ft to displayed Flight Levels to determine altitudes.

The DA42 pilot asked ATCO-2 to repeat their clearance which the controller did, after first sequencing an arriving aircraft behind the aircraft on short finals. Having read the clearance back correctly, the DA42 pilot was requested to report ready for taxy.

At 1117:26 the DA42 pilot requested taxy instructions and was cleared by ATCO-2 to taxy to holding point C1 for a RW09 departure. The PA28 was approximately 27NM from Gloucestershire Airport (Figure 2).

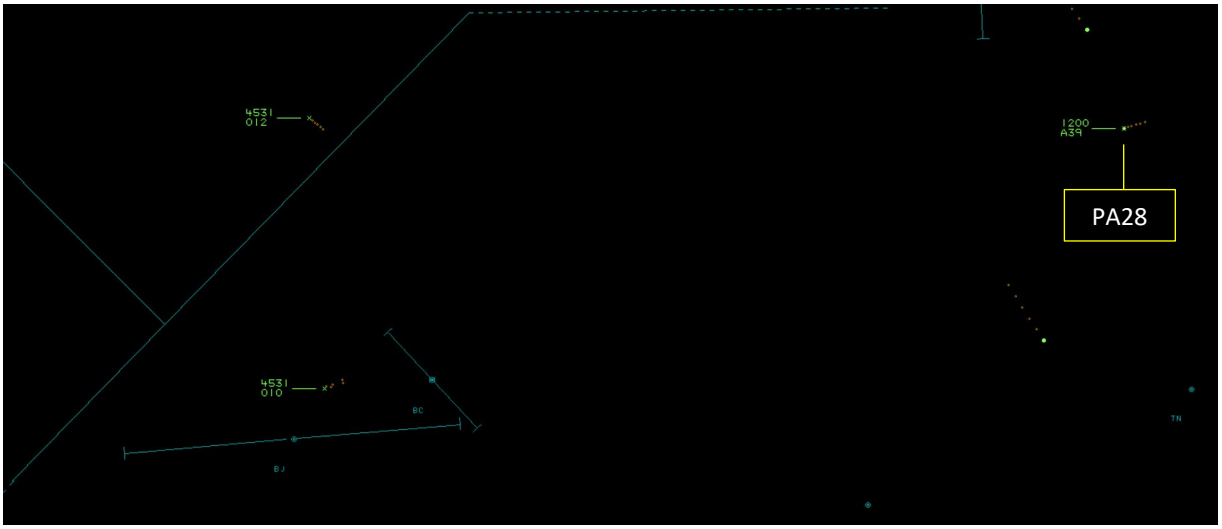


Figure 2 – 1117:26

At 1122:57 the DA42 pilot reported ready for departure. ATCO-2 passed Traffic Information on the helicopter circuit, which was active to the north of the airfield, and then cleared the pilot for take-off.

At 1124:43 the PA28 pilot called Gloucestershire ATC: *"Gloster Approach, (callsign) inbound 13.5 miles. (QNH) with Information Golf, altitude 3600"* (Figure 3).

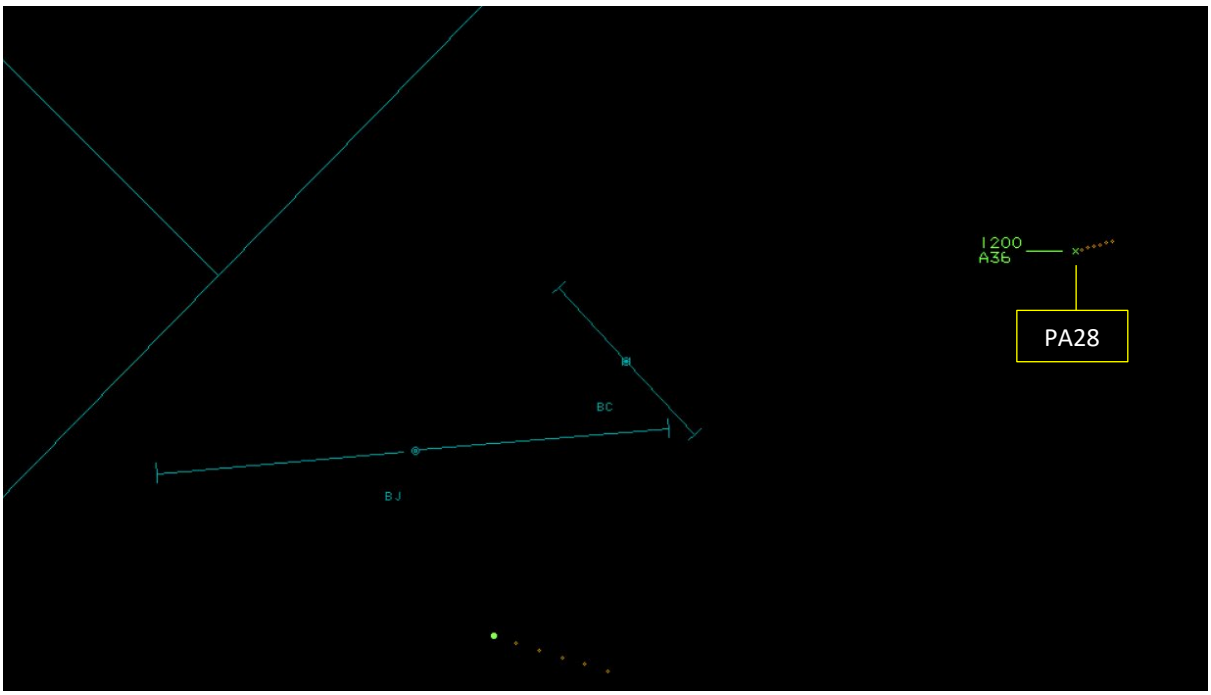


Figure 3 – 1124:43

ATCO-2 replied: *"(callsign) Gloster Tower QNH 1020. Squawk 4530. Are you looking for an approach – er, an IFR approach?"*

The PA28 pilot replied: *"Squawk 4530. Er requesting an RNP approach Runway 09 via UVNOP".*

ATCO-2 responded: *"Roger – standby for Procedural Service and er nothing to affect a routeing to UVNOP and report reaching UVNOP"* which the pilot acknowledged.

At 1127:01 ATCO-2 requested a passing level from the DA42 pilot which was reported as 2000ft (Figure 4).

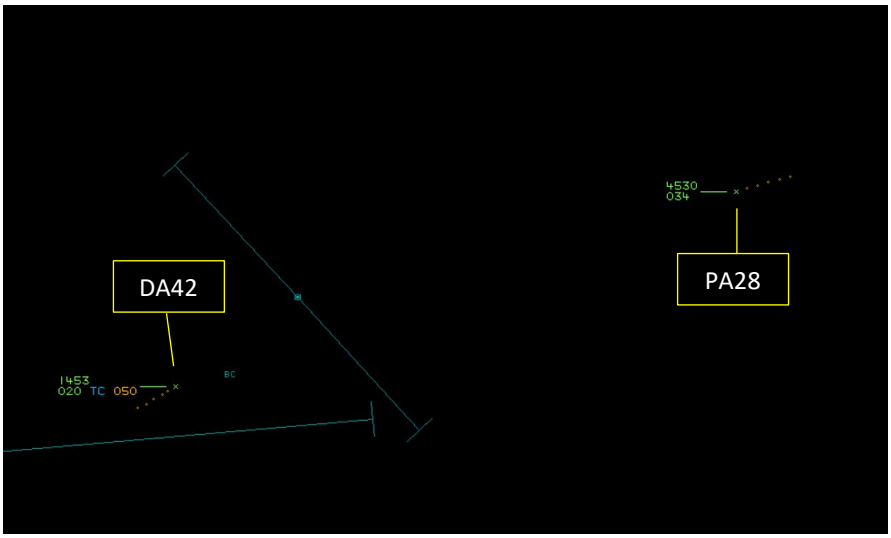


Figure 4 – 1127:01 (add 200ft to displayed FLs to determine altitudes)

ATCO-2 went on to ask the DA42 [pilot] their range which was reported as 3 miles. At this point ATCO-2 handed over the operational position to ATCO-3 with the ATS service changing from ADC to a combined ADC/APC service.

At 1127:18 ATCO-3 started to call the DA42 pilot, but the transmission was cut after the callsign (Figure 5).

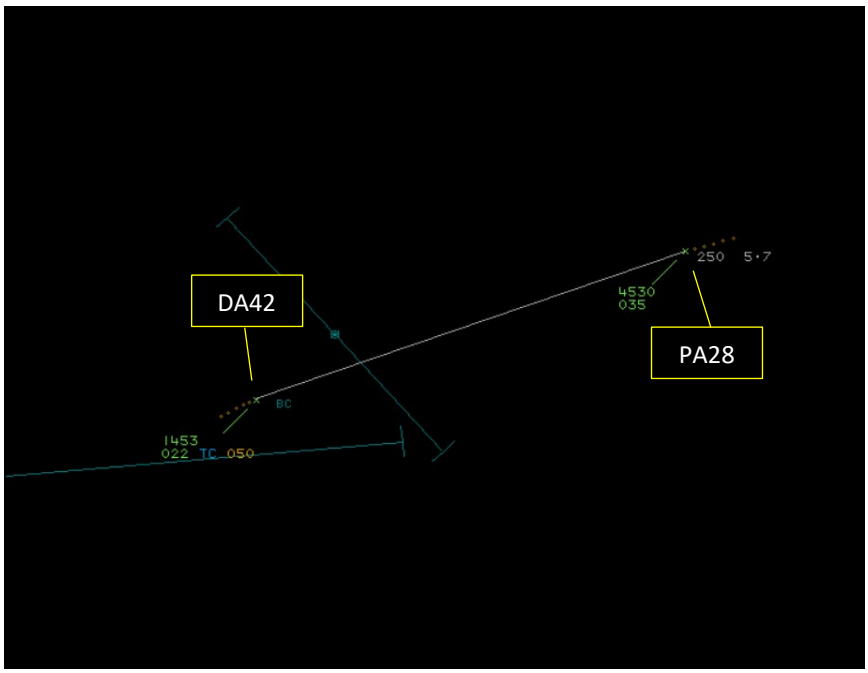


Figure 5 – 1127:18

At 1127:22 ATCO-3 advised the DA42 pilot: *"(callsign) Procedural Service. Traffic er 13 miles or less northeast of the field, 3600ft is a Cherokee and report your level now".*

DA42 pilot replied: *"Procedural Service er passing 3000ft"* (Figure 6).

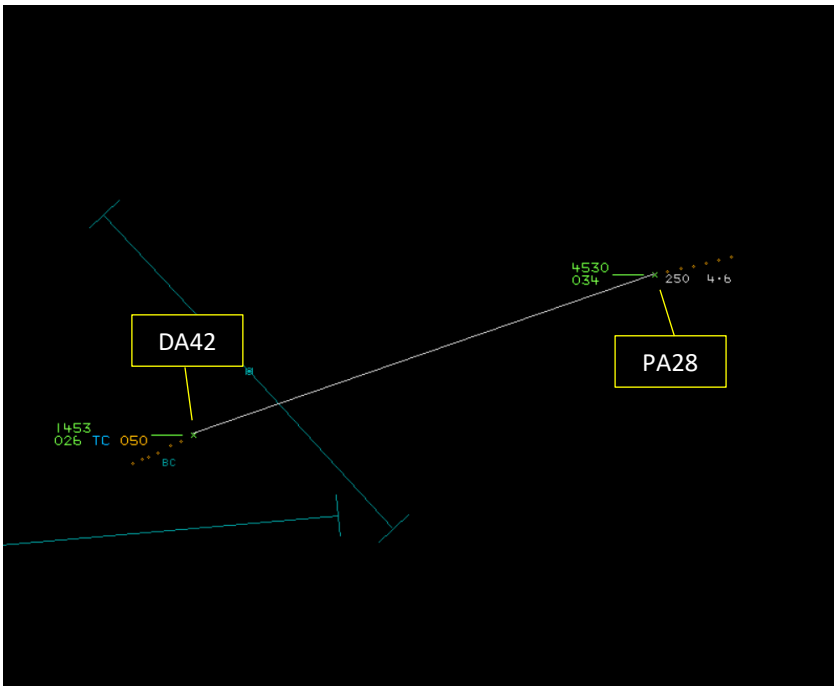


Figure 6 – 1127:35

At 1127:44 ATCO-3 asked the PA28 pilot: *"what service do you require? Basic or Procedural Service? Information Hotel, report your level now again."*

The PA28 pilot confirmed: *"Procedural Service for RNP approach, er level 3600ft"* (Figure 7).

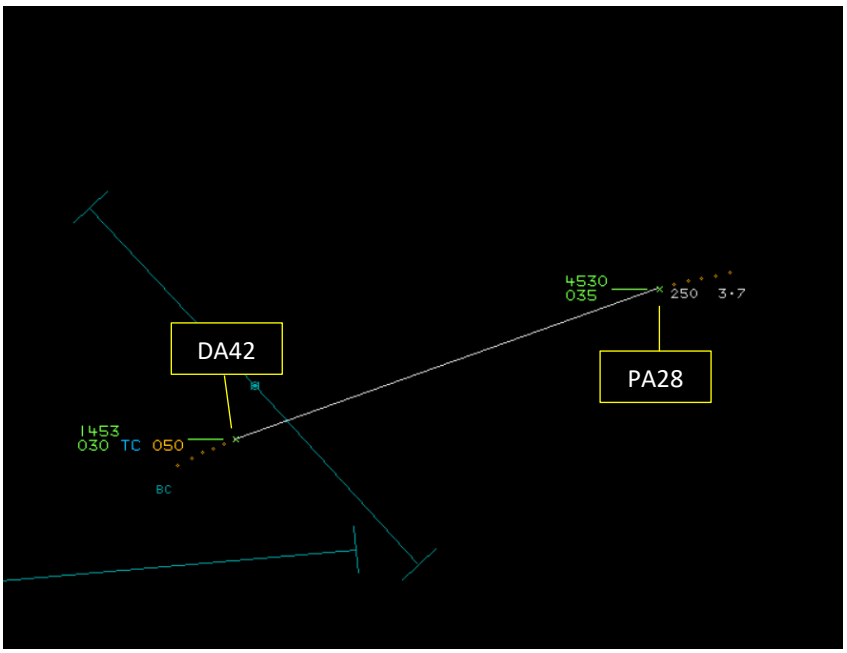


Figure 7 – 1127:52

At 1128:03 ATCO-3 called the DA42 pilot: *"er report your level now"* – the pilot reported 3300ft (Figure 8).

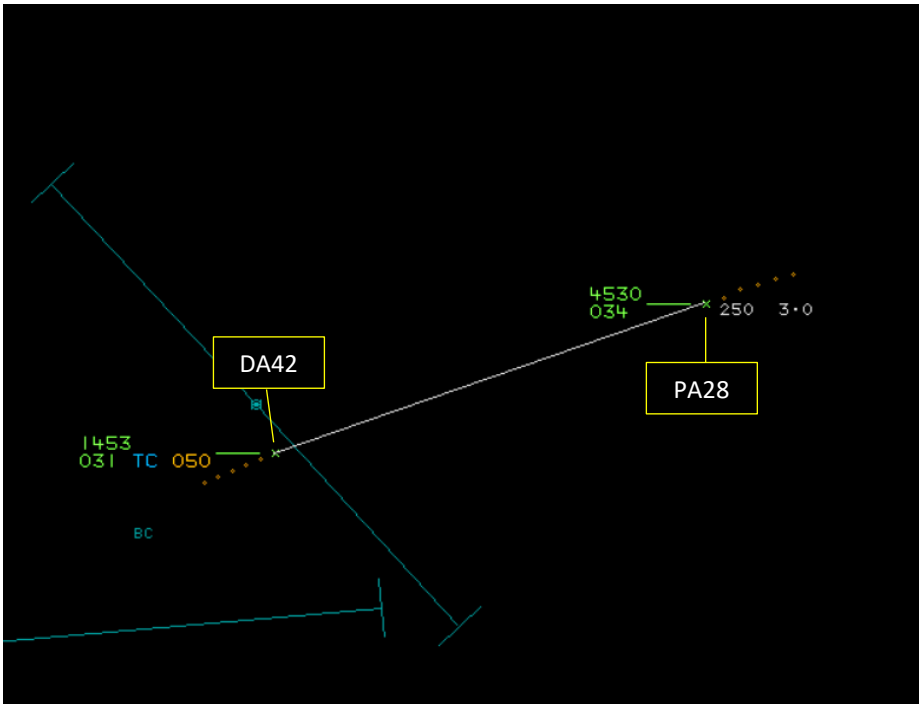


Figure 8 – 1128:03

At 1128:16 ATCO-3 instructed the DA42 pilot to: "*Descend to altitude 3000ft – expedite – report reaching. Essential traffic information is er west to northwest-bound Cherokee within 10 miles from the northeast. Inbound towards UVNOP – 600ft above"* (Figure 9).

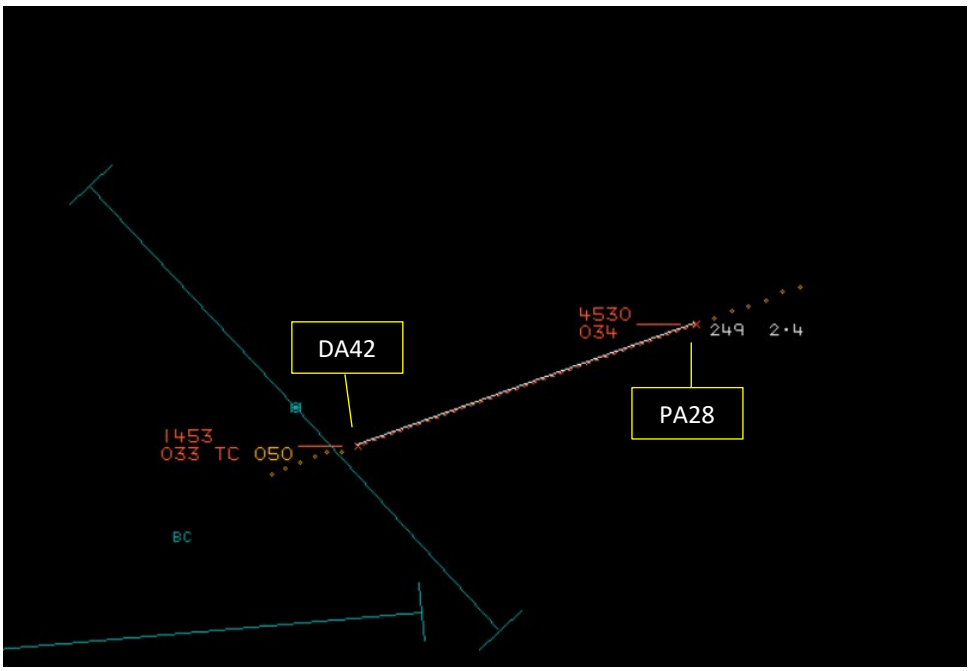


Figure 9 – 1128:16

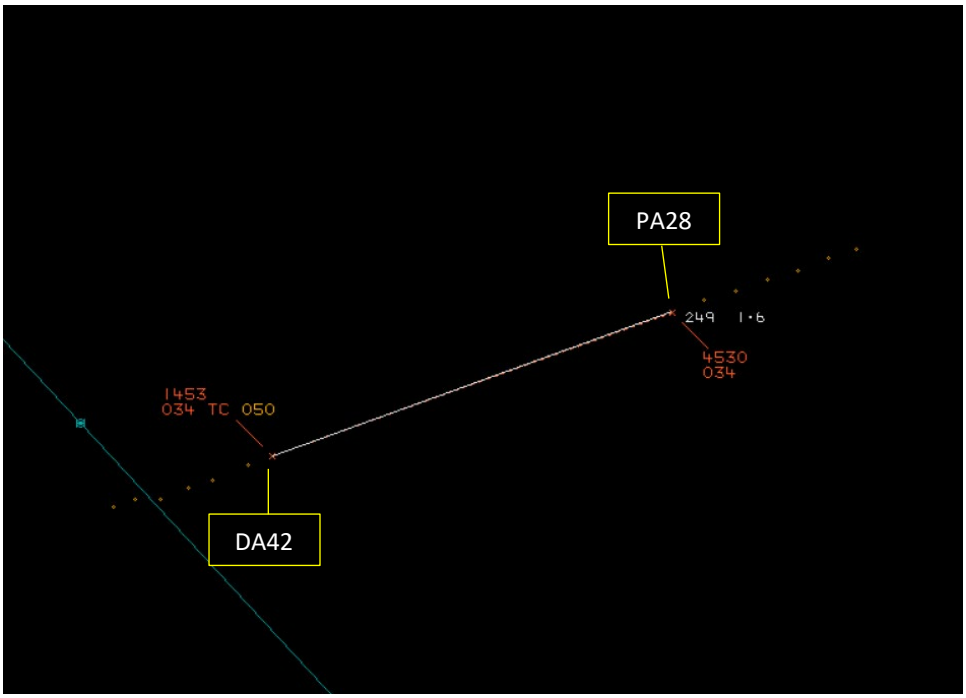


Figure 10 – 1128:28

At 1128:32 the DA42 pilot (instructor) reported: *"Continuing climb. We got a traffic alert, so we've continued ??? climb, and we're now passing 4300ft. Should be clear of traffic"* (Figure 11).

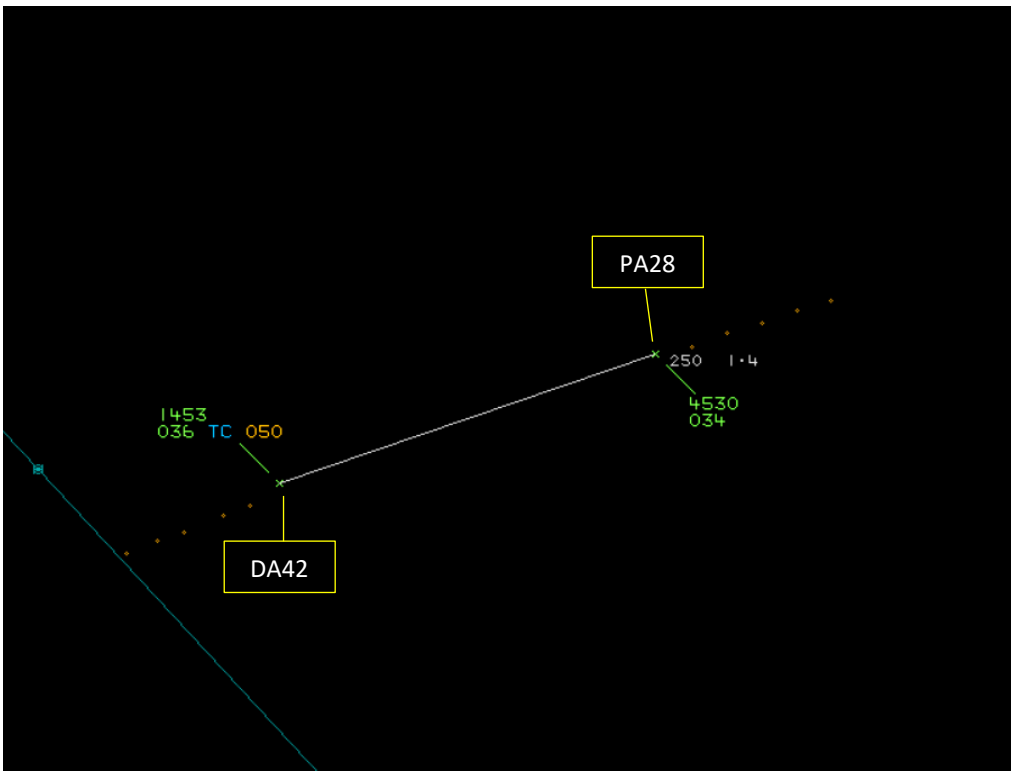


Figure 11 – 1128:32

ATCO-3 replied, at 1128:45: *"(callsign) under your own proc… on your own discretion then"* to which the DA42 pilot responded: *"own discretion – we'll continue climbing to FL50 now"* (Figure 12).

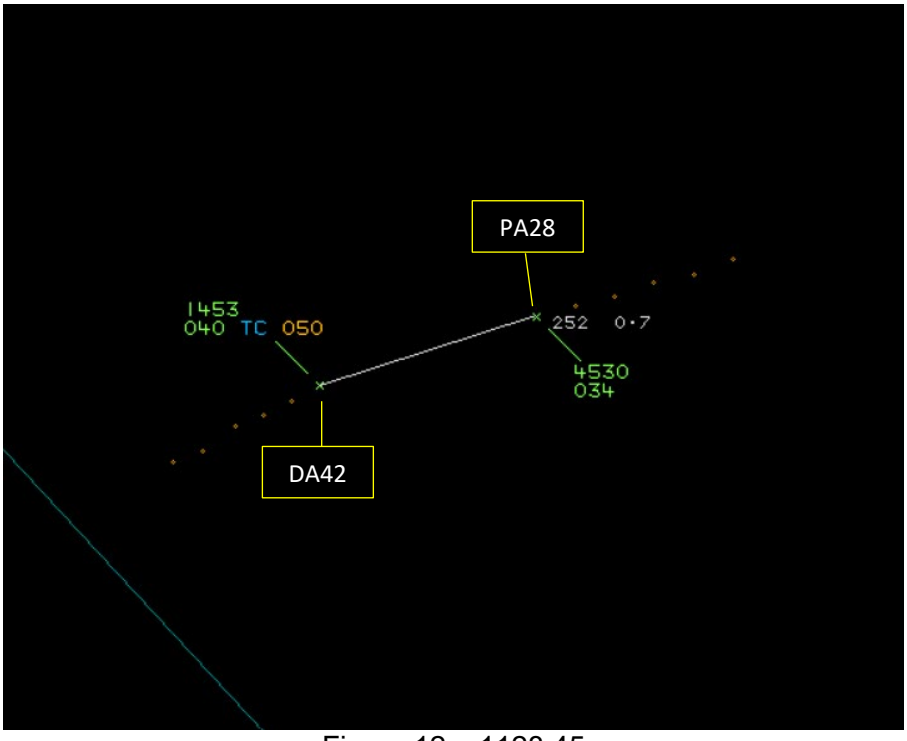


Figure 12 – 1128:45

At 1128:57 ATCO-3 passed the following to the PA28 pilot: *"Essential Traffic Information is er a northeast-bound Twinstar, just reported passing altitude 4300ft climbing FL50. Descend to altitude 3000ft – expedite"* (Figure 13).

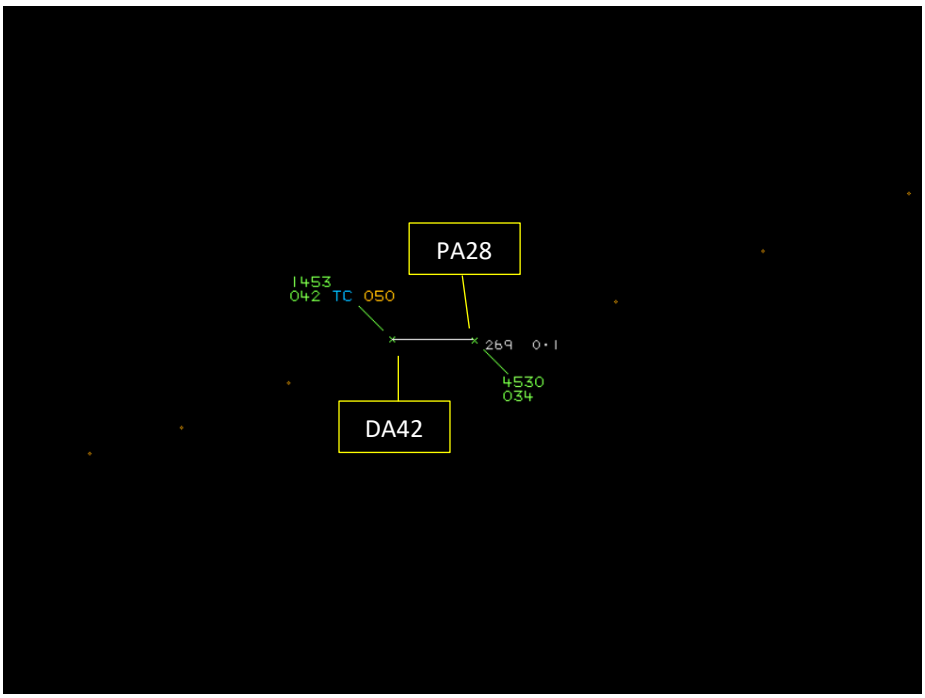


Figure 13 - 1128:57 CPA

CPA occurred between 1128:57 and 1129:00 (Figure 14).

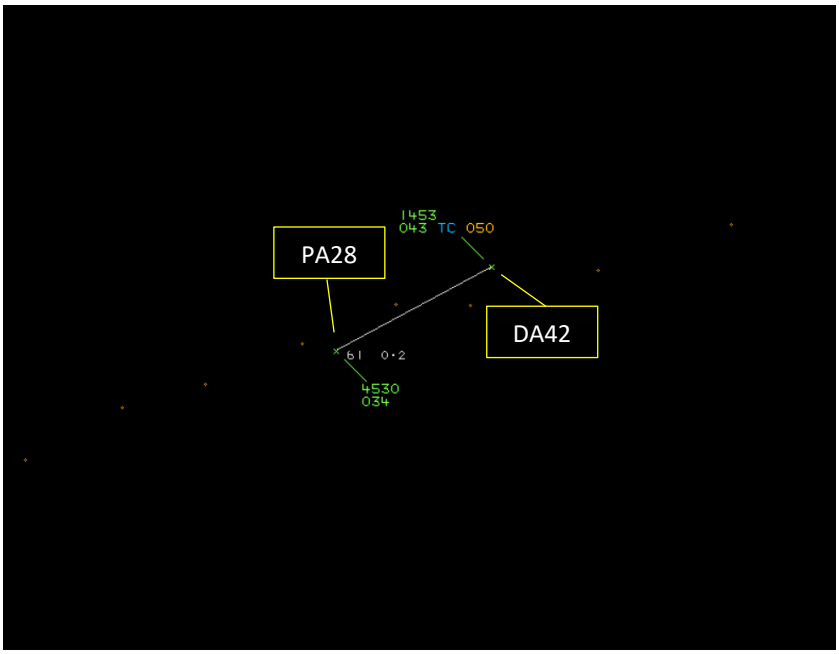


Figure 14 – 1129:00 – aircraft have passed

At 1129:13 the PA28 pilot asked ATCO-3 to repeat the instruction, which the controller did, and at 1129:32 ATCO-3 advised the pilot: *"report reaching 3000ft. Procedural Service – no delay expected"* which was readback by the pilot.

At 1129:41 ATCO-3 instructed the DA42 pilot to*: Remain outside controlled airspace. On reaching FL50 resume own navigation and er contract London Control 121.030"* which was readback correctly by the pilot.

Analysis

ATSI received copies of reports from the pilots of both aircraft and ATCO-3, together with an initial summary from the Manager ATS. Gloucestershire ATC does not have a serviceable radar, nor an

approved Flight Information Display System. ATSI was provided with area radar recording and copies of the RTF recordings covering the relevant period. Both aircraft were viewable on the area radar replay.

ATSI investigators visited the unit to review the layout and equipment in the VCR and to conduct face-to-face interviews with all of the controllers involved.

When the DA42 pilot called for start, ATCO-1 (providing combined ADC/APC) was the only controller present in the VCR.

In the time between the DA42 starting engines and calling for taxy, ATCO-1 was joined in the VCR by ATCO-2 and ATCO-3.

ATCO-1 was also the Senior Controller on Duty at this time, (SCoD). With the arrival of ATCO-3, who was more senior, ATCO-1 assumed that ATCO-3 had taken over the role of SCoD, although no formal handover of the responsibilities took place. The MATS has produced a list (in order of seniority) of ATCOs considered to be suitable for discharging the responsibilities of the SCoD. The ATC watch roster does not contain any information regarding which SCoD has been rostered on any given day, or for any given period of a watch. This resulted in assumptions being made on the day of the Airprox.

ATCO-3 took over the responsibilities of SCoD without receiving a handover, looked at the traffic situation based on the Traffic Management spreadsheet and [traffic schedule], and took the decision that ATCO-2 (ADI only rated) could relieve ATCO-1 for a short comfort break. This resulted in ATC services being reduced to ADC-only. ATCO-3 reported at interview that they had expected ATCO-1 to return to the VCR immediately, however this was not what subsequently transpired. ATCO-1 believed that ATCO-3 would be remaining in the VCR and as such they took a full 30-minute break. ATCO-3 also left the VCR with the intention of returning to the VCR for the 1130 IFR arrival.

During their interview with ATSI, ATCO-3 advised the investigators that they had reported for duty feeling “tired” and explained that they had had childcare responsibilities the night before and had not slept well.

None of the ATCOs considered the pending IFR departure and therefore its potential confliction with the IFR inbound [traffic] prior to the decision being taken to reduce the services to ADC-only. ATCO-1 was aware of the pending IFR inbound [traffic] when they handed over the operational position to ATCO-2. However, they felt that it was not worthy of pointing out to ATCO-2 because they did not know whether the aircraft was airborne or not. ATCO-2 did not spot the potential confliction when taking over the Tower position. ATCO-3 did not spot the potential confliction when taking the decision to return to the VCR at 1130. They had used the Traffic Management spreadsheet and [traffic schedule] in their planning, but did not review the strip board and traffic situation prior to taking the decision that ATCO-2 would take over the operational position.

At the time of the occurrence, neither the Traffic Management spreadsheet nor the [traffic schedule] included IFR departures. The imminent departure of the DA42 was known to ATCO-1 who issued the engine start clearance, which should have been included in the handover to ATCO-2, and the flight progress strip (FPS) would have been visible to ATCO-2 had they checked the pending traffic when they took over the position. ATCO-3 had also not reviewed the live or pending traffic situation.

When ATCO-2 issued take-off clearance to the DA42 pilot, the PA28 was not ‘known’ traffic as the unit had not been informed of its ETA by any other agency and the pilot had not yet called on frequency.

The DA42 pilot was not advised by ATCO-2 that there would be no Procedural Service available for their departure, and it was not until ATCO-3 returned and took over the position, nearly 5 minutes later, that an air traffic service was agreed with the DA42 pilot. ATCO-2 said in their interview that the pilot was not advised as there was an approach controller “on standby”, and they did not expect

to be in position for more than a few minutes. ATCO-2 confirmed at interview that they should have advised the DA42 pilot ahead of their departure, that Gloucestershire ATC was operating an Aerodrome Control Service only and agreed with them that it would be a Basic Service after departure.

When the PA28 pilot came on frequency, ATCO-2 did not have a plan in place as they were not expecting to have to deal with this scenario. They were not qualified to provide a Procedural Service. They confirmed with the PA28 pilot that they were inbound IFR for an RNP approach and advised the pilot to standby for a Procedural Service. The ATSA was then sent to find a qualified Approach controller to ask them to return to the VCR.

During communications with the inbound PA28 pilot, ATCO-2 stated *"nothing to affect a routeing to UVNOP"* which was incorrect, as the outbound DA42 was airborne in the same sector and was tracking towards the PA28. ATCO-2 did not pass any Traffic Information to the pilot of either aircraft or attempt to deconflict the two aircraft. They were heard on the RTF recording to request a range and level from the DA42 pilot. During their interview ATCO-2 said that they had not attempted to deconflict or issue a hazard warning because they did not recognise that there was a definite risk of collision.

When ATCO-3 returned to the VCR to take the handover of operational position from ATCO-2, they reported that the potential confliction was not prioritised in the handover, with the live traffic situation being covered at the end of the handover. ATCO-3 then immediately passed Traffic Information to the DA42 pilot on the PA28. The Traffic Information passed was that the inbound PA28 was 13NM or less to the northeast of the airfield at 3600ft. The aircraft were just under 6NM and 1300ft apart at the time (the outbound DA42 being below the PA28 at that point). A Procedural Service was then agreed with the DA42 pilot, who had just reported passing 3000ft. ATCO-3 then requested that the PA28 pilot confirm their level, and the type of service being requested. The pilot confirmed that they were at 3600ft and requested a Procedural Service for an RNP approach.

Within a minute of having taken over the position, ATCO-3 attempted to provide vertical separation between the two aircraft (now 2.4NM apart with the outbound DA42 100ft below the inbound PA28), by instructing the DA42 pilot to descend to altitude 3000ft. They also passed Essential Traffic Information to the DA42 pilot. However, the Traffic Information was inaccurate, with the PA28's position being given as 10NM northeast of the airfield, but on a *"west-north-westerly track"* with the vertical distance being passed as 600ft, whereas the PA28 was on a west-south-westerly track and 300ft above the DA42. There was no immediate response from the DA42 pilot, but about 15sec later the pilot confirmed that they had received a traffic alert and were intending to continue their climb (the aircraft were 1.4NM apart with the DA42 200ft above the PA28).

The closest point of approach (CPA) was assessed as being less than 0.1NM laterally and between 600-800ft vertically.

ATCO-3 passed Traffic Information on the DA42 to the PA28 pilot nearly 2min after having taken over the position, when they passed Essential Traffic Information (which was at CPA).

Both pilots reported being in IMC, with neither pilot becoming visual with the other aircraft. The DA42 pilot reported that *"accurate avoidance was only possible with the use of the traffic system on the DA42 combined with the climb performance available."* They reported being aware of the presence of the PA28, having heard its pilot's initial call and seeing [it indicated] on the aircraft's TAS.

The DA42 pilot stated in their submitted report that they believed they were in receipt of a Procedural Service when they first departed, whereas no service had been agreed by the ADC controller.

The PA28 pilot in their submitted report stated that they were *"completely unaware of another aircraft…"* being *"partly in IMC"* and that their [TAS] had *"experienced temporary disconnection on power-up".*

Conclusions

The absence of SCoD duty periods on the ATC watch roster resulted in a lack of clarity on the day of the Airprox as to exactly who was responsible for ensuring that they had a full understanding of the live and pending traffic situation and the service levels required, prior to taking the decision to deploy the ADI-rated ATCO and reduce the ATC services to an ADC-only service.

When ATCO-3 arrived in the VCR they effectively took over the responsibilities of SCoD, without obtaining a formal handover from ATCO-1. A number of incorrect assumptions were made which led to the decision being taken to reduce the air traffic service to an ADC-only service, with an IFR departure having already started engines on the ground and with a pending IFR arrival.

ATCO-1 was aware of the IFR departure having given the pilot clearance for engine start, and the pending IFR arrival, but did not include this in their handover to ATCO-2.

ATCO-2 did not spot the pending IFR arrival when taking over the position and subsequently issued a take-off clearance for the IFR departure.

ATCO-3 did not review the expected traffic situation for the period in which they were to be SCoD, or the live and pending traffic situation at that time when they took the decision to reduce the ATS and leave the VCR.

ATCO-2 did not advise the DA42 pilot that a Procedural Service was not available for their departure or advise them of what service would actually be provided. The DA42 pilot reported that they believed that they were in receipt of a Procedural Service immediately after departure.

There is guidance within the MATS Part 2 on how to inform aircraft operators of any reduction in ATC services available when the planned seating plan for the day has been adhered to. The investigators could not find any guidance on how to inform aircraft operators of any unplanned reduction in services e.g., ad hoc ATCO breaks, as was the case on the day of the Airprox.

The PA28 was booked in for an 1130 arrival. The UK AIP requires pilots of IFR arriving aircraft to establish communications with Gloucestershire ATC at least 10 minutes prior to ETA at the NDB(L). The PA28 pilot made their initial call to the ATCO-2 (ADC) at 1124:43, approximately 5 minutes after the pilot might have been expected to call for an 1130 arrival. Normal circumstances would dictate that there would be an approach-qualified controller in position in anticipation of that call.

ATCO-2 was caught-out by the initial call from the PA28 pilot requesting an instrument approach and instructed the pilot to standby for the Procedural Service while they sent the ATSA to look for an approach-qualified ATCO. This resulted in the PA28 pilot not receiving any form of service from them.

ATCO-2 did not recognise the confliction between the DA42 and the PA28 and subsequently provided misleading information to the PA28 pilot advising that there was "*nothing to affect a routeing to UVNOP".* As a result, no Traffic Information was passed to either pilot and the handover to ATCO-3 did not prioritise the confliction.

ATCO-3's first transmission on the RTF was at 1127:18 which was to the DA42 pilot. A Procedural Service was then agreed with the DA42 pilot at 1127:22. There was a discussion about type of service with the PA28 pilot at 1127:44, a Procedural Service was not agreed until 1129:32 which was after CPA.

Having taken over the position, ATCO-3 attempted to provide vertical separation between the two aircraft and passed Essential Traffic Information to the DA42 pilot. However, the Traffic Information was inaccurate. The DA42 pilot reported receiving a traffic alert and elected to climb which ultimately resolved the confliction. The PA28 pilot had not received any Traffic Information prior to CPA.

UKAB Secretariat

The DA42 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.[4] If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.[5]

Gloucester Occurrence Investigation

Gloucestershire Airport had initiated new Volume of Traffic Management procedures on the 14th of February 2025. This was largely done as a response to a number of Airprox events experienced by Gloster ATSU during the previous 14 months. The unit had kept the CAA appraised of these changes. The Airprox events that this action was supposed to tackle were those occurring within, and immediately in the vicinity of, the ATZ. In that sense this Airprox would appear to be an outlier as far as other Airprox events experienced are concerned.

The Volume of Traffic Management was being managed by ATC and Landside Operations (Briefing) using an Excel spreadsheet that both parties could edit and that was shared as a read-only spreadsheet with operators (mostly Gloster-based). ATC staff were made aware of this spreadsheet via TOI 02 of 2025. This spreadsheet did not include IFR departures as this particular type of flight was not deemed to be one that was causing any concern with regard to Airprox events. The spreadsheet was populated when a pilot contacted ATC or Briefing with a PPR request and flight plan or booking out/in details. Staff were not advised to use the spreadsheet as a means of creating seating plans for ATCOs.

On the 16.02.25 there were 3 ATCOs rostered to attend for duty. An Early shift (E), a Relief shift (R) and a Late shift (L). On a weekend day such as this, the E would attend from 08:30 to 17:00 (self-briefing until 09:00 when the Airport opens), the R would attend from 09:20 until 18:00 and the L would attend 10:50 until 18:00 (available until 19:00 if an extension is requested). The first 10min of the R and L shifts is for self-briefing.

On the 16th February the E and L shifts were both ADI and APP endorsed ATCOs and the R shift ATCO was endorsed in ADI only.

The R shift took control in the Tower at 09:30 and controlled until 10:00. There was a NOTAM (L0951/25) for this period which stated “GLOUCESTERSHIRE APPROACH SERVICE NOT AVAILABLE. IAP NOT AVAILABLE”. Although this NOTAM wording is routinely used at the ATSU for periods when a "Tower only" ATCO would be the only ATCO providing a service, no such NOTAM was issued for the period from 11:07 to 11:27 (approximately) when the Tower only provided another spell of ADI only on a combined frequency.

The following is merely an observation related to the combined experience of the ATCOs on duty that day. The E shift ATCO had only worked in ATC at Gloucestershire, had validated in ADI on the 27th September 2022 and in APP on 3rd April 2024. The R shift ATCO had some limited experience of working as an ATSA and trainee ATCO elsewhere and had validated in ADI at Gloucestershire on the 29th October 2024. The L shift ATCO validated in ADI on the 10th December 2021 and in APP on the 17th October 2023. An observation from the Investigator would be that there was a relatively small amount of combined experience in APP service provision between the 3 ATCOs on duty that day.

The E shift ATCO was the SCoD until 11:00 when the L shift ATCO became SCoD. At interview the R shift ATCO (ADI only) stated that they controlled between 09:30 and then handed back to the E shift at 10:00. They stated that they believed it was "quiet all day" and there were never more than 3 (aircraft) on frequency at the same time. This statement was demonstrably not the case as can

[4] (UK) SERA.3205 Proximity.
[5] (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.

be seen by the volume of RT activity in the transcript. On occasion there were approximately 8 aircraft on frequency between 11:00 and 11:28 (time of Airprox).

At interview the other 2 ATCOs did not think it was busy either. This expectation bias between actual traffic volumes and perceived volumes may have contributed to the decisions made that are detailed below.

ADC/APP was combined until 11:07 when the E shift ATC handed over to the R shift ATCO (ADC only). At the time of the handover at 11:07 all 3 ATCOs were in the VCR. The E shift ATCO needed a comfort break. The L shift ATCO (SCoD) assessed the situation but failed to assimilate the pending IFR departure ([DA42 C/S]) into their overall picture. Because the SCoD did not realise there was a potential confliction between this aircraft (on Tower frequency but not yet taxiing) and a pending inbound IFR aircraft ([PA28 C/S] booked an IFR Approach for 11:30), they thought it reasonable to allow the R shift ATCO to take over the operational position as a Tower only with combined frequencies and no NOTAM stating that an Approach service or Instrument Approach Procedures were not available. The plan was for the SCoD to return to the VCR in time for the inbound (either at 11:30 or if called due traffic whichever was the sooner). The SCoD advised the E shift ATCO to take a break rather than just a comfort break. The E shift ATCO duly left the VCR for a break. The SCoD believes they stayed in the VCR for approximately 5min and then left the VCR and went to the rest room.

At interview the SCoD reported feeling fatigued (due personal issues leading to lack of sleep) and that this may have been why they left the VCR rather than stay which they would normally do when an ADC only was operating.

At the time of the 1107 handover from the E shift to the R shift none of the 3 ATCOs (all present in the VCR) were seemingly aware of the volume of traffic (there were 10 separate Flight Progress Strips active between 11 and 1128 (Airprox)) being worked and the subsequent need to split the positions. None of them noticed the pending potential conflict between outbound IFR [DA42 C/S] and inbound IFR [PA28 C/S]. Ultimately that should have been the SCoD's responsibility as SCoD.

Gloster MATS 2, Section 1 Chapter 11, Para 10.1 states:

> 'The SCoD shall ensure that ATC personnel are deployed as effectively as possible to meet the operational needs of the airport. Light traffic conditions resulting from poor weather, for example, may enable contingency arrangements to be made to maximise the efficiency of the duty staff. Similarly, in situations of staff sickness or shortage, staff should be deployed to minimise any reduction in overall levels of service, consistent with safety.'

It is an observation by the Investigator that ATC personnel were not deployed as effectively as possible to meet the operational needs of the airport on the morning of the 16th of February.

Gloster Safety Management System lists the following accountability for the SCoD:

> 'The SCoD is accountable to the MATS for the safe overall direction of Air Traffic Services personnel in execution of their duties during the period of the shift within Gloucestershire Airport in compliance with UK Regulation EU 2017/373 and associated regulatory requirements.'

It is an observation by the Investigator that the SCoD did not ensure the safe overall direction of ATS personnel in execution of their duties during this shift.

Gloster Safety Management System lists the following responsibilities (amongst others) for the SCoD:

> 'Identify and take ownership of events which may lead to overload or fatigue of controllers.'

It is an observation by the Investigator that the SCoD did not take suitable account of their own fatigue when making plans for the shift.

Gloster Safety Management System lists the following responsibilities (amongst others) for the SCoD:

> 'Ensure a handover takes place either electronically or face to face before each shift.'

It is an observation by the Investigator that the SCoD did not brief themself sufficiently to have received a full handover of the traffic situation meaning that a Tower only ATCO was left controlling a situation that warranted an APP ATCO being present to provide an appropriate service.

Gloster Safety Management System lists the following responsibilities (amongst others) for the SCoD:

> 'Implement controls as required to control risks to controllers and the safe operation of the airspace and ATZ by means of implementing movement restrictions locally or imposing flow control as appropriate.'

It is an observation by the Investigator that the SCoD did not implement controls as required to control risks to controllers and the safe operation of the airspace i.e. the SCoD's self-briefing of the traffic situation and the subsequent seating plan SCoD developed was not appropriately managed to ensure the safe operation of IFR traffic.

When the R shift ATCO took control at 1107 [DA42 C/S] was already on the Tower frequency and at 1113 Tower broadcast the following clearance to [DA42 C/S] (the climb to Flight Level 50 on track Daventry had been issued and annotated on the strip by the E shift and the rest of the clearance was issued by London Control):

> '*Hold position on departure runway 09 after departure left turn on track Daventry climb flight level 50 remain outside controlled airspace squawk 1453 and when instructed contact London 121.030* [DA42 C/S].'

At time 11:23 [DA42 C/S] reported at Charlie 1 ready for departure.

• Instead of telling [DA42 C/S] to standby and calling for an APP ATCO The R ATCO gave [DA42 C/S] clearance for take-off at 1123:09. R ATCO did not tell [DA42 C/S] that no Procedural Service was available and, having spoken to the Instructor of [DA42 C/S], they were under the impression that they would be receiving one.

• R ATCO reports that they were expecting to transfer [DA42 C/S] straight to London.

• At 1124:43 [PA28 C/S] called inbound and reported at 13.5 miles. This was prior to [DA42 C/S] having departed (did so at 11:26 according to strip marking)

• At some point after [PA28 C/S] contacted Gloster, the R ATCO sent the ATSA downstairs to advise the L ATCO that [PA28 C/S] was inbound. The ATSA did this and advised the L ATCO who was in the rest room. The L ATCO believes they may have then gone to the toilet as they believed they would be in the seat for 90 or 120 minutes.

• AT 1125:05 the R ATCO broadcast: "[PA28 C/S] *Gloster Tower QNH 1020 Squawk 4530, are you looking for an IFR approach*?".

• [PA28 C/S] advised that they were looking for an RNP runway 09 via UVNOP.

• At 1125:42 the R ATCO said "[PA28 C/S] *roger standby for procedural service and nothing to affect your routeing to UVNOP and er report reaching UVNOP*".

• At 1127:18 the L ATCO made their first broadcast as ADC/APP combined. They'd received a handover from the R ATCO which included the airborne traffic scenario as the last item. The L ATCO issued Essential Traffic Info and avoidance action but the [DA42 C/S] Instructor chose to continue climbing. The FlightRadar24 recording cannot be verified for accuracy but suggests that [DA42 C/S]

and [PA28 C/S] were opposite direction and that [DA42 C/S] was climbing through the level of [PA28 C/S]. This recording suggests that [DA42 C/S] overflew [PA28 C/S] by about 800ft. The investigator has no way of assessing the approximate closest point of the two aircraft involved.

The R ATCO was interviewed by MATS (Investigator) on the 18th of February 2025. During this interview the R ATCO advised that the idea was that, if they were to get any controlling in that day, then (approximately) 1110 would be a "good time to see some traffic". They believed that the SCoD was not aware of the pending IFR departure ([DA42 C/S]) and so agreed to the plan to allow the R ATCO to take control in the ADC position. They advised that the plan was for the L ATCO to come back to the Tower in time for the inbound IFR flight [PA28 C/S]. The R ATCO stated that they had been told that it's okay to issue an APP issued clearance in any situation. The R ATCO stated that as soon as [PA28 C/S] called on frequency they sent the Tower ATSA to retrieve the L ATCO and added that they didn't know why the L ATCO took so long to return but thought that it may have been because they were not aware of a confliction and so there may not have been a sense of urgency. At this meeting the R ATCO attempted to state that they thought routeing [PA28 C/S] direct to UVNOP (or stating "nothing to affect") was reasonable based on their perceived positions of the conflicting aircraft. They also made reference to the fact that there was no surveillance equipment available.[6]

Gloster MATS 2, Section 1, Chapter 12 describes various ATCO staffing scenarios and appropriate actions in each of those scenarios. In the minutes leading up to the Airprox "Scenario 3" (one ADC only ATCO and one ATSA) was in place and MATS 2 states:

> '13. Staffing Contingency Details
> Scenario 3: 1 (ADC only rated) ATCO, 1 ATSA. Approach Service/IAP withdrawn. Instrument Training not accepted. Traffic management restrictions applied if necessary.
>
> 13.2. The above list is not exhaustive and the SCoD may elect to alter these arrangements if traffic conditions dictate.'

The Investigator observes that due to the pending IFR inbound and outbound this Scenario was not the appropriate one for the SCoD to have allowed.

Gloster MATS 2, Section 1, Chapter 16 states:

> '16. 'Aerodrome Control' Only
> 16.1. The provision of 'ADC only' precludes the use of IAPs and should be avoided whenever possible. This service should only be provided when an APP controller is not available.
> 16.2. ADC only-rated ATCOs shall use the suffix 'Tower' on all relevant transmissions.
> 16.3. 'Aerodrome Service only' must be promulgated on ATIS during these periods.
> 16.4. Traffic requesting an IAP shall be advised "no Approach service available until (time), Basic Service only."
> 16.5. IFR transit and departing traffic shall be advised "no Approach service available until (time), Basic Service only." Traffic information should, however, be passed on any known, conflicting traffic.
> 16.6. Transit aircraft operating outside the ATZ or its immediate vicinity may be advised "no Approach service available until (time), flight information services available from London on 124.750." It is recognised that 'the vicinity of' the ATZ is somewhat vague and it may be prudent for the controller to provide a Basic Service in certain circumstances. It is not possible to cover every likely scenario and controllers will be required to use their judgement in any particular circumstance.'

Investigator observations in regard to each of the above relevant points:
16.1: APP controllers were available so the provision of ADC only should not have occurred.

[6] The Radar (ATM) had been unserviceable since August 2024. Even if it had been serviceable, according to MATS 2, Section 3, Chapter 1, Para 8.1 "the ATM display should be configured in an appropriate setting for ATM use (8 NM range, offset to display a 10 NM final approach to the instrument runway)", which would mean they could not have seen [PA28 C/S] on it as it called at 13.5 northeast of the Airport. The only MATS 1 use of the ATM that may have been appropriate in this scenario (if the ATM had been serviceable) was "provide information to aircraft on the position of other aircraft in the circuit or carrying out an instrument approach" (MATS 1, Section 2: Chapter 1: Aerodrome Control, Para 21.1), however it is reasonable to say that [PA28 C/S] was en-route to the Instrument Approach and so the ATM should not have been used in this capacity.

16.2: "Tower" was used on relevant transmissions.
16.3: "Aerodrome Service Only" was not promulgated on ATIS.
16.4: Inbound IFR [PA28 C/S] was told to "standby for Procedural Service" and was not told what type of service they were initially receiving.
16.5: IFR Departure [DA42 C/S] was not told that they would not receive the notified Procedural Service after departure. The R ATCO did not pass Traffic Information to [DA42 C/S] on [PA28 C/S].

At 1125:42 Tower said to [PA28 C/S] "[PA28 C/S] *roger standby for procedural service and nothing to affect your routeing to UVNOP and er report reaching UVNOP*". Demonstrably the [DA42 C/S] did affect [PA28 C/S]'s routeing to UVNOP but no Traffic Information was passed either way.

The R ATCO was interviewed by MATS via phone on the 19th February at 1445. MATS asked if the R ATCO had told [PA28 C/S] that there was nothing to affect a routeing to UVNOP by their own volition or if an APP ATCO had been present. The R ATCO had said that they had done this without an APP ATCO being present. The R ATCO believed that the routeing was a sound one against what [they] anticipated the routeing of [DA42 C/S] to be. The R ATCO asked MATS where the [DA42 C/S] was and MATS replied that they had no way of knowing but the R ATCO was insistent that their plan was sound.

The R ATCO was interviewed again on the 20th February 2025. They reiterated that they did not feel as though they were "at capacity" and were not "stretched" and this played a part in the decision to allow them to take the position as an ADC only ATCO at 11:07. They said they were trying to be a "team player" and so were helping with breaks. They were magnanimous in stating that they had been wrong. They stated that they were not aware of the pending IFR arrival (even though it was a live flight progress strip on the flight progress board). They said that if they had known there was a potential IFR confliction that they would not have accepted the position.

The pilot (Instructor) of [DA42 C/S] was interviewed by MATS on the evening of the 16th of February 2025 by telephone. The pilot stated that they were expecting a Procedural Service after departure and were not told that they would not receive one. They had filed a flight plan and booked back-in IFR with Gloster Tower.

The Investigator (MATS) realises that the above text includes a lot of information and is sometimes random in its order; however, resource is tight at the Unit at the moment and expedition to try and complete the investigation as quickly as possible has meant that this was almost inevitable. They said that they remembered climbing Flight Level 50 on departure and remembered [PA28 C/S] calling on frequency but that they were initially sure of their position. They sensed that an ATCO handover was taking place. They remembered the trainee pilot giving altitude reports to ATC. They remembered receiving a Traffic Avoidance System (TAS) warning and made the assumption that it was against [PA28 C/S]. Initially the TAS warned on the distance of traffic on a reciprocal track. They stated that conditions were IMC throughout. They remembered the ATCO requesting their altitude and climbing at more than 800fpm passing 3300ft. The trainee pilot was flying the aircraft. On receiving the TAS warning they increased climb rate to 1500fpm. They stated that they thought that TAS was good at vertical warnings but not much good at lateral warnings and that is what prompted them to adopt maximum climb rate. They thought that the risk of conflict was high and that the aircraft could have conflicted if they hadn't increased climb rate. They believed that TAS showed target behind them with only 200ft of separation although their Airprox report stated 300ft. They stated that the reciprocal aircraft passed "right underneath".

The L Shift ATCO (SCoD) was interviewed on the 20th February 2025 by MATS. They stated that they arrived in the VCR just before 11am and that there was a visitor present. The E ATCO was plugged in and the R ATCO was present in the VCR. They believed that the E ATCO was giving a clearance to the "last circuiter" [sic] to land and that the E ATCO told them that they needed a comfort break. They did not see the [DA42 C/S] departure strip in the bay. They advised the E ATCO that they could take the position as they saw that there was an IFR inbound due at 11:30. They then asked the R ATCO when they had last controlled and decided that the L shift ATCO could take the position. They stated that they forgot that the new Volume of Traffic spreadsheet did not include IFR

departures and that they did not check the start-up section of the flight progress board. They stayed for about 5min after the L shift ATCO had taken over the operational position. Prior to this they had assessed the traffic levels as "not very busy". Once they went downstairs they stayed in the rest room. They reported feeling fatigued due lack of sleep due personal circumstances. They said that they normally would stay in the VCR with an ADC only ATCO but didn't as they were fatigued. They remembered the ATSA coming into the rest room and advising them that the IFR inbound "has arrived for [their] approach". They believed that they may have then gone to the toilet as they believed that they would be plugging in for up to 2 hours. When they arrived in the VCR they were given a handover by the L ATCO and remembered that the Flight Progress Board was not setup as an APP ATCO would have managed it. They said that the last piece of information they received in the handover was regarding the 2 IFR aircraft.

The E shift ATCO was interviewed by MATS on the 20th February 2025. They stated that they had arrived in work at 08:30 to open at 09:00. They said that as SCoD they had the R ATCO control from 09:30 until just after 10. They said that the R and L ATCOs came to the VCR at about 11 am. They said that they were happy to continue in position but that they advised the SCoD that they needed a comfort break. They said that the SCoD looked at the flight progress board and told them they could have a break. They did assume that the SCoD was aware of the pending IFR departure and arrival. They assumed that the R shift was taking over for 5 or 10min whilst SCoD briefed and then took control. They stated that they thought the traffic levels were "quite quiet" and were surprised when it was pointed out that, at times, there were approximately 8 aircraft on frequency. They stated that they formulated the clearance for [DA42 C/S] and that either R ATCO or L ATCO would pass it but that, if the R ATCO passed it, that the L ATCO would be in the VCR with them. They said the inbound IFR aircraft was in the arrivals section of the flight progress board. They stated that they made the incorrect assumption that the R ATCO would not control IFR aircraft and that they realised they handed over to the R ATCO and that the SCoD may not have been fully aware of the traffic scenario. They said that SCoD had told them they could take a full break i.e. not just a comfort break.

In summary the investigation concludes that the causal factors leading to the Airprox included:

* the 3 ATCOs involved [did not] notice the pending confliction between IFR outbound [DA42 C/S] and IFR inbound [PA28 C/S].
* the ADC Only ATCO being left to control in a traffic situation that should have been controlled by an ADC and APP endorsed ATCO.
* the SCoD not assimilating the confliction and therefore not managing the watch appropriately. This may have partly been down to their use of the new Volume of Traffic spreadsheet to assess the traffic needs rather than the actual live traffic situation.
* the SCoD leaving the Tower due personal fatigue.
* the ADC Only ATCO not following the relevant Aerodrome Only sections of the MATS Part 2.
* the ADC ATCO advising [PA28 C/S] that there was nothing to affect their routeing to UVNOP, when demonstrably there was i.e. [DA42 C/S].

Summary

An Airprox was reported when a DA42 and a PA28 flew into proximity 6NM east-northeast of Gloucester Airport at 1129Z on Sunday 16th February 2025. Both pilots were operating under IFR in IMC, the DA42 pilot in receipt of a Procedural Service from Gloucester and the PA28 pilot effectively in receipt of a Procedural Service with Gloucester [but not yet agreed].

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS data, a report 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.

Members first discussed the ATC aspects of the Airprox and commended Gloucester for their thorough investigation report which, along with the CAA ATSI report, fully documented the circumstances of this Airprox. The initial lack of appreciation of the live traffic situation, compounded by fatigue, had resulted in the Tower being incorrectly manned when the DA42 had departed under IFR (**CF3**). The ADC Only qualified controller had not been appropriately qualified to provide the DA42 pilot's requested Procedural Service (**CF5**, **CF7**) and had then no doubt acted to alleviate the developing conflict but in doing so had not acted iaw the aerodrome MATS Part 2 (**CF1**) and, to a degree, had adversely affected the PA28 pilot's situational awareness by stating that there was no traffic to affect their routeing (**CF7**). The Board agreed that it had been for the SCoD to manage the watch, but their lack of initial situational awareness had resulted in a breakdown of the management of the watch personnel (**CF2**). The conflict had been detected at a late stage (**CF6**) and Traffic Information had been passed to the PA28 pilot but consequently also at a late stage (**CF4**) and, with a non-functioning TAS (**CF10**), they had had only generic situational awareness on the DA42 (**CF8**). Both pilots had been in cloud to such an extent that they had not seen the other aircraft (**CF11**) but fortunately the DA42 instructor had assimilated their TAS alert (**CF9**) and had taken avoiding action.

Turning to risk, one member was of the opinion that safety had been much reduced (Risk B) but the majority agreed that the DA42 pilot's avoiding action had been effective and had averted risk of collision, Risk C.

Members also noted the DA42 instructor's initial remark that they "didn't want to cause more trouble" by submitting an Airprox. The Board understood this as a natural reaction to their perception that a number of Airprox had occurred recently in the area around Gloucester and that these occurrences could bring attention to the operation at Gloucester. Members were at pains not to criticise such a remark but rather to emphasise the advantages of submitting an Airprox. Ultimately, it is for those involved to decide whether to submit an Airprox, but doing so is designed to start a course of action that can materially improve safety of flight for all.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2025016			
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	Organisational	• ATM Staffing and Scheduling	An event related to the planning and scheduling of ATM personnel	
	• Situational Awareness and Action			
4	Human Factors	• ANS Traffic Information Provision	Provision of ANS traffic information	TI not provided, inaccurate, inadequate, or late
5	Contextual	• ATM Service Effects	An event affecting Air Traffic Management operations.	Controller not able to provide requested ATS
6	Human Factors	• Conflict Detection - Detected Late	An event involving the late detection of a conflict between aircraft	

7	Human Factors	• Traffic Management Information Provision	An event involving traffic management information provision	The ANS instructions contributed to the Airprox
	Flight Elements			
	• Situational Awareness of the Conflicting Aircraft and Action			
8	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			
9	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
10	Human Factors	• Response to Warning System	An event involving the incorrect response of flight crew following the operation of an aircraft warning system	CWS misinterpreted, not optimally actioned or CWS alert expected but none reported
	• See and Avoid			
11	Contextual	• Visual Impairment	Events involving impairment due to an inability to see properly	One or both aircraft were obscured from the other

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:

Ground Elements:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the relevant MATS Part 2 regulations were not complied with.

Manning and Equipment were assessed as **ineffective** because a Tower only qualified ATCO was in place for the DA42 departing under an IFR flight plan and the PA28 arriving for an IAP.

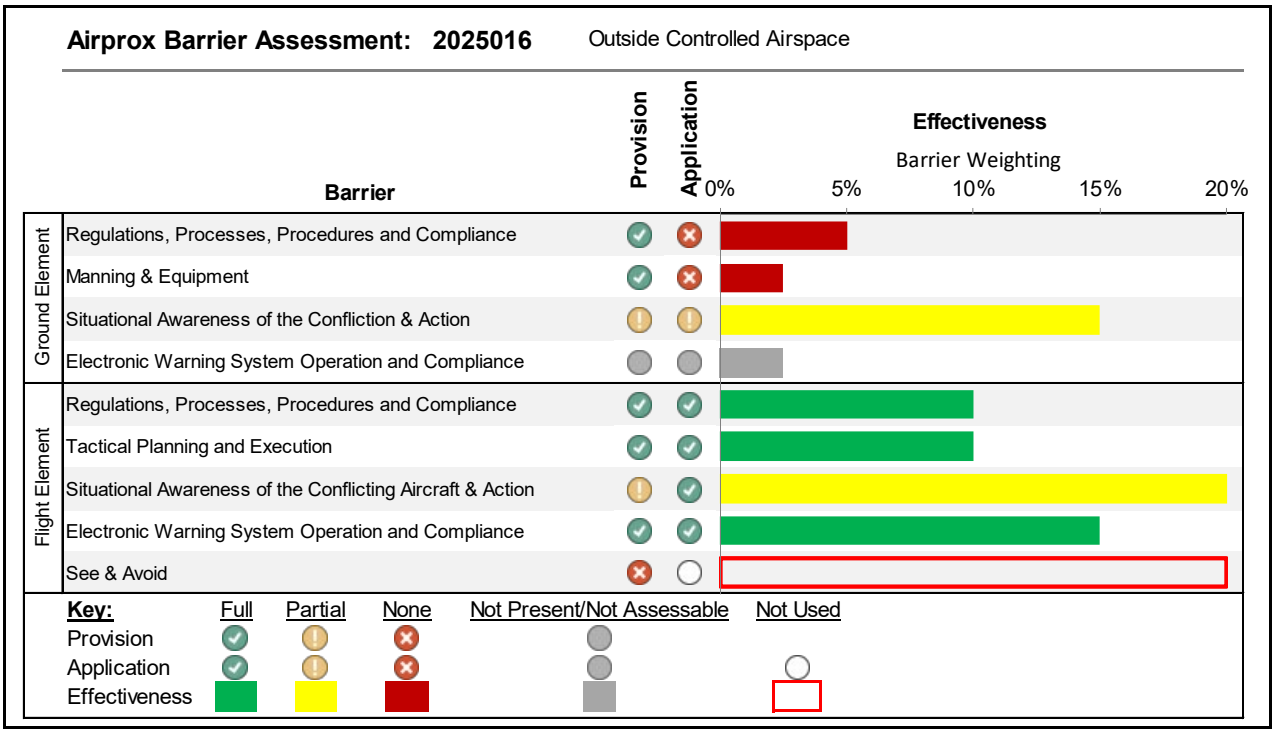
Situational Awareness of the Confliction and Action were assessed as **partially effective** because the Tower qualified controller could not provide a Procedural Service and Traffic Information was provided at a late stage.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the PA28 pilot had had only generic situational awareness.

See and Avoid were assessed as **not used** because the aircraft were in cloud at CPA.

[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: 2025016
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