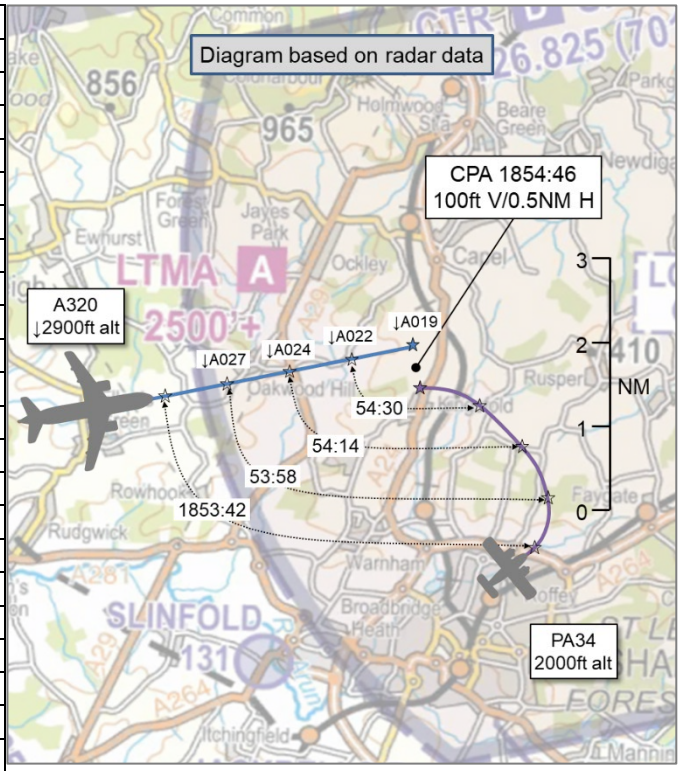
AIRPROX REPORT No 2021255

Date: 31 Aug 2021 Time: 1855Z Position: 5107N 00020W Location: 3NM N of Horsham

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	A320	PA34
Operator	CAT	Civ FW
Airspace	Gatwick CTR	Gatwick CTR
Class	D	D
Rules	IFR	VFR
Service	ACS	Radar Control
Provider	Gatwick Tower	Gatwick Int/Fin
Altitude/FL	1800ft	2000ft
Transponder	A, C, S	A, C
Reported		
Colours	Company livery	White, blue
Lighting	NR	Nav, strobes
Conditions	NK	VMC
Visibility	NR	>10km
Altitude/FL	2500ft	2000ft
Altimeter	NK	QNH (NK hPa)
Heading	080°	NK
Speed	180kt	NK
ACAS/TAS	TCAS II	Not fitted
Alert	RA	N/A
Separation at CPA		
Reported	NR V/NR H	NK V/0.5NM H
Recorded	100ft V/0.5NM H	



THE GATWICK TOWER CONTROLLER reports that they received a call from [the Gatwick FIN controller] regarding a zone transit. The FIN controller stated they were going on a direct track from their current position direct to [destination] airfield. The aircraft was a PA34, VFR. The aircraft was around 20NM south-west of Gatwick at this point. The Tower controller agreed that the radar controller could keep the traffic and they would keep an eye on its progress. At the time, the Tower controller had 2 aircraft nearing the holding point on IMVUR departures that were planned to depart way ahead of the transit aircraft. There was an inbound due shortly but, at this point, they hadn't sighted it on the ATM. As the [PA34] made its progress further towards Gatwick, [the A320] was starting to join the final approach from the north. The controller knew this would be a factor against the transit, so they decided to call radar to change the plan of what they had agreed. At the point of the call, [the A320] was around 9NM out and the [PA34] about 7NM south-west of the field. The FIN controller stated they would give the [PA34] a right-hand orbit and pass them behind the [A320]. The Tower was happy with this plan and agreed this as the course of action.

They were monitoring this on the ATM and it became apparent that the [PA34] wasn't doing a right-hand orbit and was now heading towards [the A320] which was now on a 6NM final. The [PA34] was now 1NM south and 200ft below [the A320]. It then became apparent that they would come into close proximity. They were then surprised to have [the A320 pilot] check-in on their frequency. They told the pilot to continue approach – they did not reply to this and shortly after stated they had a TCAS RA. The controller replied 'roger, report clear'. [The A320 pilot] then stated they had to go-around due to terrain – the controller gave them SAH 3A and the A320 pilot told them to standby.

The controller monitored the situation and, at this point, the [PA34] was behind [the A320] and the distance between the two increasing. At 2NM inbound, [the A320 pilot] stated they could take a right turn. The controller gave them a right turn heading 180° stopping at 3000ft. The controller immediately informed the Supervisor about the event. Shortly after this, they coordinated the go-around with FIN,

stating that [the A320] had an RA. [The A320] was then transferred to 118.950MHz and the Tower controller handed the position over to the incoming controller.

THE GATWICK SUPERVISOR reports that the Air Controller alerted them that [the A320 pilot] had received a TCAS RA and was discontinuing their approach. The Supervisor spoke to TC GS and informed them that the [A320] had received a TCAS RA. Subsequently, the Captain of [the A320] telephoned the Tower. They explained that initially they had the PA34 in sight, but that they lost sight of it as they entered a layer of cloud. The A320 pilot remembered seeing the underside of the aircraft, which appeared to be taking evasive action. They received a TCAS RA which instructed them to descend. The Captain recalls a rate of descent of 2200fpm, but the FO reported seeing 2700fpm. They then received a GPWS warning and initiated a climb. They were visual with the ground.

THE GATWICK INT/FIN CONTROLLER reports that [the PA34 pilot] was cleared to transit the Gatwick Control Area and Zone VFR not above altitude 2400ft on a direct routing to their destination. [The A320] was inbound to Gatwick and was established on the ILS. The controller passed Traffic Information to [the PA34 pilot], who informed them that they had the A320 in sight. The controller told [the PA34 pilot] to pass behind the landing A320. They also passed Traffic Information to the [A320 pilot] who also informed them that they had the traffic in sight. As [the pilots of] both aircraft were visual with each other, the controller transferred the inbound [A320] to the Tower.

The controller was surprised to see the PA34 turn left towards the A320, which the pilot was still visual with, and pass very close to it causing the [A320] to have a TCAS RA.

THE A320 PILOT reports that, on an ILS approach to RW08R at LGW, they were told by LGW Tower [they recalled] of an aircraft staying south of the centreline during their approach. As they continued the approach, the Tower [sic] controller queried the aircraft whether it was making a left-hand orbit. The pilot of the aircraft, a PA34, said it was 'positioning behind them'. Shortly after, LGW Tower [sic] asked whether the crew of the PA34 had them in sight and the pilot acknowledged that was the case. The A320 pilot was asked the same and they acknowledged having the PA34 in sight. Continuing the approach, a TCAS RA was triggered. By that time, they passed alongside a bit of cloud and they lost sight of the PA34. As such, they could only follow the TCAS RA. Briefly looking up to see if they (the captain) could see the PA34, it now appeared to be making a steep turn to avoid them. This was shortly followed by the TCAS telling them to increase rate of descent, eventually leading to an EGPWS event, but they were fully visual with the ground. As the TCAS stopped, a stable approach could no longer be flown, so a go-around was initiated followed by an uneventful landing.

THE PA34 PILOT reports that they had received a clearance to enter the Gatwick CTR. Whilst they were in the Horsham area, the controller asked if they were visual with an A320. The pilot identified visually the A320 on the extended centreline for RW08 Gatwick. They reported visual with the traffic and the controller instructed them to pass behind the traffic. This required an initial turn to the left, which was instigated. Using the A320 as reference, they planned the flightpath to remain south of the extended centreline of RW08. All turns were subsequently biased to the left until a right turn was made to pass behind the A320. To avoid the potential of encountering wake turbulence, they planned to be slightly above and pass behind the A320 at a 90° angle to the centreline. No wake was encountered. They considered that if they extended too far west it would be more difficult to judge where the wake may be. They understood the A320 pilot to be visual with them and they maintained visual contact with the A320 at all times. As they approached the northern zone boundary, they became aware the A320 had gone around due to a TA [sic] and a MOR had been filed. The PA34 pilot enquired with ATC, who confirmed this was because of the proximity of the PA34. They were satisfied throughout with the visual separation and received no RT communication from ATC or the A320 crew to cause any concern until they learned of the TA [sic].

The pilot assessed the risk of collision as 'None'.

Factual Background

The weather at Gatwick was recorded as follows:

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METAR EGKK 311850Z 05007KT 9999 FEW021 17/13 Q1029=
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Analysis and Investigation

Gatwick ATC

While this event occurred on the frequencies of 2 separate ATCUs (TC Swanwick and Gatwick ATC), this investigation is concerned with the events and controller actions that occurred on the Gatwick ATC Tower frequency. A separate investigation by NATS will cover those actions taken by the TC controller. It should also be noted that the ASR filed by [the A320 pilot] makes reference to being in RT contact with Gatwick Tower during the approach; however, it should be stated that [the A320 pilot] was in contact with the TC controller during the approach and only made contact with Gatwick Tower when transferred by TC FIN 6NM from touchdown.

The Gatwick controller involved in this incident is a controller with many years' experience. At the time of the incident, the operational configuration in the VCR was all 3 Tower positions (GMP, GMC, AIR) band-boxed on to 1 ADC controller. With low traffic levels due to the COVID pandemic, this configuration was a regular occurrence during summer daytime operations and would not be considered an unusual or degraded situation. As stated, traffic levels were very light with few departures and arrivals; the band-boxed role of ADC controller was appropriate for the level of activity.

In their interview, the ADC controller stated that they had been made aware of [the PA34] that was due to be transiting south-to-north and they also had the FDE on their display for the inbound [A320]; their initial coordination being that the TC controller would 'work' [the PA34] against the inbound traffic ([the A320]). Following the coordination, the ADC controller expected to only speak to [the A320] once [the PA34] had passed behind and was clear.

Additionally, in interview, the ADC controller stated that the corner of the FDE WACOM screen obscured the bottom portion of the ATM and therefore the controller considered that it may well have delayed their noticing [the A320] tracking from the north; had they noticed the aircraft earlier, the ADC controller believed it likely that they would have discussed the plan in more detail with the TC controller.

Approximately 5min after the initial call to the TC controller, and now aware of the tracking of both [the A320] and [the PA34], the ADC controller initiated a second call, to further discuss the apparent convergence of the 2 aircraft, the response being that the TC controller would "probably" turn [the PA34] into a right-hand orbit, for it to then route behind [the A320]. While the use of the term 'probably' in the TC controller's plan implied that there was scope for the plan to change, the ADC controller specifically understood that [the PA34] would orbit right-hand soon after and route clearly behind the inbound aircraft; in this respect, the coordination between both controllers was not explicit and the plan imprecise as to the intended actions of the aircraft.

Following both coordination calls with TC, there was an expectation by the ADC controller that the TC controller would keep RT control of both aircraft until any confliction had been resolved although, as both aircraft converged, they became increasingly concerned that [the PA34] was not behaving (taking a right-hand orbit) as they expected and was still tracking toward [the A320]; at this point the ADC controller determined that their appropriate course of action would be to not increase the workload of the TC controller by initiating a further call to discuss any amendments to the expected plan, especially when they were not expecting to speak with either aircraft until the confliction was resolved.

When separation between [the PA34] and [the A320] was 1.59NM and 200ft, the ADC controller received an unexpected check-in call from [the A320 pilot]. As stated in their interview, the ADC

controller was very surprised at receiving the call, with the confliction unresolved at the point of transfer and them being unable to issue any instruction, other than an initial response to continue approach, before [the A320 pilot] stated that they had received a TCAS RA with regard to the proximity of [the PA34], which at this point was separated by 0.65NM and 0ft and tracking alongside the path of [the A320]. Within a few seconds of the call informing the ADC controller of the TCAS RA, [the A320 pilot] reported their intention to execute a missed approach due to a subsequent Ground Proximity Warning message.

The ADC controller reported in interview that, given that [the PA34] was on another frequency and the [A320 pilot] was responding to a TCAS RA, there was no action or instruction they could have safely pursued. By leaving events to continue without intervention, the situation was resolved by the missed approach and [the PA34] routing alongside and then behind [the A320].

In their ASR, the [A320] crew reported having momentarily lost sight of [the PA34] due to cloud, while at the same time the TCAS warning was triggered.

Conclusions

The ADC controller considered the angle of the WACOM desk – which blocked their view of the bottom ¼ of the ATM – meant that, at the initial coordination call with TC FIN, they were not aware of the track and convergence of the 2 aircraft in the very early stages of the incident.

Co-ordination between TC controller and the ADC controller was vague, with the final statement by the TC controller being that they would "probably" instruct [the PA34 pilot] to make a right-hand orbit and pass behind [the A320].

By following the TCAS RA and then executing a missed approach, the crew of [the A320] ensured successful resolution of the confliction.

NATS Safety Investigations

The Gatwick Intermediate and Final Director were being operated in a band-boxed configuration under the control of a single controller (KK INT). [The PA34] had been assigned Mode-A code [redacted] by the KK INT controller and cleared to cross the Gatwick CTA/CTR on a direct track (north-east) to their destination not above 2400ft, VFR. The controller had, however, informed the pilot they may have to amend the track depending on traffic. The pilot subsequently descended to 2000ft and informed the controller; as [the PA34] entered the CTA the pilot was provided with a Radar Control Service.

The KK INT controller passed Traffic Information at **1852:58** (all times UTC) to the pilot of [the PA34] on [the A320] positioning for final approach for RW08L [sic] at Gatwick. The pilot of [the PA34] reported visual with the traffic and stated that they could "*go around behind him if you wish*".

The KK INT controller then answered a telephone call from the Gatwick Tower (TWR) controller asking what they wanted to do with the crossing traffic ([the PA34]). The KK INT controller informed the TWR controller that the pilot of [the PA34] had [the A320] in sight and stated that they would probably give them a right-hand orbit to position behind. On conclusion of the telephone call, at **1853:21**, the KK INT controller asked the pilot of [the PA34] if they could route behind the "*landing traffic on a nine mile final*", the pilot responded in the affirmative and stated that they would "*navigate round behind the [A320]*".

The KK INT controller proceeded to pass Traffic Information reference [the PA34] to the pilot of [the A320] and stated that the aircraft would pass behind at approximately the RW08 threshold, the pilot responded that they could see [the PA34] on their TCAS display and were looking out.

Shortly after this exchange, [the PA34] appeared to commence a left-hand turn and the KK INT controller asked the pilot of [the PA34] if they were making a left-hand orbit, the pilot responded that

they were "*just coming round behind*", which the controller acknowledged. The controller then passed further information to the pilot of [the A320] who reported visual with the traffic.

The KK INT controller then transferred communication with [the A320] to the TWR controller at **1854:17** (see Figure 1). High level Short Term Conflict Alert (STCA) activated at **1854:26** and was shortly followed by the KK INT controller transmitting "*[PA34 c/s] just confirm you're passing behind that A three twenty?*", to which the pilot responded "*affirm [PA34 c/s]*". The closest point of approach between [the A320] and [the PA34] occurred at **1854:46** and was recorded using the multi-track radar system as 0.5NM and 100ft (see Figure 2).

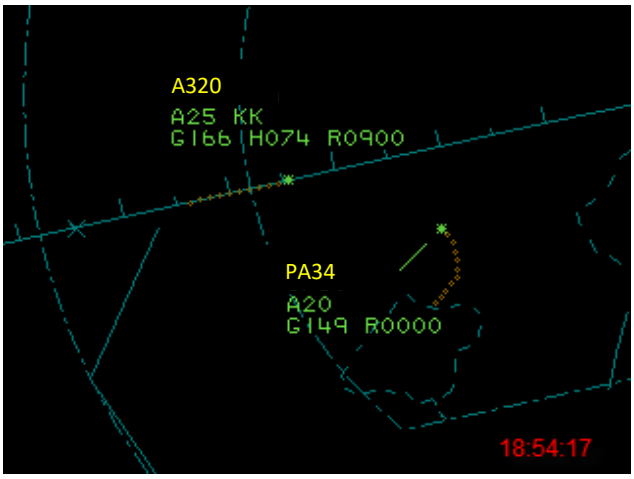


Figure 1 – 1854:17

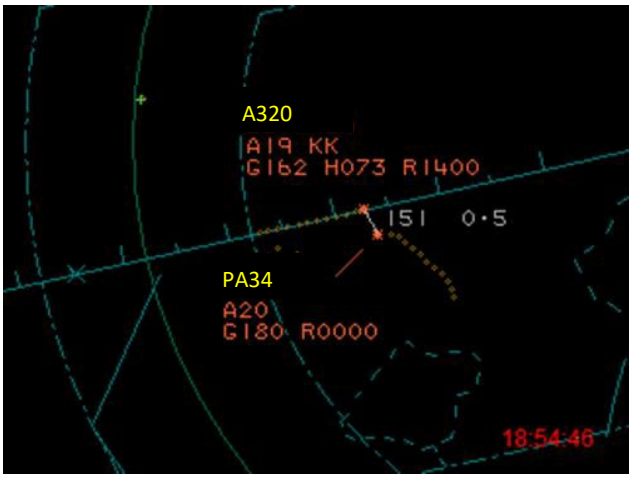


Figure 2 – 1854:46 – CPA

The pilot of [the PA34] reported that they were turning back on track to [destination] at **1854:59**.

The Mode-C readout from [the A320] indicated the aircraft had descended to a minimum altitude of 1300ft at **1855:02**, before commencing a climb. The KK INT controller observed that [the A320] was going around so called the TWR controller to confirm, which they did, adding that the pilot had received a TCAS RA. The KK INT controller stated "*I'm not surprised, I said go behind and he went straight at him*". The go-around was then coordinated between the controllers. The pilot of [the A320] reported back onto frequency with the KK INT controller and was given a heading to reposition the aircraft.

The KK INT controller asked whether the pilot had previously had the traffic in sight, the pilot of [the A320] confirmed they were visual with [the PA34], however, expressed an opinion that they felt the pilot of [the PA34] had not seen them as the turn that the aircraft made was quite steep. The pilot of [the PA34] confirmed that they had [the A320] in sight at all times and were positioning behind.

The pilot of [the PA34] questioned whether it "*worked out OK with the [A320]*" and was informed that a report would have to be filed as the pilot of [the A320] had to go around. The pilot of [the PA34] again stated that they positioned behind and had the traffic in sight at all times.

Investigation

Information available to the investigation included:

- CA4114 from The Gatwick Director
- NATS 4118
- Radar and R/T recordings
- Report from the pilot of [the PA34]
- Downlinked TCAS data from [the A320]
- Email correspondence from Gatwick ATC

The Traffic Information that was initially passed to the pilot of [the A320] stated that [the PA34] would pass behind, at the RW08 threshold. The NATS4118 stated that the KK INT controller expected [the

A320] to overtake [the PA34] as they had originally envisaged, even though [the PA34] was still positioned ahead. The NATS4118 added that the controller's recollection was that [the A320] was further east than it was.

The CA4114 report from the KK INT controller stated that they instructed the pilot of [the PA34] to route behind [the A320] and that as both pilots reported visual with one another, communication with [the A320] was transferred to the TWR controller. They further stated that they were surprised to see [the PA34] turn towards [the A320] and pass very close to it.

The NATS4118 added that the KK INT controller was surprised when [the PA34] began a left turn and asked if they were entering a left-hand orbit. It was stated the response of "*just coming round behind*" led the KK INT controller to believe the left turn would continue, with the expectation that, being visual with [the A320], the pilot of [the PA34] would remain well clear, however [the PA34] subsequently stopped the turn and tracked straight towards [the A320] for approximately 20sec.

Radar replay data showed that [the PA34] appeared to roll-out of the left-hand turn shortly after the transfer of [the A320] to the TWR and track straight for a period of approximately 20sec, before recommencing the left-hand turn. During this time, high level STCA had activated at **1854:26**, leading the controller to confirm with the pilot of [the PA34] they were going to pass behind [the A320], to which the pilot responded in the affirmative.

The NATS4118 stated that the KK INT controller initially expected that [the A320] would overtake [the PA34], allowing [the PA34] to transit via the overhead, however, after reviewing the replay, the relative positions of the two aircraft suggested that this '*was not a viable solution*.' The NATS4118 also stated that the telephone call with the TWR controller which mentioned a right-hand orbit for [the PA34] '*wasn't co-ordination but would give the Tower controller an expectation of what was going to happen*.' The NATS4118 further stated that the anticipated right-hand orbit '*would have removed any risk at that point. The APC controller [KK INT] in their own mind expected the [the PA34] to make a right-hand orbit, even though this hadn't been explicitly instructed*.' Subsequent email correspondence from Gatwick confirmed that the TWR controller was expecting [the PA34] to perform a right-hand orbit.

There are no separation minima between aircraft operating VFR and aircraft operating IFR within Class D airspace, therefore no Loss of Separation occurred during this event, however LTC MATS Pt 2 GEN 2.2.5 states '*TC Directors should ensure that VFR traffic within Class D airspace is handled in a manner to minimise conflicts and the potential for TCAS Resolution Advisories with IFR traffic. The delaying, refusal or re-routing of VFR traffic to avoid these conflicts is completely acceptable and justifiable.*'

UKAB Secretariat

The A320 and PA34 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[1] An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation.[2] Pilots of aircraft operating under VFR in Class D airspace are required to maintain their own separation, assisted by information from the controller, from other VFR flights and IFR flights.[3]

Summary

An Airprox was reported when an A320 and a PA34 flew into proximity 3NM N of Horsham at 1855Z on Tuesday 31st August 2021. The A320 pilot was operating under IFR in VMC and in receipt of an ACS from Gatwick Tower; the PA34 pilot was operating under VFR in VMC and in receipt of a Radar Control Service from Gatwick Intermediate/Final.

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.
[3] (UK) SERA.5005 Visual flight rules para (h)(1) and (UK) SERA.8005 Operation of air traffic control service para (b).

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 Gatwick Tower controller and noted that, following their telephone call with the Gatwick Int/Fin controller, they had been under the impression that the PA34 pilot would have been conducting a right-hand orbit to ensure deconfliction from the A320. However, this had not been formally agreed as coordination between the Tower and Int/Fin controllers (**CF2**) and so when the PA34 unexpectedly turned left towards the A320 the Tower controller had become concerned. The Board agreed that, at the time that they noticed the PA34 had not been manoeuvring as they had expected, there was little that the Tower controller could have done to prevent the Airprox. Furthermore, the Board agreed that the Gatwick Tower controller's inaccurate mental model of the situation had contributed to the Airprox (**CF4**) because members felt that, had the Tower controller not thought that the PA34 would have been conducting an orbit, they would have confirmed with the Gatwick Int/Fin controller what the plan to ensure separation had been.

The Board then considered the actions of the Gatwick Int/Fin controller and heard from an ATC advisor member that there is provision in the MATS[4] Pt 1 for controllers to issue instructions to pilots flying under VFR in Class D airspace in order to achieve a satisfactory (to the controller) separation from aircraft flying under IFR. Specifically, MATS Pt 1, Section 1, Chapter 5, paragraph 3.2 states '*Instructions issued to VFR flights in Class D airspace are mandatory. These may comprise routeing instructions, visual holding instructions, level restrictions, and information on collision hazards, in order to establish a safe, orderly and expeditious flow of traffic and to provide for the effective management of overall ATC workload*.' To this end, the Board agreed that there had been provision within the MATS Pt 1 for the Gatwick Int/Fin to have been more directive with the PA34 pilot in order to ensure sufficient separation was achieved to minimise the likelihood of a TCAS RA (with its associated likely increase in controller workload). Furthermore, the Board also noted the provision within the LTC MATS Pt 2 GEN 2.2.5, which states '*TC Directors should ensure that VFR traffic within Class D airspace is handled in a manner to minimise conflicts and the potential for TCAS Resolution Advisories with IFR traffic. The delaying, refusal or re-routing of VFR traffic to avoid these conflicts is completely acceptable and justifiable.*' Members were cognisant that the PA34 pilot had stated that they had been visual with the A320 at an early stage, but nevertheless agreed that the Gatwick Int/Fin controller had relied upon the PA34 pilot taking visual separation from the A320 when they may have been better served by being more directive to the PA34 pilot to achieve a greater separation and thus potentially have prevented a TCAS RA being triggered (**CF1**, **CF3**). The Board also noted that the proximity of the 2 aircraft had triggered the LTC STCA (**CF5**).

Turning to the actions of the A320 pilot, the Board quickly agreed that there was little more that they could have done to prevent the Airprox. Members discussed that the A320 pilot had been informed that the PA34 pilot had been visual with their aircraft and that the A320 pilot would have expected the PA34 pilot to have been avoiding them. Members also noted that the A320 pilot had been visual with the PA34 earlier in the approach, but that they had lost visual with the aircraft as the approach had progressed. Notwithstanding, the Board agreed that the A320 pilot had had situational awareness of the PA34 from the controller and from their TCAS and had become concerned by the proximity of the PA34 when the TCAS RA had been triggered (**CF7**, **CF8**), which they had been obliged to follow.

Next, the Board considered the actions of the PA34 pilot and heard from an airline pilot member who wondered if there is perhaps a lack of knowledge amongst the GA community when it comes to the parameters that generate TCAS alerts and the actions required of pilots receiving these alerts. Members discussed training syllabi for non-TCAS-equipped aircraft and noted that, in their experience, if an aircraft is not fitted with TCAS then it is not deemed necessary to understand TCAS – even to a limited extent. The Board felt that there may be a training gap in this regard, because if there is a desire

[4] Manual of Air Traffic Services.

to minimise TCAS RAs then pilots need to be aware of how to achieve this. Whilst it was not deemed necessary to issue a Safety Recommendation to address this perception, the Board did wish to highlight to pilots of aircraft that are not TCAS-equipped that there is ample information available on the internet that describes how TCAS functions and to commend to pilots how researching some of this information may prove useful to them. Returning to the event itself, the Board was unanimous that the PA34 pilot had done all that they had been required to do by visually avoiding the A320, but also thought that they may have been better served by generating a greater lateral and/or vertical separation from the aircraft (**CF6**), as this may well have avoided the triggering of the TCAS RA.

Finally, the Board considered the risk involved in this Airprox. Notwithstanding the triggering of a TCAS RA, and a subsequent GPWS warning, on the A320, the Board noted that the recorded separation had been 100ft vertically and 0.5NM horizontally. The Board also noted that it had been for the PA34 pilot (flying under VFR) to avoid the A320 (flying under IFR), which they had done. Members were unanimous that there had been no risk of collision in this Airprox, but were divided over whether safety had been reduced (Risk Category C) or whether this had been 'normal operations' (Risk Category E). ATC members felt that there had been no degradation in safety because this is how an aircraft transits Class D airspace under VFR, but pilot members suggested that a TCAS RA, EGPWS warning and subsequent go-around could not be considered as 'normal operations'. After further discussion, the Board agreed that there had been a degradation of safety but there had not been any risk of collision, and assigned a Risk Category C to this Airprox.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021255			
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
	• Situational Awareness and Action			
2	Human Factors	• ATM Coordination	Coordination related issues (external as well as internal)	
3	Human Factors	• Conflict Resolution-Inadequate	An event involving the inadequate provision of conflict resolution	
4	Contextual	• Traffic Management Information Action	An event involving traffic management information actions	The ground element had only generic, late, no or inaccurate Situational Awareness
	• Electronic Warning System Operation and Compliance			
5	Technical	• STCA Warning	An event involving the triggering of a Short Term Conflict Alert (STCA) Warning	
	Flight Elements			
	• Tactical Planning and Execution			
6	Human Factors	• Insufficient Decision/Plan	Events involving flight crew not making a sufficiently detailed decision or plan to meet the needs of the situation	Inadequate plan adaption
	• Electronic Warning System Operation and Compliance			
7	Contextual	• ACAS/TCAS RA	An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system resolution advisory warning triggered	
	• See and Avoid			
8	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 Assessment[5]

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

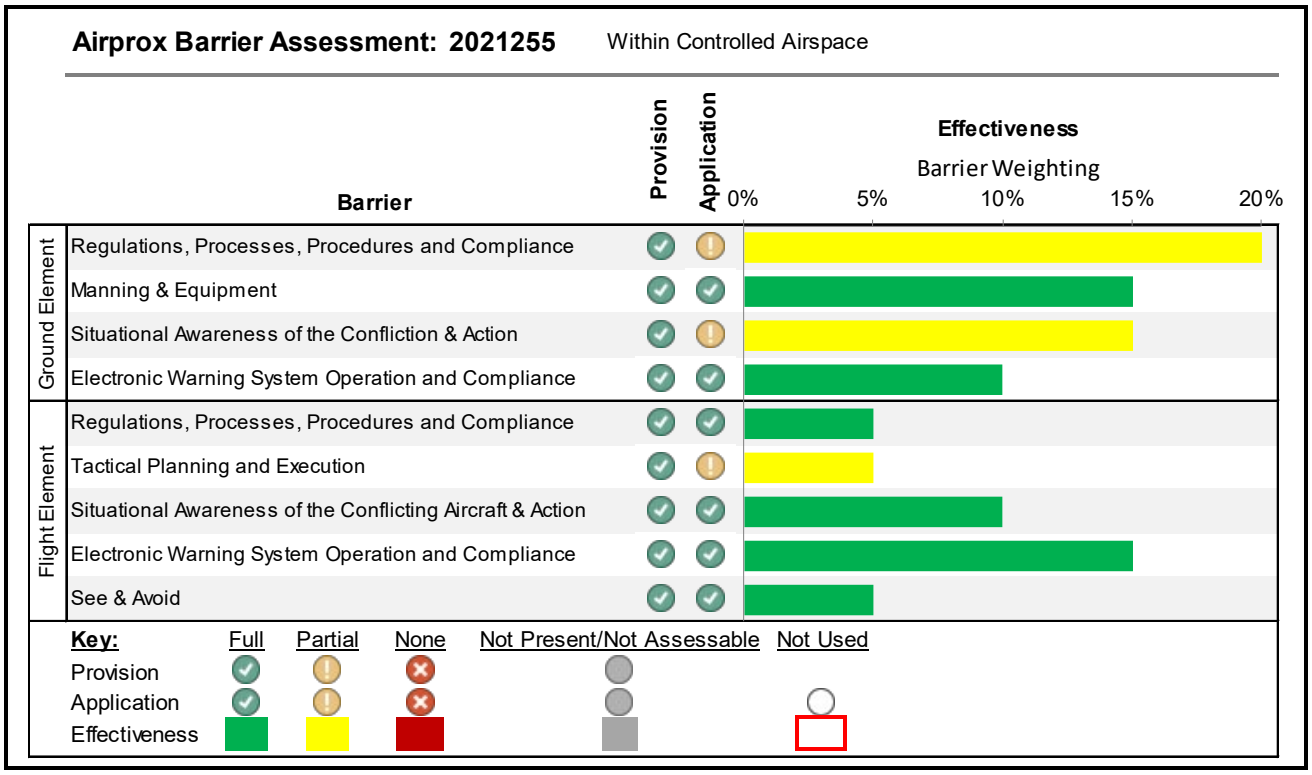
Ground Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the Gatwick INT/FIN controller did not issue instructions to the PA34 pilot regarding their routing to minimise the likelihood of a TCAS RA (as per the LTC MATS Pt 2 GEN 2.2.5).

Situational Awareness of the Confliction and Action were assessed as **partially effective** because the Gatwick Tower controller was under the impression that the PA34 would be conducting a right-hand orbit to deconflict from the approach path of the A320.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the PA34 pilot, whilst achieving VFR separation from the A320, flew close enough to the A320 to trigger a TCAS RA.



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