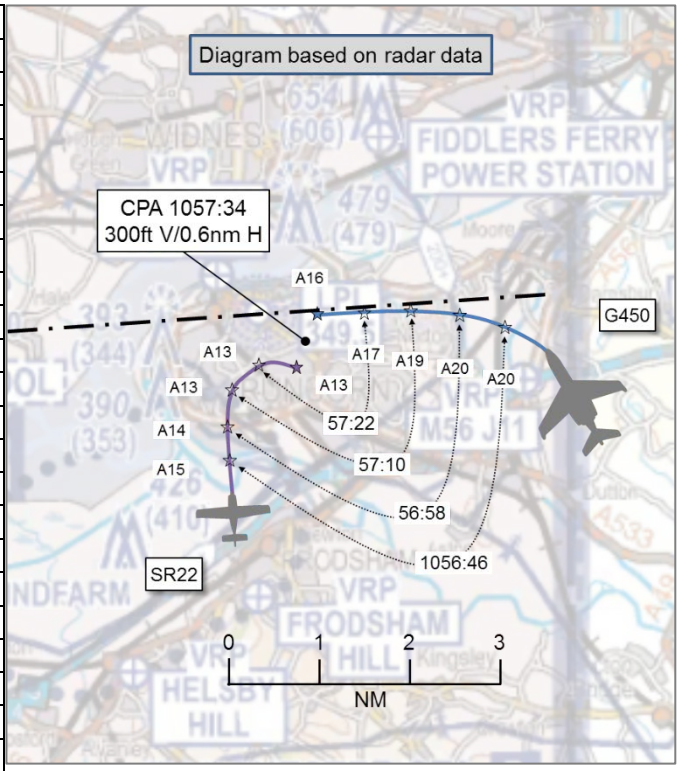
AIRPROX REPORT No 2019119

Date: 12 May 2019 Time: 1057Z Position: 5320N 00242W Location: 5NM E Liverpool airport

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	G450	SR22
Operator	Civ Comm	Civ FW
Airspace	Liverpool CTR	Liverpool CTR
Class	D	D
Rules	IFR	VFR
Service	Radar Control	ACS
Provider	Liverpool	Liverpool
Altitude/FL	1600ft	1300ft
Transponder	A,C,S	A,C,S
Reported		
Colours	Mainly white	Silver, red, black
Lighting	NK	NK
Conditions	VMC	VMC
Visibility	10nm	>10km
Altitude/FL	1608ft	900ft
Altimeter	QNH (1035hPa)	QNH
Heading	274°	352°
Speed	162kt	110kt
ACAS/TAS	TCAS II	TCAS I
Alert	RA	Unknown
Separation		
Reported	NK V/1nm H	Not reported
Recorded	300ft V/0.6nm H	



THE GULFSTREAM G450 PILOT reports they were inbound to Liverpool for a vectored ILS to RWY27 with Liverpool Approach. When they were handed over they noted that the frequency was quite busy and there appeared to be a lot of VFR traffic on it; there was continuous radio chat and several 'stepped on/blocked' radio transmissions. As they were attempting to turn them onto a heading of 300° to intercept the localizer for RWY27, ATC were stepped on by another pilot and they did not hear or respond to this transmission; they only heard the instruction to intercept the localizer following a second attempt by Liverpool Approach. Whilst on base turn for RWY27, they were notified about VFR traffic 'holding at the chimneys' to the left of their track. Both of the crew looked but could not see the traffic in question. They intercepted the localizer and then the glide slope without issue. However, as they approached 1608ft, they received a TCAS TA. At this point they both looked and saw a 'wine coloured' Cirrus SR22 single-engine piston aircraft in approximately their 10 o'clock position at a lower altitude, about 1-1.5nm away at what appeared to be at a safe/acceptable distance. The Cirrus appeared to be making a turn from a northerly heading to a southerly heading and, as a result of this turn, the Cirrus briefly pointed at them as it was going around the arc of its turn. As a result, the TA quickly became an RA 'level off' followed by a 'climb' and then a 'clear of conflict' alert (all within a short space of time). Because they were in good VMC and were in full visual contact with the Cirrus (which they had initially identified as the conflicting traffic from the TCAS information displayed on their respective PFD's), they opted to continue their approach without taking avoiding action. Also, at this point the Cirrus appeared to have turned away from them, thus it no longer represented a threat to their safety. The occurrence took a total of 14secs from start to finish and as the occurrence was happening, the Approach frequency was again being 'stepped on'. All they could hear was their TCAS system and a garbled sound on the radio which lasted for what seemed like a prolonged period. They had quite a late transfer over to Liverpool Tower and the TCAS event caused a certain amount of distraction. However, their approach remained stable at all times and they landed safely without further incident.

He assessed the risk of collision as 'Low'.

THE CIRRUS SR22 PILOT reports that he was asked to hold 2nm past the Oulton VRP and did 3 circuits in that location. He was then asked to move in 2nm and hold. He was approximately over Frodsham Visual Reference Point (VRP). The controller told him at this point to remain south of the M56 and he did this, although on the first turn at this VRP he drifted slightly over the M56 (a few 100m), this was as a result of a misjudgement. He carried out one circuit and then was told to follow base leg for RW27. He was then asked to 'change plans' and to move 1nm in and then do an orbit to hold again. He was about to start the turn for this hold when the controller asked him to take avoiding action and to do an immediate 180° turn. This he did, heading out to Frodsham VRP to hold again. At this point the controller made a comment that he had been asked to keep south of the M56. He decided to ignore this because with the 'change of plans' request he had asked him to come in on base 1nm which would, by definition, take him past the M56. He did see the aircraft on final but was following the ATC instructions as he understood them, to move 1nm further in on base and then take up an orbit. He did think it was close to IFR traffic but because he was on radar he thought this was what ATC wanted. He did not think it was a collision risk because he was about to turn for the orbit and he merely thought that ATC were getting him close in to the final approach path so that he would not hold up traffic when turning onto final following the landing IFR traffic. In his view there was little risk of collision because he was about to take up the orbit as requested and he had the aircraft in sight (also on TCAS). The controller asked him to orbit earlier than the 1nm requested, which he did. He commented that he flies into the airport frequently and mostly under IFR. It is often busy and he thought ATC were trying to keep him tight to traffic. The pilot provided a screenshot from Flightradar24 that showed his track (Figure 1).

He assessed the risk of collision as 'Low'.

Figure 1. SR22's inbound track.

THE LIVERPOOL AERODROME CONTROLLER reports that he was monitoring a trainee in the Air position (GMC/Air was split). The weather was bright and sunny. It was busy with IFR inbounds and outbounds. The SR22 pilot was instructed to route to left-base RW27 and to hold on the south bank because there was traffic inbound on the ILS, with circuit traffic (a PA38) also holding mid downwind left-hand. Approximately 30sec later, he observed the SR22 to be routeing northbound beyond left-base towards final approach with the G450 on 6.5nm final. His trainee had not noticed this so he utilised the 'mentor box' and instructed the SR22 pilot to turn right and route further south away from the final approach track.. The pilot acknowledged this and started to turn slowly. The speed of closure of the two aircraft initially led him to tell the SR22 pilot to expedite his turn and then he issued avoiding action to ensure the two aircraft missed each other.

Factual Background

The weather at Liverpool was recorded as follows:

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METAR EGGP 121050Z 24008KT 9999 FEW028 13/03 Q1036=
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Figure 2 shows the relevant Liverpool AIP entry which denotes the various VRPs and visual inbound/outbound routes.

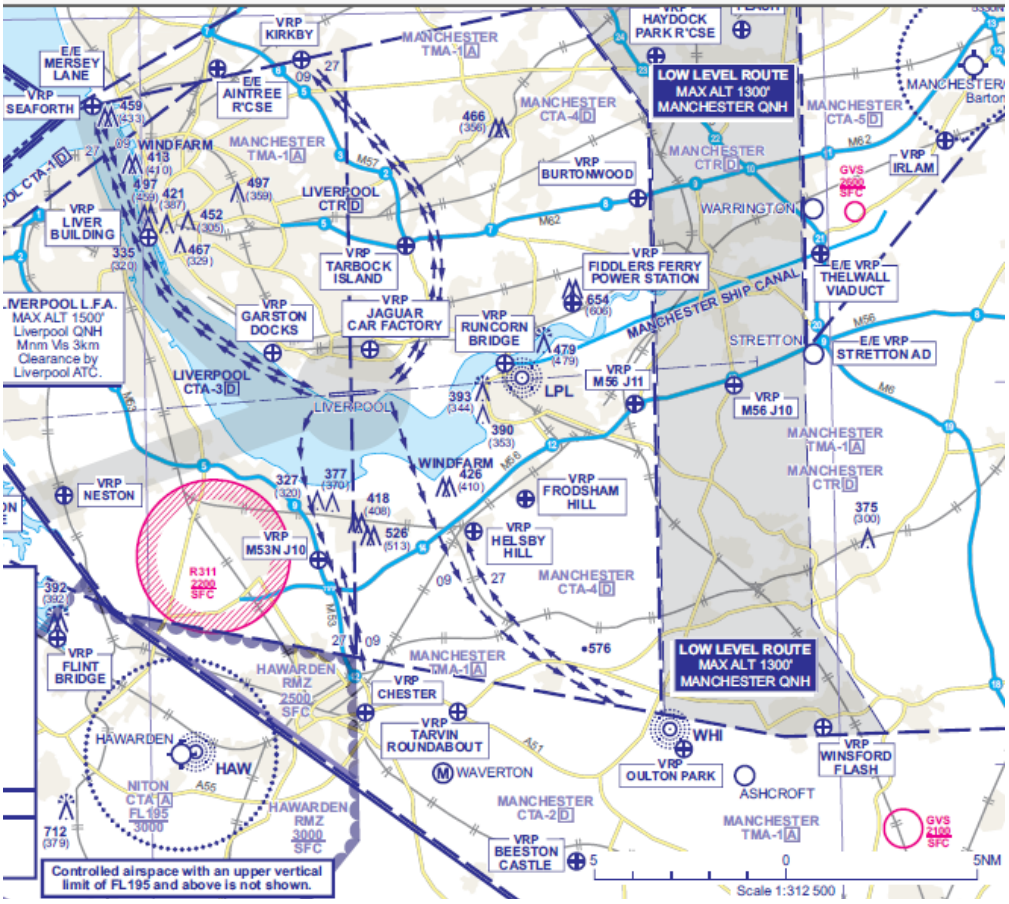


Figure 2. UK AIP AD 2-EGGP-4-1.

Analysis and Investigation

CAA ATSI

An Airprox was reported in Class D airspace by the pilot of a Gulfstream G450 when their aircraft came into proximity with an SR22 while established on the final approach track at Liverpool airport. The G450 was an IFR flight, inbound to Liverpool Airport, receiving a Radar Control Service from Liverpool Radar. The SR22 was a VFR flight, inbound to Liverpool Airport, receiving an Aerodrome Control Service from Liverpool Tower. ATSI had access to reports from the pilots of the G450 and the SR22, and Liverpool ATC. The Liverpool Radar and Liverpool R/T recordings for the period were reviewed. The Radar and Aerodrome controllers were very busy, and the R/T was almost constant throughout the period of the review. In the interests of brevity, only the aircraft directly involved in the Airprox event have been included in this report. Screenshots in the report are taken from the Liverpool radar. All times are UTC.

At 1036:40, the SR22 pilot made initial contact with the Liverpool Radar controller. The pilot was instructed to squawk ident, with transponder code 5050 allocated, and a Basic Service was agreed. The pilot was cleared to join Controlled Airspace at Oulton Park not above altitude 1500ft, VFR, QNH 1036hPa and instructed to report at Oulton Park.

At 1045:00, the SR22 pilot reported at Oulton Park, was placed under a Radar Control Service and instructed to hold at Delamere Forest. The pilot advised that they were not familiar with Delamere Forest. After a brief R/T exchange the pilot was instructed to hold in their current position. The pilot readback *"hold current position".*

At 1046:40, the Radar controller advised the SR22 pilot that they had gone past Delamere and instructed them to orbit in their current position. The pilot responded that they were just doing a hold and it was a minute outbound but that they would *"just hold here".* The controller thanked the pilot and then passed Traffic Information on a light aircraft that was behind the SR22. The pilot responded that they had copied the traffic and the controller instructed the pilot to continue holding and contact Liverpool Tower.

At 1047:20 (Figure 3), the SR22 pilot checked in with the Aerodrome controller and advised that they were holding on base leg at 1500ft. The controller instructed the pilot to continue in the hold and asked the pilot if they were visual with the PA38 just to the north of them. The pilot responded that they did not have it visual but had it on TCAS.

At 1048:30, the G450 pilot made initial contact with the Liverpool Radar controller advising that they were passing FL60. The controller told the pilot that it would be radar vectors for the ILS approach RW27 with Information Kilo, QNH1036hPa. The pilot responded that they had copied, and the controller instructed the pilot to continue present heading and descend to altitude 4000ft. Between 1049:10 and 1051:10 the Radar controller issued further descent and heading instructions to the G450 pilot.

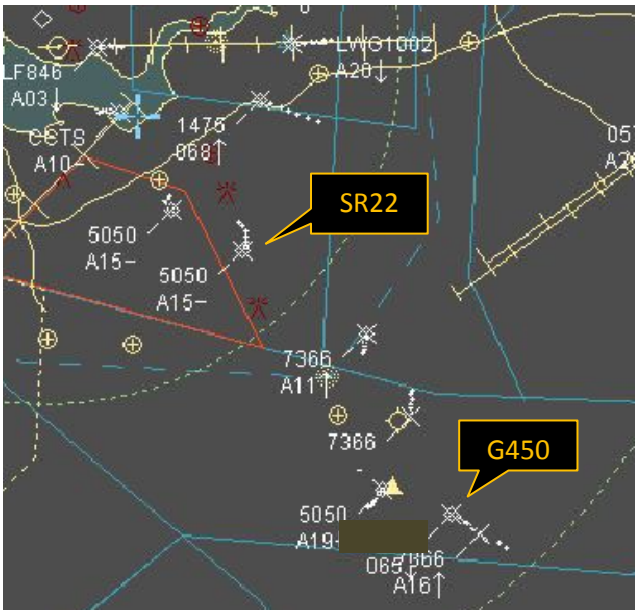


Figure 3 – 1047:20

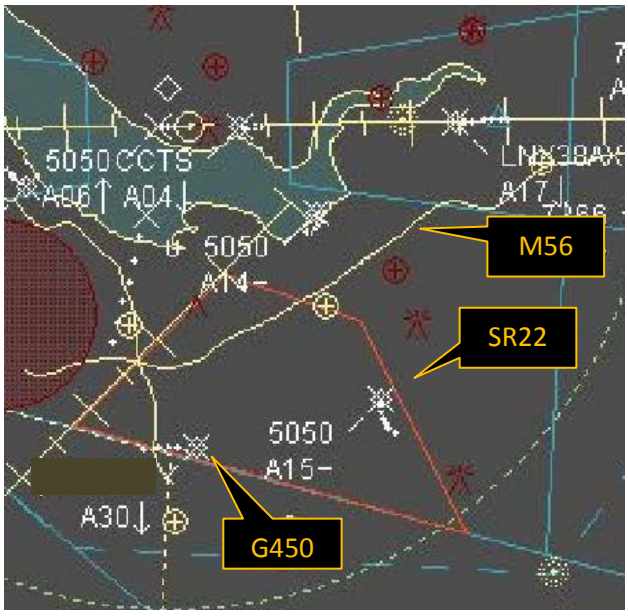


Figure 4 – 1052:10

When the SR22 pilot made their initial left-base call, the aircraft was approximately 7-8nm south of the airport. At this distance the aircraft was too far away for the controller to easily integrate it with IFR arriving aircraft on final approach so, at 1050:20 (Figure 4), the Aerodrome controller instructed the SR22 pilot to route '*further north now, no further north than the M56'*. This was readback correctly by the pilot.

At 1052:10, the SR22 was still 6nm south of the airport and the Aerodrome controller instructed the SR22 pilot to track 2nm north and take up the orbit there. This was readback correctly by the pilot.

At 1053:00 (Figure 5), the Radar controller instructed the G450 pilot to descend to altitude 2500ft and passed Traffic Information to the pilot on the SR22, described as left 11 o'clock, range 4nm, maintaining at least 1000ft below. The pilot responded with, '*OK descending to 2500 feet'*. The pilot was then instructed to turn left heading 080° and descend to altitude 2000ft.

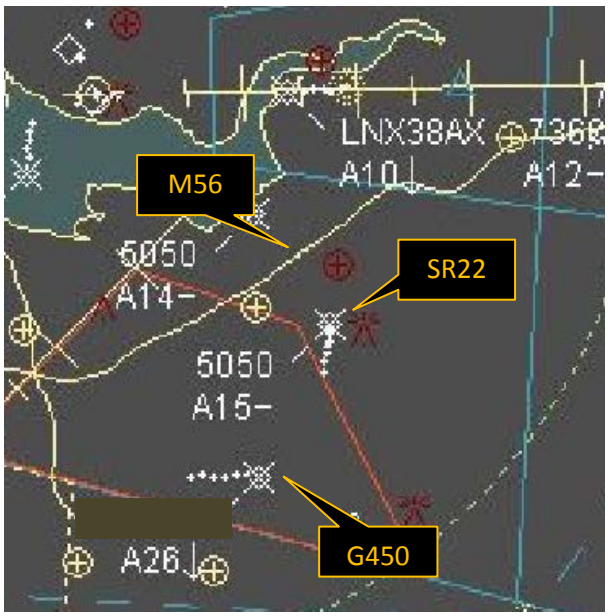


Figure 5 - 10:53.00

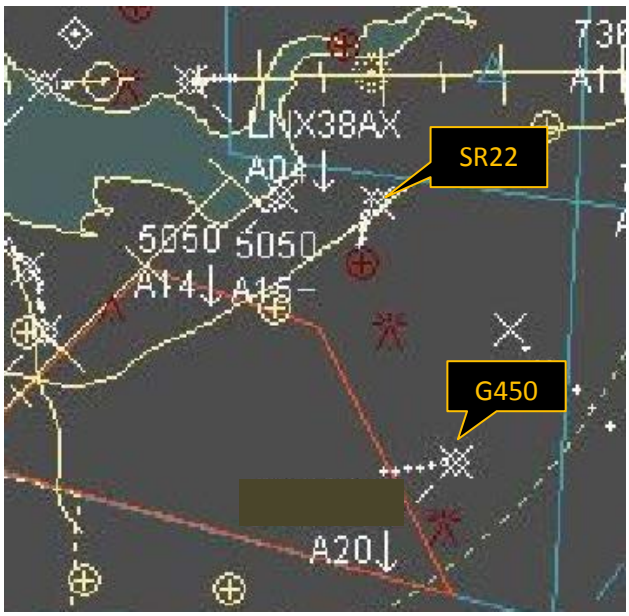


Figure 6 - 10:54.00

At 1054:00 the SR22 pilot had tracked north of the M56 and appeared to be continuing toward the final approach track so the Aerodrome controller asked the SR22 pilot if they could just stay south of the M56. The pilot responded with *"yes OK I'll stay south"* (Figure 6).

At 1054:53 (Figure 7), the Radar controller instructed the G450 pilot to turn left heading 360° base leg and passed Traffic Information on an unrelated aircraft followed by Traffic Information on the SR22, described as in their left 10 o'clock, range 3nm, holding with the Tower, indicating 1500ft. The pilot responded that they were looking.

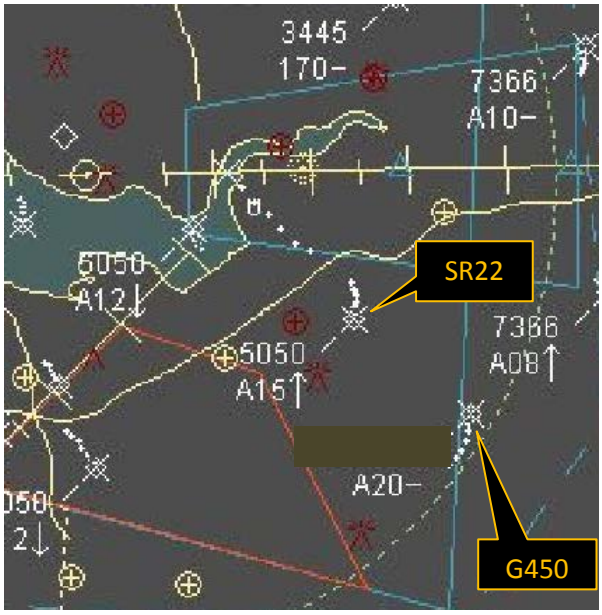


Figure 7 – 1054:53

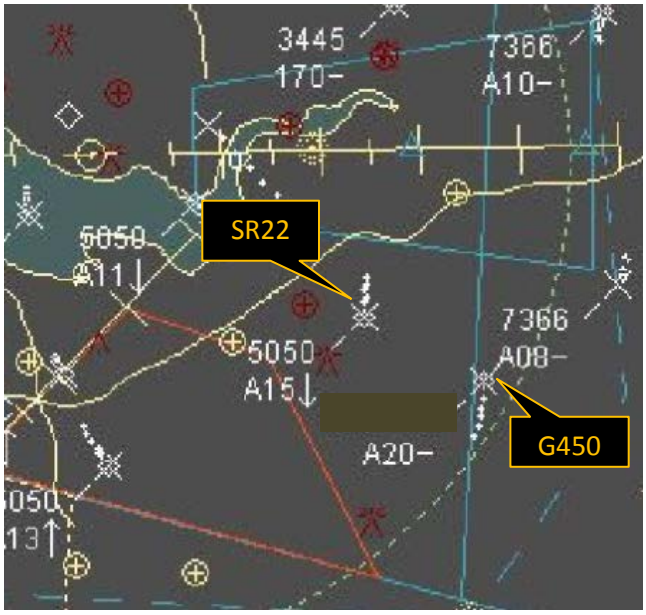


Figure 8 – 1055:00

At 1055:00 (Figure 8), the SR22 was again 6nm southeast of the Aerodrome, tracking south, with the G450 displayed as 9nm southeast of the airport. The Aerodrome controller instructed the SR22 pilot to report final and advised that they were No2 following a PA38 just coming up to the lighthouse now. The pilot provided a full and accurate readback.

At 1055:20, the Aerodrome controller then advised the SR22 pilot that there was a change of plan and instructed them to route to left base and take up a left-hand orbit upon reaching the South Bank. The pilot responded with *"route to left base and take up orbits on reaching the South Bank".*

At 1056:00, the Aerodrome controller instructed the PA38 pilot to take up right-hand orbits in their present position and passed the pilot Traffic Information on the SR22, advising them that the SR22 would be orbiting on left base. The controller then passed Traffic Information to the SR22 pilot on the PA38 advising them that it would be orbiting at the beginning of the downwind leg left-hand. The SR22 pilot said that they copied the traffic.

At 1056:20, the Radar controller instructed the G450 pilot to turn left heading 310° and cleared the pilot for the ILS approach RW27.

At 1057:10, the SR22 was less than 1nm south of the final approach track, abeam the 4nm point, with the G450 approaching the 5nm point on final approach. The Aerodrome controller instructed the SR22 pilot *"right-hand orbits now please and route about a mile further south, you're too close to the final approach".* The pilot responded, *"OK right-hand orbits".* The controller said, *"further south please about another mile and a half to the south, past the M56 Motorway again"*. The pilot responded with "*OK, I thought you wanted me to move in tighter, I'll stay south".* The controller said, "*expedite your turn please traffic to the northeast of you about a mile and a half is a G450".* The pilot responded that they were expediting the turn.

At 1057:20 (Figure 9), the Aerodrome controller issued avoiding action to the SR22 pilot, *"Avoiding action turn right now heading 180 degrees, turn right now heading 180 degrees, Avoiding action."* The pilot responded *180 degrees [C/S]".* The controller repeated *"heading 180 degrees now please, 180 degrees".* The pilot responded with their callsign.

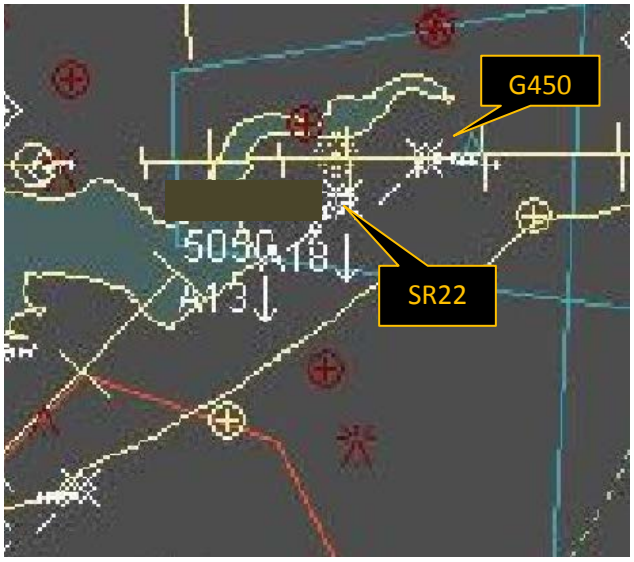


Figure 9 – 1057:20

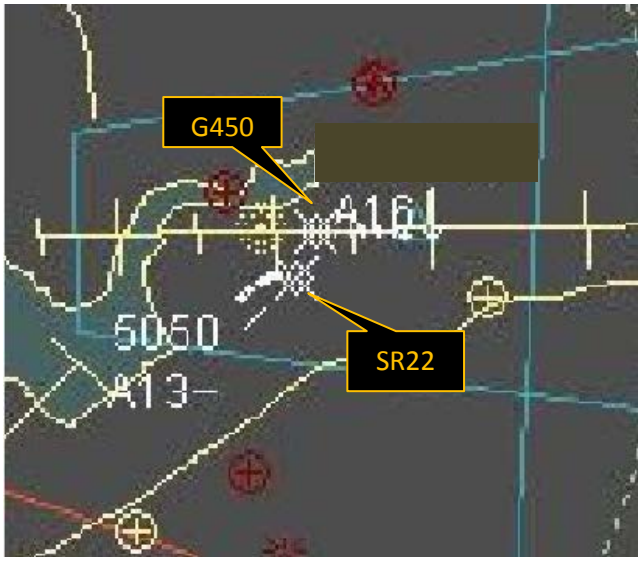


Figure 10 – 1057:35

At 10:57.32 the Radar controller instructed the G450 pilot *"Avoiding action turn right immediately heading 300 degrees SR22 traffic just to the south of you range half a mile indicating 400 feet below".* The frequency was then blocked by another aircraft. The controller asked the G450 pilot if they copied the traffic. The pilot responded, *"sorry you were blocked but we have him on our left-hand side"*. The controller advised the pilot that the SR22 got a little bit close and asked if they were happy to continue. The pilot responded with "*Affirm"* and the controller instructed the pilot to contact the Tower.

CPA could not be measured using the Liverpool Radar recording but the Radar Analysis Cell synopsis using NATS radars stated that CPA occurred at 1057:35 (Figure 10), with the aircraft separated by 0.6nm laterally and 300ft vertically.

At 1058:20, the G450 pilot checked in with the Aerodrome controller and was instructed to continue approach RW27 and advised that there was traffic holding in the left-hand circuit. This was acknowledged by the pilot and he was cleared to land.

Throughout their join, the SR22 pilot did not appear to be carrying out standard 360° orbits when instructed to orbit but appeared to be tracking north for a distance before turning south and vice versa in a racetrack holding pattern. This would have made it very challenging for the controller to get the aircraft close enough to the aerodrome to safely and expeditiously integrate it with IFR and other VFR arrivals.

Having not had a chance to speak to the Aerodrome controller, an assumption was made that the Aerodrome controller was referring to the South Bank of the body of water displayed on the Radar Video Map when they instructed the SR22 pilot to take up a left hand orbit at the South Bank. For VFR inbound aircraft positioning themselves toward final approach any further east than 2.5nm, the South Bank appears to cross the final approach track and continue to the north of the final approach track.

Traffic Information had been passed by the Radar controller to the G450 pilot on the SR22 when both aircraft were southeast of the Airport. The Traffic Information passed to the SR22 pilot on the G450 was very late but the controller was initially having to focus their efforts on trying to get the SR22 pilot to move close enough to the airport to enable them to be safely and expeditiously integrated, and then to get the pilot to move south of the Final Approach track. The Airprox took place during a very busy period for both the Radar and Aerodrome controllers, with the R/T almost constant.

The Aerodrome Controller made every endeavour to get the SR22 pilot to a position where they could be safely and expeditiously integrated with IFR arriving aircraft. Unfortunately the avoiding-action right-turn instruction took the SR22 toward the G450 rather than away from it.

UKAB Secretariat

The G450 and SR22 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].

Occurrence Investigation

Report from the G450's operating company:

> The Liverpool ATC frequency was busy. The FDM was downloaded, but no RA was shown, which would indicate that the RA existed for less than 2sec. It appears as though the Cirrus manoeuvres were such that when the Cirrus was pointing briefly at the G450, the distance and closure rate were such that the RA was triggered very quickly. As the Cirrus continued to turn the closure rate decreased rapidly and the RA ceased. There appeared to be no significant flight safety issue with this event; separation did not exist in Class D airspace between VFR and IFR traffic.

Comments from the pilot of a Citation who was ahead of the G450 in the instrument traffic pattern:

> Whilst working the Approach frequency they remarked how busy the frequency was with both IFR and VFR traffic and multiple blocked transmissions. There was also a Cirrus pilot on frequency who, he thought, seemed unfamiliar with the VRP's and who then seemingly had a misunderstanding with the controller and executed a 4min hold pattern rather than orbiting when asked to hold. His crew felt the need to discuss threat mitigation due to the congested frequency and the possibility of unpredictable VFR traffic. They kept a good look out and ensured they had TCAS information displayed at a suitable range. The approach proceeded uneventfully for them with no TCAS events.

[1] SERA.3205 Proximity.
[2] SERA.3225 Operation on and in the Vicinity of an Aerodrome.

Summary

An Airprox was reported when a G450 and a SR22 flew into proximity near the approach path to Liverpool Airport at 1057hrs on Sunday 12th May 2019. The G450 pilot was operating under IFR in VMC and the SR22 pilot was operating under VFR in VMC. The G450 pilot was in receipt of a Radar Control Service from Liverpool Approach and the SR22 pilot was in receipt of an Aerodrome Control service from Liverpool Tower.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots, the Liverpool Aerodrome controller, area radar and RTF recordings and reports from the appropriate ATC and 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 turned their attention to the actions of the Aerodrome controller and trainee. Although at the time of the Airprox they were only controlling the SR22 (the G450 was still in receipt of a Radar Control Service from the Approach controller), they had been fully aware of the G450's position and the intentions of the Radar controller to vector it for an ILS approach. Consequently, they had responsibility for resolving the positioning of the VFR SR22 against the IFR G450 such that, in accordance with MATS Part 1, "*they shall issue information and instructions to aircraft under its control to achieve a safe, orderly and expeditious flow of air traffic with the objective of: preventing collisions between aircraft flying in, and in the vicinity of, the ATZ*." This objective is met by passing sufficient Traffic Information and instructions to assist pilots to 'see-and-avoid' each other and, where controllers require VFR aircraft to hold at a specific point pending further clearance, this is to be explicitly stated to the pilot.

The Board was aware that both the Aerodrome and Radar controllers were very busy, with almost constant R/T loading. After clearing the SR22 pilot to enter the CTR, he was told to 'hold' at Delamere Forest. This was a position unknown to the SR22 pilot and which does not appear in Figure 2 (UK AIP AD 2-EGGP-4-1); the Board agreed that, as a result, the SR22 pilot could not be expected to know where Delamere Forest was. Having informed the controller of this, the controller then instructed the SR22 pilot to 'hold' in his current position and then to 'just orbit'. However, the Board felt that the initial use of the word 'hold' could have been misconstrued to mean 'adopt a racetrack pattern' and, noting that the pilot had remarked to the Radar controller that he would 'just hold here' and that his hold was '1min outbound', GA members opined that the SR22 pilot had likely used his navigation equipment to set up an automatic holding pattern rather than an orbit. This was compounded by him being further instructed to 'continue holding' and to contact the Tower frequency. In the SR22 pilot's mind, he was to continue flying racetrack 'hold' patterns and members opined that this was probably why he ended up routing further north and south of the controller's intended 'orbit' position.

After establishing communication with the SR22 pilot the Aerodrome controller decided to bring the SR22 closer to the airport to assist in integrating the aircraft into the circuit. Accordingly, the SR22 pilot was instructed to route north but not to cross the M56. Still probably in the mindset of flying a 'hold' the SR22 pilot's outbound leg caused him to fly further south than the controller wanted and so the controller's subsequent call to route '2nm further north and orbit there' was intended to anchor the SR22 just south of the M56. By the pilot's own admission he did cross the M56 at this point by a short distance but the Board did not consider that this was a contributory factor to the Airprox because at that time the G450 was still routeing downwind, well to the south of the SR22.

The controller then decided that there was sufficient space to allow the SR22 to join final approach ahead of the G450, which was now on base leg. He instructed the SR22 pilot to report final, following a PA38. However, soon realising that the orbits undertaken by the SR22 were very wide, it was apparent that it was not possible for the SR22 to proceed ahead of the G450. Consequently, he was instructed to route to left base to orbit left-hand on reaching the South Bank, which the pilot read-back correctly. However, the Board agreed that the use of the term 'South Bank' was ambiguous because the South Bank crossed the final approach track at a range of about 4nm, thereby allowing the SR22 pilot to meet the requirement to be at the South Bank whilst still conflicting with the approach path.

The OJTI controller then realised that the SR22 was approaching too close to the final approach track and took over the R/T from his trainee. He instructed the SR22 pilot to make right-hand orbits and to route further south to cross the M56. Although he asked the SR22 pilot to expedite his turn because of the presence of the G450, which he informed the pilot that it was 1.5nm to his northeast, he judged that the SR22 pilot was turning too slowly; therefore, he issued an avoiding action turn to the south.

The Board was convinced that the Aerodrome controller and trainee were trying to do their best to position the SR22 closer to the field but the combination of the SR22 pilot's 'holds' and large orbits meant that the SR22 was either too close or too far away to achieve their plan at critical points. However, the Board considered that the instruction to orbit left-base at the South Bank to resolve this, was not appropriate because it was not a defined position; use of a VRP or obvious geographical location may have been a better option (**CF1**). Members noted that the controller did not specifically advise the SR22 pilot of their intention to turn him onto final ahead of the G450, and that Traffic Information was only passed to the SR22 pilot about the G450 when the two aircraft were in proximity close to the approach path (**CF2**).

It appeared to the Board that the SR22 pilot had not fully assimilated what the controller was trying to achieve, and that his adoption of racetrack holds versus orbits was indicative of a lack of appreciation of the need to ensure that he maintained a geographical location that enabled a timely entry to the pattern. That being said, members considered that the use of the word 'hold' rather than 'orbit' had probably influenced his actions. Notwithstanding, as his join became more and more protracted, GA members felt that it should have been clear to him that things were not working out as planned, and that he could therefore have proactively supported the controller by asking them what their plan was and how he could assist (**CF3**). Although he assumed that ATC were positioning his aircraft close to the approach path to expedite arrivals, it also remained his responsibility to ensure sufficient separation from the approach path and the Board agreed that, ultimately, the SR22 pilot had flown close enough to the G450 to cause concern to its pilot and ATC (**CF4**).

Meanwhile, the Radar controller had issued the G450 pilot Traffic Information about the SR22 when it was at a range of 4nm and then updated it at 3nm. Realising that the two aircraft were only 0.5nm apart, with the SR22 400ft below the G450, the Radar controller issued an avoiding action turn to the G450 pilot although this transmission was blocked by another transmission. The G450 pilot reported that he had the traffic in sight and was happy to continue his approach.

Turning to the risk, members noted that at CPA the aircraft were separated by 300ft vertically and 0.6nm horizontally, both pilots had visual contact, and both had information about the other aircraft from ATC and on their TCAS. Notwithstanding the transitory TCAS RA as the SR22 briefly pointed at the G450 (**CF5**), the Board agreed that this had ceased before any action was needed (and well inside the 5sec 'reaction time' for TCAS RA alerts). Therefore, the Board quickly agreed that although the generation of even a transitory TCAS RA under those conditions was not ideal, there had been no risk of collision. Accordingly, the Airprox was assessed as risk Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2019119-Barriers		
CF	**Factor**	**Description**	**Amplification**
	Ground Elements		
	• Situational Awareness and Action		
1	Human Factors	• Inappropriate Clearance	Controller instructions contributed to the conflict
2	Human Factors	• Traffic Management Information Provision	Not provided, inaccurate, inadequate, or late
	Flight Elements		
	• Tactical Planning and Execution		
3	Human Factors	• Insufficient Decision/Plan	Inadequate plan adaption
	• Situational Awareness of the Conflicting Aircraft and Action		
4	Human Factors	• Lack of Action	Pilot flew close enough to cause concern despite Situational Awareness
	• Electronic Warning System Operation and Compliance		
5	Contextual	• ACAS/TCAS RA	TCAS RA event

Degree of Risk: C

Safety Barrier Assessment[3]

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

Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **partially effective** because the controller's phraseology was ambiguous at times and Traffic Information was not provided to the SR22 pilot in a timely manner.

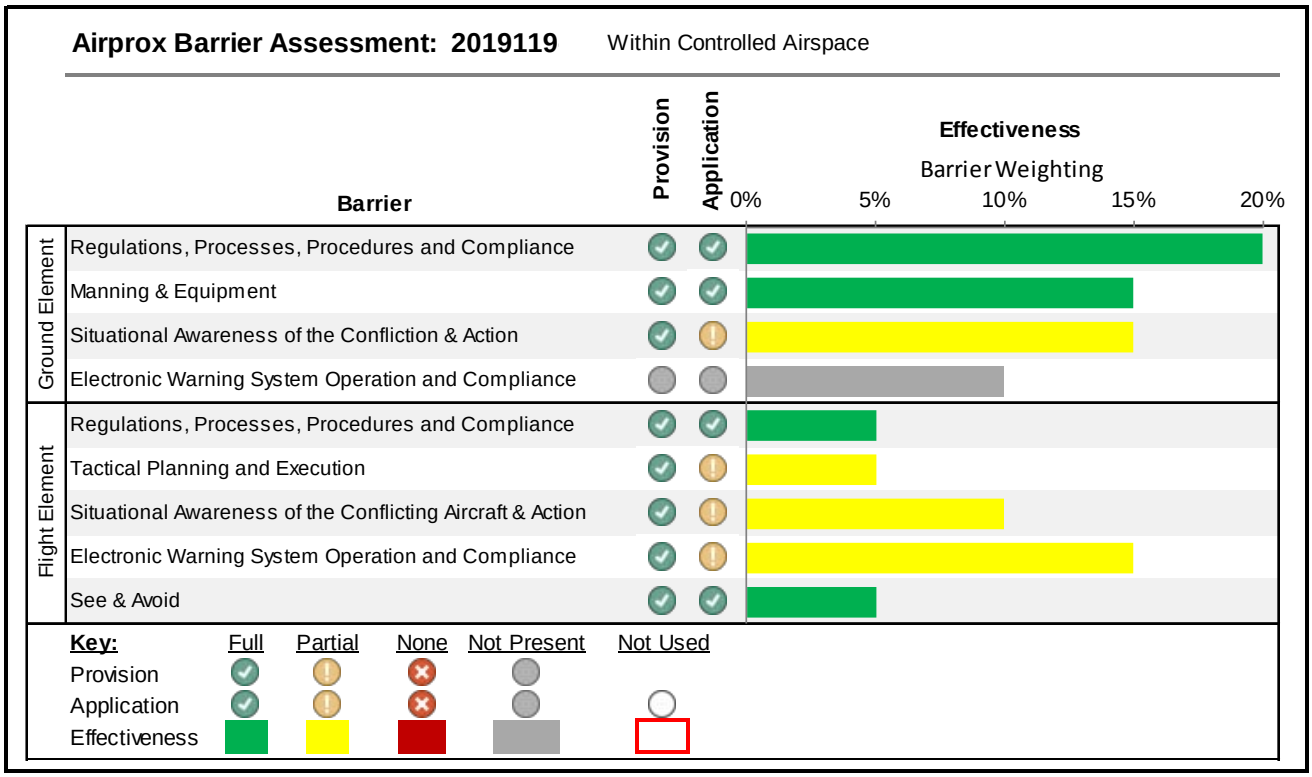
Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the SR22 pilot was conducting racetrack patterns and large orbits that meant that the controller had to continually reposition the aircraft and was not able to expeditiously arrange its integration with the G450.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the SR22 pilot flew too close to the runway centreline.

Electronic Warning System Operation and Compliance were assessed as **partially effective** because although the G450 crew were in receipt of a TCAS RA and situational awareness from TCAS, the RA was a 'nuisance alert' that generated 'clear of conflict' within the allowed reaction time and so the crew elected to continue, being in sight of the SR22 throughout.

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


Airprox Barrier Assessment: 2019119
Within 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 Used
Provision
Application
Effectiveness