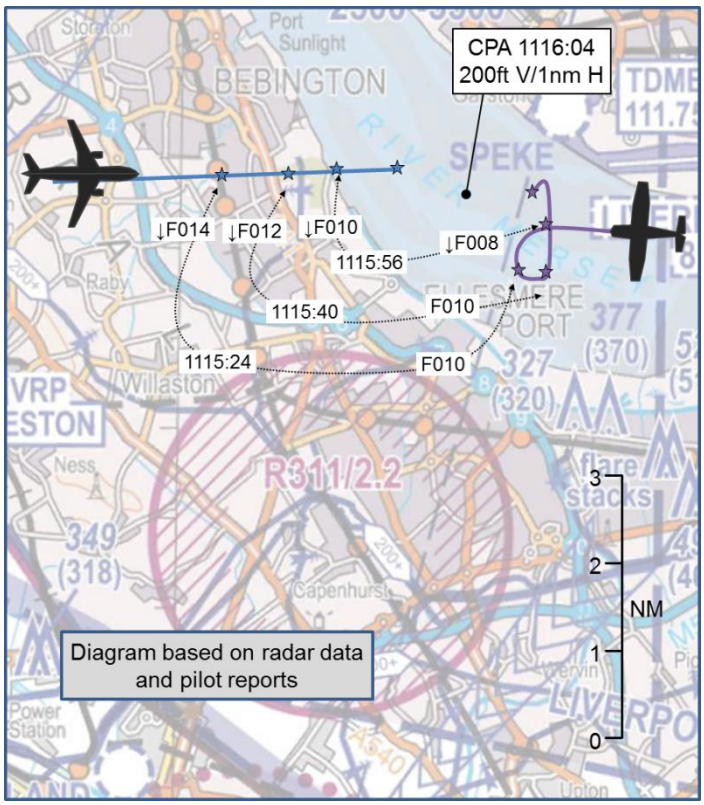
AIRPROX REPORT No 2015034

Date: 10 Apr 2015 Time: 1116Z Position: 5319N 00254W Location: Liverpool

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Airbus 319	C182
Operator	CAT	Civ Pte
Airspace	Liverpool CTR	Liverpool CTR
Class	D	D
Rules	IFR	VFR
Service	Aerodrome	Aerodrome
Provider	Liverpool	Liverpool
Altitude/FL	1100ft	900ft
Transponder	A, C, S	A, C
Reported		
Colours	White and Orange	Red on White
Lighting	Beacon Strobes	Strobes, landing lights
Conditions	VMC	VMC
Visibility	6km (Haze)	>10knm
Altitude/FL		1000ft
Altimeter	QNH (1015hPa)	QNH (1015hPa)
Heading	090°	360°
Speed	130kt	100kt
ACAS/TAS	TCAS II	Not fitted
Alert	TA	N/A
Separation		
Reported	100ft V/2nm H	NKV/1-2nm H
Recorded	200ft V/1nm H	



THE A319 PILOT reports he was on approach to RW09 at Liverpool when the crew were alerted to a light aircraft holding on right-base. TCAS suggested that the aircraft was more directly ahead, but they continued their approach. The controller commanded the light-aircraft to go around and turn immediately, but got a disjointed response from the light-aircraft pilot. The Captain decided to commence a go-around himself as a precaution. He believed that it later transpired that the other aircraft flew in front of the A319 to carry out a landing without ATC approval.

He assessed the risk of collision as 'Medium'.

THE C182 PILOT reports that he was instructed to go around and told to report downwind, which he did. He was then instructed to orbit at the end of the downwind leg, he was unsure whether he was supposed to continue to orbit, so he called 'orbit complete' and started to turn onto base; he didn't hear anything from ATC. Shortly after turning base he saw a 'jet' on final approach, so he took avoiding action by turning left onto a heading of 180° because he believed that turning right would have put him in the path of the incoming aircraft. The aircraft passed behind at a range of 1.5 -2nm. Having discussed the incident with his CFI, he realised that he should not have continued his approach without being confident that he was cleared to do so, and that perhaps a right turn onto 180° would have been a better option. In his defence, he was an inexperienced pilot who was experiencing a high workload at the time, however he was confident that he had learnt from his mistakes and was a wiser pilot because of them.

He assessed the risk of collision as 'None'.

THE LIVERPOOL CONTROLLER reports the C182 was in a right-hand circuit after being sent around from RW09. He instructed the pilot to take up left-hand orbits at the end of the downwind leg. The A319 on 5nm finals was then instructed to continue the approach and given Traffic Information on the C182. The C182 was seen to take up a left-hand orbit at the end of the downwind leg, but was then observed on right-base about to turn onto final approach ahead of the A319. He instructed the C182 pilot to go-around, and to make it a right turn. The C182 pilot responded with "going around, left orbits" and was observed to make a left turn towards the A319. The controller told the C182 pilot to reposition southbound immediately, and passed updated Traffic Information to both pilots, deciding that it would be better to give Traffic Information to the A319 rather than send him around, putting him in confliction with the C182 and possibly making the situation worse. The A319 pilot did not respond, but already seemed to be going around.

Factual Background

The weather at Liverpool was reported as:

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METAR EGGP 101050Z 15011KT 120V180 7000 FEW046 15/08 Q1015
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Analysis and Investigation

CAA ATSI

CAA ATSI had access to Liverpool RTF and area radar recordings together with reports from both pilots and the Liverpool Radar controller.

The Liverpool Tower controller's workload was assessed as medium, with RW09 in use. When the C182 called for rejoin the controller had an A320 to depart and three schedule inbounds. The C182 was instructed to report final No2 following the first inbound, and the controller advised the C182 pilot regarding the 5-mile recommended wake turbulence requirement with a request to position not too tight to allow a gap for the departing A320. However the C182 turned in too early and was instructed to go around into a right-hand circuit to allow the departure of the A320.

At 1113:40 the C182 pilot reported downwind right-hand for RW09. The second inbound, the A319, was established on long-final and the controller planned to hold the C182 at the end of the downwind leg in a left hand orbit. At 1114:30 the Tower controller transmitted ***"(C182) c/s take up lefthand orbits at the end of the downwind leg you're number three".*** The C182 pilot replied *"Lefthand orbit at the end of the downwind (C182) c/s"*. The Tower controller then added *"(C182) c/s reposition slightly southbound sir"* and the C182 pilot responded *"Correcting south (C182) c/s"*.

On further analysis the CAA transcription unit reported that the controller's transmission taken from the 'off air' transmitted recording, which the C182 pilot would have received, was initially transcribed as:

*"(**C182) c/s take up a lefthand orbit at the end of the downwind leg you're number three"***

The deskside (none transmitted) recording taken from the controllers microphone was clearer and confirmed that the controller had transmitted:

"(C182) c/s take up lefthand orbits at the end of the downwind leg you're number three"

At 1114:46 the A319 reported established inbound on RW09. The Tower controller advised *"(A319) c/s continue approach number one there is a light traffic holding on right base"* – Figure 1.

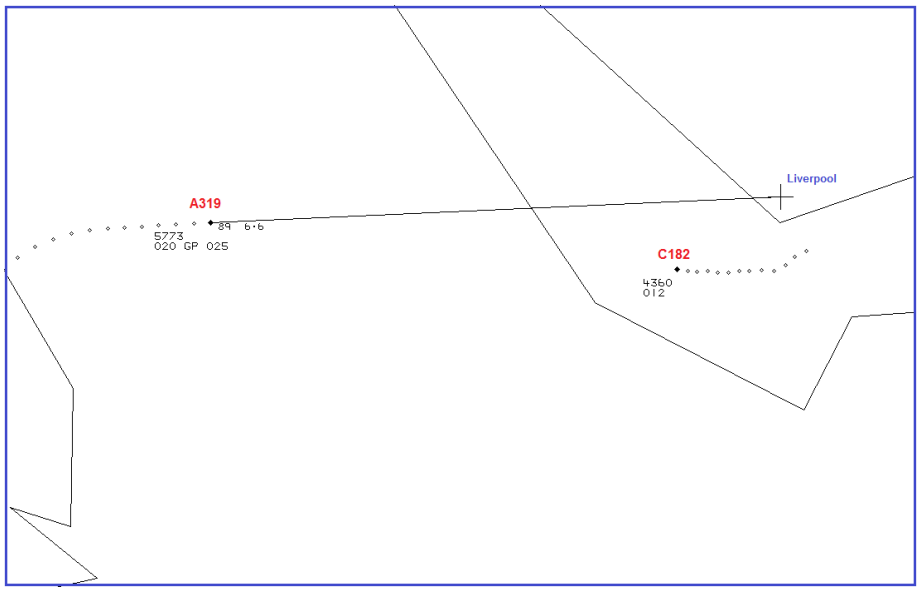

Figure 1 – Swanwick MRT at 1114:46

The C182 pilot's written report indicated that after the orbit he was unsure whether to continue and transmitted at 1115:30 *"(C182)c/s lefthand orbit complete"* without receiving a response. The Tower controller was busy transferring an outbound to Scottish Control and then transmitted to a security vehicle. However before the security vehicle responded the controller became aware of the C182 on right-base turning towards final approach [1115:50] – Figure 2.

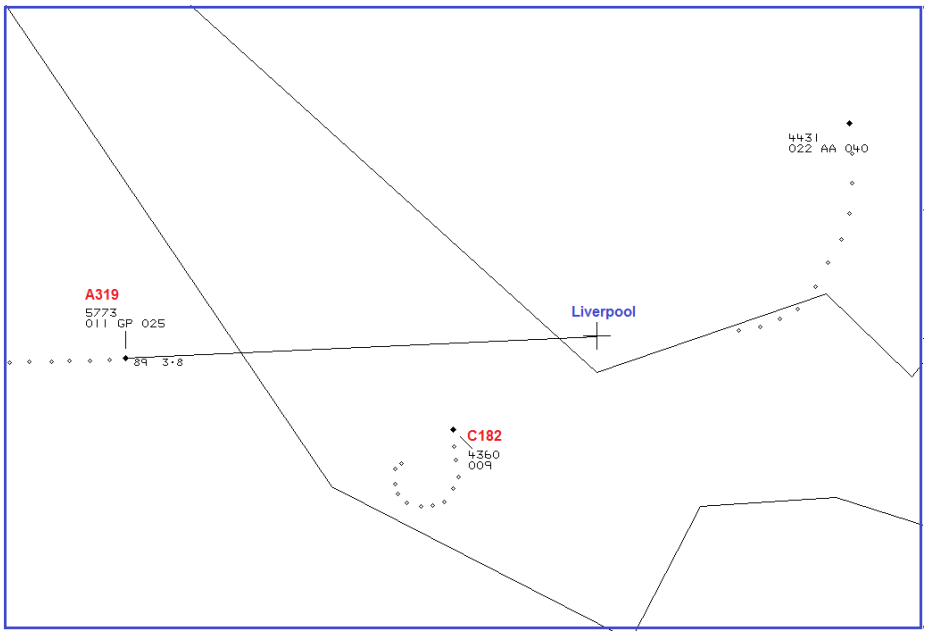

Figure 2 – Swanwick MRT at 1115:50

The C182 pilot's written report indicated that he had sighted the A319 on final and, realising that ATC had wanted him to continue in the left-hand orbit, he started a left turn. The following RTF exchange then occurred:

ATC *"(C182) c/s have you f-turned on to final there"*
ATC *"(C182) c/s go around I say again go around and then make it right turn".*
C182 [1116:00] *"Er (C182) c/s going around left orbit"*
ATC "*Reposition southbound immediately there is traffic on three mile final"*
C182 *"Roger (C182) c/s"* [1116:10] – Figure 3.

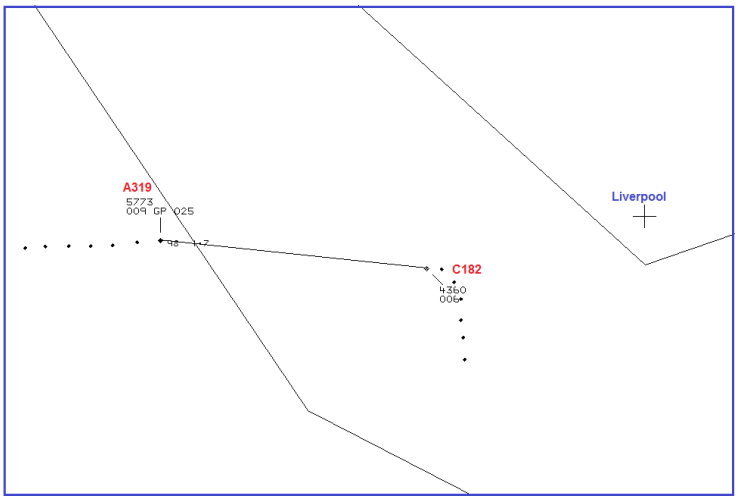

Figure 3 – Swanwick MRT at 1116:10

At 1116:18 the controller passed Traffic Information to the A319:

> ATC *"(A319) c/s traffic a Cessna one eight two he's er just to the southwest of the field I'm visual with him sir he is routeing southbound"*
> A319 [1116:30] *"(A319) c/s going around"*
> ATC "*Roger"*

CPA occurred at 1116:30 when the horizontal distance between the two aircraft was 1nm and the vertical distance was 200ft – Figure 4.

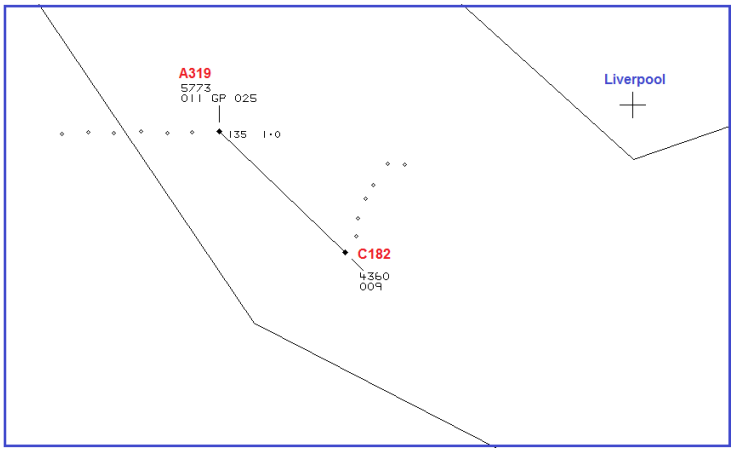

Figure 4 – Swanwick MRT at 1116:30

The A319 pilot's written report indicated that, after hearing the controller instructing the light aircraft to go around and the disjoined reply, he elected to go around as a precaution. The A319 commenced a climb and was transferred to Liverpool radar for sequencing into the arrival sequence.

The C182 pilot was instructed to hold on base leg, to remain south of the southern bank of the Mersey pending the arrival of the next inbound. The controller became concerned as the C182 started to drift north on base leg and needed to remind the C182 pilot about the inbound, instructing the C182 pilot to route south, remaining overland south of the Mersey. Once the C182 pilot reported visual with the A319, the controller issued an instruction to report final No2 with advice on the recommended wake turbulence requirements. The C182 then continued without further incident.

The ATSU identified a learning point related to the phraseology used by the controller when instructing an aircraft to orbit. The controller was debriefed and the unit phraseology was being reviewed notwithstanding the CAP413 requirement.

The controller planned to hold the C182 at the end of the downwind leg pending the arrival of the A319 which was on long final. The controller's instruction "*...take up lefthand orbits at the end of the downwind leg you're number three",* was misunderstood and interpreted as one orbit by the C182 pilot. This was judged to have been due to the clarity of the 'off air' recording.

After the completion of one orbit, the C182 pilot was unsure and transmitted "orbit complete" in an attempt to advise ATC. However this was missed by the controller who was involved with other tasks. The C182 pilot then routed onto right base without first obtaining the position of the two aircraft ahead and into conflict with the A319.

CAA ATSI considered that a clearer instruction from the controller together with more specific Traffic Information would have greatly assisted the C182 pilot's situational awareness. CAP413, paragraph 4.48 states:

> 'It may be necessary in order to co-ordinate traffic in the circuit, to issue a pilot his number in the sequence along with the position of the preceding aircraft and delaying action if necessary:
> e.g. *"G-CD, for spacing orbit right number 2, number 1 is a Cherokee on final, report again on base"*

The Airprox occurred when the C182 pilot misunderstood the instruction to orbit at the end of the downwind leg - number three, as an instruction to carry out one orbit. This resulted in the C182 turning onto right-base and into conflict with the A319.

The following were considered to have been contributory factors:

a) Due to the clarity of the transmission, the controller's instruction 'left hand orbits' was misinterpreted by the C182 pilot as 'a lefthand orbit'...
b) Specific Traffic Information was not passed and would have assisted the C182 pilot's situational awareness.
c) The C182 pilot was unsure and, in the absence of any instruction from ATC, he elected to continue towards final approach without checking with ATC or establishing the position of the two aircraft ahead.
d) The C182 pilot reported orbit complete, and this was missed by the controller.

UKAB Secretariat

Both 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: (a) observe other aerodrome traffic for the purpose of avoiding collision; (b) conform with or avoid the pattern of traffic formed by other aircraft in operation[2].

Summary

An Airprox was reported on 10 April 2015 at 1116 between an A319 and a C182. Both pilots were in class D airspace and receipt of an ATS from Liverpool, the A319 was on the ILS and received Traffic Information from the controller and his TCAS. The C182 pilot was in the visual circuit and was instructed to orbit downwind, but believed that it was for one orbit only. The A319 elected to go-around and recorded separation was 1nm and 200ft.

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

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

The Board first discussed the actions of the Liverpool controller. He had a plan which would have allowed the C182 to land behind the A319, and the civilian controller members assured the Board that to give orbits downwind was a normal situation which would allow an aircraft to remain in a position where it could quickly and safely be positioned behind traffic ahead. There was some concern over the RT clarity because the original transcript and the one which the pilot was likely to have heard (the 'on-air' recordings, indicated that the controllers' instructions about the number of orbits was less clear. However, the deskside recordings (taken directly from the controllers' microphone) indicated that the instruction to take up "left-hand orbits" was clearer. It was thought that this lack of clarity in the transmitted RT undoubtedly added to the C182 pilot's misunderstanding of the instruction. Some members thought that by adding "report ready for base leg" this would have eliminated any ambiguity, particularly as it was obvious from earlier exchanges that the pilot was inexperienced.

The Board agreed that opportunities to recognise that the pilot may have misunderstood the instructions had been missed by the controller: his readback was not challenged; and his report of "orbit complete" was missed when the controller was involved with other tasks. The Board also thought that, had the controller passed more descriptive Traffic Information about the aircraft ahead of the C182, the pilot may have been left in no doubt as to where he should position. That said, the Board recognised that the controller had told the pilot that he was "No3", and some members opined that this should have been enough information for the pilot to assess where he should position and, if he was unsure as to where the aircraft ahead were, he should have asked.

In looking at the actions of the C182 pilot, the Board thought that it was clearly his lack of experience that had put him into this situation; if he was at all unsure of what he was cleared to do he should have sought clarification from the controller, and should not have continued without absolute confidence that he was cleared so to do. As for the A319 pilot, the Board considered that there was very little that he could have done otherwise in the circumstances: if he had continued with his approach and the C182 had not moved out of his way in time then the incident could have been much more serious. The Board agreed that with the ambiguity surrounding the intentions of the C182 pilot, a go-around was the safest option for the A319 pilot.

In assessing the cause of the Airprox, the Board agreed that, in the absence of clear and complete instructions from Liverpool ATC, the C182 pilot had turned into conflict with the A319. They also agreed that a contributory factor was that the C182 pilot did not sequence himself as directed by ATC. Because the A319 pilot went around, and the C182 pilot had turned away, they assessed the risk as Category C, timely and effective actions had been taken.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: In the absence of clear and complete instructions from Liverpool ATC, the C182 pilot turned into conflict with the A319.

Contributory Factor(s): The C182 pilot did not sequence himself as directed by ATC.

Degree of Risk: C.