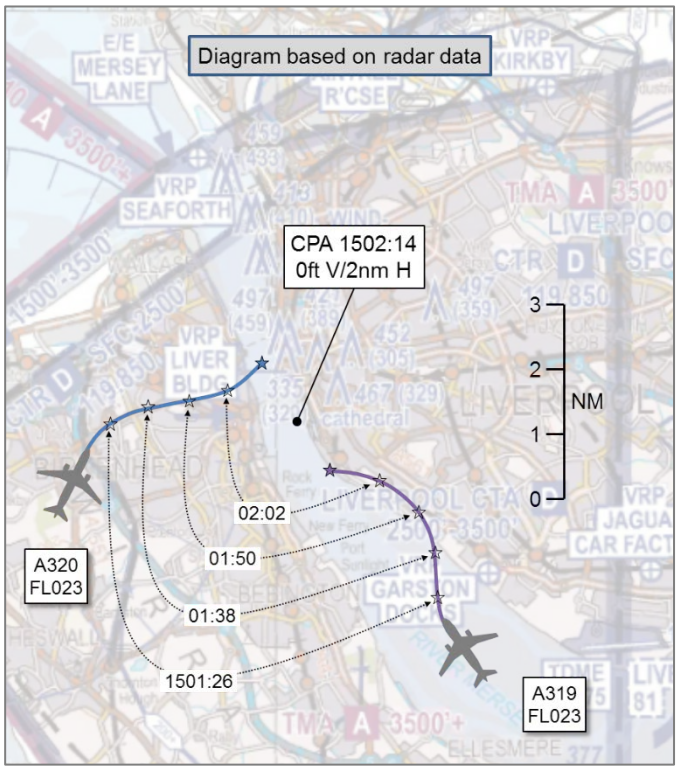
AIRPROX REPORT No 2018158

Date: 29 Jun 2018 Time: 1502Z Position: 5325N 00312W Location: 5nm NW Liverpool Airport

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	A320	A319
Operator	CAT	CAT
Airspace	Liverpool CTA	Liverpool CTA
Class	D	D
Rules	IFR	IFR
Service	Radar Control	Aerodrome
Provider	Liverpool	Liverpool
Altitude/FL	2500ft	2500ft
Transponder	A,C,S	A,C,S
Reported		
Colours	Company	Company
Lighting	NK	NK
Conditions	VMC	VMC
Visibility	NK	10km
Altitude/FL	NK	1000ft
Altimeter	QNH	QNH
Heading	NK	270°
Speed	150kt	150kt
ACAS/TAS	TCAS II	TCAS II
Alert	TA	TA
Separation		
Reported	2-2.5nm H	Not seen
Recorded	0ft V/2nm H	



THE LIVERPOOL APPROACH RADAR CONTROLLER reports that Liverpool were using RW27 and Manchester RW05. This runway configuration required Liverpool Radar to vector Liverpool inbound IFR flights to the north of Liverpool and there was no downwind left-hand route available. The anemometers were giving conflicting information when deciding the runway in use, which resulted in considerable coordination between the Aerodrome and Radar controllers, increasing their workload. Pilots also needed to be informed of the wind velocity, again increasing workload. The A320 pilot went around from the ILS approach to RW27 and was instructed to fly runway heading climbing to altitude 2500ft. Shortly afterwards, the A319 pilot also went around from an ILS approach to RW27 and was instructed to fly heading 270° climbing to altitude 2500ft by the Aerodrome controller. The Radar controller instructed the A320 pilot to turn right onto a north-easterly heading for a second ILS approach to RW27. At that point, the radar return for the A319 showed this aircraft also turning right, before commencing a left turn. He instructed the pilot of the A320 to turn left and passed Traffic Information about the A319. The pilot replied, 'Yes we can see it'. As both pilots commenced their turns, the horizontal distance reduced to 2.1nm, measured using the radar Electronic Range and Bearing Method tool (ERBM) with both aircraft at the same altitude. The base of controlled airspace to the north of the A320 was 3500ft; Liverpool are required to ensure that aircraft are at or below 3000ft north-abeam Liverpool airport.

THE AIRBUS A320 PILOT reports that he could not recollect many details of the event. He remembered that the weather was a 'bit challenging' on the day. Tailwind was reported for both runways. A trainee on his 'Flight Check for Release' was Pilot Flying (PF). They went around due to missing the Touch Down Zone (TDZ). An A319 that followed them also went around as well, although they weren't aware of this at first due to a frequency change. During the missed approach they were vectored to the northwest and stopped their climb at 2500ft as cleared. They were advised of proximate (converging) traffic, coming from their right at 2500ft and were given another vector to increase the separation (that they followed). They spotted the traffic and kept it insight at all times. A

TCAS TA was generated and the 2 aircraft passed each other at a distance of around 2-2.5nm according to his memory. No RA was generated. All ATC clearances were timely followed. Safety of the flight was not affected according to their perception.

He assessed the risk of collision as 'None'.

THE AIRBUS A319 PILOT reports that they were experiencing a high workload due to the PF's initiation of baulked landing and go-around procedure due to a suspected long landing. Confusion arose between the Pilot Not Flying (PNF) and the PF as to the go around instructions because ATC[1] had requested that they did not fly the published missed-approach procedure. ATC gave a heading of 270°, and this was read back by the PNF, but subsequently there was confusion as to if this was 070° for right-hand downwind [UKAB note: 070° would be closer to the expected missed approach procedure heading which the crew would presumably have briefed as part of their pre-approach checks]. Clarification was sought from ATC by the PNF, and the aircraft returned to 270°. It was difficult to recall the exact vertical and horizontal distance, but they received a TCAS TA only and not an RA. The pilot opined that this could have been due to the distance involved or the1000ft agl inhibition.

He assessed the risk of collision as 'Low'.

THE A319 OPERATING COMPANY reported that the tailwind-approach was stable at 1000ft and 500ft, with wind over the threshold being 10kt on the tail. However, the PF was not happy with the aircraft trajectory so initiated a baulked landing. The aircraft's wheels touched down just within the TDZ but a baulked landing had already been initiated. A go-around was subsequently flown. A slight confusion of ATC instructions led to momentary miss-selection of heading which was quickly corrected, and a subsequent uneventful approach was made by the Previous PNF. Consideration was given to taking control by the PNF at the time of the go-around but he decided against it because the PF was managing it effectively and swapping roles could have led to further confusion.

Factual Background

The weather at Liverpool was recorded as follows:

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EGGP 291450Z 09005KT 040V130 CAVOK 28/08 Q1021=
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Analysis and Investigation

CAA ATSI

At 1458:02 the A320 pilot reported to the Liverpool Aerodrome controller that they were conducting a missed approach after attempting to land on RW27. At 1458:20 (Figure 1), the Aerodrome controller instructed the A320 pilot to fly a heading of 270° and to climb to an altitude of 2500ft.

At 1459:06, the A319 pilot established communication with the Aerodrome controller. The controller issued a landing clearance for RW27 which was read back correctly.

At 1459:16, the Aerodrome controller instructed the A320 pilot to contact the Liverpool Radar controller. At 1459:38 (Figure 2), the A320 pilot established communication with the Liverpool Radar controller and was instructed to fly heading 360°, this was read back correctly. The controller established the reason for the go-around and discussed the suitability of RW27 for the subsequent approach to land.

[1] Missed approach: 'Climb straight ahead to **1500**, then turn right to **NDB(L) LPL** climbing to **2000** or as directed.

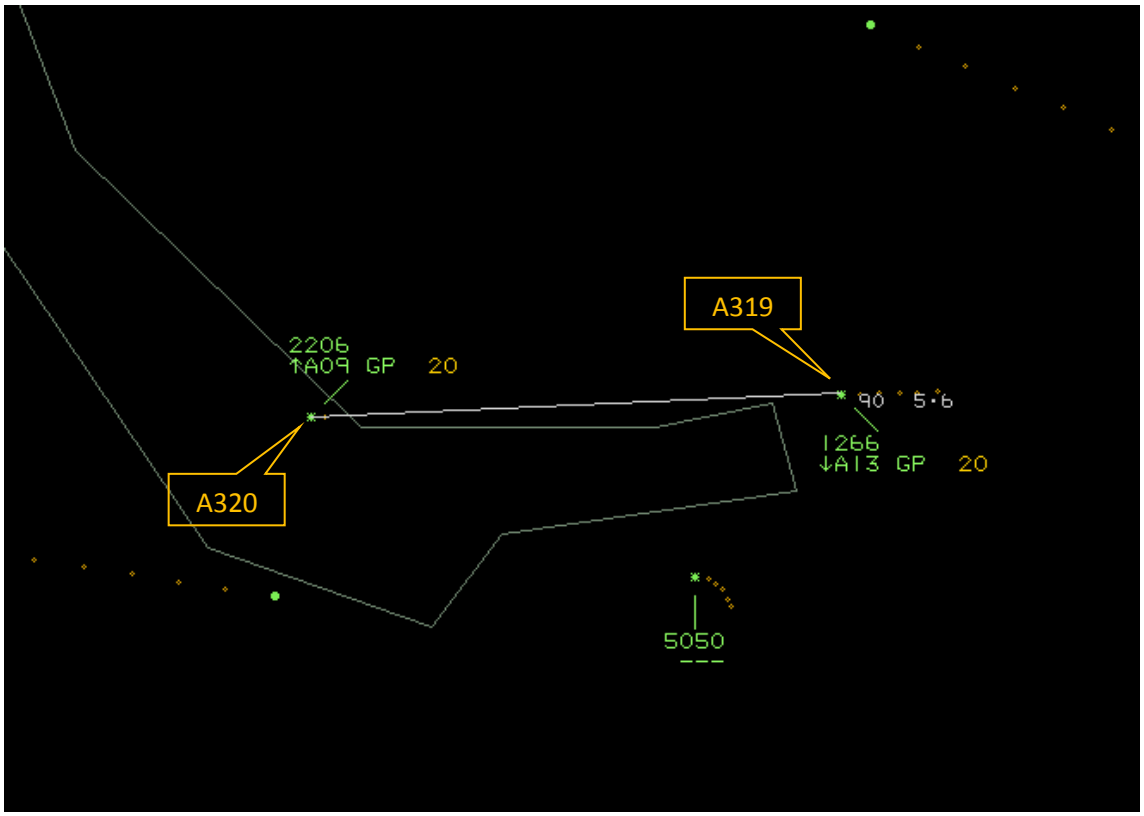


Figure 1 – 1458:20.

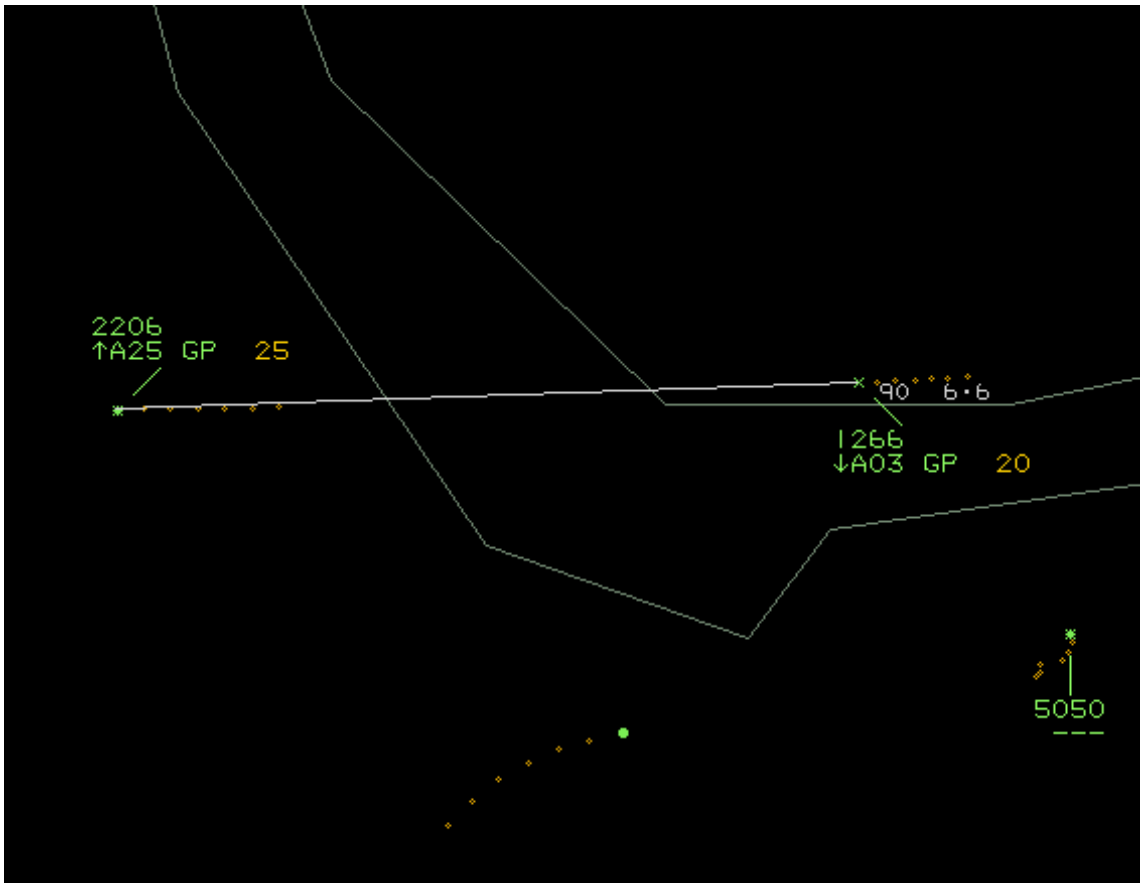


Figure 2 – 1459:38.

At 1500:20, the A319 pilot reported to the Aerodrome controller that they were conducting a missed approach, which was acknowledged by the controller. At 1500:36 (Figure 3), the Aerodrome controller instructed the A319 pilot to fly heading 270° and to climb to altitude 2500ft. The heading was questioned by the pilot but then read back correctly. The radar indicated that the A319 was flying a heading of 268° at 1500:36.

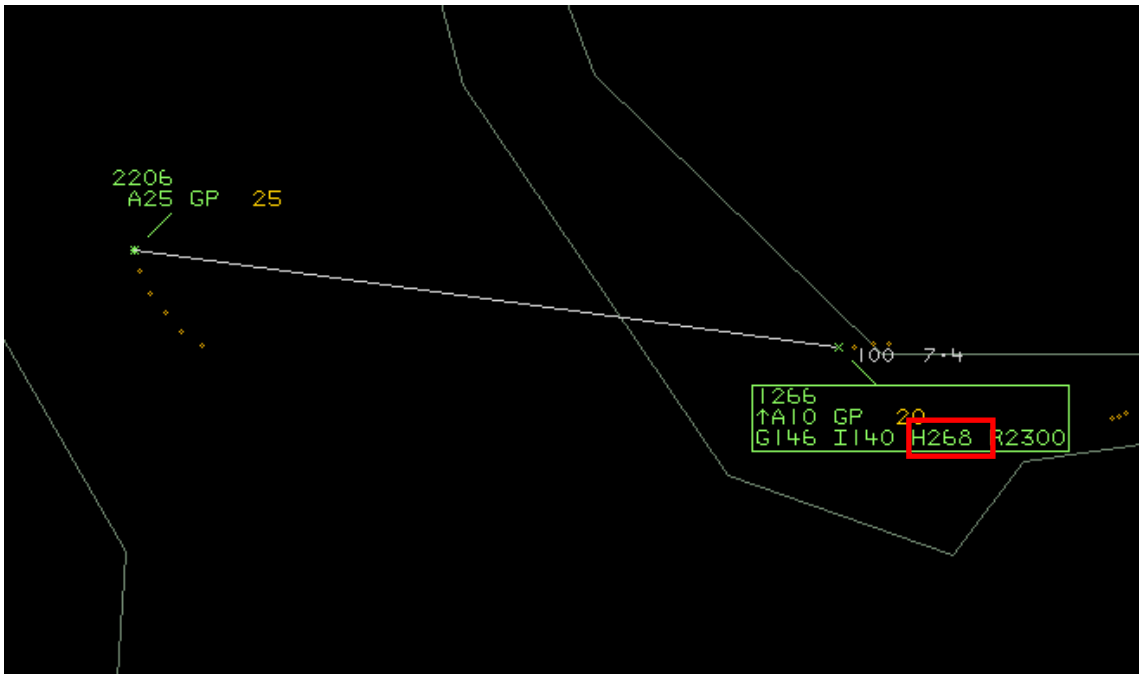


Figure 3 – 1500:36.

At 1500:48 (Figure 4), the A320 pilot stated to the Radar controller that they would like to land on RW27, the controller instructed the pilot to fly heading 085°.

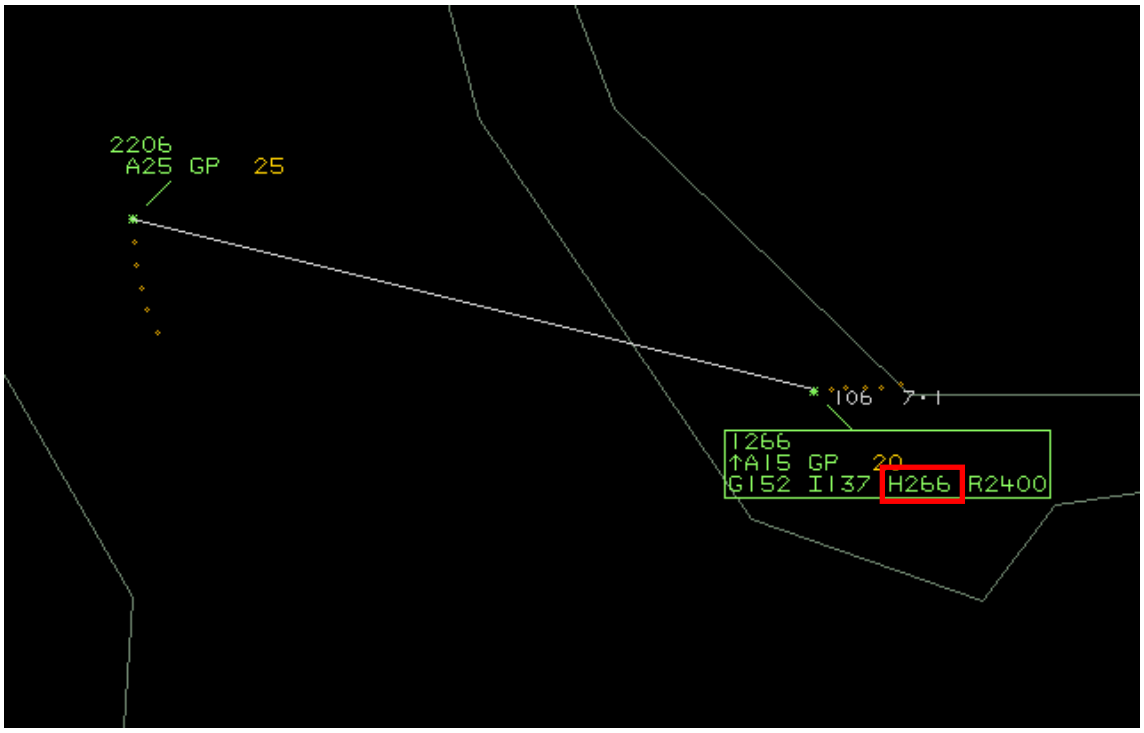


Figure 4 – 1500:48.

At 1500:58 (Figure 5), the A319 pilot requested the Aerodrome controller to confirm that they were to make a right turn.

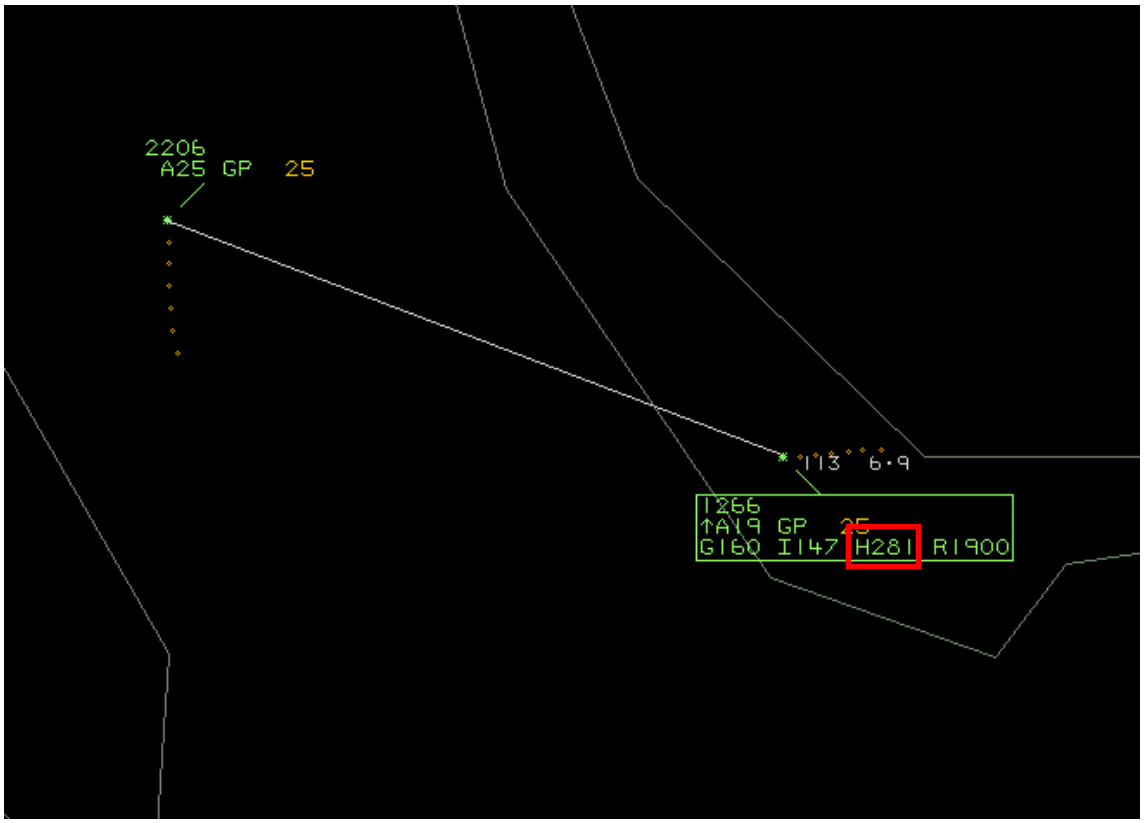


Figure 5 – 1500:58.

At 1501:08 (Figure 6), the Aerodrome controller asked the A319 pilot to repeat the request, which they did. The Aerodrome controller then informed the pilot it was a left turn.

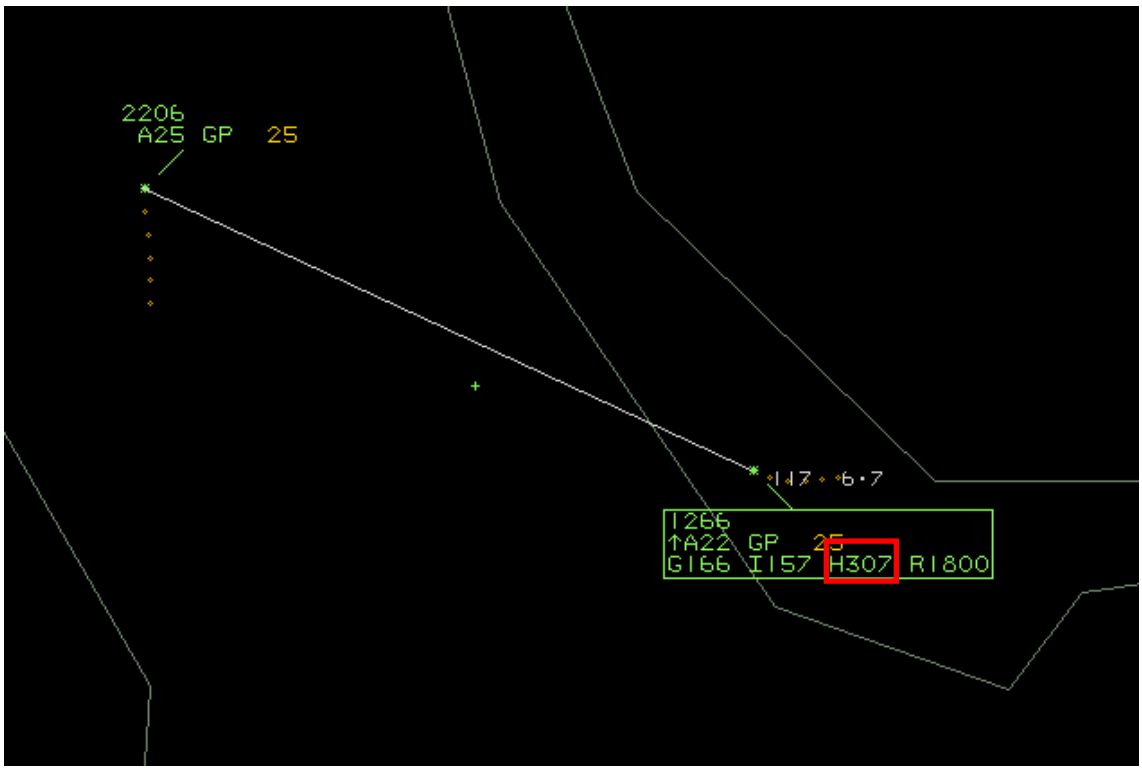


Figure 6 – 1501:08.

At 1501:28 (Figure 7), the Aerodrome controller instructed the A319 pilot to fly a heading of 270° and instructed them to contact radar which was read back correctly. At the same time the Radar controller instructed the A320 pilot to stop the right turn as soon as possible which was acknowledged by the pilot.

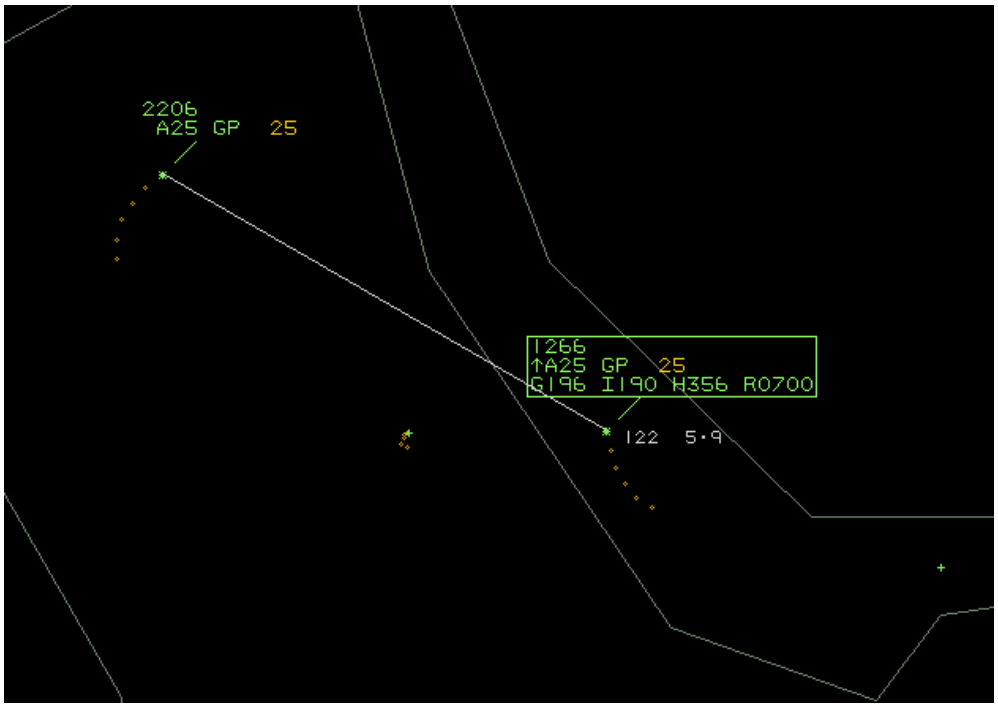


Figure 7 – 1501:28.

At 1501:50 (Figure 8) the Radar controller instructed the A320 pilot to turn left onto 360° and passed Traffic Information on the A319. The pilot reported visual with the A319.

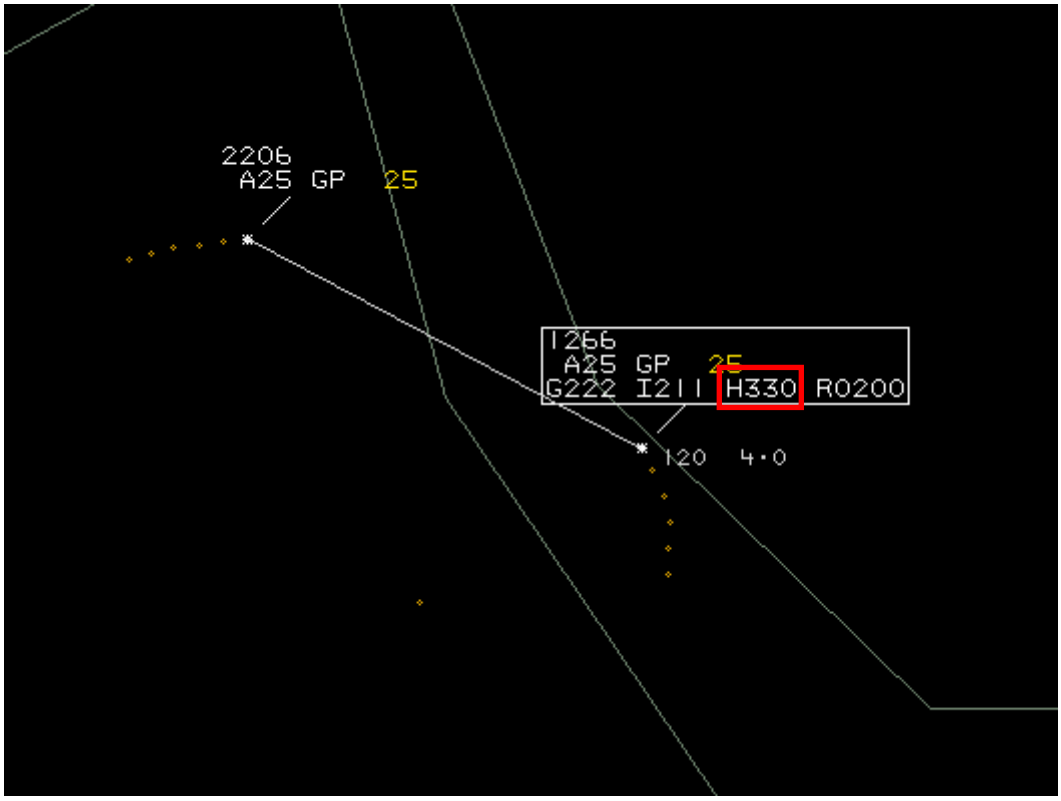


Figure 8 – 1501:50.

At 1501:58 (Figure 9), the Aerodrome controller instructed the A319 pilot to fly heading 250° which was read back correctly.

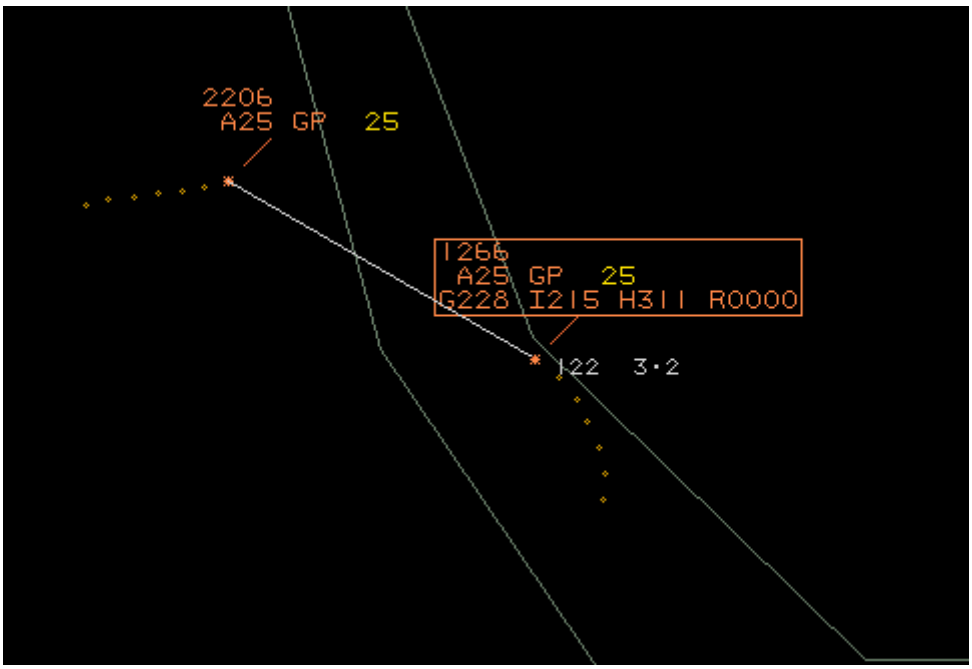


Figure 9 – 1501:58.

CPA occurred at 1502:15 (Figure 10), when the aircraft were separated by 2.0nm, same altitude.

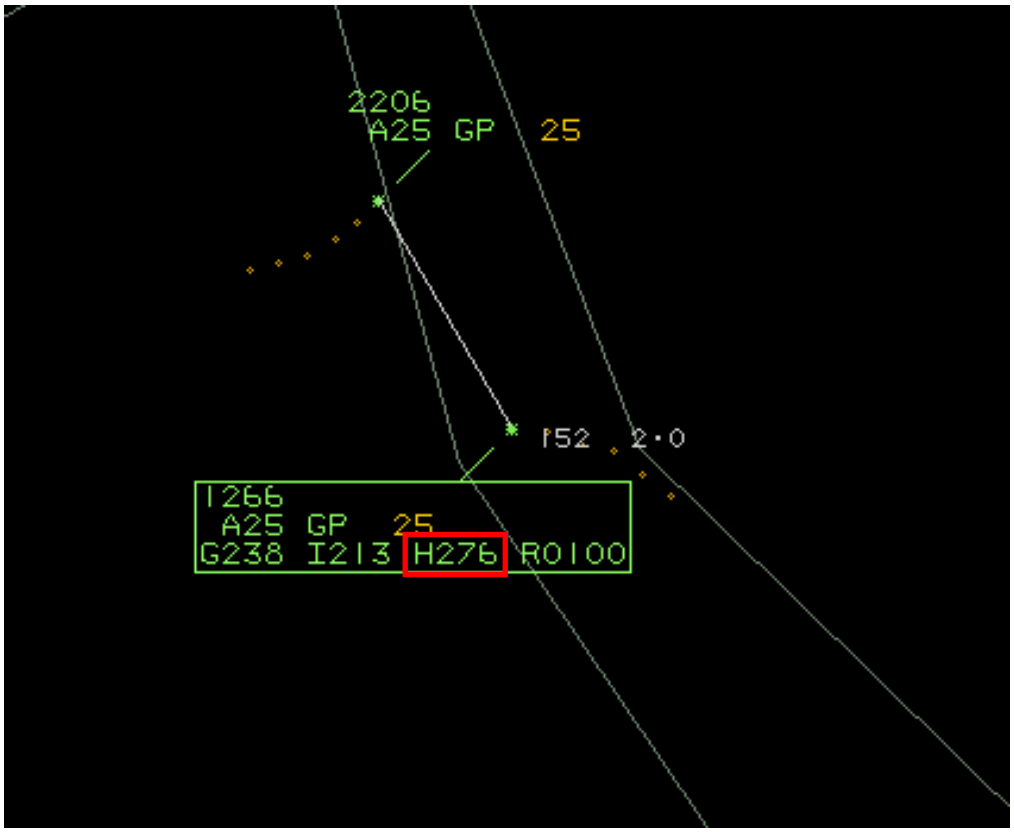


Figure 10 – 1502:15.

The pilot of the A319 reported that there was confusion in the cockpit as to whether the go-around instruction was to fly heading 270° or 070° which resulted in the track deviation.

The Airprox occurred within Class D airspace.

CAP 493 states;

1.1 Standard vertical or horizontal separation[2] shall be provided, between:

(1) all flights in Class A airspace;

(2) IFR flights in Class C, D and E airspace;

and,

3C.1 If, for any reason, a controller is faced with a situation in which two or more aircraft are separated by less than the prescribed minima, e.g. ATC errors or differences in the pilot's estimated and actual times over reporting points, he is to:

(1) use every means at his disposal to obtain the required minimum with the least possible delay; and

(2) when considered practicable, pass traffic information if an ATS surveillance service is being provided, otherwise, pass essential traffic information.

Upon realising the A319 pilot was not following the anticipated track, both controllers issued instructions which regained the prescribed separation as soon as possible. Neither controller used standard avoiding action phraseology, which may have expedited this process.

UKAB Secretariat

The A319 and A320 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[3]. 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[4]. The A319 pilot was required to comply with ATC instructions in Class D airspace.

Summary

An Airprox was reported when an A320 and an A319 flew into proximity at Liverpool Airport at 1502hrs on Friday 29th June 2018. Both pilots were operating under IFR in VMC, the A320 pilot in receipt of a Radar Control Service from Liverpool Approach and the A319 pilot in receipt of an Aerodrome Control Service from Liverpool Tower.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from both pilots, the controller concerned, area radar and RTF recordings and reports from the appropriate ATC and operating authorities.

The Board noted that the A319 had been No2 on approach following the A320 and that the A320 pilot had reported to the Aerodrome controller that he was carrying out a missed approach and was instructed to fly a heading of 270°, climbing to 2500ft. Shortly after this the A319 pilot made his initial call on the Tower frequency and was cleared to land. The A320 pilot was then transferred to the Radar controller and so it was concluded that the A319 pilots would have had the opportunity to have heard the A320 going around ahead and, if they had assimilated this, would have been aware that the A320 would be ahead of them if they also went around.

[2] 1000ft vertical, 3nm horizontal.
[3] SERA.3205 Proximity.
[4] SERA.3225 Operation on and in the Vicinity of an Aerodrome.

The Board then discussed the actions of the A319 pilot. He had decided to carry out a baulked landing because he was not happy with the aircraft's trajectory. Civil Airline pilot members commented that the crew would have become exceedingly busy in the immediate period following the unexpected baulked landing, a procedure which is not regularly experienced. This, they considered, could explain why there was some confusion about the clearance issued by the controller to fly heading 270°, climbing to 2500ft. The PNF read back the heading correctly but they reported that they had then wondered if the heading had been 070° or 270° (potentially because the go-around instructions differed from what they might have expected if following the standard missed approach procedure). The confusion about their go-around instructions was considered to be a contributory factor to the Airprox.

Before the crew confirmed their assigned heading, the aircraft commenced a right turn. The Airline Pilot members explained that because the go-around instructions differed from the standard go-around, it would have been necessary to intervene with the FMS setting because the aircraft would be programmed to take up the standard missed approach procedure which was to climb straight ahead to 1500ft, then turn right to the NDB(L) LPL climbing to 2000ft. The Airline Pilot members believed that the crew's high-workload after the baulked landing could explain why the FMS had not been changed and consequently why the aircraft had turned to follow the standard missed approach routeing. The A319 crew did subsequently ask the controller whether they should be making a right turn, but by the time the controller confirmed it should now be a left turn, the radar recordings reveal the aircraft was passing a heading of 307°. This turn continued until the aircraft was heading 356°, when the controller reiterated a clearance for the aircraft to turn left heading 270°. The fact that the A319 pilots initially turned before resolving their uncertainty was also considered to be a contributory factor to the Airprox.

The Board wondered why TCAS had not alerted the A319 crew to the position of the A320 and the potential confliction as they had continued their right turn. Airline members commented that it was not known what range their TCAS display had been set to and, in the busy workload situation, it was probable that their attention was focussed on monitoring other displays in the cockpit.

Some members wondered why the controller had cleared both the pilot of the A320 and the A319 to climb on heading 270° rather than both just fly the standard missed approach procedure. Controller members explained that if the A320 pilot had been cleared for a standard missed approach it would have resulted in the aircraft turning back towards the airport, in possible confliction with other inbound traffic. Some pilot members wondered therefore if the standard go-around should be changed to a procedure which was more likely to be used by ATC; this would then remove the requirement for pilots to have to intervene with the aircraft's programmed route at a critical stage of flight. Accepting the desirability of this from a pilot's perspective, controller members pointed out that missed approach procedures must also ensure that, in the event of a radio failure, the aircraft would not leave CAS.

Turning their attention to the controllers, the Board considered that the Aerodrome and Radar controllers had worked well together to resolve the situation; both controllers had issued appropriate avoiding-action instructions to the pilots concerned. Having received a correct readback from the A319 pilot there was no reason for the Aerodrome controller to consider that there was any confusion in the cockpit about the issued heading instruction. That being said, with hindsight controller members commented, that had the Aerodrome controller instructed the A319 pilot to 'continue on runway heading' rather than give a specific heading, it might have prevented confusion in the cockpit.

The Board then turned its attention to the cause of the Airprox. It was quickly decided that the cause of the Airprox was that the A319 crew turned into conflict with the A320, contrary to their clearance. As to the risk, the Board agreed that the action taken by both controllers had ensured that there had been no risk of a collision; the two aircraft were separated by 2nm horizontally at CPA. However, the Board did not consider that normal safety standards and procedures had pertained because the A319 pilot had not complied with his clearance. Therefore, the Board categorised the Airprox as risk Category C; safety had been reduced but there had been no risk of collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The A319 crew turned into conflict with the A320, contrary to their clearance.

Degree of Risk: C.

Contributory factors: 1. Confusion by the A319 crew about their go-around clearance.

2. The A319 crew commenced a right turn before resolving their uncertainty.

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:

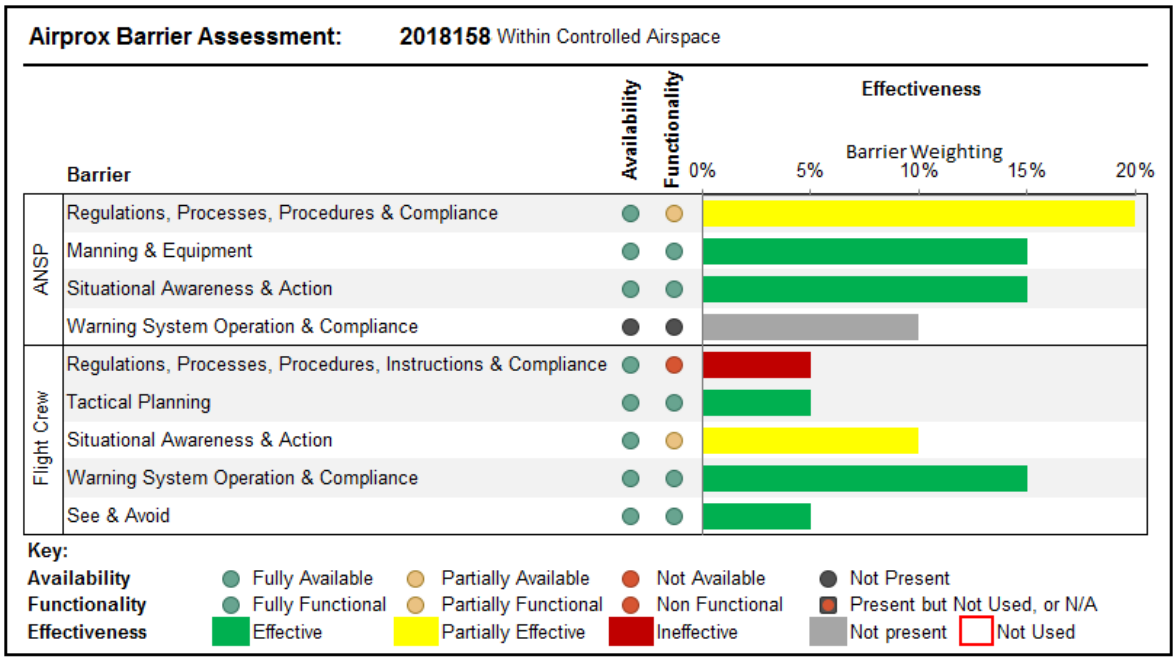
ANSP:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because, although both controllers issued avoiding action instructions to the pilots, neither used the standard avoiding-action phraseology.

Flight Crew:

Regulations, Processes, Procedures, Instructions and Compliance were assessed as **ineffective** because the A319 crew started to turn right before contacting ATC to resolve their confusion about the heading issued.

Situational Awareness and Action were assessed as **partially effective** because the A319's TCAS display would likely have shown the position of the A320 as proximate traffic, information which the A319 crew could have used to their advantage before turning.



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