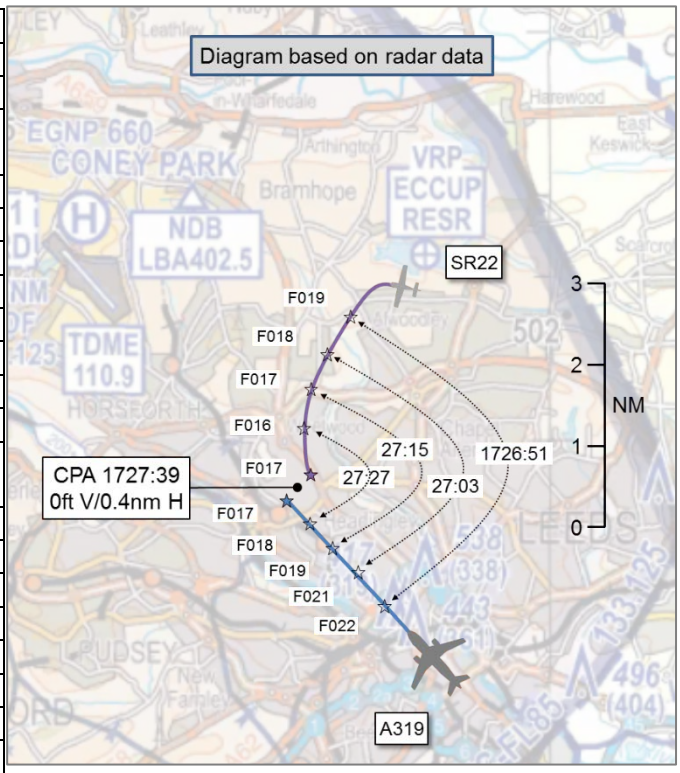
AIRPROX REPORT No 2017234

Date: 17 Sep 2017 Time: 1728Z Position: 5349N 00135W Location: 5nm SE Leeds/Bradford

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	A319	SR22
Operator	CAT	Civ Pte
Airspace	Leeds/Bradford CTR	Leeds/Bradford CTR
Class	D	D
Rules	IFR	VFR
Service	Aerodrome	Aerodrome
Provider	Leeds/Bradford	Leeds/Bradford
Altitude/FL	1700ft	1800ft
Transponder	A,C,S	A,C,S
Reported		
Colours	Company	Blue, silver
Lighting	Strobes, nav, beacon, landing	Strobes, nav
Conditions	VMC	VMC
Visibility		>10km
Altitude/FL	1500ft	1000ft
Altimeter	QNH (1016hPa)	QFE
Heading	320°	230°
Speed	140kt	110kt
ACAS/TAS	TCAS II	TAS
Alert	RA	None
Separation		
Reported	4ft V/400m H	500ft V/2nm H
Recorded	100ft V/0.6nm H	



THE AIRBUS A319 PILOT reports that during an ILS approach to RW32 at Leeds/Bradford, ATC advised of the proximity of GA traffic (the SR22) in the vicinity of the ILS, but that it was to remain clear. He heard that the SR22 pilot was instructed to turn onto a heading by ATC. The SR22 was observed by the flight crew on TCAS and, after ATC information, a TCAS TA was received at approximately 5nm on the ILS RW32. Visual identification of the SR22 by the flight crew was achieved at the same time as a TCAS RA "Climb" was received. The flight crew initiated a go-around in reaction to the TCAS RA "climb" instruction. A Standard Missed Approach was followed. During the procedure a TCAS reversal occurred from "climb" to "descend" momentarily before "clear of conflict" was received. ATC was informed of the RA and when clear of conflict. The crew elected to fly another approach to ILS RW32. After disembarkation, one passenger made a concerted effort to report to the flight crew that a light-aircraft had been seen close to the A319 on the right-hand side during the incident.

He assessed the risk of collision as 'Medium'.

THE CIRRUS SR22 PILOT reports that he was inbound to Leeds/Bradford, VFR, routing via Eccup Reservoir, and under a Radar Control Service on a heading of approximately 310°. Having reported abeam Eccup he was instructed to join right-base for RW32 and was advised he was No2 (he thought) to the inbound A319. He kept a good look out for the A319 but was not visual with the aircraft initially due to cloud, and he had not seen the aircraft come up on his TAS. Immediately on becoming visual with the inbound A319, he realised that the aircraft was above and to the left, and descending at relatively close range. He took up a left-hand orbit to maintain separation and advised ATC of his actions. He was then asked to reposition downwind right-hand for RW32.

He assessed the risk of collision as 'Low'.

THE LEEDS/BRADFORD CONTROLLER reports that the SR22 was inbound VFR from the southeast routing to right-base RW32. At the same time, the A319 was on the ILS. The Radar controller passed Traffic Information to the SR22 pilot on the position of the A319. When the A319 pilot contacted him he passed Traffic Information on the position of the SR22, adding that it would be holding on right base. The SR22 pilot was heading in an upwind direction to join and report right-base because he had arrived from a south-southeast direction. He observed the SR22 making a left turn back towards approach in a southerly direction before right-base without a clearance, he recalled. The SR22 pilot's rate of turn was wide, and he reported that he would orbit left. He told the SR22 pilot that he was heading towards final approach and instructed him to carry on the left turn because he was getting close. The SR22 pilot then headed back in a northerly direction. The A319 pilot reported a TCAS RA and carried out a missed approach, climbing straight ahead to 4000ft, as instructed by the Radar controller

Factual Background

The weather at Leeds/Bradford was recorded as follows:

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EGNM 171720Z 35009KT 310V020 9999 FEW010 SCT025CB 12/10 Q1016=
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Analysis and Investigation

CAA ATSI

ATSI had access to reports from both pilots but no reports from the controllers involved were submitted at the time. ATSI also reviewed the area radar recording, and the R/T recordings for both Leeds Tower and Leeds Radar. A copy of the Leeds ATC unit investigation report was also received. Screenshots in the report are taken from the area radar. All times UTC. The A319 was inbound IFR on an ILS approach to RW32 at Leeds Airport, receiving an Aerodrome Control Service from Leeds Tower. The SR22 was inbound VFR from the east-south-east, also receiving an Aerodrome Control Service from Leeds Tower.

At 1718:10, the SR22 pilot contacted Leeds Radar advising that they were at 1700ft, inbound to land at Leeds, requesting a Basic Service and clearance to enter the Leeds Control Zone. The controller confirmed the Basic Service and Leeds QNH, and requested that the pilot call crossing the A1 (A1(M) motorway), which was acknowledged by the pilot.

At 1720:00, the controller advised the SR22 pilot to expect to enter via the Eccup Visual Reference Point (VRP).

At 1720:35, the A319 pilot made his first call to Leeds Radar. The controller issued a clearance to descend to 3500ft and advised that it would be radar vectors for an ILS approach to RW32.

At 1721:50, the SR22 pilot reported abeam the A1, (15nm south-east of the airfield), at which point the controller issued transponder code 2665 (Figure 1).

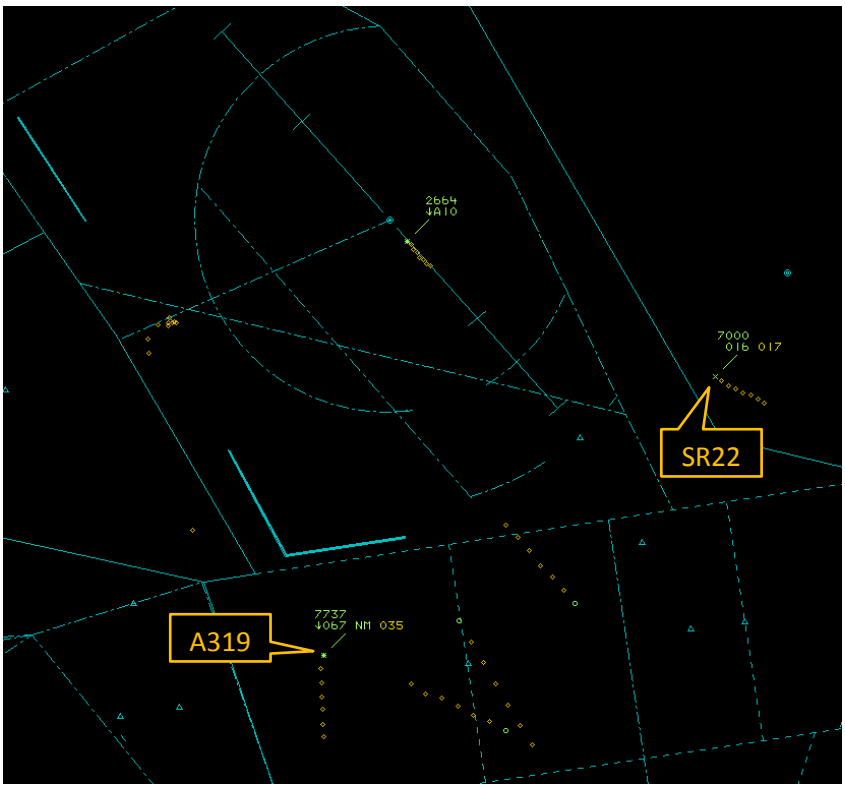

Figure 1 – 1721:50.

At 1722:25 the controller issued the SR22 pilot a clearance to enter controlled airspace VFR, via Eccup, with no level restriction, and to report becoming visual with the airfield, which was acknowledged by the pilot.

At 1722:40 the A319 pilot was given a heading for base leg, and at 1723:40, instructed to descend to 3000ft.

At 1724:30 the controller advised the SR22 that there would be traffic on the ILS, although they neither specified the type of aircraft, nor its position/range from touchdown (Figure 2).

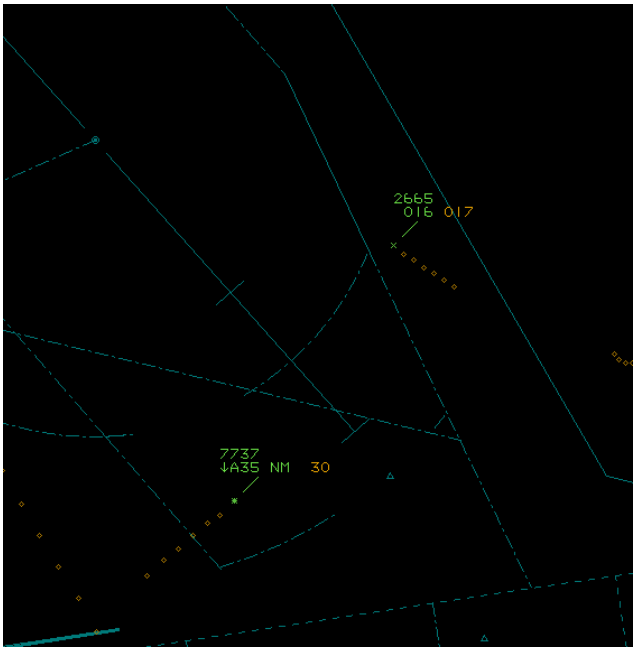

Figure 2 – 1724:30.

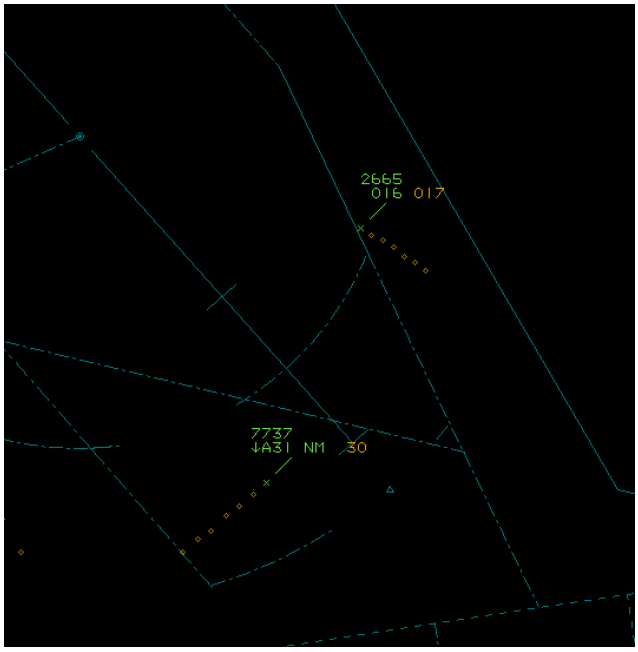

Figure 3 – 1724:55.

At 1724:46 the A319 pilot was turned onto an intercept heading for the ILS and cleared to descend once established.

At 1724:55**,** (Figure 3), the controller advised the SR22 pilot that they were entering controlled airspace, and asked if they had the airfield in sight, which the pilot confirmed that they did. The controller then instructed the pilot to contact Leeds Tower.

At 1725:10, the SR22 pilot contacted Leeds Tower; the Aerodrome controller instructed them to report right base for RW32 and passed the QFE, which was readback by the pilot.

At 1725:40, the Radar controller gave further descent to the A319 pilot and, at 1726:40, instructed them to contact Leeds Tower.

At 1726:42, the SR22 pilot, who had maintained a steady north-westerly track towards the airfield, was observed to turn onto a base leg (Figure 4).

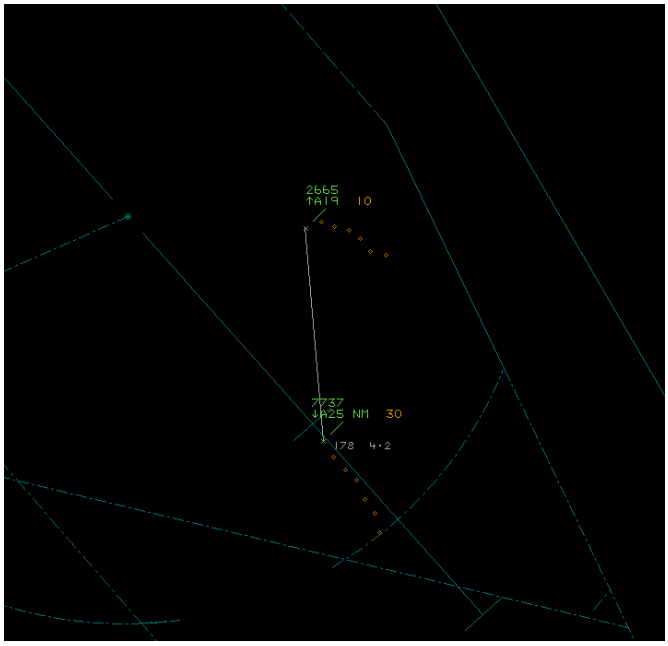

Figure 4 – 1726:42.

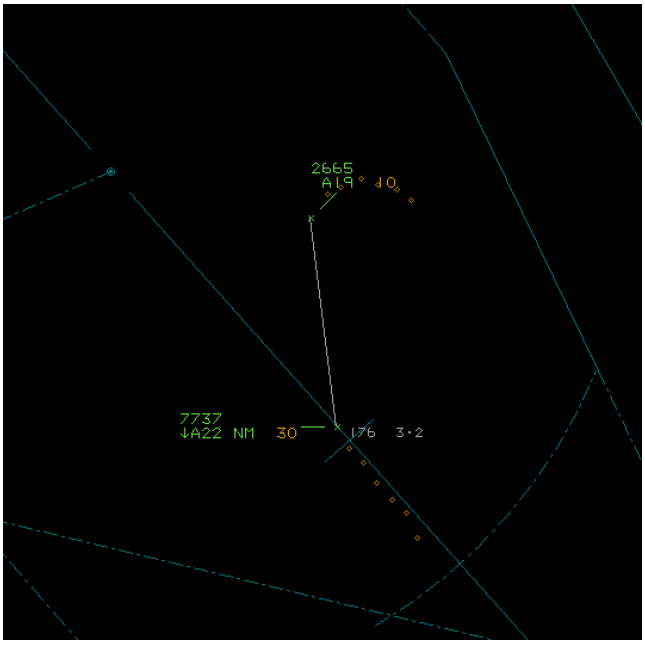

Figure 5 – 1727:00.

At 1726:50, the A319 pilot contacted Leeds Tower, and at 1727:00 the Aerodrome controller cleared them to land on RW32 (Figure 5).

At 1727:05, the Aerodrome controller advised the A319 pilot that there was an SR22 holding on right base, 2nm east of the airfield which was acknowledged by the A319 pilot.

At 1727:18, the SR22 pilot reported carrying out a left-hand orbit for separation (Figure 6).

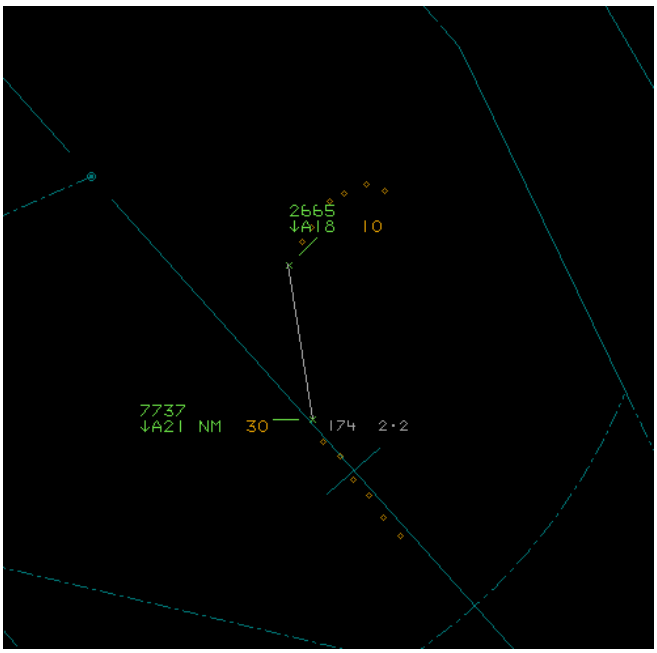

Figure 6 – 1727:18.

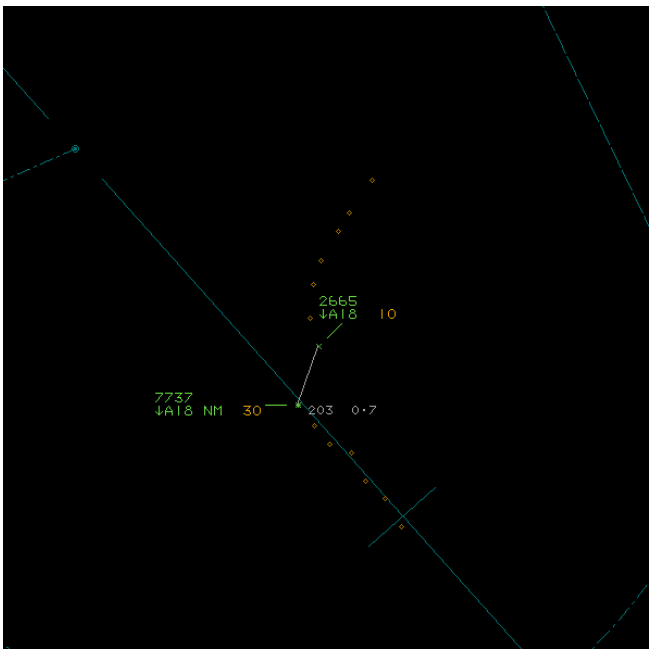

Figure 7 – 1727:36

The controller acknowledged this and, at 1727:36 requested that they made their turn more pronounced, away from the approach (Figure 7).

CPA was at 1727:43, with the aircraft separated by 0.6nm laterally and 100ft vertically (Figure 8).

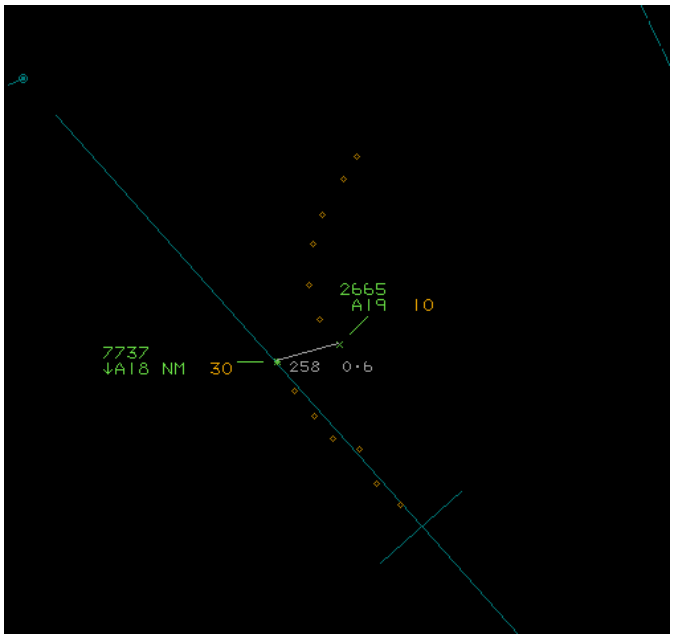

Figure 8 – 1727:43.

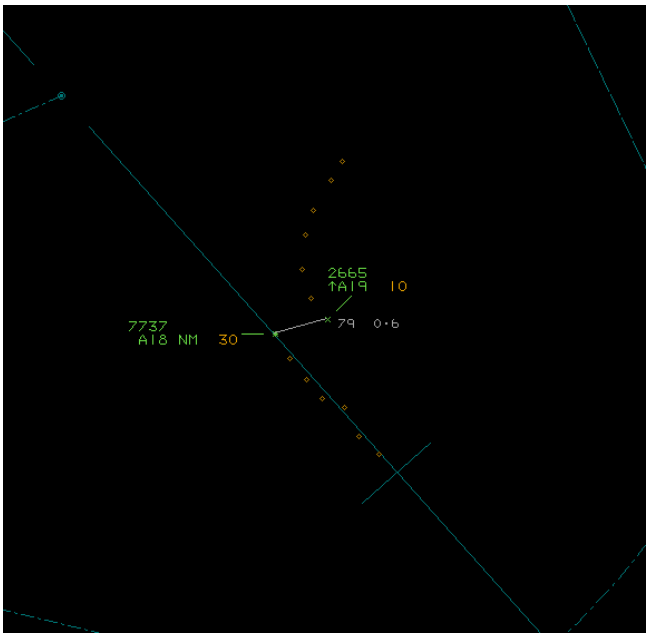

Figure 9 – 1727:47.

The A319's descent was observed to have stopped at 1800ft at 1727:44, with a climb observed to have commenced at 1727:47 (Figure 9 – note: climb observed in aircraft data block).

The A319 pilot reported receiving a TCAS RA at 1727:56, which was acknowledged by the controller who, at 1728:10, instructed the A319 pilot to climb straight ahead to 4000ft.

The Aerodrome controller submitted a written statement to the unit management on 13th January 2018 following a request by ATSI. In their statement they remembered being asked by the radar controller how they would like the SR22 to be positioned inbound, to which they reported: "*I was reluctant at first to answer as I knew the SR22 would be number two in traffic and the radar controller closed the hot key with no response from me as he was talking on frequency".* When asked a second time by the Radar controller, the Aerodrome controller requested that the SR22 pilot be routed to right base for RW32. He stated that it had been his intention to then instruct the SR22 pilot to orbit on right base.

When the SR22 pilot called on frequency, the Aerodrome controller said that he, mistakenly, thought that he had then issued an instruction to orbit on right base, whereas, in reality, it had been an instruction to report on base leg. It had been the Aerodrome controller's intention to then pass Traffic Information to the SR22 pilot on the A319 together with advice on wake turbulence spacing. The Aerodrome controller reported having good visual contact with both aircraft and was also monitoring their positions on the ATM. It was not until he saw the SR22 turn onto what was effectively a base leg, that he realised that it was not orbiting, and so instructed the pilot to turn away from final approach.

The Aerodrome controller had previously passed Traffic Information to the A319 pilot on the SR22, although had also mentioned that the SR22 would be holding. Although the Radar controller passed generic Traffic Information to the SR22 pilot about an aircraft inbound for the ILS, he did not specifically mention the type or range from touchdown. No Traffic Information was passed by the Radar controller to the A319 pilot on the SR22 before transferring the A319 pilot to the Tower.

The pilot of the A319 reported seeing the SR22 on TCAS after receiving Traffic Information from the Aerodrome controller. They then reported receiving a TCAS TA on the SR22 at 5nm from touchdown. A subsequent TCAS RA coincidental with the A319 crew acquiring visual contact with the SR22, led them to commence a go-around in response to the TCAS RA. The pilot of the SR22, who did not report on right base as instructed by the Aerodrome controller, stated that they had been aware of the A319. They reported that it had not been picked up by their TAS nor did they physically see it until they were on base leg, due to cloud. They reported that it was at this point they elected to make a left-hand orbit to maintain separation.

In Class D airspace there is no requirement to separate IFR and VFR aircraft. Controllers are to pass Traffic Information and traffic avoidance advice if requested.[1] However, when providing an Aerodrome Control Service:

> *'Aerodrome Control 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:*
> *(1) Preventing collisions between:*
> *(a) aircraft flying in, and in the vicinity of, the ATZ;*
> *(b) aircraft taking-off and landing"[2].*

The Aerodrome controller could have taken more positive steps to ensure that the SR22 pilot did not conflict with the A319 on the ILS. He was late in recognising that the potential for confliction was increasing.

The Aerodrome controller issued a heading and climb instruction to the A319 whilst the pilot was responding to a TCAS RA contrary to CAP493 which states:

> *'When a pilot reports a TCAS RA, controllers shall not attempt to modify the aircraft's flight path or reiterate previously issued instructions, until the pilot reports "Clear of Conflict". (SERA.11014(c))'.*

[1] CAP493 Section 1. Chapter 2: Flight Rules – Page 2
[2] CAP493 Section 2: Chapter 1: Aerodrome Control - Page 1

Other than the use of existing VRPs, the unit has not published specific guidance to controllers for the routing of VFR aircraft to and from the airfield. Since the incident, following consultation with their CAA Inspector (Ops), the unit has issued a Temporary Operational Instruction, advising controllers that aircraft joining VFR should be instructed to position for a downwind join rather than direct to base leg. There then remains the option for the Aerodrome controller to revise the clearance to a base leg join, at a later stage, following assessment of the traffic situation.

Reporting action by the ATC unit was considered to have fallen short of the requirements of EU376/2014 and the guidance in CAP382. No report was submitted by the unit as a result of the TCAS RA reported by the A319 pilot, nor after having been informed of the Airprox by the A319 operator in writing, three days later.

UKAB Secretariat

The A319 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. The Aerodrome controller was responsible for issuing information and instructions to aircraft under his control to achieve a safe, orderly and expeditious flow of air traffic.

Summary

An Airprox was reported when an A319 and an SR22 flew into proximity at 1728hrs on Sunday 17th September 2017. The A319 pilot was operating under IFR in VMC, the SR22 pilot was operating under VFR in VMC. Both pilots were in receipt of an Aerodrome Control Service from Leeds/Bradford within the Class D airspace of the Leeds/Bradford CTR.

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 first considered the actions of the SR22 pilot. Members noted that he had been cleared to enter the CTR via Eccup Reservoir by the Radar controller, to join right base for RW23, and to report the airport in sight. He was subsequently informed that there was traffic on the ILS and, after reporting visual with the airport, he was transferred to the Tower frequency. On initial contact on the Tower frequency, the SR22 pilot was then instructed to report right-base for RW32. He was not issued with any further Traffic Information about the A319. About two minutes after the SR22 pilot's initial call, he reported carrying out a left-hand orbit for separation, having become visual with the A319 as it broke cloud. At this point, the two aircraft were 2.2nm apart with the SR22 being 300ft below the A319. The Board discussed whether a left turn was the most appropriate direction, or whether a right-hand orbit in the circuit direction would have been more appropriate. Members were unanimous that, in the circumstances that he found himself in, a right-hand turn would probably have taken the aircraft through the approach path and even closer to the A319. On the issue of whether the SR22 pilot should have reported right-base by then, a civil controller member commented that the actual position of base leg as a range from the approach path was not defined. From experience of other Airprox, it was apparent that this distance varied depending on whether it was a light-aircraft involved or an airliner; as such, it was possible that the SR22 pilot had considered that he had not yet joined right-base at the time. Notwithstanding, some members opined that, had the SR22 pilot reported on base leg, the controller would probably have used this cue to take action to control the situation. They also wondered why the SR22 pilot had continued towards the approach path knowing that there was an aircraft ahead of him which he was unable to see because it was in cloud. In this respect, the Board were surprised that the SR22 pilot had not received a TAS alert warning him about the A319 before becoming visual with it.

Turning to the actions of the Radar and Aerodrome controllers, the Board considered that they had not agreed a specific plan between themselves to integrate the SR22 with the A319, and that this was a contributory factor to the Airprox. On initial discussion about the SR22, when the Radar controller had asked the Aerodrome controller how he would like the SR22, the latter controller reported that he had

been reluctant to state a plan and the Radar controller had then deselected the telephone. After a further request, the Aerodrome controller had agreed for the SR22 to be routed to right base. It would have been apparent then that the SR22 would have to be held off to allow the A319 to proceed ahead but no mention was made about the SR22 orbiting on base leg and the Radar controller did not pass any further Traffic Information to the SR22 pilot before transferring him to the Tower frequency. When the SR22 pilot contacted the Aerodrome controller, he was asked to report right base, but again Traffic Information was not issued to the pilot about the position of the A319. Civil controller members commented that, not only should Traffic Information have been passed but, additionally, the SR22 pilot should have been advised of the vortex spacing behind the A319. The Board considered that a contributory factor to the Airprox was therefore that ATC did not pass sufficient Traffic Information on the A319 to the SR22 pilot. The Board noted that the Aerodrome controller had been surprised that the SR22 pilot had not orbited before proceeding closer to the final approach because he believed, erroneously, that he had instructed the pilot to orbit on right base. When the SR22 pilot autonomously reported that he was carrying out a left-hand orbit, the controller, having both aircraft in sight, requested that he should make his turn more 'pronounced'; the Board could not conclude whether this request had materially increased the separation between the two aircraft.

The Board noted that, meanwhile, the A319 pilot had received a TCAS RA to climb because of the relative position of the SR22 and had appropriately broken off his approach. Members then discussed whether pilots of light-aircraft were generally aware that routing close to TCAS-equipped aircraft on approach would likely cause a TCAS RA in the other aircraft, resulting in the pilot having to make a missed approach.

The Board then discussed the cause and risk. It was quickly agreed that the cause was that the Leeds/Bradford controllers did not integrate the SR22 with the A319. Turning to risk, although CPA was less than ideal (0.6nm horizontally and 100ft vertically) the SR22 pilot was turning away from the A319 at that point. Therefore, although agreeing that safety margins had been reduced, it was concluded that there had been no risk of a collision. Consequently, the Board assessed the risk as Category C.

The Board was heartened to learn that the ATSU involved has produced a Temporary Operational Instruction (TOI) advising controllers that aircraft joining VFR should be instructed to position for a downwind join rather than direct to base leg. This would allow the controllers to judge when it would be appropriate for the pilot to turn onto base leg. A Civil Controller member with experience of Leeds ATC confirmed that this was an appropriate procedure and would prevent such an Airprox occurring again. It was hoped that this TOI would subsequently be included in the Leeds/Bradford MATS Part 2.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Leeds/Bradford ATC did not integrate the SR22 with the A319.

Contributory Factors:

1. The Leeds/Bradford controllers did not agree a plan for the SR22 to join.

2. ATC did not pass sufficient Traffic Information on the A319 to the SR22 pilot.

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:

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

ANSP:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the Aerodrome controller did not comply with the requirements for providing an Aerodrome Control Service as stated in CAP 493, which resulted in the SR22 not being able to integrate into the circuit.

Situational Awareness and Action were assessed as **partially effective** because the Aerodrome controller only recognised the situation late, thus delaying any action to resolve it.

Flight Crew:

Tactical Planning was assessed as **partially effective** because the SR22 pilot's left turn took him close to the approach path centreline.

Situational Awareness and Action were assessed as **partially effective** because timely and appropriate Traffic Information was not issued to either pilot.