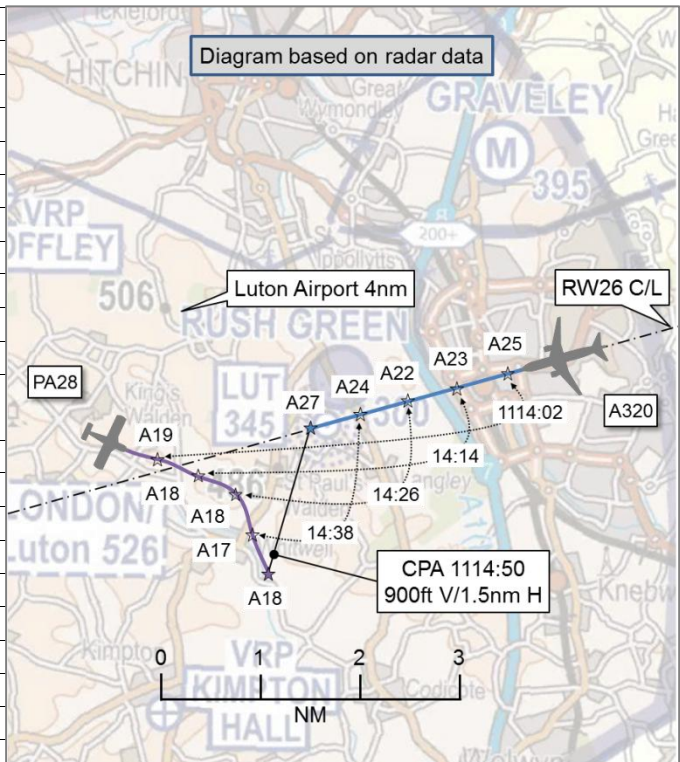


AIRPROX REPORT No 2016105

Date: 18 Jun 2016 Time: 1115Z Position: 5152N 00016W Location: 5nm ENE Luton airport

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	A320	PA28
Operator	CAT	Civ Pte
Airspace	CTR	CTR
Class	D	D
Rules	IFR	VFR
Service	Radar Control	Radar Control
Provider	Swanwick Luton	Swanwick Luton
Altitude/FL	2700ft	1800ft
Transponder	A,C,S	A,C,S
Reported		
Colours	Company	White/blue stripes
Lighting	NK	Strobes, nav
Conditions	IMC	VMC
Visibility	10km	10km
Altitude/FL	2000ft	2000ft </td
Altimeter	QNH (1019hPa)	QNH
Heading	256°	110°
Speed	140kt	130kt
ACAS/TAS	TCAS II	Not fitted
Alert	None	N/A
Separation		
Reported	400ft V/2nm H	Not seen
Recorded	900ft V/1.5nm H	



THE AIRBUS A320 PILOT reports that he was on final approach to RW26 at Luton established on the ILS. A light aircraft was 2nm ahead, 400ft below and he was aware that its pilot was talking to the Approach controller, who was trying to vector him out of the way; he had apparently turned the wrong way he thought. Due to its proximity and the fact that they seemed to be getting closer, the decision was taken to carry out a missed approach. They could not see the traffic due to the fact that they were in cloud and it was below them. No TCAS TA or RA was received. The reported separation was based on TCAS information.

He assessed the risk of collision as 'Medium'.

THE PIPER PA28 PILOT reports that he had requested a zone transit of the Luton Class D CTR. He was cleared to enter controlled airspace and was then instructed to orbit. He was then instructed that if he was visual with the aircraft on final [not the subject A320] to position behind it and continue enroute. He was then asked to expedite because there was further traffic on final [the subject A320]. He complied with the request. After maintaining a track to North Weald the controller stated that he was too far east and was instructed to take up a southerly heading. He carried this out straight away. 30secs later the A320 pilot announced going around because the crew were not visual with his aircraft. The in-flight visibility was good and cloud cover was at approximately 2500ft, he was maintaining 2000ft.

THE TC LUTON INTERMEDIATE RADAR CONTROLLER reports that about 1110 the crew of the A320 reported going around from their approach to RW26, at approximately 5nm. Approximately 2nm ahead of them was a PA28 under VFR, in receipt of a Radar Control Service, flying south-east not above 2000ft. Traffic Information had been passed to both sets of aircrew. Before the go-around, he had started to get slightly concerned about the clearance for the PA28 pilot to continue ahead of

the A320, so he had instructed him to "expedite" through the approach path. Shortly after this, the PA28 appeared to turn left slightly towards the A320. It was at this point that he intervened further by instructing the pilot of the PA28 to "turn right and track south immediately". The A320 pilot then informed him of the go-around.

Factual Background

The weather at Luton was recorded as follows:

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EGGW 181050Z AUTO 34009KT 290V010 9999 BKN012 OVC043 14/11 Q1019=
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Analysis and Investigation

CAA ATSI

ATSI had access to reports from the controller involved, the pilots of both the A320 and the PA28, the area radar recordings and RTF of the unit position frequency and the unit investigation report. An interview with the controller was also conducted. Screenshots produced in the report are provided using the area radar recordings. Levels indicated are altitudes. All times UTC.

The A320 pilot was on an IFR flight to Luton, receiving a Radar Control Service from Luton Radar. The PA28 pilot was on a VFR flight to North Weald, receiving a Radar Control Service from Luton Radar on the same frequency.

At 1058:00, the PA28 pilot called Luton Radar, 25nm north-west of Luton, requesting a Basic Service and approval for a direct track to North Weald through the (Luton) overhead. The controller issued a transponder code and subsequently identified the aircraft and agreed to provide a Basic Service.

At 1101:06, the controller issued the PA28 pilot with a VFR clearance to enter the Luton Control Zone not above 2000ft and added a clearance limit of no further south than 1nm north of Luton airport. The pilot of the PA28 read the clearance back, although changed the clearance limit by referencing the threshold rather than the airport, which was not corrected by the controller.

The controller spent the next 5 minutes handling a sequence of 5 IFR aircraft inbound to Luton, and two other VFR aircraft, including another zone transit from east to west, during which, at 1104:34, the PA28 pilot reported visual with the airport.

At 1106:55, the A320 pilot reported on frequency and was given an estimated track mileage.

At 1108:55, the controller advised the PA28 pilot that there would be a delay due to (4) inbounds, and to expect to carry out a couple of orbits. The controller advised the PA28 pilot to take up a more easterly track, by 10-15°, and expect to hold 1nm north of the airport, which was acknowledged by the pilot (Figure 1).

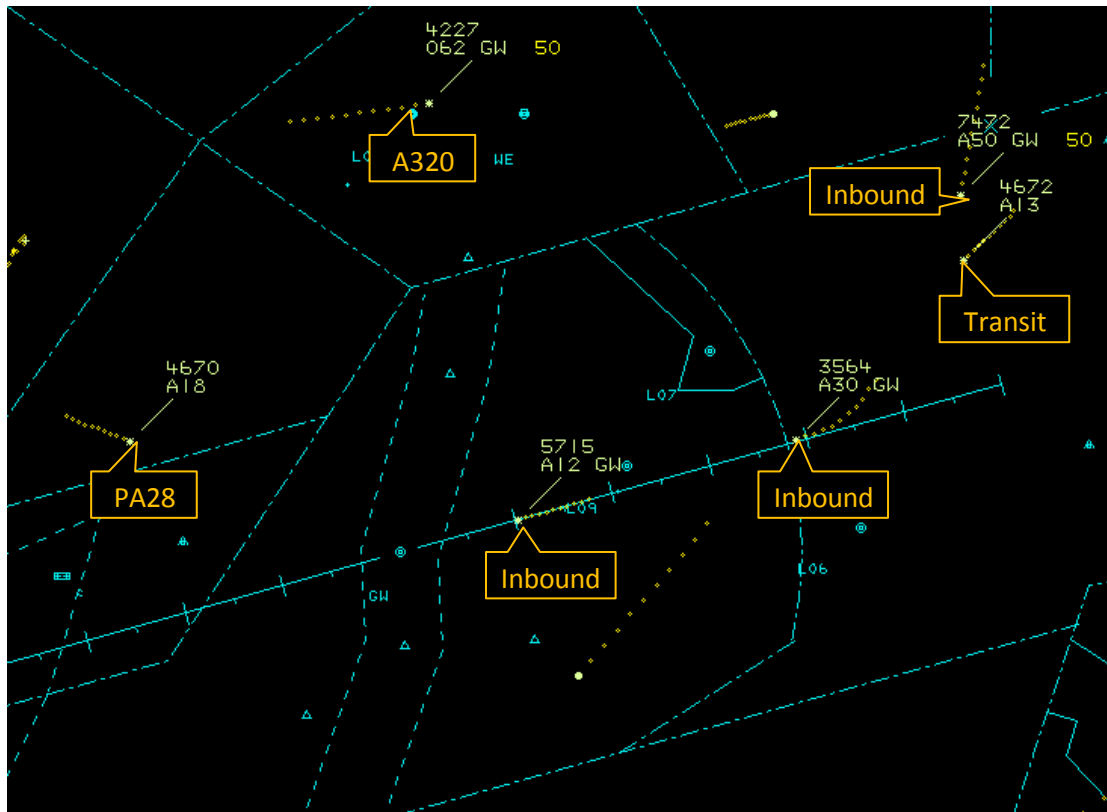


Figure 1 Swanwick MRT – 1108:35.

At 1109:20 and 1109:40, the two aircraft on final approach were both passed Traffic Information on the PA28 and, at 1110:40, the PA28 pilot was passed traffic on both these aircraft. The PA28 pilot reported being visual with the first and reported that he was looking for the second.

At 1111:20, the PA28 pilot was instructed to commence left-hand orbits (Figure 2).

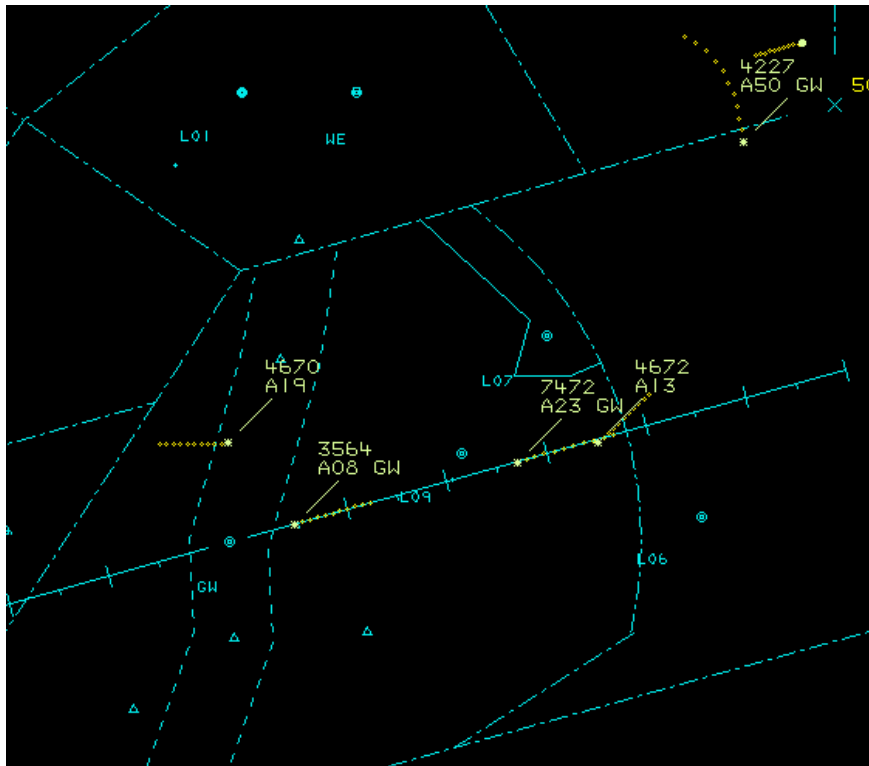


Figure 2 – Swanwick MRT – 1111:20.

At 1112:06, the controller passed updated Traffic Information to the PA28 pilot on the second of the two aircraft still on final approach and asked if he was visual, which the pilot confirmed. At 1112:21, the controller cleared the PA28 pilot to transit through the final approach, behind the second aircraft, remaining east of the airport. The pilot read this back but added that he would cross on track to North Weald which was not queried by the controller. The A320 was on a closing heading for the ILS, 11nm from touchdown (Figure 3).

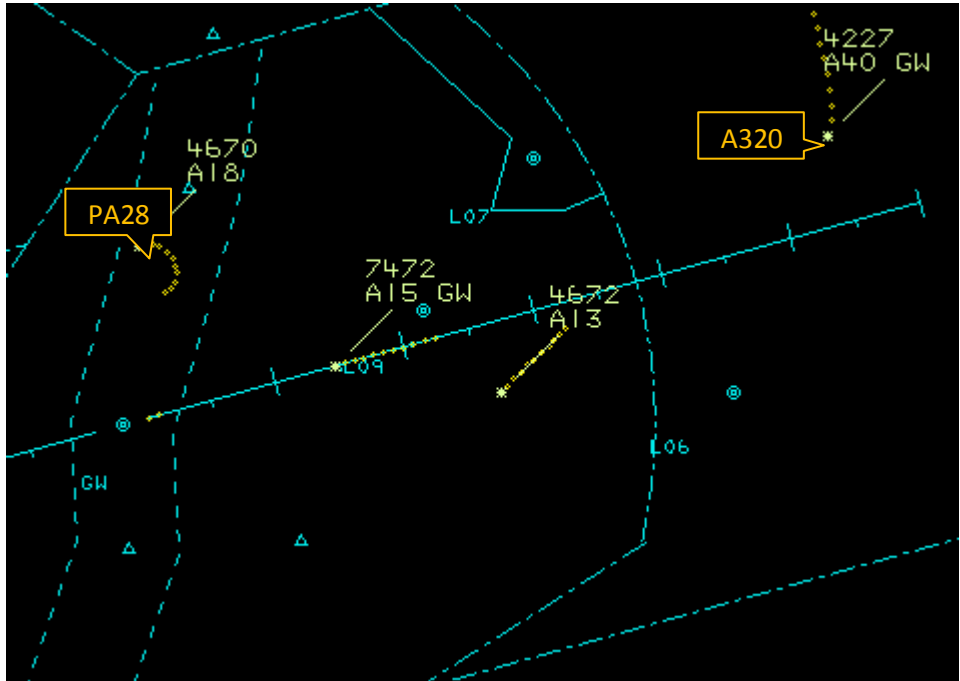


Figure 3 – Swanwick MRT – 1112:21.

At 1113:14, the controller instructed the PA28 pilot to expedite through final approach and passed Traffic Information on the A320 now at 8nm (Figure 4).

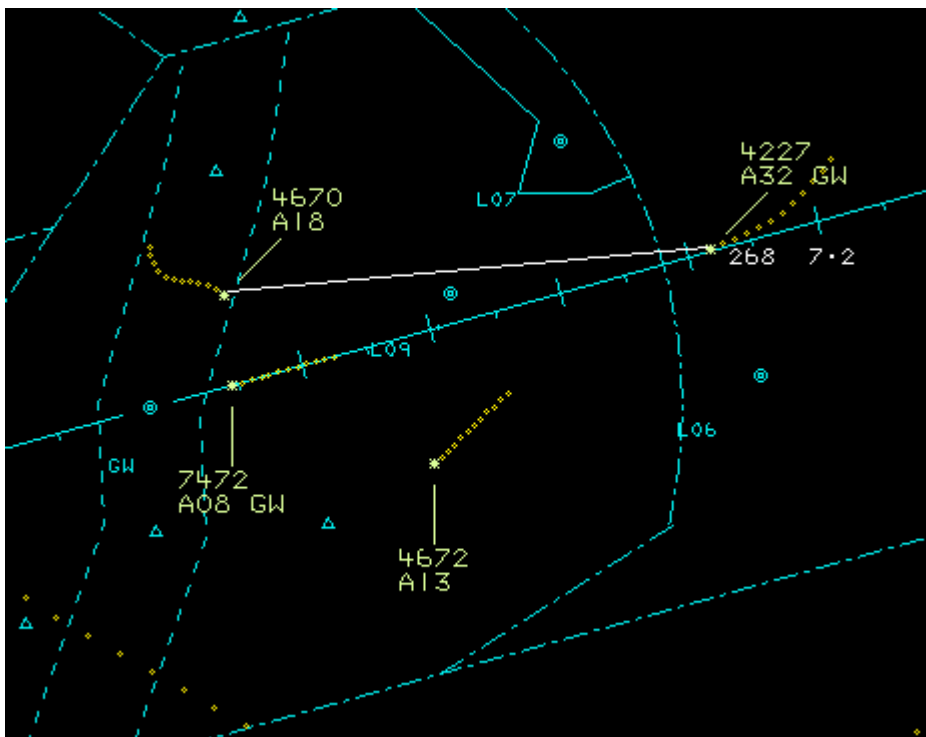


Figure 4 – Swanwick MRT – 1113:14.

At 1113:25, the controller passed Traffic Information to the A320 pilot on the PA28, advising that the PA28 was just north of a 2nm final and would be through the A320's 12 o'clock at any moment (Figure 5).

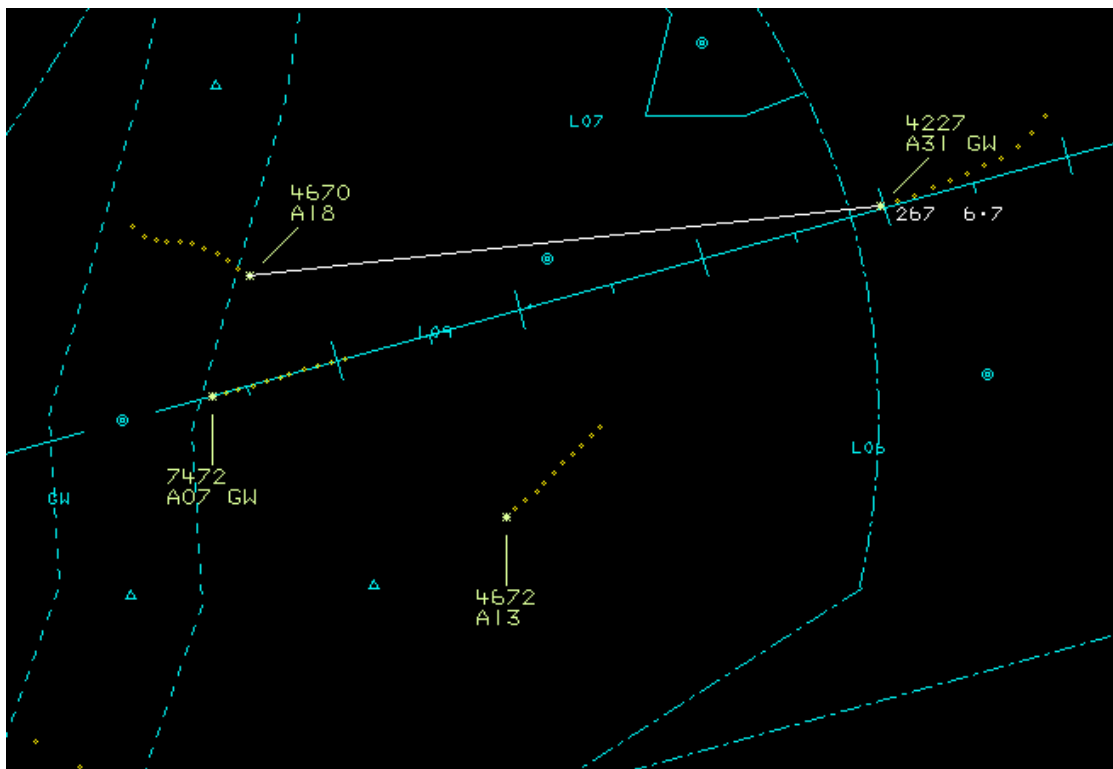


Figure 5 – Swanwick MRT – 1113:25.

At 1113:42, the A320 pilot reported fully established on a 6nm final, (the aircraft was just approaching 6.5nm).

At 1114:03, the PA28 was seen to turn slightly to the left from its original track (Figure 6).

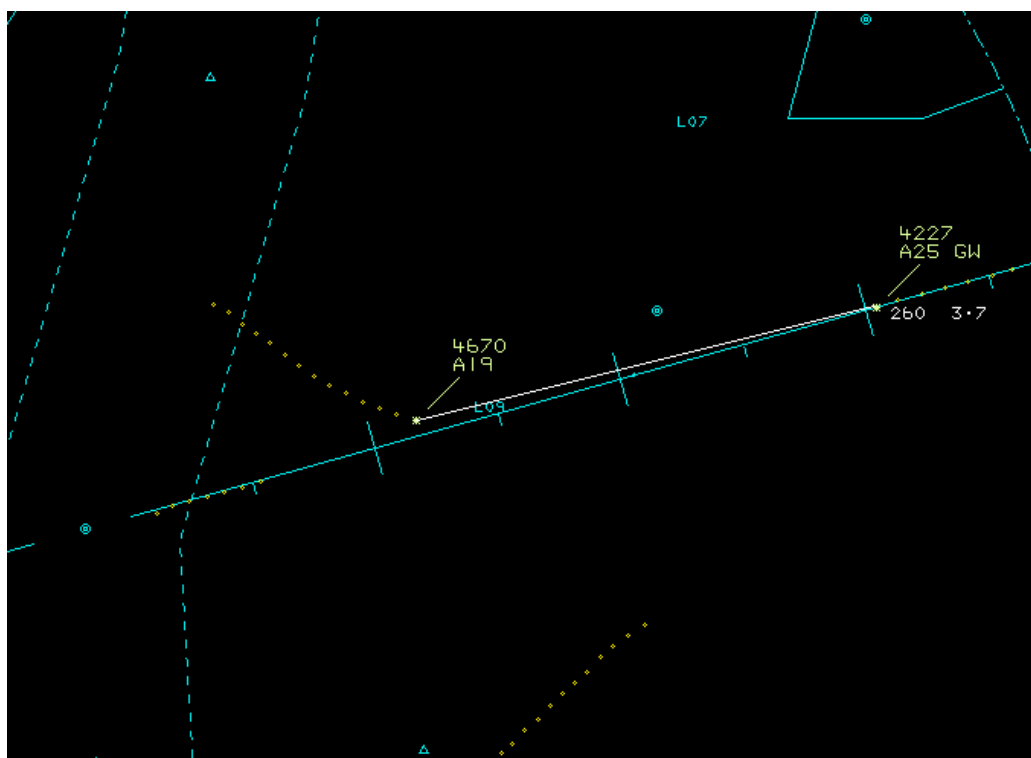


Figure 6 – Swanwick MRT – 1114:03.

At 1114:08, the controller advised the PA28 pilot that he had appeared to have made a left turn and instructed the aircraft to turn right immediately to track south, which was acknowledged.

At 1114:34 the A320's descent was seen to stop at 2100ft and was then observed to commence a climb (Figure 7).

At 1114:38 the A320 pilot advised the controller that he was commencing a go-around which was acknowledged.

At 1114:51 CPA took place with the aircraft separated by 1.5nm laterally and 900ft vertically (Figure 8).

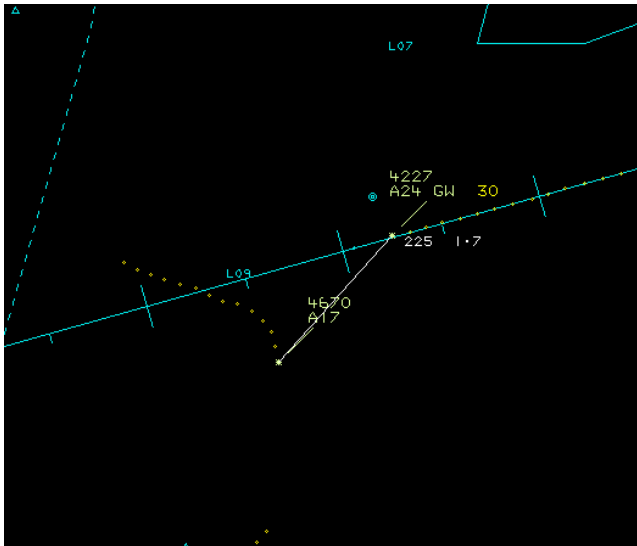


Figure 7 – Swanwick MRT – 1114:34.

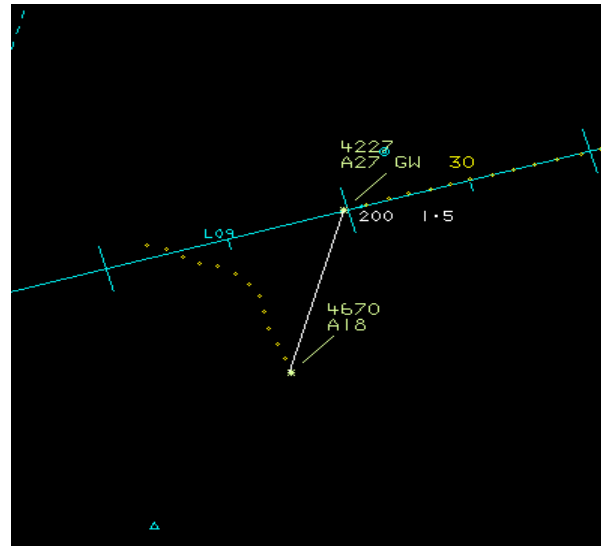


Figure 8 – Swanwick MRT – 1114:51.

At interview the controller stated that VFR transits of Luton's controlled airspace are commonplace and that normally the controllers would plan on routing the transit aircraft towards the runway threshold (executive control of which is coordinated on a case-by case basis with Luton Tower), to expedite the transit through final approach. On this occasion, the PA28 pilot was initially given a clearance which implied that this would again be the plan but the controller then elected to allow the aircraft to take-up what was, in essence, a direct track to North Weald from the point at which they had been orbiting to the north of Luton. It was the controller's judgement that the PA28 would still pass through final approach well ahead of the A320 on that track.

No Traffic Information on the A320 was passed to the PA28 pilot until the controller first became concerned that the transit of the PA28 was not as quick as first anticipated. Reciprocal Traffic Information was then passed to the A320 pilot. The controller stated that Traffic Information passed any earlier would not be the norm.

Once the PA28 had rolled-out from the orbit and onto its final track, its transit through the final approach ahead of the A320 did suggest that spacing would be tight. With the unexplained apparent deviation by the PA28 pilot to the left, spotted immediately by the controller, the distance between PA28 and A320 was eroding at a much faster rate. The controller's response was considered to be correct and effective in ensuring 'separation'.

The weather report indicated that the A320 pilot would have had difficulty acquiring visual contact with the PA28, and the report from the pilot of the PA28 indicated that he did not see the A320.

Reviewing the radar replay, the next inbound after the A320 was 3 minutes behind. When questioned about waiting for the A320 to pass before clearing the PA28 onward, the controller was adamant that he did not consider it necessary, as such a transit normally works. He did state that in future he would route a transit via the threshold.

Had the controller held the PA28 to allow the A320 to pass ahead, then there would have been sufficient time for the transit through final approach before the next inbound.

Assessment of radar indicated that the PA28 would always remain clear of the A320 even after the slight track deviation. According to the verbal and written report from the A320 pilot, the A320 received neither a TCAS TA nor RA on the PA28. However, there was sufficient concern about the proximity of the PA28 by the pilot of the A320 for him to initiate a go-around.

The Manual of Air Traffic Services, CAP493, states:

“The minimum services provided to VFR flights in Class D airspace are specified at Section 1, Chapter 2, paragraph 2. Separation standards are not prescribed for application by ATC between VFR flights or between VFR and IFR flights in Class D airspace. However, ATC has a responsibility to prevent collisions between known flights and to maintain a safe, orderly and expeditious flow of traffic. This objective is met by passing sufficient traffic information and instructions to assist pilots to ‘see and avoid’ each other as specified at Section 3, Chapter 1, paragraph 2A.2. There is no requirement to separate VFR and IFR aircraft in Class D controlled airspace”¹

UKAB Secretariat

The A320 and PA28 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard². An aircraft in flight, or operating on the ground or water, shall give way to aircraft landing or in the final stages of an approach to land³. Separation standards are not prescribed for application by ATC between VFR flights or between VFR and IFR flights in Class D airspace. Notwithstanding, ATC has a responsibility to prevent collisions between known flights and to maintain a safe, orderly and expeditious flow of traffic.

Summary

An Airprox was reported when an A320 and a PA28 flew into proximity at 1115 on Saturday 18th June 2016. The A320 pilot was operating under IFR in IMC and the PA28 pilot under VFR in VMC. Both pilots were operating in Class D airspace in receipt of a Radar Control Service from TC Luton. The PA28 pilot had been cleared to cross the approach to RW26 ahead of the A320. The A320 pilot was concerned by the proximity of the PA28 and carried out a go-around

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.

In analysing the incident, the Board felt it important to understand exactly what the PA28 pilot had been asked to do, and what his and the controller’s expectations had been as he crossed the A320’s approach path. Members first noted that the PA28 pilot had planned his VFR route to overfly Luton airport enroute to his destination of North Weald airfield. Accordingly he had contacted Luton Radar to request a Basic Service and approval for a direct track to North Weald through the Luton overhead. Having been accepted for a Basic Service, the PA28 pilot was issued with a VFR clearance to enter the Luton CTR not above 2000ft, with a clearance limit of 1nm north of the airport. Subsequently he was informed that, because there were a number of inbound aircraft, he could expect to carry out a couple of orbits and the controller advised him to take up a more easterly track to expect to hold 1nm north of the airport. During his orbit the PA28 pilot was asked if he could see the second aircraft on approach and, confirming he was visual, the controller cleared the PA28 pilot to transit through the

¹ CAP493 Section1: Chapter 5: Integration of VFR Flights with IFR Traffic in Class D CTR/CTA/TMA - p1 para 3.1

² SERA.3205 Proximity.

³ SERA 3210 Right of Way, Paragraph 4, Landing.

final approach behind the second aircraft, remaining east of the airport. The pilot read this back but added he would cross on track to North Weald.

The Board concluded that the PA28 pilot had properly requested his desired routing direct to North Weald on his initial call and that the controller had not queried or modified this. The Board considered therefore that the PA28 pilot, not having been informed otherwise, now understandably believed that he had a clearance to proceed direct to North Weald behind the landing aircraft, and had been asked to route to the east of the airfield, on this track, rather than through the overhead or at 90° to the approach path. However, the controller, presumably not registering the pilot's read-back of direct track to North Weald, believed he would cross on a southerly heading through the approach track before setting course, which is the custom with crossing traffic.

The Board then went on to discuss the meaning of the controller's 'expedite through final approach' call to the PA28 pilot. Pilot members interpreted this as an instruction simply to speed up, which the PA28 pilot had done. Controller members interpreted this as an instruction to turn onto a 90° crossing track across the approach path. This disparity in interpretation highlighted the need for further clarification within the call itself in order to avoid miscommunication of intentions. As far as the PA28 pilot was concerned, the last communication on track with the controller had been 'direct track North Weald', and pilot members opined that he would have been wary of changing heading in Class D airspace without positive instructions to do so from ATC. If the controller had stated 'turn onto south and expedite through final approach' then his intentions would have been unambiguous. On subsequently realising that the PA28 pilot was not tracking through the final approach path on a southerly track, the controller instructed him to turn right immediately to track south. The Board noted that the pilot complied with the instruction but by this time he had already crossed through the approach path.

The Board then turned its attention to the actions of the A320 pilot. He had been issued with Traffic Information about the PA28 when he was on final approach at 6.7nm, just after the PA28 had been told to expedite, and was informed that the aircraft was just north of a 2nm final and would be through his 12 o'clock at any moment. Shortly after beginning descent on the ILS the A320 pilot heard the controller instruct the PA28 pilot to turn immediately but at the time the A320 was in cloud and could see the PA28 ahead on his TCAS. Being concerned about the presence of the PA28, which he was not able to see visually and which appeared to him to be lost, he carried out a go-around. The Board could not fully understand why he had carried out this action but cautioned about the dangers of acting on TCAS information other than TCAS RAs. That being said, even though ICAO procedures cautioned against acting on TCAS TAs etc due to azimuth accuracy issues in the TCAS system,⁴ guidance was clear that "Nothing in the procedures specified ... shall prevent pilots-in-command from exercising their best judgement and full authority in the choice of the best course of action to resolve a traffic conflict or avert a potential collision.

The Board then looked at the barriers that were relevant to this Airprox and decided that the following were key factors:

- **ATS Operational Planning Management and Planning** refers to ATC's ability to plan ahead for activities. It was considered **not available** because ATC cannot plan ahead for no-notice airspace crossings.
- **ATS Operational Threat Awareness and Management** had been only **partially effective** because the Luton controller had not positively controlled the PA28 by giving unambiguous instructions on how he was to expedite his crossing of the approach path.
- **See and Avoid** was **not available** because the A320 was IMC and so neither pilot was able to see each other. This was a concern given that, in Class D airspace, VFR traffic was still required to visually avoid IFR traffic, which the PA28 pilot could not do if he was not visual with the A320.

⁴ ICAO Doc 8168 PANS-OPS Chapter 3.

In looking at the cause and risk of the incident, the Board agreed that it had been the A320 pilot's concern and uncertainty about the presence of the PA28 that had been the root cause of the Airprox being reported. Notwithstanding, the Board noted the actions of the controller and the effect they had had on the Airprox and agreed that if he had taken positive action by passing a clearance to ensure that the PA28 pilot crossed the approach path at right angles, then the Airprox would not have occurred. Accordingly the Board considered that a contributory factor was that the controller did not positively control the PA28. In discussing the risk, the Board considered that there had in fact been no risk of a collision because the PA28 had flown through the approach lane before the A320 pilot had conducted his go-around - the action taken by the A320 pilot had further ensured that the vertical separation at the CPA was 900ft. Accordingly, although go-arounds were not a regular occurrence, they were a recognised method of operation and, as a result, the Board judged that normal safety standards and procedures had pertained so the Airprox was assessed as risk Category E.

PART C: ASSESSMENT OF CAUSE AND RISK

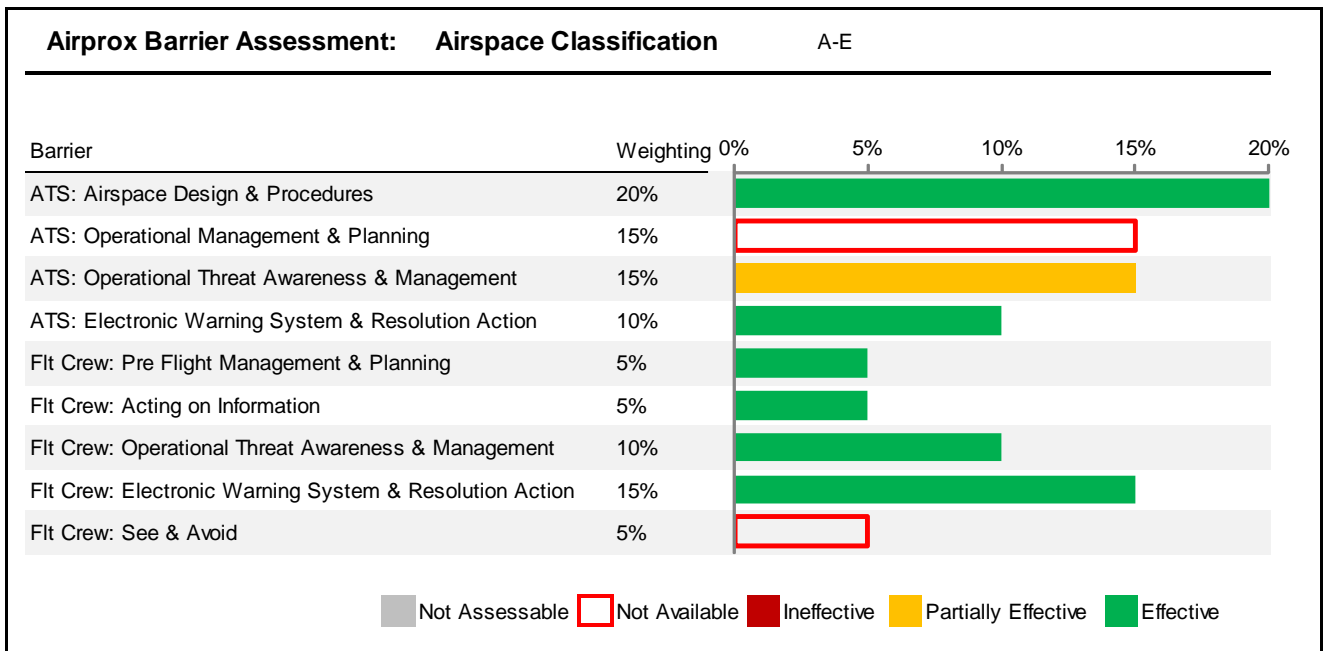
Cause: The A320 pilot was concerned by the proximity of the PA28.

Contributory Factor: The Luton Radar controller did not positively control the PA28.

Degree of Risk: E.

Barrier Assessment:

Modern safety management processes employ the concept of safety barriers that prevent contributory factors or human errors from developing into accidents. Based on work by EASA, CAA, MAA and UKAB, the following table depicts the barriers associated with preventing mid-air-collisions. The length of each bar represents the barrier's weighting or importance (out of a total of 100%) for the type of airspace in which the Airprox occurred (i.e. Controlled Airspace or Uncontrolled Airspace).⁵ The colour of each bar represents the Board's assessment of the effectiveness of the associated barrier in this incident (either Fully Effective, Partially Effective, Ineffective, Not Available, or Not Assessable). The chart thus illustrates which barriers were effective and how important they were in contributing to collision avoidance in this incident.



⁵ Barrier weighting is subjective and is based on the judgement of a subject matter expert panel of aviators and air traffic controllers who conducted a workshop for the UKAB and CAA on barrier weighting in each designation of airspace.