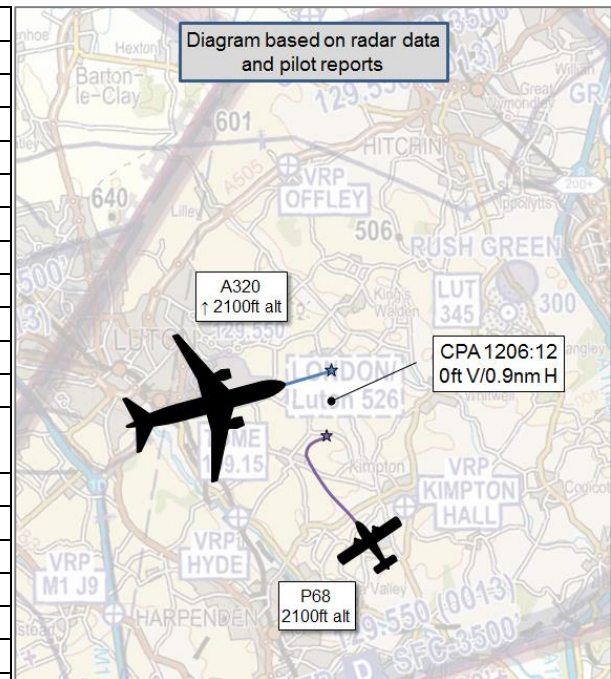


AIRPROX REPORT No 2019034

Date: 25 Feb 2019 Time: 1206Z Position: 5152N 00019W Location: Luton CTR

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	A320	P68
Operator	CAT	Civ Comm
Airspace	Luton CTR	Luton CTR
Class	D	D
Rules	IFR	VFR
Service	ACS	ACS
Provider	Luton Tower	Luton Tower
Altitude/FL	2000ft	2100ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Company	Not reported
Lighting	Beacon, Strobe, Nav	Not reported
Conditions	VMC	VMC
Visibility	Not reported	Not reported
Altitude/FL	2000ft	2400ft
Altimeter	QNH	NK
Heading	080°	NK
Speed	150kt	120kt
ACAS/TAS	TCAS II	Unknown
Alert	None	Unknown
Separation		
Reported	0ft V/<1nm H	Not reported
Recorded	0ft V/0.9nm H	



THE A320 PILOT reports that a light-aircraft working Luton tower was instructed to remain clear of the [airfield] boundary. The A320's take-off clearance was received. He was passing 2000ft with the light-aircraft on TCAS and visually observed in a tight turn, the proximity was estimated at less than 1nm and the same level, closing against the A320 aircraft on departure. The separation looked too close for comfort hence the report. He enquired with the tower controller as to the range of the aircraft as he passed, the only information they received was "survey aircraft". He assessed the light-aircraft's tight turn would take it behind the A320, which was in a good rate of climb away from the light-aircraft's level and therefore did not take any avoiding action.

He assessed the risk of collision as 'Medium'.

THE P68 PILOT reports that he was flying a survey in Luton airspace, south/north lines across the active runway. He was under Radar Control and, whilst tracking south-north towards the runway for a survey line, they were aware of the departing traffic on the runway. They had previously been cleared to cross the centre of the runway with departing traffic, but as there had just been a controller handover they decided to make sure they were cleared on this line. They asked for clarification and the controller told them to remain south of the runway. They immediately turned right to remain south of the runway and the departing aircraft took off as cleared, on their left-hand side (to the north). The departing aircraft turned right (southwards) ahead of them and asked the controller if he was aware of the small twin-aircraft very close to his right-hand side. The controller replied that it was the 'VFR survey traffic' and cleared the P68 pilot to continue with the survey. They were always visual with the departing aircraft.

THE LUTON CONTROLLER reports that the P68 was carrying out a survey flight on a line running northwest of the airfield to the southeast through the RW08 threshold not above altitude 2400 feet VFR. The A320 was cleared by the trainee for take-off on RW08 on an Olney departure, at this point the VFR traffic was to the south east by approximately 5nm, tracking southeast. When the A320 was on the take-off roll passing the hotel intersection, the P68 pilot said he wished now to commence their northbound run. The trainee gave Traffic Information on the departure to the P68, he, the OJTI, then broadcast using the mentor box, to the A320 pilot "[A320 C/S] VFR traffic to the south east by 4 miles, not above altitude 2400 feet turning northbound, will pass behind you". No acknowledgement was heard, at this point the A320 was rotating, and the VFR traffic then said it would like to cross via the 26 end of the runway. He advised there would be further departures and to remain to the south of the airfield. As there was further traffic to depart he advised the P68 pilot to return to Hyde to hold. When the A320 was transferred to London control, they queried the position of the traffic on their departure. He said that was the VFR traffic carrying out the survey. Because they questioned it, he asked for the replay to be reviewed. he was concerned because the UTM had issued caution to the OJTIs regarding the use of the mentor override as they had instances of mentor override switches not working the previous days. He had tested the mentor override prior to every session on plugging in.

Factual Background

The weather at Luton was recorded as follows:

EGGW 251150Z AUTO 11004KT 090V150 9999 NCD 15/01 Q1037

Analysis and Investigation

NATS Investigation

The P68 was operating VFR within the Luton CTR carrying out survey runs on multiple tracks that crossed the runway. As the A320 departed, the P68 began a track that took it into close proximity with the A320. The AIR [Tower] controller was a trainee who passed traffic on the departure but did not specifically approve the run or set a clearance limit. Traffic information was passed by the OJTI regards the P68 but the information did not transmit. Positive action was taken by the OJTI when it became apparent that the two aircraft would come close, but the instruction was misinterpreted and the P68 turned closer to the A320.

The P68 (4672 squawk) was a survey aircraft making runs within the Luton CTR on a NW-SE track crossing RW08. At the start of the description, AIR is being controlled by a different ATCO operating solo. The P68 is facing NW at Kimpton Hall preparing to carry out its next (NW) run. A departure is lined up on the runway waiting for radar separation on a previous departure.

An OJTI and Trainee took over on AIR with the handover from the outgoing controller indicating the P68 had been crossing the runway usually at the RW08 threshold, but occasionally further east. At the time of the handover the P68 was tracking SE toward the RW08 Threshold (Figure 1). During the handover the OJTI had asked questions using the override button on the Mentor box. The OJTI indicated that, due to this, he had kept the Mentor box in his hand after the handover was completed which is not usually how he operates. Use of either the headset transmit switch or the Mentor Box transmit switch is not mandated and is left to the OJTI's discretion. In this instance the effect was for the OJTI to be operating in an unfamiliar way.



Figure 1:1200:20

As the A320 lined up, the P68 was south of the airfield and tracking away. When the A320 was cleared for take-off the P68 was 4nm SSE, tracking away from the airfield (Figure 2).



Figure 2: 1204:40

As the A320 pilot began the take-off roll, the P68 transmitted that they were ready to commence the next pass and began the turn back towards the airfield. The previous controller had been giving specific clearance for each run, specifying whether the aircraft would pass at the RW08 threshold or not and passing traffic. Traffic is given by the trainee to the P68 pilot on the departing A320, including the phrase 'track to the south' which was ambiguous, but meant as part of the Traffic Information to the P68 pilot (Figure 3) [UKAB Note: From the interview with the controller, 'track to the south' was intended to be the direction the departure would take on the SID. The student had become confused due to the southerly orientation of the ATM and had meant to say that the departing aircraft would

track north]. There was no clearance to hold, carry out the run or a clearance limit given. The lack of clearance was not questioned by the P68 pilot or the OJTI. The OJTI had assumed the P68 pilot would track to cross at the RW08 threshold and if the P68 had followed this track would not have come into close proximity to the departure.

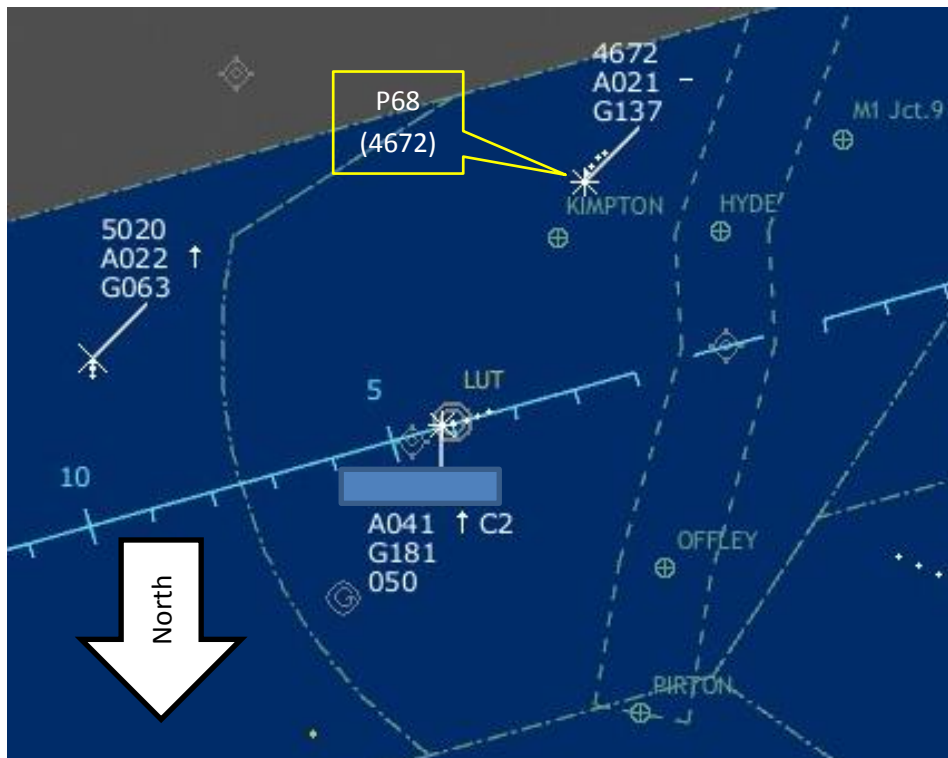


Figure 3: 1205:07

The P68 begins tracking toward the airfield. The OJTI attempted to pass traffic to the A320 pilot via the button on the Mentor Box, but this is not on the RT replay, and it would seem did not get transmitted to the A320 pilot. Engineering investigated the Mentor Box and there were no problems found with the transmit switch on the box. It is possible (and the most likely action) the OJTI pressed the telephone override on the Mentor Box by mistake. Neither controller nor trainee picked up this seems to have happened.

The P68 pilot informs AIR that the run will be via the RW26 threshold, behind the traffic. At this point the OJTI decided this would be a conflict and issued the instruction to hold at the southern Airfield boundary, but this is readback by the P68 pilot to remain south of the runway and not picked up by the AIR controller (Figure 4). The instruction given is also not sufficiently positive to ensure the P68 is deconflicted from the outbound - a direction of turn and instruction to hold at VRP HYDE would have been appropriate to a Fixed Wing aircraft in this location.

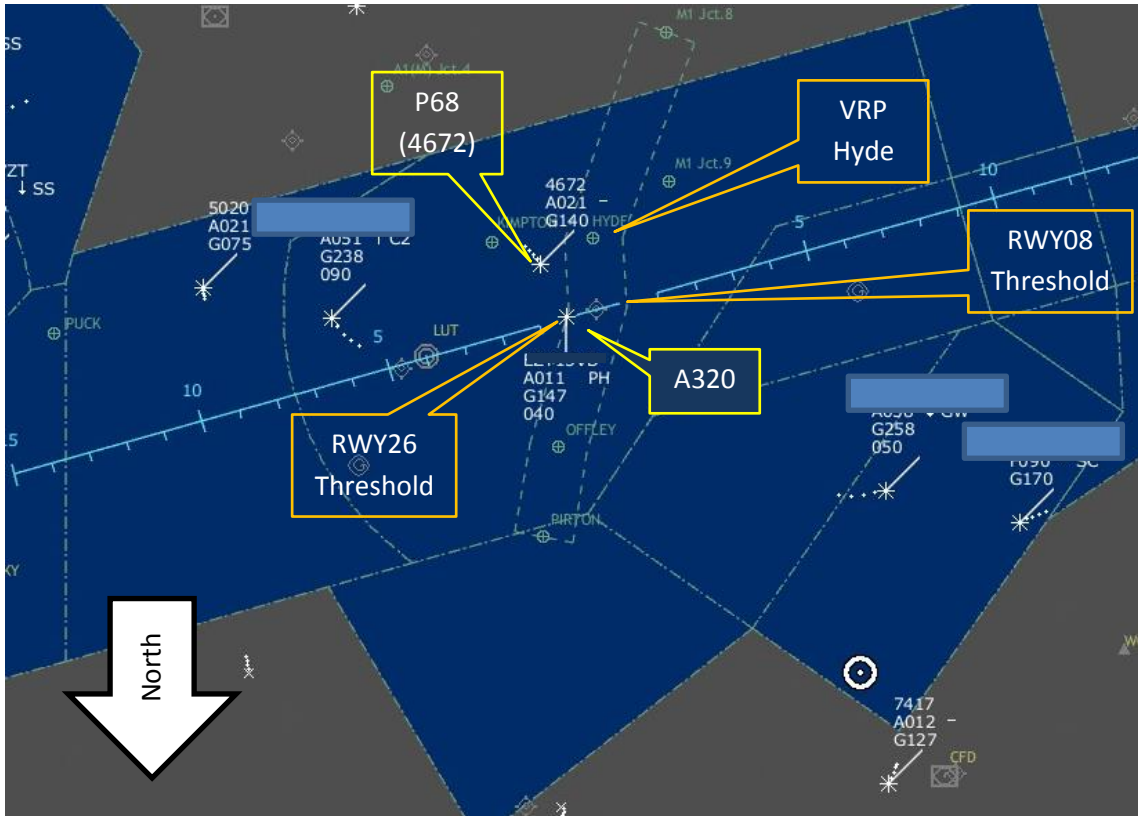


Figure 4: 1205:51

The P68 pilot began a right turn to orbit south east of the airfield, which took it closer to A320 (Figure 5). The OJTI had been expecting the turn to be to the left and therefore keep the P68 further from the departing traffic. The OJTI then amended the P68's clearance to track and hold at HYDE, which was the correct instruction, but passed too late.



Figure 5: 1206:12

The OJTI was happy he could see both aircraft and had expected the P68 to track for the RW08 threshold, hence had not been concerned when the P68 pilot said they were returning on a run. He only became concerned when the pilot reported the run would be via the RW26 threshold and decided to give the clearance limit to 'hold southern airfield boundary'. The OJTI did not pick up that the P68 pilot had read this back slightly different 'Remain south of the airfield'. The right-hand orbit had not been expected, which was when the OJTI decided he needed the P68 pilot to hold further out and directed him to hold at HYDE.

Throughout the Airprox, the pilot of the P68 was visual with the A320, and the OJTI was visual with both aircraft.

The OJTI and the Trainee have both been interviewed:

The Trainee was coming to the end of the first phase of live traffic training. The trainee ATCO remembers the A320 querying the P68 after departure, but not any Traffic Information (TI) being passed to the A320 before departure. He remembers very little of the incident.

The OJTI cleared up the confusion of what was meant by 'track to the south'- which was intended as TI, not an instruction for the P68 pilot. The OJTI had considered the TI passed to the P68 pilot to be of an okay standard, but also wanted to ensure TI was passed to the A320 pilot so took control of the frequency. When the handover had been carried out, the OJTI had asked questions which had necessitated the use of the Mentor Box telephone override button. Due to this the OJTI still had the Mentor Box in his hand and used this when overriding the RT and pass TI. Normally he would not have hold of the box (only picking it up when phone calls are required) and would use the headset transmit switch to override a trainee's transmissions. The OJTI said it was possible he had pressed the telephone override button instead of the RT override button when passing the TI.



Figure 6



Figure 7

The Mentor Override Box is pictured (Figure 6). It was identified that it would be possible to accidentally press the telephone button instead of the R/T button on the Mentor Override box, which is why it was modified with tape and OJTIs made aware of the possibility of this happening. Since the Airprox the Mentor Override Box has been modified to prevent a recurrence of the incident (Figure 7).

UKAB Secretariat

The A320 and P68 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard¹. 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 operation².

In Class D airspace a controller is only required to separate IFR flights from other IFR flights. IFR traffic will normally only be given Traffic Information on VFR traffic, with avoidance advice only being passed to IFR flights when requested (see extract from CAP493 below).

Class	Flight Rules	Aircraft Requirements	Minimum Services by ATC Unit
D	IFR and VFR	ATC clearance before entry. Comply with ATC instructions.	(a) Separate IFR flights from other IFR flights; (b) Pass traffic information to IFR flights and SVFR flights on VFR flights and give traffic avoidance advice when requested; (c) Pass traffic information to VFR flights on all other flights and provide traffic avoidance advice when requested.

CAP 493, Section 1, Chapter 2, Table 1

Summary

An Airprox was reported when an A320 and a P68 flew into proximity in the Luton CTR at 1206hrs on Monday 25th February 2019. The A320 pilot was operating under IFR in VMC and the P68 pilot under VFR in VMC, both pilots were in receipt of an Aerodrome Control Service from Luton Tower.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate 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 began by looking at the actions of the Luton controller. The P68 had been conducting his survey runs prior to the Luton ATCO involved in the Airprox taking over the position. Members noted that during the handover between controllers it had been pointed out that most of the P68's runs had been over the RW08 threshold, but some had been further to the east. Controller members opined that this probably resulted in an assumption from the taking-over controllers that the P68 would route across the RW08 threshold. The Board noted that when the P68 pilot began the survey run the trainee controller passed Traffic Information (TI) to the P68 pilot but did not pass reciprocal TI to the A320 pilot (**CF1**), this should have been included in the A320 pilot's take-off clearance to allow the A320 to make an informed decision on whether to take-off or hold on the ground until the P68 was clear. Furthermore, the TI to the P68 pilot included the phrase 'track to the south'; although the intention of this phrase was to give the direction the A320 would take on departure, it was the wrong direction (the A320 was actually routing to the north) because unfortunately the trainee had become confused with the radar orientation.

¹ SERA.3205 Proximity.

² SERA.3225 Operation on and in the Vicinity of an Aerodrome.

Members further noted that when the screen controller (OJTI) then decided to intervene and pass TI to the A320 pilot, he had probably inadvertently pressed the wrong button on the hand-held unit and therefore the TI was not transmitted. Unfortunately, the lack of readback by the A320 pilot did not act as a trigger to the OJTI that he had not heard the TI. Compounding this, when the P68 pilot then informed the controller that they would be routing towards the RW26 threshold, which was not the routing the controllers had assumed, the OJTI then instructed the P68 pilot to route to 'hold at the southern airfield boundary' but the pilot incorrectly read back the clearance as 'remain south of the airfield'. By the time the OJTI had instructed the P68 pilot to hold at the Hyde VRP, the P68 was too close to the airfield to effectively comply and increase the separation **(CF2, 3 & 4)**.

Although operation in Class D airspace only requires the controller to separate IFR flights, the controller is still required to pass TI on VFR flights to IFR flights, and TI to VFR aircraft on all other flights. The Board concluded that sufficient TI had not been passed to the IFR flight (the A320) **(CF4)**. Furthermore, controllers should pass instructions to prevent collisions and ensure a safe and orderly flow of traffic; good practise is to deconflict aircraft by allocating clearance limits and advanced planning. In this respect, controller members opined that the controller had not thought sufficiently ahead to ensure that all aircraft were aware of the situation, and that this had likely resulted from the fact that they were probably still assimilating the handover brief as the incident unfolded. As a result, although there was no risk of collision, the controllers did not pass adequate instructions to the P68 pilot, or TI to the A320 pilot early enough to guarantee that the A320 pilot was fully aware of the P68 pilot's position and intentions **(CF3 & 4)**.

The Board then turned to the actions of the P68 pilot. Members opined that, for his part, the P68 pilot had not passed early-enough information to the controllers regarding his intention to route via the RW26 threshold rather than the RW08 threshold. This late declaration of route had further compounded the controllers' problems because, if he had flown via the RW08 threshold as previously, this alone would have ensured deconfliction from the departing A320 **(CF5)**. Finally, some members wondered whether the survey could have been carried out at a less busy time for the airport, although they acknowledged that other external factors had to be taken into account with these tasks such as weather and light constraints.

Turning to the actions of the A320 pilot, members agreed that the absence of TI regarding the P68 before departure had probably resulted in the A320 pilot being startled by the sudden appearance of the P68 as he was climbing out of Luton. This and the P68 pilot's tight, right-turn probably caused him some concern due to the unknown nature of the P68's intentions **(CF6 & 7)**. The Board commented that normal interactions between IFR and VFR aircraft in Class D airspace can result in TCAS alerts when there is no collision risk due to the fact that TCAS is mechanised for IFR-IFR circumstances. For IFR-VFR interactions, although proximate or TA alerts can be mitigated by accurate and timely TI from controllers (and the monitoring of R/T to enhance individual situational awareness), RAs had to be acted upon by IFR pilots and so VFR pilots (and controllers) needed to be mindful of their propinquity to IFR flights in order to avoid unnecessary avoiding action by the IFR pilot. Notwithstanding, in this incident it was acknowledged that the A320 pilot did not receive a TCAS alert.

The Board then turned to the risk. Noting that the P68 pilot was always visual with the A320, members concluded that he would clearly not have flown into the other aircraft and so, although safety had been degraded and the A320 pilot had been concerned by the sudden appearance of the P68 in a tight-turn, there had been no risk of collision. Therefore, the Board assessed the risk as Category C.

PART C: ASSESSMENT OF CAUSE AND RISK

Contributory Factors:

2019034 - Barriers			
CF	Factor	Description	Amplification
Ground Elements			
• Regulations, Processes, Procedures and Compliance			
1	Human Factors	• ATM Regulatory Deviation	Regulations and/or procedures not complied with
• Manning and Equipment			
2	Human Factors	• Mentoring	Sub-Optimal
• Situational Awareness and Action			
3	Human Factors	• Conflict Resolution - Provided Late	
4	Human Factors	• Traffic Management Information Provision	Not provided, inaccurate, inadequate, or late
Flight Elements			
• Tactical Planning and Execution			
5	Human Factors	• Accuracy of Communication	Ineffective communication of intentions
• Situational Awareness of the Conflicting Aircraft and Action			
6	Human Factors	• Interpretation of Automation or Flight Deck Information	Pilot was concerned by the proximity of the other aircraft
• See and Avoid			
7	Human Factors	• Perception of Visual Information	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: C.

Safety Barrier Assessment³

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

Ground Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the Luton controller did not pass timely Traffic Information to the A320 pilot on the P68 prior to the A320 being cleared to take-off (partly because the OJTI inadvertently pushed the wrong button on the mentor's handset and did not transmit the relevant Traffic Information to the A320 pilot).

Manning and Equipment were assessed as **partially effective** because the OJTI did not sufficiently step in to take control of the situation when the trainee controller did not sufficiently resolve the situation.

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

Situational Awareness and Action were assessed as **partially effective** because the Luton controller did not provide sufficient instruction to the P68 pilot to ensure the P68 remained clear of the A320, and Traffic Information was not provided to the A320 pilot in a timely and effective manner.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the P68 pilot was originally cleared to carry out his survey run through the RW08 threshold. By changing his route for the RW26 threshold this was a change to his clearance and should have been approved by the Luton controller prior to the P68 pilot deviating from his original clearance.

