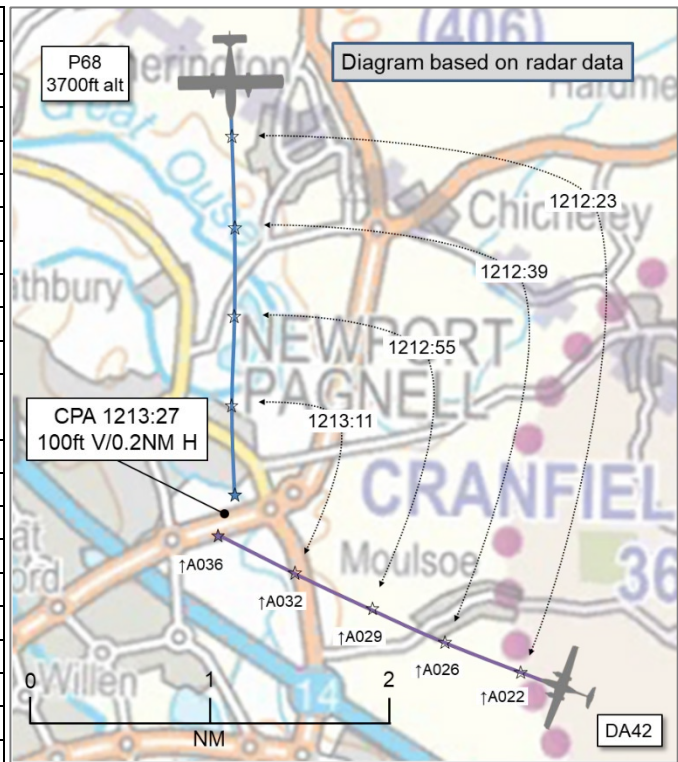


AIRPROX REPORT No 2022248

Date: 03 Oct 2022 Time: 1213Z Position: 5205N 00042W Location: 3NM W Cranfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	P68	DA42
Operator	Civ Comm	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	IFR
Service	Basic	Establishing contact
Provider	Luton App	Cranfield App
Altitude/FL	3700ft	3600ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White, Red, Blue Yellow	White, Red
Lighting	Nav, Strobe	Nav, Strobe
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	4000ft	3000-4000ft
Altimeter	QNH (1026hPa)	QNH (1026hPa)
Heading	180°	290°
Speed	120kt	100kt
ACAS/TAS	TCAS I	TAS
Alert	None	Unknown
Separation at CPA		
Reported	0ft V/100m H	NK V/1-1.5NM H
Recorded	100ft V/0.2NM H	



THE P68 PILOT reports that their transit and start of survey was carried out without incident, and they had arrived overhead the survey site getting a Traffic Service from Luton Radar and monitoring Cranfield Approach on box 2. During line 3 of [the survey], approximately 1hr 30min into the survey, a DA42 climbed across their level in front of them, crossing [they recall] right-to-left. Upon sighting the DA42, they broke off their survey line and turned hard left, to fly behind the traffic. This action eliminated any chance of a collision. The DA42 took no corrective action. The P68 pilot then asked on the Cranfield frequency if the other aircraft would be staying and working the area of Milton Keynes, and were told that they were departing the area. There were no more departures from Cranfield after this. The P68 pilot added that workload may have been a contributory factor.

The pilot assessed the risk of collision as 'Medium'.

THE DA42 PILOT reports that they were unaware an Airprox would be reported at the time, and that they became aware 4 weeks after the event when returning from annual leave. Unfortunately, due to this time period, they feel that they're unable to recall the event with a high level of accuracy or detail, however report that they had been operating under IFR on an IR training flight from Cranfield to [destination] (flight-planned), then return to Cranfield. On departure, they were cleared to route to Daventry VOR (DTY) which is a standard IFR departure point on leaving Cranfield. They couldn't recall the altitude, but are typically cleared to 4000ft altitude (occasionally step climb due traffic) prior to being handed over to London Control, often shortly after passing 3500ft. The flight would have been operated under a Procedural Service from Cranfield (non-radar) and then, on handover, a Basic Service from London until being cleared to enter controlled airspace in the climb southeast of DTY. Due to the event happening shortly after departure and them tracking inbound to DTY, they believe they still would have been with Cranfield but couldn't recall with certainty. They would have been maintaining a good lookout but didn't see the P68 early on. They do recall seeing an aircraft to the right-hand side and monitored

its movement as it tracked south and behind them remaining clear. It's possible the positive sighting may have been assisted by a TA from the TAS.

The pilot assessed the risk of collision as 'Low'.

THE LUTON APPROACH CONTROLLER reports that they had no recollection of this flight.

THE CRANFIELD APPROACH CONTROLLER reports [the P68 pilot] reported on frequency at 1216 and requested a Basic Service, which was given. At 1220, they queried an aircraft that had previously been in the vicinity, as they had had to break off a survey line. Traffic Information on a previously departing aircraft ([the DA42]) was given, which they indicated was likely to have been the subject aircraft. A phone call was received from Luton Radar requesting that their squawk be removed from [the P68], which was instructed.

THE CRANFIELD SATCO reports that a service was not actually stated in this case, although the DA42 pilot was being issued instructions in accordance with a Procedural Service. The DA42 pilot was on the approach frequency for less than 3min and was then transferred to [their next frequency] to join the airways. [The DA42 pilot] was on frequency from 1212:22 and was instructed to contact [their next frequency] at 1214:45. [The P68 pilot] was on frequency between 1216 and 1242.

The [P68 pilot] had free-called them having, they believe, been previously receiving a service from Luton radar. Their impression was that [the P68 pilot] called them having been surprised by their [DA42] traffic.

Factual Background

The weather at Cranfield was recorded as follows:

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METAR EGTC 031150Z 19006KT 120V230 9999 FEW032 16/08 Q1026  
METAR EGTC 031220Z 20008KT 140V240 9999 FEW039 17/08 Q1025
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Analysis and Investigation

NATS Safety Investigations

The pilot of [the P68] was in receipt of a Basic Service from the Luton Approach controller at the time of the reported Airprox, however no reference was made over the RT and the pilot requested a frequency change shortly afterwards.

Information available to the investigation included:

- Radar and R/T recordings.
- Airprox report from the pilot of [the P68].

The pilot of [the P68] was conducting a survey flight in the vicinity of Milton Keynes and called onto frequency with the Luton controller at 1040:07 requesting a Traffic Service. The Luton controller allocated a squawk of 4673 and told the pilot that they would "*call you back as soon as I can.*" The controller then continued with other sector tasks before going back to the pilot of [the P68] and agreeing a Basic Service due to controller workload at 1042:27.

The Luton controller changed the service provided to a Traffic Service at 1049:49 however, this was changed back to a Basic Service due to controller workload at 1130:47, which was read back by the pilot. Another unrelated aircraft in receipt of a Traffic Service also had their service changed to a Basic Service at this time, for the same reason of workload.

[The P68 pilot] had completed a number of north-south survey runs and was turning onto a southerly track when, at 1211:23, [the DA42] displayed on radar and turned onto a northwesterly track. [The DA42] was climbing whilst [the P68] remained at an altitude of 3700ft. A low-level STCA activated between [the P68] and [the DA42] at 1212:52, changing to a high-level alert at 1213:12. The closest

point of approach between [the P68] and [the DA42] occurred at 1213:27 and was measured on the Multi-track radar system as 0.2NM and 100ft (Figure 1).

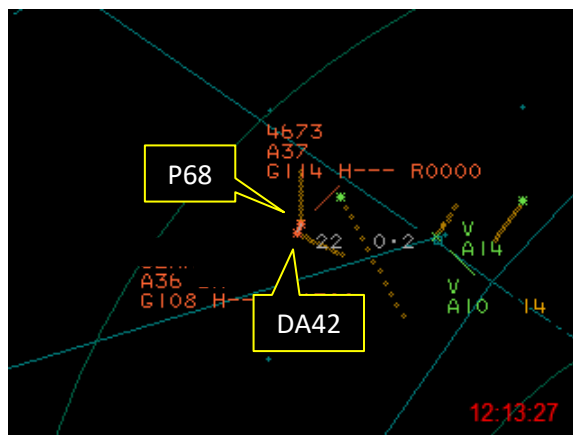


Figure 1.

The Luton controller was free-called by the pilot of an unrelated aircraft located in the southeast of the controller's airspace, requesting a transit of the Luton CTR, shortly before the activation of the STCA. The Luton controller began transmitting the clearance to cross the zone to the pilot of this aircraft at 1213:11, the readback from this pilot concluded at 1213:29 and was followed by the controller issuing instructions for two Luton inbound aircraft and instructing the crossing pilot to report visual. The last of these transmissions concluded at 1213:53. STCA had reverted to a low-level alert at 2sec before this and had ceased completely at 1214:00.

The pilot of [the P68] contacted the Luton controller at 1214:02 and reported that they were changing to Cranfield ATC however, the controller was on the telephone at the time and asked the pilot to standby. The message was subsequently repeated and the pilot of [the P68] left the frequency at 1214:37 having made no mention of an Airprox to the controller.

The pilot of [the DA42] reported onto frequency with the TC WELIN controller at 1214:54, the pilot did not report an Airprox to the controller.

The Airprox report from the pilot of [the P68] stated "... a DA42 climbed across their level in front of them, crossing [they recall] right-to-left." ATSI Note: [the DA42] was crossing left-to-right relative to [the P68 pilot].

Conclusions

The Airprox occurred when [the P68] and [the DA42] flew into close proximity whilst operating outside controlled airspace. Closest Point of Approach occurred at 1213:27 and was recorded on Multi-Track Radar as 0.2NM and 100ft. The pilot of [the P68] reported turning hard left to eliminate any chance of collision.

Cranfield ATSU investigation

[The P68 pilot] was not in receipt of a service from Cranfield at the time of the Airprox but may have been from Luton Radar.

UKAB Secretariat

Cranfield was contacted by the UKAB Secretariat to enquire whether the DA42 pilot had been in receipt of a service from them at the time of the Airprox. Cranfield confirmed that the DA42 pilot had been in contact with their Approach controller from 1212:22 and was instructed to contact their next frequency at 1214:45. Cranfield ATSU was also able to confirm that a service had not been agreed between the DA42 pilot and the controller, although the DA42 pilot had been issued instructions in accordance with a Procedural Service (Cranfield ATSU is not surveillance equipped).

The P68 and DA42 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 If the incident geometry is considered as converging then the DA42 pilot was required to give way to the P68.²

Summary

An Airprox was reported when a P68 and a DA42 flew into proximity 3NM west of Cranfield at 1213Z Monday 3rd October 2022. The P68 pilot was operating under VFR in VMC, in receipt of a Basic Service from Luton Approach, the DA42 pilot was operating under IFR in VMC, not in receipt of an ATS.

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 first discussed the actions of the P68 pilot and was encouraged that the pilot had requested a Traffic Service, although noted that the best service available from the controller at the time had been a Basic Service, and members were further encouraged that the P68 pilot had been utilising their second VHF radio to listen-out on the Cranfield frequency to enhance their Situational Awareness. Members also noted that the P68 pilot had not received any alert from their TCAS regarding the presence of the DA42 although it would have been expected to have issued one (**CF8**). As the P68 pilot had not received Traffic Information regarding the DA42, nor had they heard its pilot on the Cranfield frequency, and without an alert from their TCAS, the Board agreed that the P68 pilot had not had any awareness of the presence of the DA42 prior to sighting it (**CF7**), and that this had contributed to the P68 pilot visually acquiring the DA42 at a later than optimum time (**CF9**).

Next, members considered the actions of the DA42 pilot and discussed that the pilot had been unable to specifically recall whether or not they had received a TAS alert relating to the presence of the P68. The Board also noted that the pilot had reported seeing an aircraft which may have been the P68 passing behind them during their climb, prior to entering controlled airspace. The Board concluded that the DA42 pilot had not had any prior awareness of the presence of the P68 (**CF7**), however, members could not determine the point, relative to the Airprox, at which the DA42 pilot had become visual with the P68.

The Board then turned its attention to the ground elements involved. A civil controller stated that Luton ATSU is not a designated LARS provider and that their primary task will be the controlling and sequencing of their inbound and outbound commercial traffic, followed by dealing with any traffic wishing to cross their airspace and so, as the controller had been prioritising these elements (**CF3**), they had been unable to offer the P68 pilot their requested Traffic Service (**CF2**). Members agreed that, as a result of prioritising their work, it had been appropriate for the Luton controller to downgrade the requested Traffic Service requested by the P68 pilot to a Basic Service as, when delivering a Basic Service, the controller had not been required to monitor the flight of the P68 (**CF1**), which had meant that when the STCA had activated (**CF6**) the controller had not become immediately aware of it, nor had they acted on the alert (**CF5**).

The Board concluded that the Luton controller's actions had been appropriate and so considered the involvement of the Cranfield controller. Members quickly agreed that, as Cranfield ATSU is not surveillance equipped, and the P68 pilot had not been communicating with the controller, the controller had not had any awareness of its presence (**CF4**), and therefore the controller had not been able to pass any information to the DA42 pilot regarding the P68.

Finally, the Board considered the risk involved in this Airprox and discussed that, although the P68 pilot had requested a Traffic Service, the Luton controller had been unable to provide this. Members agreed

¹ (UK) SERA.3205 Proximity.

² (UK) SERA.3210 Right-of-way (c)(2) Converging.

that without any Traffic Information, or alert from their EC equipment, the P68 pilot had not had any awareness of the presence of the DA42 prior to sighting it, and that they had visually acquired it at a later than optimum point. The Board was unable to determine at what point the DA42 pilot had visually acquired the P68, however agreed that the P68 pilot had taken effective action to avoid the DA42. Therefore the Board concluded that there had been no risk of collision, however, safety had been degraded. Consequently, the Board assigned a Risk Category C to this event.

When discussing this Airprox, members recalled that there had been a number of Airprox involving aircraft at Cranfield recently and 2 other similar Airprox this month (2022233 and 2022249). The Board discussed that the airfield had recently become much busier with training flights and noted the difficulties that the controllers face when providing an ATS with limited Situational Awareness of the prevailing traffic situation. The Board therefore resolved to make two recommendations: that *Cranfield aerodrome operator considers a means by which controller Situational Awareness of traffic utilising airspace surrounding the Cranfield ATZ can be improved*, and, that *Cranfield-based training organisations review their risk assessments with respect to their local operations without a surveillance-based ATS*.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2022248				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Ground Elements				
• Situational Awareness and Action				
1	Contextual	• ANS Flight Information Provision	Provision of ANS flight information	The ATCO/FISO was not required to monitor the flight under a Basic Service
2	Contextual	• ATM Service Effects	An event affecting Air Traffic Management operations.	Controller not able to provide requested ATS
3	Human Factors	• Task Monitoring	Events involving an individual or a crew/team not appropriately monitoring their performance of a task	Controller engaged in other tasks
4	Contextual	• Traffic Management Information Action	An event involving traffic management information actions	The ground element had only generic, late, no or inaccurate Situational Awareness
• Electronic Warning System Operation and Compliance				
5	Human Factors	• ATM personnel operation/interpretation of equipment	An event involving the operation or interpretation of ATM equipment by ATM personnel	Controller did not adequately act on the EWS indications
6	Technical	• STCA Warning	An event involving the triggering of a Short Term Conflict Alert (STCA) Warning	
Flight Elements				
• Situational Awareness of the Conflicting Aircraft and Action				
7	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
• Electronic Warning System Operation and Compliance				
8	Human Factors	• Response to Warning System	An event involving the incorrect response of flight crew following the operation of an aircraft warning system	CWS misinterpreted, not optimally actioned or CWS alert expected but none reported
• See and Avoid				
9	Human Factors	• Identification/Recognition	Events involving flight crew not fully identifying or recognising the reality of a situation	Late sighting by one or both pilots

Degree of Risk:

C

- Recommendation:
- 1: The Cranfield aerodrome operator considers a means by which controller SA of traffic utilising airspace surrounding the Cranfield ATZ can be improved.
 - 2: Cranfield-based training organisations review their risk assessments with respect to their local operations without a surveillance-based ATS.

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:

Situational Awareness of the Confliction and Action were assessed as **ineffective** because, under the Basic Service that the Luton controller had been providing, they had not been required to monitor the flight of the P68 and, as they had been engaged in other tasks, they had not assimilated the information provided by the STCA.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because, although the Luton controller's STCA had been triggered, there had been no resultant action from the controller.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had had any awareness of the presence of the other aircraft prior to sighting it.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because, although TCAS fitted to the P68 would have been expected to have generated an alert, none was reported, and the pilot of the DA42 could not positively recall receiving an alert from their TAS.

See and Avoid were assessed as **partially effective** because the P68 pilot had visually acquired the DA42 at a later than optimum time.

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

Airprox Barrier Assessment: 2022248		Outside Controlled Airspace					
Barrier	Provision	Application	Effectiveness				
			Barrier Weighting				
			0%	5%	10%	15%	20%
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✓				
	Manning & Equipment	✓	✓				
	Situational Awareness of the Confliction & Action	✗	✗				
	Electronic Warning System Operation and Compliance	✓	✗				
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✓				
	Tactical Planning and Execution	✓	✓				
	Situational Awareness of the Conflicting Aircraft & Action	✗	✓				
	Electronic Warning System Operation and Compliance	✓	✗				
	See & Avoid	!	!				
Key:							
	Full	Partial	None	Not Present/Not Assessable	Not Used		
Provision	✓	!	✗	●			
Application	✓	!	✗	●			
Effectiveness							