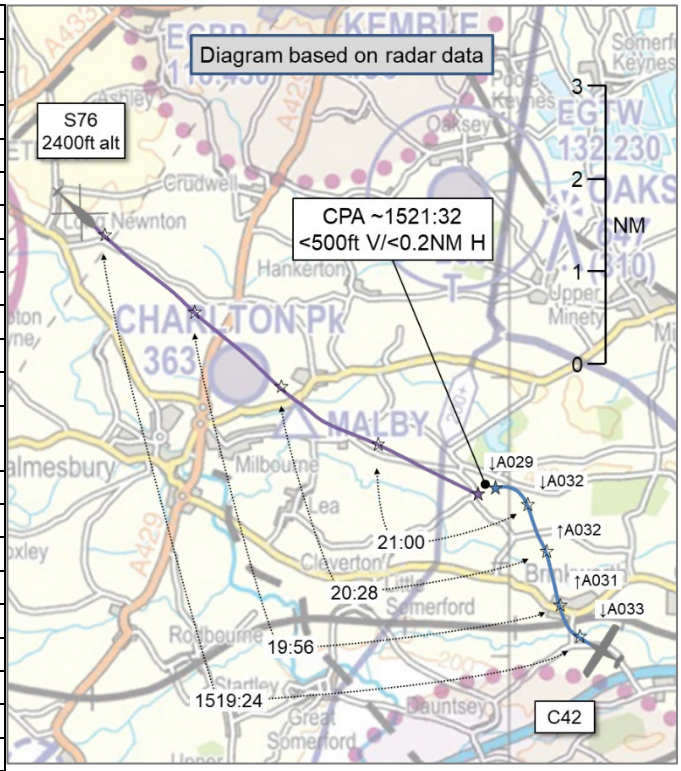
AIRPROX REPORT No 2022059

Date: 26 Apr 2022 Time: 1522Z Position: 5125N 00201W Location: 4NM N Lyneham

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C42	S76
Operator	Civ FW	Civ Comm
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	Traffic
Provider	Kemble Info	Brize Radar
Altitude/FL	2900ft	2400ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White	Maroon
Lighting	Nav, Strobe, Landing	Strobe, HISL, Nav, Landing
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	2500ft	2400
Altimeter	QNH (1022hPa)	QNH (NK hPa)
Heading	"SW"	120°
Speed	45kt	140Kt
ACAS/TAS	SkyEcho	TCAS I
Alert	None	Information
Separation at CPA		
Reported	150ft V/50m H	300ft V/0.5NM H
Recorded	<500ft V/<0.2NM H	



THE C42 PILOT reports that they were conducting training with a student and had completed a HASELL check prior to a recovery from a stall in a descending turn with one stage of flap. [The C42] is ADS-B equipped and they had checked their iPad for any ADS-B transmitting traffic. As the aircraft stalled, the helicopter was immediately visible immediately ahead and just below them. Their recovery was in any case to the climb. The helicopter did not change its west-east course and continued towards Swindon before making a heading change to the SE. The helicopter may have been a twin squirrel. They re-checked their iPad and there appeared to be no ADS-B output from the helicopter - other aircraft showed clearly on their iPad. [They find it] quite extraordinary that the GA community, assisted by the CAA, seem to have taken ADS-B on board as an essential conspicuity safety aid and yet a commercially operated helicopter is operating without ADS-B. It would appear this incident would not have happened were ADS-B mandatory as they [opine that they] would have seen the traffic – which because of the colour of the helicopter and its position, they missed in their pre-manoeuvre scan.

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

THE S76 PILOT reports that they were flying on a south-easterly track from the vicinity of Kemble towards Basingstoke at 2400ft on the Brize QNH. They were aware of traffic several miles away (3-4) in their 11 o'clock, which may have been called by Brize Norton ATC and they think was showing on TCAS as well. They identified the aircraft immediately. It wasn't clear initially if the aircraft would be a conflict as it appeared to be above and tracking to pass clear down their left-hand side. At this point, no avoiding action was taken. As the range reduced, it was noted that the aircraft was converging, yet it remained above their altitude. As a precaution, they started a descent to increase separation from the aircraft. The aircraft was then seen to descend towards them before tracking behind.

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

THE KEMBLE AFISO reports that they were unaware of any incident. They have checked the recording and there is no mention of an Airprox incident reported on the radio.

THE BRIZE LARS CONTROLLER reports that the primary radar was unserviceable and so they were reducing Traffic Information from all around to all air systems receiving a radar-derived service, Traffic Service or Deconfliction Service. They were providing a service to 6 air systems at the time of the event with 4 receiving a Basic Service and 2 receiving a Traffic Service.

They received a freecall from [the pilot of the S76] at approximately 1518 and, after assigning a transponder code of 3711, they identified the air system after validating and verifying the corresponding code. After scanning the airspace in front of the air system, they turned their attention to a handover of an air system requesting to transit RAF Benson's MATZ. Near to the conclusion of the handover, they received a freecall from [the pilot of] another air system, [other aircraft], requesting a Traffic Service. The initial transmission was stepped-on by another air system transmitting on the same frequency and the landline call to RAF Benson. They asked the [pilot of the] air system to repeat their message and began to fill out the flight strip with the details. On completion of the transmission, they paused to scan their air systems receiving a service and spotted the conflicting traffic for [the S76]. They immediately called the conflicting traffic to [the pilot of the S76] with a range of less than 1NM and 500ft above, an extremely late spot and Traffic Information call from them [the controller]. [The S76 pilot] responded that they were visual with the traffic. They then returned to [other aircraft] to assign a transponder code for identification. A further Traffic Information call on further conflicting traffic to [the S76 pilot] was passed. [The S76 pilot] was then handed over [to their next frequency] and left the frequency. They were unaware the pilot deemed the late call and conflicting traffic to be an Airprox and as such a DASOR was not submitted at the time by themselves.

On reflection, the Traffic Information call was extremely late, but during an increasingly busy and complex period of traffic for them whilst working SSR alone. They did not submit a DASOR at the time of the event or make the Supervisor aware as [the S76 pilot] was visual with the conflicting traffic.

The controller assessed the risk of collision as ‘Low’.

THE BRIZE SUPERVISOR reports that from the ATC watch log they would have been handing over the Supervisor position at the time of the incident. They have no recollection of the incident or how busy the unit or the individual controller was due to the late notification of this incident.

Factual Background

The weather at Brize Norton was recorded as follows:

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METAR EGVN 261523Z 05008KT CAVOK 14/02 Q1022 NOSIG
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Analysis and Investigation

Brize Norton Air Traffic Unit Investigation

A unit investigation was carried out by Brize Norton which raised a number of points and has been summarised below:

- [The S76 pilot] was provided a Traffic Service after a freecall. Whilst the controller was conducting a handover with RAF Benson, another pilot called on frequency. After the handover was completed, the pilot of the other aircraft was asked to repeat their initial message. Once this message was passed, the controller then immediately called the traffic in close proximity to [the S76 pilot]. [The S76 pilot] then called visual with this traffic. No Airprox was reported on frequency.

- The controller was conducting a handover to Benson when the confliction first became apparent. [The pilot of an unrelated aircraft] called for a Basic Service at the same time and the controller was distracted by this and the handover so didn't notice it. The controller

requested [that the pilot of the unrelated aircraft] pass their message, then noticed the traffic approaching [the S76] (apparent from the manipulation of squawks on the radar replay). As [the unrelated aircraft pilot] was passing a convoluted message, [the controller] was unable to inform [the S76 pilot] of the traffic until the conflict was fairly close.

- At the time, the Supervisor was conducting a handover. This prevented them from monitoring the situation which they may have seen. [Had that been the case], they could then have made the controller aware before they called [the unrelated aircraft pilot]. [It is recognised that] Supervisors need to conduct a handover and sometimes these can be admin intensive. This is the third [local] Airprox that has the Supervisor handover as a contributory factor. ATC is currently producing a "lessons learnt" brief that will be given to the whole squadron and a panel of suitably qualified and experienced personnel is being set up to review the Supervisor handover process.

Military ATM

The Brize LARS controller was providing LARS to 6 aircraft, 2 under a Traffic Service and 4 under a Basic Service, utilising SSR-alone procedures as the primary radar was unserviceable. The S76 pilot was in receipt of a Traffic Service which had been reduced due to the PSR unserviceability. After identifying and placing the S76 pilot under a service, the Brize LARS controller was conducting a handover of another aircraft to Benson and, during that telephone exchange, the Brize LARS controller received a freecall from another aircraft requesting a service and a CTR crossing clearance. The Brize LARS controller finished their landline call with Benson before asking the new aircraft to repeat their request, prior to passing Traffic Information to the S76 pilot regarding the proximity of the C42.

The Brize Norton Supervisor was conducting a position handover therefore did not witness the incident.

Figures 1 – 3 show the positions of the C42 and the S76 at relevant times during the Airprox. The screenshots are taken from a replay using the NATS radars which are not utilised by the Brize controller, therefore, may not be entirely representative of the picture available.

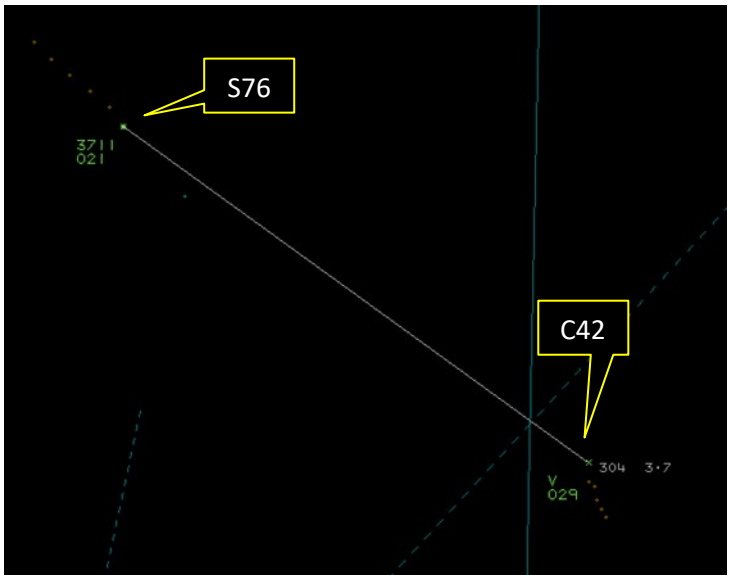

Figure 1: Handover commenced to Benson.

Forty-four seconds after the S76 pilot was identified and placed under a reduced Traffic Service, the Brize controller commenced a telephone call to Benson to handover another aircraft. During this period the Brize LARS controller confirmed the type of approach for the S76 at [destination airfield] and confirmed the intentions of the other aircraft to be handed over. Separation was measured as 3.7NM and 800ft (Figure 1).

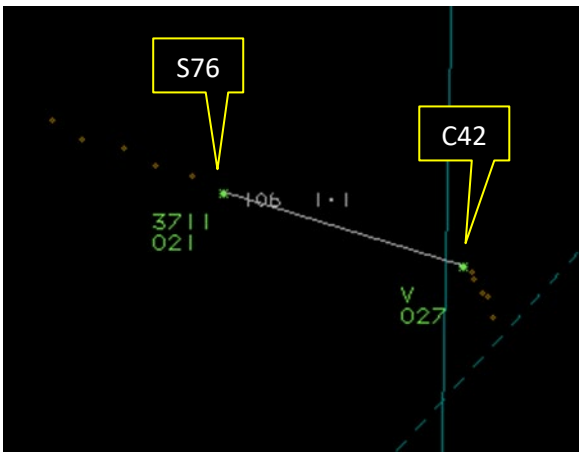

Figure 2.

Fifty seconds later the handover was complete to Benson on the other aircraft, including releasing the aircraft from the frequency. During the call with Benson an additional aircraft freecalled the Brize LARS controller requesting a LARS service advising they would also require a MATZ crossing. Immediately after releasing the handover aircraft from their frequency, the Brize LARS controller requested the freecalling aircraft to pass their details again. Separation decreased to 1.1NM and 600ft (Figure 2).

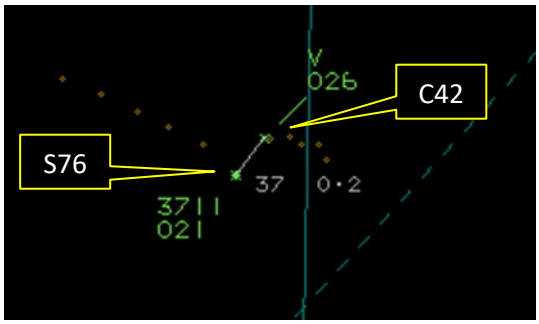

Figure 3: Traffic Information passed and CPA.

Eighteen seconds after the freecalling aircraft began to pass their details, the Brize LARS controller passed Traffic Information to the S76 pilot, to which the S76 pilot responded that they were visual with the C42. Separation was measured at 0.2NM and 500ft (Figure 3).

The projected paths of the C42 and S76 were such that a confliction was evident from the point at which the S76 pilot was placed under a reduced Traffic Service. The Brize LARS controller could have passed Traffic Information earlier however, opted to conduct other tasks which resulted in the Traffic Information being passed later than expected. The Supervisor was conducting a handover at the time of the incident, and it is unknown whether the Brize LARS controller felt that they could request support. Had the Brize LARS controller requested additional support, or had the Supervisor witnessed the tasks building up, then they may have been able to offer support, increasing the capacity of the Brize LARS controller to allow them to pass Traffic Information earlier.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and both aircraft were detected and identifiable. In the lead-up to the Airprox, the flightpaths of both aircraft could be seen to be consistent with the pilots' reports. However, the descent reported by the S76 pilot was not seen on the radar replay until the sweep after CPA. The radar head used has an 8sec sweep period and the CPA of 500ft vertically and 0.2NM horizontally was observed on two consecutive sweeps, therefore it is likely that actual CPA occurred between sweeps and is less than recorded and, as such, CPA is stated as less than that recorded.

The C42 and S76 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 head-on or nearly so then both pilots were required to turn to the right.[2] If the incident geometry is considered as converging then the C42 pilot was required to give way to the S76.[3]

Summary

An Airprox was reported when a C42 and an S76 flew into proximity at 4NM north of Lyneham at 1522Z on Tuesday 26th April 2022. Both pilots were operating under VFR in VMC, the C42 pilot in receipt of a Basic Service from Kemble Information and the S76 pilot in receipt of a Traffic Service from Brize Radar.

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 considered the actions of the C42 pilot and, although members had been encouraged that the pilot had carried out a HASELL check before entering the stall manoeuvre, the Board agreed that the pilot had not visually acquired the S76 as part of this check (**CF6**). Members had also been encouraged that the pilot had had additional EC equipment on board, however, this had been incompatible with the equipment fitted to the S76 (**CF8**), which in turn had contributed to the C42 pilot having no prior awareness of the presence of the S76 (**CF7**). The Board noted that the C42 pilot had become visual with the S76 at a late stage (**CF10**), as they had entered the stall manoeuvre, and a discussion followed regarding the possibilities that the C42 pilot had been subjected to a startle effect which may have affected their estimation of the range to the S76; however, members noted that this had not impacted on the stall recovery manoeuvre carried out by the pilot. The Board also wished to highlight that pilots should always report an Airprox event as soon as possible on the radio to the agency with which they are communicating, or the next agency they speak to.

Next, members discussed the actions of the S76 pilot and noted that they had received notification from their TCAS regarding the presence of the C42 (**CF9**). Members agreed that the S76 pilot had become visual with the C42 at a very early stage, however, they had continued their flight path toward it, resulting in the separation between the aircraft decreasing to a point which had caused concern to the C42 pilot (**CF11**).

Members' attention then turned to the ground elements and agreed that the involvement of the Kemble AFISO had been in accordance with their expectation. Discussing the actions of Brize Norton ATSU, a military controller member stated that, due to the freecalling pilot and the aircraft handover that had been taking place, the ATCO had been particularly busy at the time of the event (**CF4**). Members agreed that this had contributed to them identifying the conflict late (**CF3**) which had meant that the Traffic Information had been passed to the S76 at a later than optimum time (**CF2**). The Board appreciate that part of the Supervisor's role required them to conduct hand-overs, and members agreed that it had been unfortunate that this had been in progress as the Airprox occurred, impacting their ability to monitor as they would have normally done (**CF1**).

Finally, the Board considered the risk involved in this Airprox. Members agreed that the pilot of the C42 had not had any prior awareness of the presence of the S76 until they became visual with it and that this had been at a late stage; however, the S76 pilot had been visual with the C42 throughout. Despite this, the S76 pilot had continued towards the C42 until their separation had become such that the C42 pilot had become concerned by their proximity. Although safety had been degraded, members were

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.
[3] (UK) SERA.3210 Right-of-way (c)(2) Converging.

satisfied that there had been no risk of collision. Consequently, the Board assigned a Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022059			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Manning and Equipment			
1	Human Factors	• ATM Leadership and Supervision	An event related to the leadership and supervision of ATM activities.	
	• Situational Awareness and Action			
2	Human Factors	• ANS Traffic Information Provision	Provision of ANS traffic information	TI not provided, inaccurate, inadequate, or late
3	Human Factors	• Conflict Detection - Detected Late	An event involving the late detection of a conflict between aircraft	
4	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
	• Electronic Warning System Operation and Compliance			
5	Technical	• Conflict Alert System Failure	Conflict Alert System did not function as expected	The Conflict Alert system did not function or was not utilised in this situation
	Flight Elements			
	• Tactical Planning and Execution			
6	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
	• 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	Technical	• ACAS/TCAS System Failure	An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations	Incompatible CWS equipment
9	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
	• See and Avoid			
10	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
11	Human Factors	• Lack of Individual Risk Perception	Events involving flight crew not fully appreciating the risk of a particular course of action	Pilot flew close enough to cause concern

Degree of Risk: C

Safety Barrier Assessment[4]

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

Ground Elements:

Manning and Equipment were assessed as **partially effective** because the Supervisor had been conducting a handover which had prevented them from monitoring the situation.

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

Situational Awareness of the Confliction and Action were assessed as **partially effective** because, due to the controller being engaged in other tasks, Traffic Information had been passed to the S76 pilot at a later than optimum time.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the system is not currently being utilised due to possible inconsistences caused by legacy sensors.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because, during their HASELL check, the C42 pilot had not visually acquired the S76.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the C42 pilot had had no prior awareness of the presence of the S76.