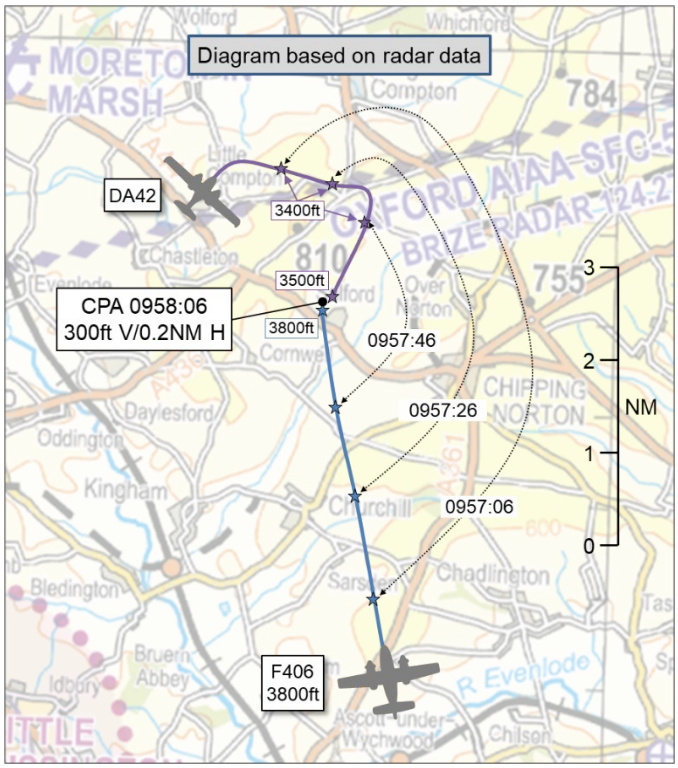
AIRPROX REPORT No 2024261

Date: 13 Oct 2024 Time: 0958Z Position: 5157N 00135W Location: 1.5NM NW Chipping Norton

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	F406	DA42
Operator	Civ Comm	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Traffic	Basic
Provider	Birmingham Radar	Brize Radar
Altitude/FL	3800ft	3500ft
Transponder	A, C, S	A, C, S+
Reported		
Colours	White and red	White
Lighting	Anti colls, nav, bcn	Nav, anti-colls, ldg
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	3800ft	3500ft manoeuvring
Altimeter	QNH	QNH
Heading	360°	NK
Speed	180kt	120kt
ACAS/TAS	SkyEcho	TAS & SkyEcho
Alert	Unknown	None
Separation at CPA		
Reported	100ft V/100m H	Not seen
Recorded	300ft V/0.2NM H	



THE F406 PILOT reports that they operated an aerial survey south of Brize Norton, who were providing a reduced Traffic Service with unserviceable SSR and PSR only. Due to the high density of traffic and a degradation in radar service increasing the high workload in flying the survey and looking for traffic, they began a transit back to Birmingham to collect a safety pilot to aid lookout with Brize LARS on a [primary radar service] only.

On the transit back, having just free-called Birmingham Radar, they were given Traffic Information. The specific details they cannot recall exactly, but the traffic was 12 o'clock and a similar level, within a few miles. They initially spotted the traffic appearing to be turning away and briefly lost sight of the aircraft, owing to its profile in the turn. They continued looking but were not overly concerned as the aircraft was tracking away from them. Birmingham Radar provided an update very quickly afterwards advising that the aircraft had turned towards them. They then saw the DA42 at a similar level in a steep turn passing through their 12 o'clock and then passing quickly to their right side, appearing to be in a descent. They would estimate it to have been a few hundred feet laterally away at the time but they were probably also in a heightened state of alert regarding traffic, owing to recent days of intense aerial survey in Class G airspace at 3000ft, so perhaps it may have been further away.

They did however discuss on the ground, with the deputy watch supervisor at Birmingham, who advised that the event did trigger their 'conflict resolution alarm' and, based on the radio conversation, they were filing the event as an MOR. Subsequently, they felt it sensible to report this as an Airprox, as they initially suggested on frequency.

[The pilot opined that] it was worth noting that this occurred in Class G airspace, in an area that they should have recognised as being popular for ATO general handling. They did have a particular focus on lookout and threat-error management regarding traffic on this flight, however, they felt that the

controller's quick update particularly helped them in quickly spotting the traffic, which they may not have otherwise seen.

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

THE DA42 PILOT reports they were performing a CPL training flight. At the point of the reported Airprox they were doing 'recovery from unusual attitudes' and the student pilot was simulated IMC. They were receiving a Basic Service from Brize Radar because the primary radar was unserviceable and a Traffic Service was not available. Although the aircraft was fitted with TAS and they carried [other electronic conspicuity equipment] as a company SOP, they did not recall a Traffic Alert from either. In this instance their procedure would be to stop manoeuvring for the exercise and resolve any potential conflict. Neither the instructor, the student nor the second instructor in the back seat saw the other aircraft.

THE BIRMINGHAM RADAR CONTROLLER reports that shortly before 0958 [the F406 pilot] called Birmingham Radar for a vectored visual approach for RW33 and a Traffic Service. [The F406] was identified with a Birmingham Squawk 0417 and given a Traffic Service. Traffic was immediately given on traffic right of their 12 o'clock on an easterly heading away from the aircraft. At 0958 a short term conflict alert (STCA) indicated that the previously called traffic had turned sharp right back to the west and towards [the F406]. Updated Traffic [Information] was given with 200ft separation and ½NM. [The F406 pilot] spotted the aircraft, called an Airprox, and then continued inbound.

THE BRIZE ATCO reports they were the Approach and Zone controller at the time of the Airprox. They took over the position with LARS, also band-boxed, but they split it out shortly afterwards due to traffic density. They were operating primary radar only with Direction Finding unserviceable, making identifying traffic very difficult and maintaining track ident on Basic Service aircraft even more so. On their frequencies they had a survey aircraft operating in and out of the Zone, Traffic Service outside, and [the DA42] under a Basic Service. They put a track vector on the return that they believed was [the DA42] and, after calling a few tracks to them (using 'Traffic believed to be you has traffic...'), they reported visual. They were fairly confident they had the correct aircraft. At the time of the reported Airprox they were on the phone to ADC who was calling to pre-note a VFR departure and then queried the requirement for a release, due to the radar situation. They could only assume it was this distraction that stopped them from calling the conflict to [the DA42 pilot] as they still had a track vector on to aid them in monitoring [the aircraft].

[The ATCO mentioned], as an aside, having watched the radar replay, when the [F406] aircraft left the LARS frequency the subsequently conflicting traffic was not a factor at that time.

Prior to UKAB receiving the ATCO's response, the following information had been supplied as an initial report:

This report was in response to notification from 2Gp BM Safety of an Airprox reported by [the F406 pilot]. An Airprox was not reported to Brize at the time of the incident, and the report was entered on behalf of the Brize Approach/Zone controller who had [the DA42] on frequency at the time. This narrative reports the facts obtained from the radar replay, after which controller and Supervisor comments were to be obtained once available.

Brize was operating STAR-NG only at the time of this incident. [The F406 pilot] (survey flight) had been provided a Traffic Service from Brize LARS before they were continued to Birmingham prior to the Airprox and no confliction risk was present upon change of frequency. [The DA42 pilot] (3737) was in receipt of a Basic Service, with a Traffic Service refused due to STAR-NG only, from Brize Zone and was manoeuvring in the Chipping Norton area. As [the F406], no longer on frequency, continued to track several miles towards Birmingham, its contact was seen to merge with that of [the DA42]. Brize Approach/Zone did not provide Traffic Information to [the DA42 pilot] on a Basic Service, and an Airprox was not reported to Brize by [the DA42 pilot] or Birmingham.

The controller perceived the severity of the incident as 'Medium'.

THE BRIZE SUPERVISOR reports they were the ATCO in charge at the time and did not witness the point of conflict. They were made aware of the conversation from the Birmingham watch manager which occurred around 1hr after the Airprox, to which it was stated *'we have just had an Airprox'* with [a DA42] wearing a 3737 squawk. The controller found the flight strip and told Birmingham that the aircraft in question left the Brize frequency at 0955 and assumed the aircraft retained the Brize squawk after free-calling en-route.

Factual Background

The weather at Brize Norton Airport was recorded as follows:

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METAR EGVN 130950Z 29003KT CAVOK 09/04 Q1020 NOSIG RMK BLU
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Analysis and Investigation

Birmingham ATC

[The F406 pilot] called an Airprox [involving the DA42] whilst in Class G airspace on a Traffic Service with Birmingham Radar. Both aircraft were separated by approximately 200ft. [The F406] had been identified by Birmingham Radar and [the pilot] was issued Traffic Information immediately [on the DA42] which was initially tracking west-to-east. A short term conflict alert (STCA) was generated against both aircraft. [The DA42] completed a sharp right-hand turn to track back east. [The Radar controller] identified the turn and issued further Traffic Information to [the F406 pilot]. [The F406 pilot] confirmed they were visual with the aircraft and stated that they would be filing an Airprox as a result. Upon landing, the pilot of [the F406] contacted the Birmingham Deputy Watch Manager and advised that they felt that both aircraft had enough visual separation. The pilot of [the F406] thanked [the Radar controller] for their actions and the passing of Traffic Information [on the DA42] to allow them to identify the confliction. [The Radar controller] was debriefed following the event. It is unknown why [the DA42 pilot] changed track and entered into a sharp right-hand turn which caused the direct confliction.

Root cause: [The F406 pilot] called an Airprox [involving a DA42] whilst both aircraft were in Class G airspace. [The F406] was on a Traffic Service with Birmingham Radar at the time and Traffic Information was passed by [the Radar controller].

2Gp BM

The F406 was conducting a VFR transit and in the process of transitioning from a Traffic Service from Brize Norton Zone to Birmingham Radar. The DA42 was conducting a training flight and in receipt of a Basic Service from Brize Norton Zone.

Utilising occurrence reports and information from the local investigations, outlined below are the key events that preceded the Airprox. Where available they are supported by screenshots to indicate the positions of the relevant aircraft at each stage. Screenshots are taken from Unit radar recordings and therefore present the actual radar presentation of the F406 and DA42 available to the Brize Norton controller.

Following an equipment failure, Brize Norton was operating non-cooperative/primary surveillance radar only for the period preceding and during the Airprox. As per standing orders, ATS provision was being managed to prevent controller overload, with the F406 issued a reduced Traffic Service and the DA42's request for a Traffic Service denied with a Basic Service issued instead.

The F406 had been tasked with an aerial survey south of Brize Norton. As a result of the high density of traffic in the area and the reduced Traffic Service available from Brize Norton, they had elected to cease their aerial survey and return to Birmingham in order to collect a safety pilot.

Figure 1 0955:50 F406 pilot requested to change to Birmingham Radar.

At 0955:50, the F406 pilot requested to change frequency from Brize Norton Zone to Birmingham Radar. The Brize Norton Zone controller acknowledged the request, providing the F406 pilot with their position before terminating the radar service and instructing them to change to their enroute frequency (Figure 1).

Figure 2 0957:34. The DA42 commenced a turn.
(Separation: 3NM and 200ft)

At 0957:34, the DA42 commenced a right-hand turn, deviating from their previous eastbound profile (Figure 2). CPA occurred at 0958:06 and was recorded as 0.2NM and 300ft separation.

Local BM investigation: RAF Brize Norton conducted a local investigation following the event to identify the ATS-related causal/aggravating factors. The investigation found that the Brize Norton Zone controller had fulfilled their ATS provision responsibilities given they had not been required to monitor the DA42. The downgrade to a Basic Service from the requested Traffic Service was in accordance with standing orders and deemed suitable given the level of traffic and the DA42's flight profile outside the Brize Norton Zone.

2 Gp BM analysis: The actions of the Brize Norton Zone controller were standard throughout, with justified traffic management decisions. At the point of changing en-route, there was no requirement to pass Traffic Information to the F406 on the DA42 due to their relative profiles and distance.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and both aircraft were positively identified using Mode S data. CPA was assessed to have been at 0958:06 with a lateral separation of 0.2NM and a vertical separation of 300ft (Figure 3).

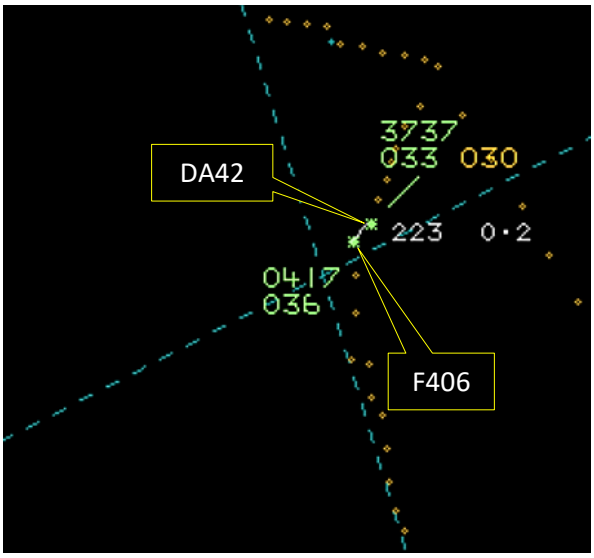


Figure 3 Time 0958:06: CPA with 0.2NM and 300ft separation.

The F406 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 head-on or nearly so then both pilots were required to turn to the right.[2]

Summary

An Airprox was reported when an F406 and a DA42 flew into proximity 1.5NM northwest of Chipping Norton at 0958Z on Sunday 13th October 2024. Both pilots were operating under VFR in VMC, the F406 pilot in receipt of a Traffic Service from Birmingham Radar and the DA42 pilot in receipt of a Basic 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 DA42 pilot and noted that they had been receiving a Basic Service from Brize Norton, which was the LARS provider for that area. However, noting that Brize Radar had been unable to provide a Traffic Service due to equipment unserviceabilities, the Board felt that the DA42 pilot may have been better served by attempting to secure a Traffic Service from Oxford Radar (**CF5**) instead of accepting a Basic Service from Brize. Members mentioned that, although not required to do so under the terms of a Basic Service, it may have been prudent for the DA42 pilot to have made the Brize controller aware of their intentions to alter track, which may have improved overall situational awareness for all concerned. The Board noted that the DA42 pilot had been carrying an electronic conspicuity device that would have been expected to have detected the F406, but that no such alert had been reported as having been received (**CF7**) and, without having received any Traffic Information regarding the presence of the F406, the Board agreed that the DA42 pilot had not had any situational awareness of the presence and position of the F406 (**CF6**). This had left lookout as the last remaining

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

active barrier to mid-air collision, and the Board agreed that neither of the instructors on board the DA42 pilot had sighted the F406 (**CF8**).

The Board then turned their attention to the actions of the F406 pilot, noting that they had made a sensible decision to collect a safety pilot in lieu of the reduced level of service available from Brize, although members wondered why they had also not considered calling Oxford Radar, surmising that their planned routeing may have required transiting Brize airspace. Concerning the carriage of electronic conspicuity equipment, the Board applauded the carriage of this equipment but members were disappointed that the F406's electronic warning system, compatible with that carried on the DA42, had not provided an alert to the presence of the DA42 (**CF7**). Nonetheless, the Board noted that the F406 pilot had received immediate Traffic Information from the Birmingham controller, but considered that the F406 pilot had acquired late situational awareness of the presence and relative position of the DA42 (**CF6**). The Board acknowledged that, on sighting the other aircraft, the F406 pilot had been concerned by the proximity of the DA42 (**CF9**).

Members then discussed the actions of the Brize Zone controller, and controller members explained the difficulty involved in tracking individual aircraft to achieve a reduced Traffic Service with only a primary radar available to them (**CF1**). Members agreed, therefore, that the decision to have provided a Basic Service to the DA42 pilot had been justified, and that the Brize controller had not been able to provide the requested Traffic Service to the DA42 pilot (**CF3**). Members accepted that the controller had had to prioritise their call to ADC, on this occasion, over providing Traffic Information to the DA42 pilot and that, in any case, they had not been required to monitor the DA42 under a Basic Service (**CF2**).

The Board then reviewed the actions of the Birmingham controller and noted that the controller had provided Traffic Information immediately after confirming a Traffic Service with the F406 pilot, after which they had received an STCA (**CF4**) and had informed the F406 pilot of the updated position of the DA42.

Concluding their discussion, members reiterated that if a LARS provider is unable to provide the service requested, then it would be reasonable to consider other possible providers. The Board noted that the Birmingham controller had provided essential Traffic Information to the F406 pilot, and the F406 pilot had been concerned about the proximity of the DA42 and had monitored the DA42 as it had continued in a steep turn away from them. Members agreed that, although safety had been degraded, there had been no risk of collision and, as such, assigned a Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024261			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Manning and Equipment			
1	Technical	• Radar Coverage	Radar Coverage	Non-functional or unavailable
	• Situational Awareness and Action			
2	Contextual	• ANS Flight Information Provision	Provision of ANS flight information	The ATCO/FISO was not required to monitor the flight under a Basic Service
3	Contextual	• ATM Service Effects	An event affecting Air Traffic Management operations.	Controller not able to provide requested ATS
	• Electronic Warning System Operation and Compliance			
4	Technical	• STCA Warning	An event involving the triggering of a Short Term Conflict Alert (STCA) Warning	
	Flight Elements			
	• Tactical Planning and Execution			
5	Human Factors	• Communications by Flight Crew with ANS	An event related to the communications between the flight crew and the air navigation service.	Pilot did not request appropriate ATS service or communicate with appropriate provider
	• Situational Awareness of the Conflicting Aircraft and Action			

6	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			
7	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			
8	Human Factors	• Monitoring of Other Aircraft	Events involving flight crew not fully monitoring another aircraft	Non-sighting or effectively a non-sighting by one or both pilots
9	Human Factors	• Perception of Visual Information	Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement	Pilot was concerned by the proximity of the other aircraft

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:

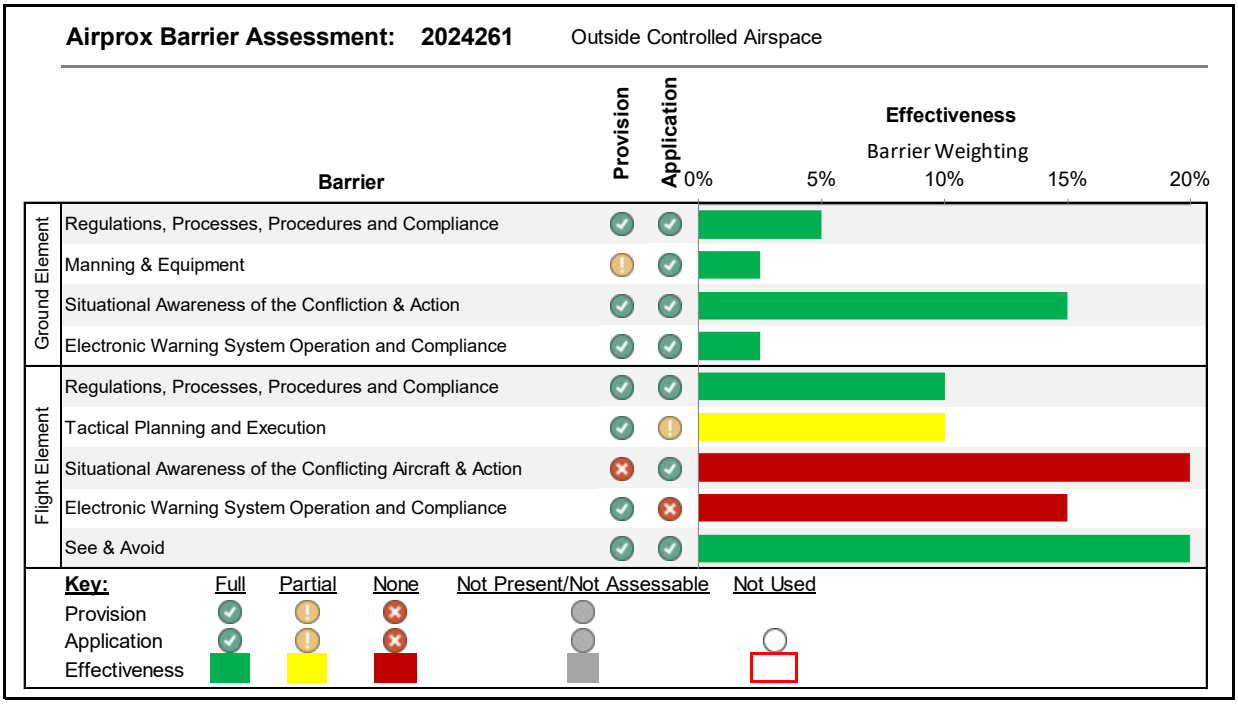
Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the DA42 pilot could have called Oxford for a Traffic Service because Brize Radar was unable to provide a Traffic Service on this occasion.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the F406 pilot had late situational awareness of the DA42's position and the DA42 pilot had no situational awareness of the presence or position of the F406.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because, although the aircraft were both carrying compatible EC devices, neither the F406 pilot nor the DA42 pilot reported receiving an alert.

[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: 2024261
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