

AIRPROX REPORT No 2019257

Date: 01 Sep 2019 Time: 1311Z Position: 5154N 00153W Location: NIRMO, E Gloucestershire

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DA42	C414
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	VFR
Service	Procedural	Traffic
Provider	Gloster	Brize Radar
Altitude/FL	FL024	FL028
Transponder	A, C, S	A, C, S
Reported		
Colours	White	Grey, Red, Blue
Lighting	Landing, Strobes	Nav, Strobes, Beacon
Conditions	VMC	VMC
Visibility	10km	25km
Altitude/FL	2500ft	3000ft
Altimeter	QNH (1018hPa)	QNH
Heading	175°	030°
Speed	120kt	150kt
ACAS/TAS	Not fitted	TAS
Alert	N/A	None
Separation		
Reported	150ft V/0m H	500ft V/5nm H
Recorded	400ft V/0.1nm H	



THE DA42 PILOT reports that he was conducting an RNAV/LNAV approach to Gloucester via LAPKU and NIRMO as per the published plate. Prior to the turn at NIRMO the instructor spotted the other aircraft and nudged the stick forward. The other aircraft flew over the top in a near reciprocal direction, approximately 150ft above.

The pilot assessed the risk of collision as ‘High’.

THE C414 PILOT reports that he was flying VFR in excellent VMC conditions and receiving a Traffic Service from Brize Radar. All TAS indications showed the other traffic to be well below and there was no yellow circle or audio indicating any risk of collision. Brize kept them updated of other traffic in the area and did not indicate any confliction. The autopilot was engaged and both pilots were keeping a good look-out for other traffic. They informed Brize that they would be operating in the Gloucester area, but remained on the Brize frequency. In his opinion they did not come close to any other aircraft; however, he noted that the C414 is a very large twin-engine aircraft, nearly 3 tonnes in weight and from above or below can look closer than it actually is.

The pilot assessed the risk of collision as ‘None’.

THE GLOSTER CONTROLLER reports the DA42 was conducting an RNAV RW27 via LAPKU under a Procedural Service. At 1311, the pilot reported an Airprox on frequency and advised that he had observed a twin, either a PA30 or a Cessna with tip-tanks, that had flown on a reciprocal track approximately 150ft above him. The Approach controller checked all aircraft on frequency and ascertained that he was not working the aircraft in question. The Approach controller telephoned Brize to see if it was an aircraft they were working to which they said they "believed" it could have been a

C414 although this cannot be verified. Brize informed him that they had been working it but had recently told him to squawk 7000 and freecall en-route. No Traffic Information had been passed to Gloster ATC. The DA42 reported that he was at 2500ft on QNH 1018. On a subsequent conversation with the pilot of the C414, he informed the controller that he didn't think it could have been him because he was at 3500ft in the area. The Gloucester radar was not working at the time.

THE BRIZE LARS CONTROLLER reports he was providing a Traffic Service to the C414 who were routing approximately 10nm east of Gloucestershire airport. There were multiple tracks in the area and he provided Traffic Information. At 1311z the C414 pilot asked to change frequency, so he told him to squawk 7000 and continue en-route. Shortly afterwards Gloster ATC rang to ask whether he was controlling the C414, he told them it had been released en-route and they advised that one of their aircraft had reported an Airprox with it. He was not sure whether the C414 had been on his frequency at the time of the Airprox or not.

Factual Background

The weather at Gloucestershire was recorded as follows:

METAR EGBJ 011450Z 30013KT 9999 SCT044 18/07 Q1019=

Analysis and Investigation

Military ATM

The C414 was on a navigation exercise routing via NAXAT and was in receipt of a Traffic Service from Brize LARS. 10nm east of Gloucester, the DA42 reported coming within 150ft of an aircraft on a reciprocal heading. The C414 pilot reported no close proximity events in their report. In the minutes leading up to this incident, the Brize LARS controller had called numerous conflictors to the C414 pilot. At the time of the last piece of Traffic Information the DA42 was approximately 10nm away and not a factor. However, the geometry of the aircraft was such that at 1309:26 the separation between the aircraft decreased to less than 5nm. Traffic Information was passed 17sec later by which point separation had decreased to 3.6nm and 500ft.

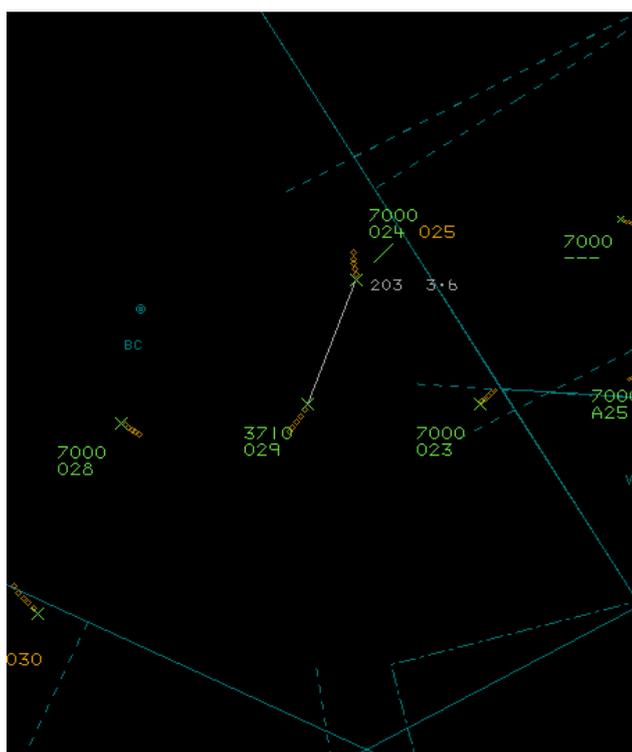


Figure 1 – 1309:43

CPA occurred 50sec later and was measured at 0.1nm and 400ft. 20sec after CPA the C414 requested a frequency change and no mention was made of a close proximity event.

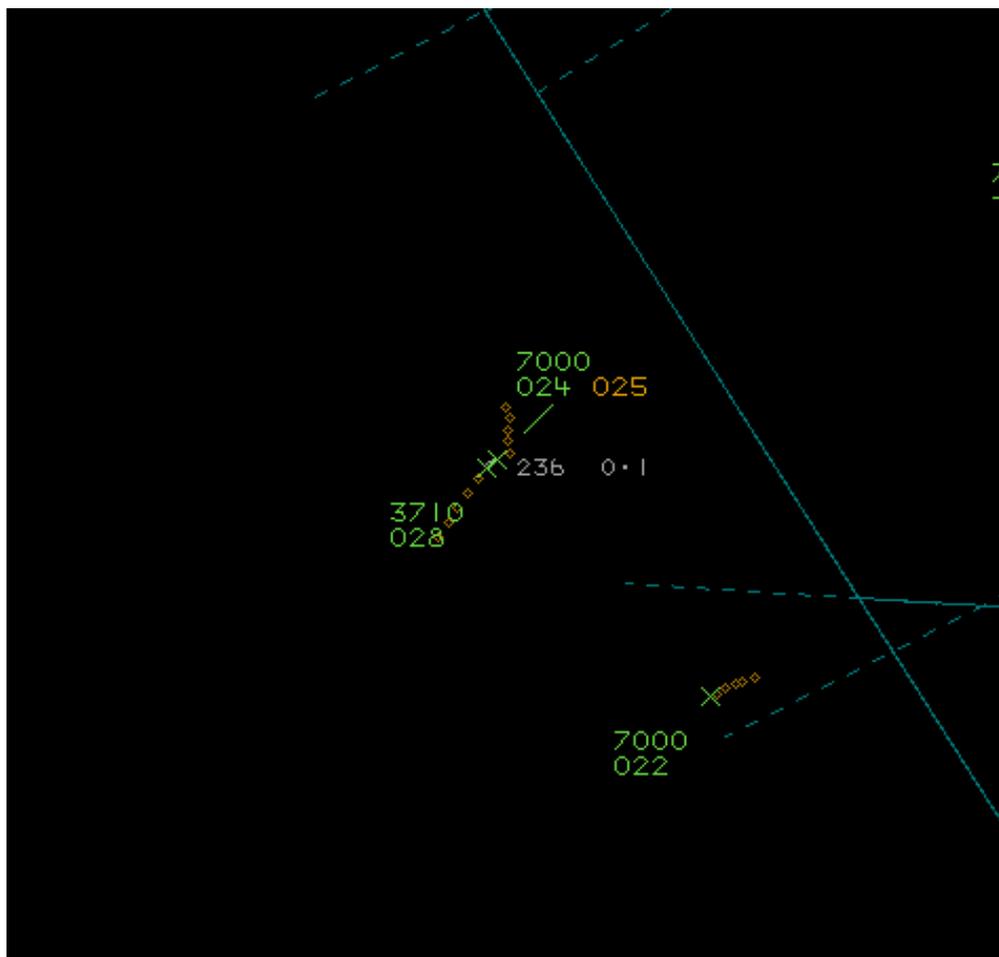


Figure 2 – 1310:33 CPA

The Brize LARS Controller noted their workload as high-to-medium and the initial request for a Traffic Service from the C414 had been declined due to controller workload. Analysis of the R/T transcript shows that in the minutes leading up to this incident there were no R/T transmissions but it is not known why Traffic Information was not passed earlier. That said, Traffic Information was passed to the C414 at a range of 3.6nm therefore the controller discharged their duty correctly, albeit later than would normally be the case.

UKAB Secretariat

The DA42 and C414 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard¹. If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right².

Summary

An Airprox was reported when a DA42 and a C414 flew into proximity 10nm east Gloucestershire airport at 1311hrs on Sunday 1st September 2019. The DA42 pilot was operating under IFR in VMC and in receipt of a Procedural Service from Gloucestershire ATC. The C414 pilot was operating under VFR in VMC and in receipt of a Traffic Service from Brize Radar.

¹ SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

² SERA.3210 Right-of-way (c)(1) Approaching head-on. MAA RA 2307 paragraph 13.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC 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 looked at the actions of the DA42 pilot. He was receiving a Procedural Service from Gloster ATC, who were not using their radar, did not know about the C414 and so could not pass any Traffic Information. The DA42 was not fitted with a CWS and so the pilot had no prior knowledge that the C414 was there until he saw it. At CPA, the radar recording showed 400ft separation but the pilot estimated only 150ft. Members wondered whether the surprise factor and the fact that the C414 was a relatively large aircraft had contributed to his concern that it was closer than it actually was (**CF1**).

The C414 pilot was receiving a Traffic Service from Brize and was given Traffic Information on the DA42. Furthermore, he could probably see it on his TAS but, because the DA42 was indicating 500ft below, he was not concerned by the proximity. That being said, some members felt that it would have been good airmanship to have avoided the NIRMO reporting point (which would have probably been displayed on the C414's Garmin navigation equipment) given that it was likely that the C414 pilot could have surmised that the DA42 was conducting an IFR approach.

The Board then briefly discussed the actions of the controllers, the Brize controller gave Traffic Information to the C414 pilot, but the Gloucester controller did not know that the C414 was there and so could not pass Traffic Information to the DA42 pilot. Members briefly discussed whether Brize should have given Traffic Information to the Gloster controller, but noted that the DA42 was squawking 7000 and so the Brize controller would not have known Gloucestershire were controlling it. There followed a discussion about why Gloucestershire did not have conspicuity squawks, although they did not have SSR and so it would not be beneficial to them, if they had conspicuity squawks then this would alert other controlling agencies to their traffic. The Board therefore resolved to make a recommendation that Gloucester consider applying for an SSR transponder conspicuity code.

Finally, the Board considered the risk and was of the view that, although the DA42 pilot was concerned by the proximity of the C414, the pilot of the C414 had seen the DA42 on his TAS and had received Traffic Information. As a result, members concluded that there had therefore been no risk of collision. Indeed, given the recorded vertical separation of 400ft, members considered that normal procedures, safety standards and parameters for VFR flight in Class G airspace had pertained; risk Category E.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2019257		
CF	Factor	Description	Amplification
	Flight Elements		
	• See and Avoid		
1	Human Factors	• Perception of Visual Information	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: E.

Recommendation: Gloucester to consider applying for an SSR transponder conspicuity code.

Safety Barrier Assessment³: In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that, other than the fact that the DA42 did not have a CWS fitted, all of the available barriers had worked effectively.

Airprox Barrier Assessment: 2019257		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 Conflicion & 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:		<u>Full</u>	<u>Partial</u>	<u>None</u>	<u>Not Present/Not Assessable</u>	<u>Not Used</u>		
Provision	✓	⚠	✗	○				
Application	✓	⚠	✗	○	○			
Effectiveness	■	■	■	■	□			

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