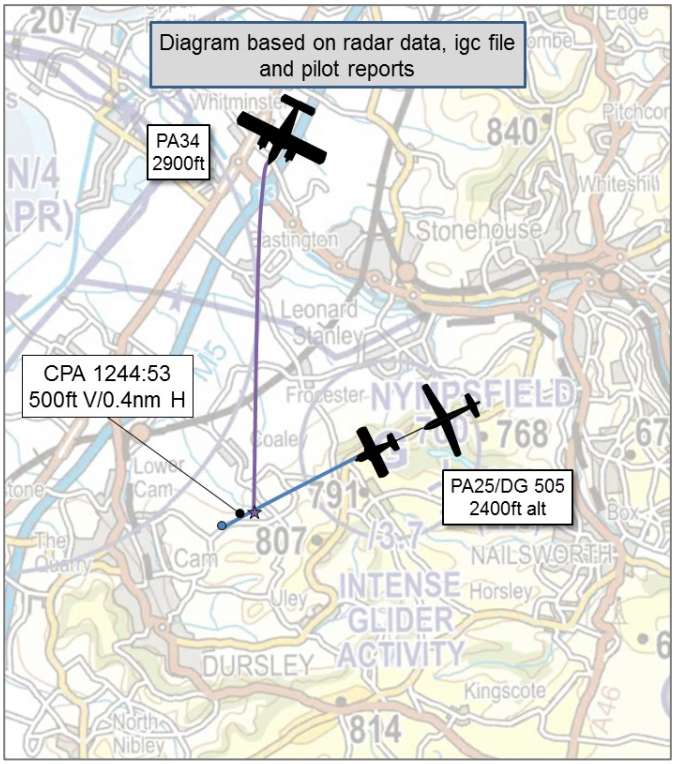
AIRPROX REPORT No 2019294

Date: 09 Oct 2019 Time: 1244Z Position: 5141N 00220W Location: 1.3nm west Nympsfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	PA25/DG 505	PA34
Operator	Civ Gld	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	IFR
Service	Listening Out	Traffic
Provider	Nympsfield	Bristol
Altitude/FL	2400ft	2900ft
Transponder	Not fitted	A, C, S
Reported		
Colours	White	Red, White
Lighting	None	Not reported
Conditions	VMC	IMC
Visibility	Good	Not reported
Altitude/FL	2000ft	3000ft
Altimeter	QNH	QNH
Heading	southwest	190°
Speed	60kt	150kt
ACAS/TAS	FLARM	Unknown
Alert	None	Unknown
Separation		
Reported	300ft V/NK	Not seen
Recorded	500ft V/0.4nm H	



THE DG 505 PILOT reports that he was instructing another pilot, being aerotowed about 2nm to the SW of Nympsfield airfield at about 2000ft, traveling SW climbing at 450ft/min, when a light-twin, he thought a Seneca, flew over the top of him, about 200-300ft above, traveling in a southerly direction. The aircraft appeared from their 4 o'clock. The twin flew straight-and-level and he thinks the pilot did not see them. They did not see it until it had just passed them. It was flying quite fast. The towing aircraft was an orange coloured Pawnee (PA25). Visibility was very good. There was no immediate danger of collision but, in his opinion, the twin flew unnecessarily close to an active gliding site without keeping an adequate lookout. The glider and PA25 both had FLARM that was working. He doesn't think the twin aircraft had FLARM.

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

THE PA34 PILOT reports that he was IFR with Bristol heading 190°, between cloud layers, and did not see a glider.

THE BRISTOL CONTROLLER reports that the PA34 pilot called them squawking 5077 requesting vectors to the ILS RW27. His trainee issued a squawk of 5055 and confirmed Bristol's ATIS and other relevant details. The trainee controller completed some further tasks and then returned to the PA34 pilot to confirm a Traffic Service. The PA34 pilot did not report an Airprox and his voice demonstrated no concern regarding any near miss with another aircraft.

Factual Background

The weather at Bristol was recorded as follows:

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METAR EGGD 091250Z AUTO 24011KT 9999 BKN045/// //////TCU 12/08 Q1005
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Analysis and Investigation

Bristol Investigation Report

Radar combined. 1 trainee and 1 OJTI mentor. Traffic light. 40nm range selected

1241.02 - Trainee Radar sees #5077 squawk and places target highlighter tool on return. The information box identifies the aircraft as [PA34 C/S]. #5050 squawk northbound FL62 is given traffic information on the aircraft.

1242.56 - [PA34 C/S] contacts Bristol Radar reporting inbound and requesting radar vectors to an ILS RW27.

1243.15 - Bristol Radar responds with the approach to be undertaken; radar vectors ILS RW27 and current information but no QNH is given.

The #5050 and #5077 squawks begin to merge.

1243.51 - Bristol radar instructs [PA34 C/S] to squawk #5055. The highlighter tool was still on the aircraft. The aircraft reads back the squawk correctly.

1244.15 - #5050 squawk and [PA34 C/S] data blocks merge. A single primary cross appears 1.5nm SW of gliding site Nympsfield 2.09nm SSE of [PA34 C/S] (Figures 1 and 2.)

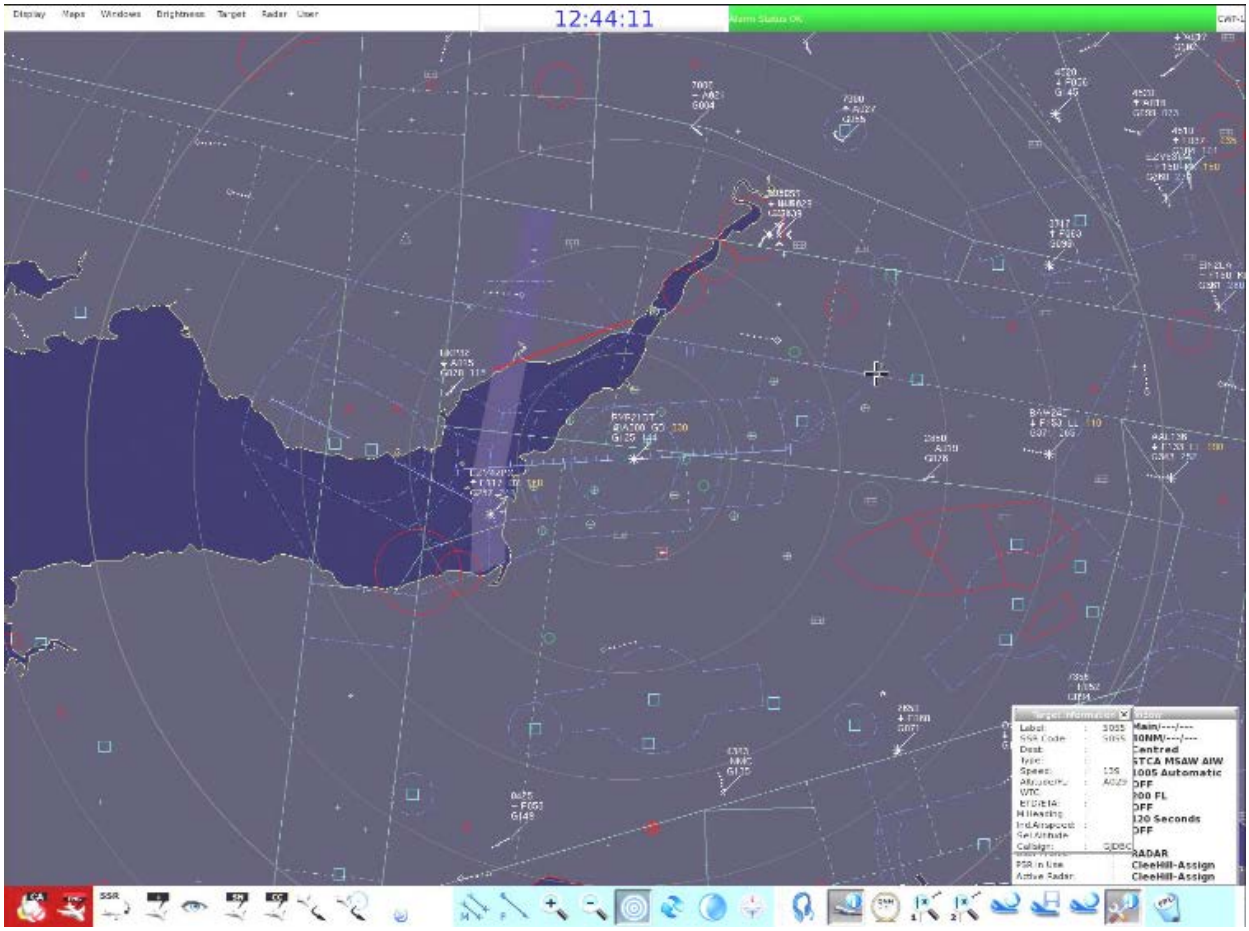


Figure 1: Normal operating range

Figure 2: Magnified picture

1244.33 - The unknown primary return continues west and is observed 0.5nm SE of the highlighter tool cross.

1244.40 - The Primary return is moving slowly but it has a small yellow trail. It is inside the target highlighter tool. It appears to merge with the southbound [PA34 C/S], who is informed now that he is under a Traffic Service. No reduction in service level is passed. [PA34 C/S]'s level is 2900ft. (Figure 3)

1245.13 - Bristol Radar is in a dialogue with another aircraft to the north regarding reducing service level and changing squawk. [PA34 C/S] is now past the cross and primary trail which is still overlaid by the highlighter tool. (Figure 4)

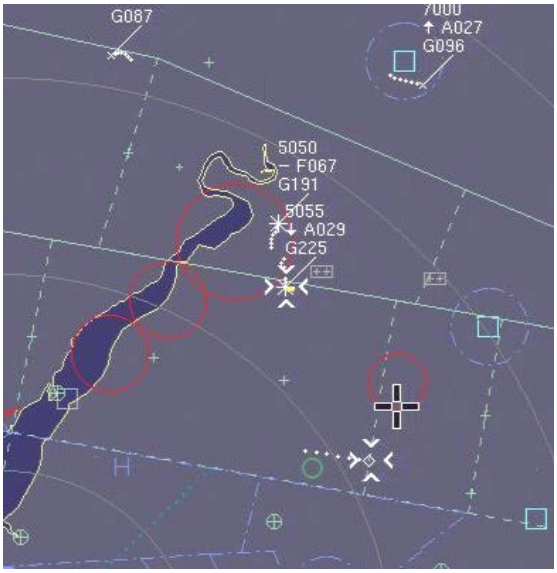


Figure 3

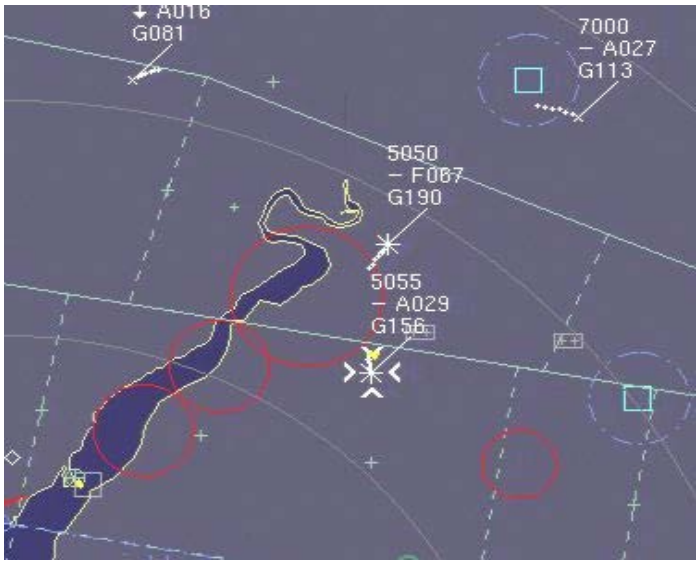


Figure 4

1245.34 - The unknown primary return is clear of the highlighter tool cross but obscured by the associated data block.

1245.55 - [PA34 C/S] is given heading and level joining instructions by Bristol Radar which is readback correctly.

1246.33 - The unknown primary return is seen amongst the data block characters. (Figure 5)

1247.15 – the unknown primary return is clear of data block. (Figure 6)

Figure 5

Figure 6

1249.55 - the primary return is seen recovering to Nympsfield.

The controllers' radar was set at 40nm range for operational use but the investigation was conducted with the radar resolution on high magnification which is not representative of the controller's screen resolution. The Target Highlighter obscured the event for most of the time. The event occurred 30nm NNE of Bristol Airport meaning that low level primary radar cover would be poor (theoretically, the base of radar cover increases by 1000ft every 10nm from the radar head). The period between the pop up of the unknown primary return and it being obscured was 15secs. The unknown target was travelling slowly, so it had not developed a prominent trail that would make it more visible. On occasions, the Bristol Radar produces false returns due to atmospheric conditions. The pilot made no mention of the event during or after the encounter.

MATS PT 1. Traffic Service: Section 1 chapter 12 Para 3 states that under a Traffic Service the ATCO providing the service is not responsible for maintaining separation minima but will endeavour to provide pertinent information to assist the pilot.

The Radar controller did not see the unknown radar return because of the scale of the display and possibly poor low-level cover. The Highlighter Tool obscured most of the event.

UKAB Secretariat

The PA25/DG 505 and PA34 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 PA34 pilot was required to give way to the PA25 towing the DG 505.[2]

[1] SERA.3205 Proximity.
[2] SERA.3210 Right-of-way (c)(2)(iv) Converging.

Comments

BGA

Even in what appears to be poor weather for GA, gliding operations carry on from many sites. It is not unusual to encounter sailplane and tug traffic nearby above the local cloud base.

Summary

An Airprox was reported when a PA25/DG 505 and a PA34 flew into proximity west of Nympsfield at 1244hrs on Wednesday 9th October 2019. The PA25/DG 505 pilots were operating under VFR in VMC and the PA34 pilot operating IFR in IMC, the PA25/DG 505 pilot not in receipt of a service and the PA34 pilot in receipt of a Traffic Service from Bristol.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings and reports from the air traffic controller involved. 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.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided a combination of written contributions and dial-in/VTC comments. Although not all Board members were present for the entirety of the meeting and, as a result, the usual wide-ranging discussions involving all Board members were more limited, sufficient engagement was achieved to enable a formal assessment to be agreed along with the following associated comments.

The Board began by looking at the actions of the Bristol controller and controller members noted that, when the PA34 pilot called Bristol, the controller didn't agree a Traffic Service with the pilot until about 2mins after the initial call. Instead, the controller was agreeing administrative details, confirming type of approach and weather information before he allocated a squawk to the aircraft; as a result, it took longer than many considered necessary to allocate a squawk and identify the PA34. This resulted in the aircraft travelling 2.9nm before obtaining a service, just when the PA34's radar contact had merged with the PA25's primary return. Although controllers wouldn't necessarily be aware of all glider sites at such range, controller members commented that positioning the highlighter tool in that area after the PA34 pilot had established contact had been contributory to the controller not seeing the primary return (**CF5**) or identifying the necessity to pass Traffic Information to the PA34 pilot (**CF1, 3 & 4**). Members agreed that, in this respect, the OJTI had a greater opportunity to mentor the student and should have stepped in to reposition the highlighter tool and ensure the PA34 pilot was put under a service quickly to provide the pilot with a better level of service (**CF2**).

The Board then looked at the actions of the PA34 pilot. He was operating IFR and no doubt concentrating on his instruments whilst relying on Bristol to provide him with Traffic Information under his Traffic Service. Unfortunately, he had not seen the glider/tug combination, although they had seen him (**CF8**). The PA34 pilot reported that he was between cloud layers and had called Bristol well before he reached the vicinity of the Nympsfield glider site; unfortunately Bristol had not yet put him under a service at the time of the incident and so he had not received Traffic Information on the glider/tug combination (**CF6**). Notwithstanding, members opined that he would have been better served by avoiding Nympsfield by a greater margin until receiving an ATS from Bristol. Although it was not reported by the PA34 pilot if his aircraft had an electronic warning system fitted, FLARM would likely have given him useful information had it been installed but any TAS that relied on transponder returns would not have assisted because the PA25 was not transponder-equipped (**CF7**).

Turning to the actions of the PA25/DG 505 tug/glider combination, members again noted that the PA25 was not transponder equipped and commented that, had it been, this would have provided significant mitigation to the collision risk because the Bristol controller would have been able to quickly identify the

PA25 as a conflict to the PA34, and any aircraft that were TAS equipped would also gain valuable situational awareness. To this end members resolved to recommend that the BGA reiterate guidance to gliding clubs regarding the significant mitigation to mid-air collision afforded by fitment of SSR transponders to tug aircraft. As it was, the DG 505 pilot only saw the PA34 very late (**CF9**), as it approached and passed behind some 500ft above them.

Turning to the risk, members agreed that, notwithstanding any potential transponder height inaccuracies, the DG 505 pilot had perceived the height separation to be a little closer than it was in actuality, probably due to a late sighting; difficulties in visually judging height separation; and potential startle-factor. The DG 505 pilot had commented that the PA34 had flown behind them but had been unable to assess the range. The radar recording showed a CPA of 0.4nm between the PA34 and the primary return, and so the Board agreed that the combination of range and height separation indicated that there had been no risk of collision. That being said, they also agreed that safety had been reduced below the norm, and that the controller could have intervened at an earlier stage had they established a service in a more timely manner. Accordingly, the Board assessed the risk as Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTOR(S) AND RISK

Contributory Factor(s):

	2019294		
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 Detection - Not Detected	
4	Human Factors	• Traffic Management Information Provision	Not provided, inaccurate, inadequate, or late
5	Human Factors	• Monitoring of Equipment/Instruments	Equipment misinterpreted
	Flight Elements		
	• Situational Awareness of the Conflicting Aircraft and Action		
6	Contextual	• Situational Awareness and Sensory Events	Generic, late, no or incorrect Situational Awareness
	• Electronic Warning System Operation and Compliance		
7	Technical	• ACAS/TCAS System Failure	Incompatible CWS equipment
	• See and Avoid		
8	Human Factors	• Monitoring of Other Aircraft	Non-sighting or effectively a non-sighting by one or both pilots
9	Human Factors	• Monitoring of Other Aircraft	Late-sighting by one or both pilots

Degree of Risk: E.

Recommendation: The BGA reiterate guidance to gliding clubs regarding the significant mitigation to mid-air collision afforded by fitment of SSR transponders to tug aircraft.

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:

Ground Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the Bristol controller did not pass timely Traffic Information to the PA34 pilot.

Manning and Equipment were assessed as **partially effective** because the Bristol OJTI did not ensure the PA34 pilot was provided with a suitable service as soon as possible and therefore did not provide sufficient mentoring to the student controller.

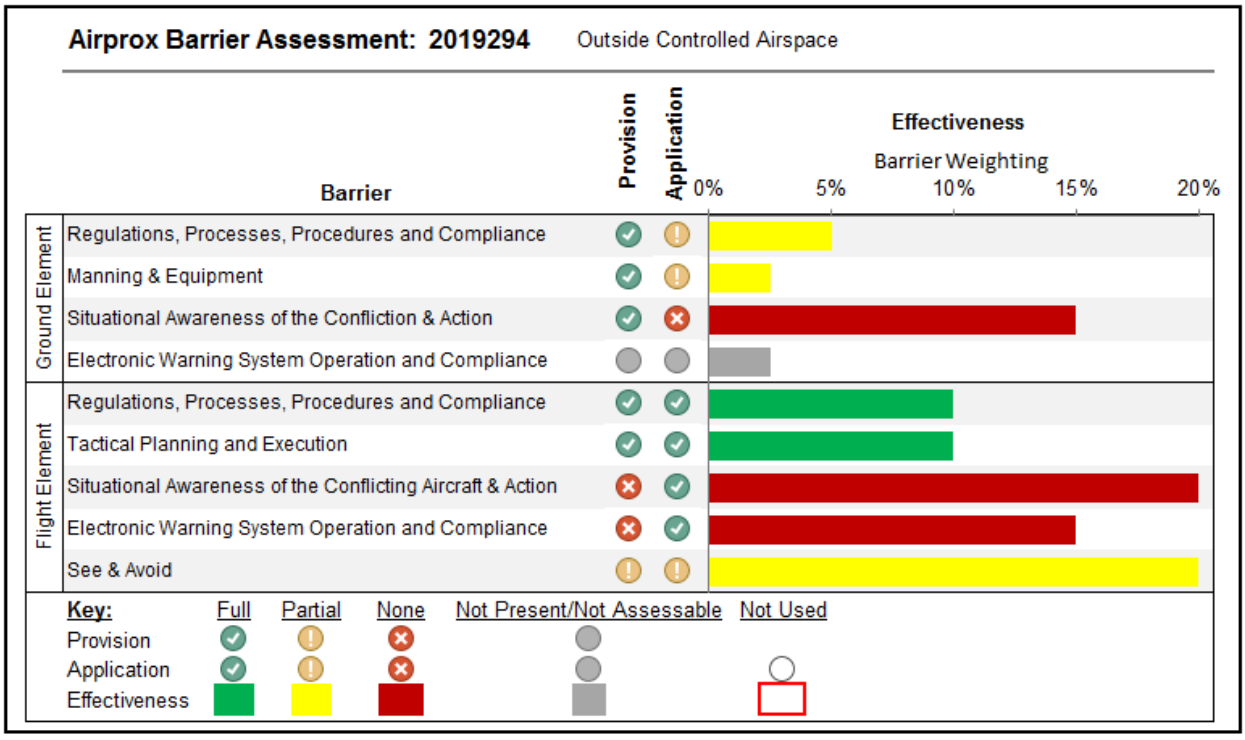
Situational Awareness of the Confliction and Action were assessed as **ineffective** because the Bristol controller did move the highlighter tool away from the area of the PA34 and therefore did not adequately utilise the equipment he had available, this would have provided the controller with a greater opportunity to see the conflicting traffic.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had any information regarding the other aircraft.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the FLARM system is incompatible with non-FLARM equipped transponding aircraft.

See and Avoid were assessed as **partially effective** because the DG 505 pilot saw the PA34 late and the PA34 pilot did not see the glider/tug combo.



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