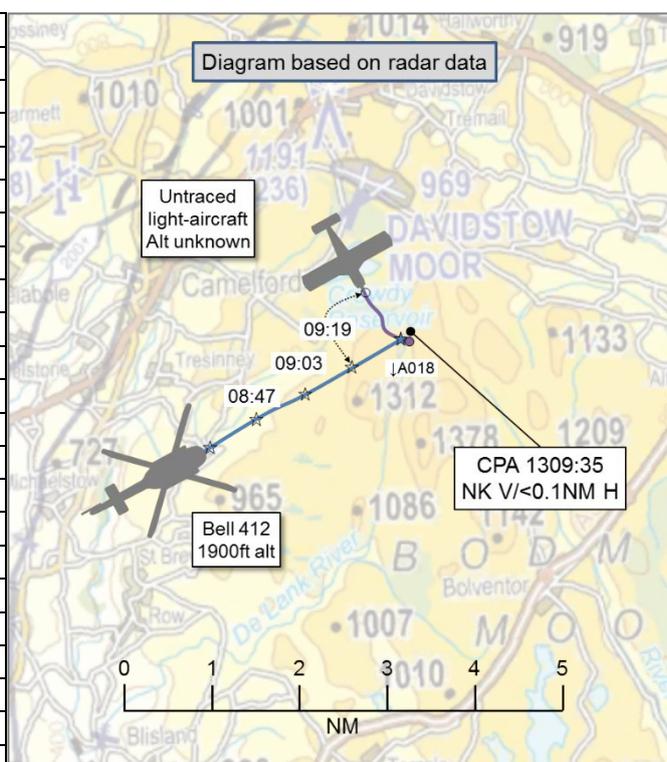


AIRPROX REPORT No 2020060

Date: 07 Jul 2020 Time: 1310Z Position: 5036N 00436W Location: Bodmin Moor

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Bell 412EP	Untraced light ac
Operator	Civ Comm ¹	Unknown
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	NK
Service	Basic	Unknown
Provider	Newquay Approach	NK
Altitude/FL	1800ft	NK
Transponder	A, C, S	Nil
Reported		
Colours	Black/Yellow	NK
Lighting	HISLs, Nav, Lndg	NK
Conditions	VMC	NK
Visibility	15NM	NK
Altitude/FL	2000ft	NK </td
Altimeter	QNH (1022hPa)	NK
Heading	055°	NK
Speed	120kt	NK
ACAS/TAS	TAS	Unknown
Alert	None	Unknown
Separation		
Reported	150ft V/150m H	NK V/NK H
Recorded	NK V/<0.1NM H	



THE BELL 412 PILOT reports that they were in the cruise at 2000ft in good VMC when the instructor suddenly became aware of a white fixed-wing aircraft in close proximity to their helicopter. The instructor took control from the student and pushed the cyclic forward to descend to ensure separation was maintained, and the helicopter passed below the fixed-wing aircraft. The fixed-wing aircraft appeared from the 10 o'clock position and was hidden from view on a constant bearing behind the large cockpit frame until the last minute; the TAS Sentinel did not produce a contact or warning because, they suggest, the FW was not transponding. They advised Newquay ATC that they had come very close to another aircraft and that they would be filing an Airprox report on landing.

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

THE LIGHT AIRCRAFT PILOT could not be traced.

THE NEWQUAY APPROACH CONTROLLER reports that they were working both the Tower and Approach positions with the frequencies band-boxed. The Bell 412 pilot reported that a light-aircraft crossed within 300ft of their helicopter and asked if the controller could see anything on radar. The only other aircraft that the controller was working on the Approach frequency was a Piper Cub, on which he had passed Traffic Information to the Bell 412 pilot who had subsequently called visual with that aircraft; both these aircraft were being provided with a Basic Service. The controller was not aware of any other aircraft in the vicinity of the Bell 412 and the helicopter pilot stated that they had not seen a transponder which suggested that they had not seen anything on their TCAS.

¹ The Bell 412 was being operated under the Military Aviation Authority's (MAA) Contractor Flying Approved Organisation Scheme (CFAOS). Therefore, both SERA and MAA Regulations apply.

Factual Background

The weather at Cornwall Airport Newquay was recorded as follows:

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METAR EGHQ 071250Z 25015KT 9999 FEW018 BKN030 16/11 Q1022=
METAR EGHQ 071320Z 26017KT 9999 BKN031 16/11 Q1021=
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Analysis and Investigation

Cornwall Airport Newquay ATC

This encounter was reported by the Bell 412 pilot at 13:09:39, no corresponding radar return for the unknown aircraft was seen in the 10min leading up to this call, but there were briefly 2 PSR contacts seen diverging (1 SE, 1 NE) after it was made.

The Bell 412 pilot had requested and been given a Basic Service at 1305, and had faded from SSR cover at 1308. The ADI and APS frequencies were band-boxed, which was appropriate for the traffic situation at the time.

UKAB Secretariat

Both the NATS and Newquay radar recordings were reviewed. The untraced light-aircraft did not appear on the Newquay radar display until after CPA; therefore, the following screenshots are taken from the NATS radar replay and are not representative of the Newquay controller's display.

The Bell 412 had been tracking northeast-bound for at least 2min prior to the Airprox and at a relatively stable altitude of 1900ft. The untraced light-aircraft first appeared on the NATS radar as a primary-only return 16sec (4 radar sweeps) prior to CPA, at 1309:19 (Figure 1). The 2 aircraft continued on their relative flightpaths until CPA at 1309:35 (Figure 2). At this time, according to SSR data, the Bell 412 pilot had descended by 100ft; this was most likely due to their sighting of the untraced light-aircraft.

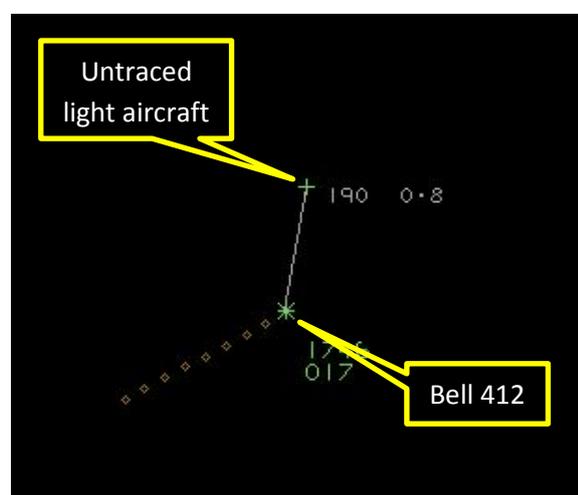


Figure 1 – 1309:19

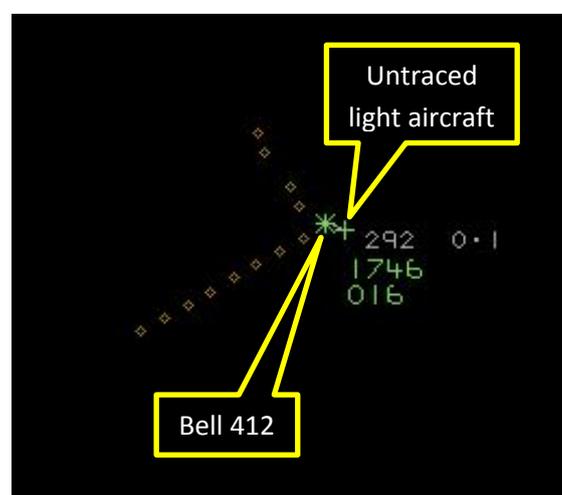


Figure 2 – 1309:35 (CPA)

CPA occurred between radar sweeps; the nearest measurable return is shortly after the aircraft tracks crossed and is measured at 0.1NM horizontal separation; the vertical separation is unknown due to the lack of SSR data from the untraced light-aircraft.

The Bell 412 and untraced light-aircraft pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.² If the incident

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

geometry is considered as converging then the untraced light-aircraft pilot was required to give way to the Bell 412.³

Summary

An Airprox was reported when a Bell 412 and an untraced light-aircraft flew into proximity over Bodmin Moor at 1310Z on Tuesday 7th July 2020. The Bell 412 pilot was operating under VFR in VMC and in receipt of a Basic Service from Newquay Approach. The light-aircraft pilot could not be traced.

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 and 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.

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 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 first considered the actions of the Bell 412 pilot and heard from a helicopter member that, given the exercise that they had been conducting and the frequent changes of altitude that would have been necessary, a Basic Service had been appropriate to the conditions. However, some members wished to highlight that there is a provision within CAP 774 whereby pilots can request a Traffic Service in a defined block of altitude; CAP 774, Chapter 3, para 3.11 states:

In order to reduce RT loading and increase flexibility, pilots who require to frequently change level whilst receiving a Traffic Service should request a level 'block' to operate within.

Notwithstanding, the untraced light-aircraft had not been displaying on the Newquay controller's radar screen and, under the provisions of a Basic Service, the controller had not been required to monitor the Bell 412 (**CF1**), so the Board agreed that the lack of a surveillance-based ATS had not been a contributory factor in this Airprox. Without any Traffic Information available, and in the absence of any warning from the TAS on-board the Bell 412 (**CF3**), members agreed that the Bell 412 pilot had been denied any situational awareness of the presence of the light-aircraft (**CF2**). Highlighting the importance of maintaining a thorough lookout scan, the Board agreed that the Bell 412 pilot had sighted the light-aircraft later than would have been preferable (**CF6**) and that this had been due, at least in part, to the obscuration caused by the cockpit frame (**CF4**).

Briefly considering the actions of the Newquay controller, members quickly agreed that, irrespective of the agreed ATS, there had been nothing that the Newquay controller could have done because the light-aircraft had not been displayed on the controller's radar screen.

Turning to the risk involved in this encounter, the Board noted that, without a report from the light-aircraft pilot, it was not possible to understand whether or not the light-aircraft pilot had seen the helicopter and judged their separation to be sufficient. However, and in the absence of any measured vertical separation from the available radar data, members noted that the Bell 412 pilot had assessed the risk of collision as 'high' and had taken late avoiding action. This, coupled with the known lateral separation of the two aircraft at CPA, led the Board to agree that safety had been much reduced and that a definite risk of collision had existed(**CF5**); Risk Category B.

³ SERA.3210 Right-of-way (c)(2) Converging. MAA RA 2307 paragraph 12.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**Contributory Factors:**

2020060			
CF	Factor	Description	Amplification
Ground Elements			
• Situational Awareness and Action			
1	Contextual	• ANS Flight Information Provision	Not required to monitor the aircraft under the agreed service
Flight Elements			
• Situational Awareness of the Conflicting Aircraft and Action			
2	Contextual	• Situational Awareness and Sensory Events	Pilot had no, late or only generic, Situational Awareness
• Electronic Warning System Operation and Compliance			
3	Technical	• ACAS/TCAS System Failure	Incompatible CWS equipment
• See and Avoid			
4	Contextual	• Poor Visibility Encounter	One or both aircraft were obscured from the other
5	Contextual	• Near Airborne Collision with Aircraft, Balloon, Dirigible or Other Piloted Air Vehicle	Piloted air vehicle
6	Human Factors	• Monitoring of Other Aircraft	Late-sighting by one or both pilots

Degree of Risk: B

Safety Barrier Assessment⁴

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

Situational Awareness of the Conflicting Aircraft and Action were assessed as **not used** because the controller was not required to monitor the Bell 412 under the terms of a Basic Service.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the Bell 412 pilot had no knowledge of the presence of the untraced light-aircraft.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the TAS on the Bell 412 was unable to detect the non-transponding light-aircraft.

See and Avoid were assessed as **partially effective** because the untraced light-aircraft was obscured from the view of the Bell 412 pilot by the cockpit frame which led to a late sighting of the light-aircraft by the Bell 412 pilot.

⁴ 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: 2020060		Outside Controlled Airspace		Effectiveness				
Barrier		Provision	Application	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:		<u>Full</u>	<u>Partial</u>	<u>None</u>	<u>Not Present/Not Assessable</u>	<u>Not Used</u>		
Provision	✔	⚠	✘	○				
Application	✔	⚠	✘	○	○			
Effectiveness	■	■	■	■	□			