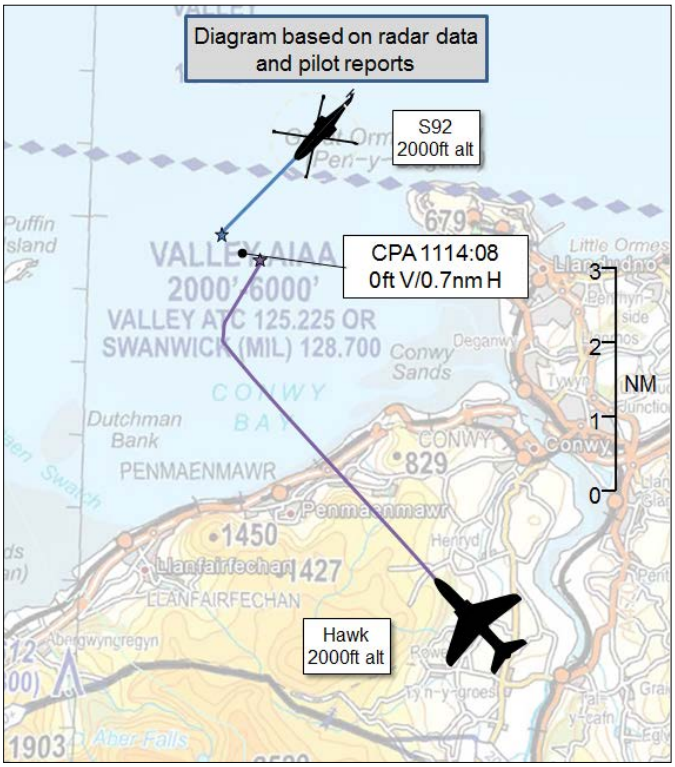
AIRPROX REPORT No 2017015

Date: 07 Feb 2017 Time: 1114Z Position: 5319N 00355W Location: West of Llandudno

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	S92	Hawk
Operator	SAR	HQ Air (Ops)
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	None
Provider	Valley	N/A
Altitude/FL	2000ft	2000ft
Transponder	On/C, S	On/C
Reported		
Colours	White, Red	Not reported
Lighting	Strobe, Nav, Landing, HISL	Not reported
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	2000ft	1000ft
Altimeter	QFE	Not reported
Heading	230°	359°
Speed	120kt	360kt
ACAS/TAS	TCAS II	Not fitted
Alert	RA	N/A
Separation		
Reported	100ft V/0.5nm H	Not Seen
Recorded	0ft V/0.7nm H	



THE S92 PILOT reports he was in the cruise at 2000ft over water recovering to base. The weather conditions were clear with scattered cloud well above and excellent visibility. A TCAS TA alert was heard with a target appearing on the TCAS display from the direction of Northern Snowdonia (10 o'clock). They focused their lookout and, shortly afterwards, they observed a Hawk in the 10 o'clock at approximately 1nm and 100ft below, simultaneous with one TCAS RA of 'climb-climb'. The TCAS RA cancelled itself almost straight away and the Hawk was seen to be turning dynamically away into the 4 o'clock, the crew remained visual with the target. When they asked ATC a few minutes later about the Hawk they stated they had no traffic on frequency. On return to their base an ASR/MOR was submitted due to the TCAS RA. Subsequently the company Flight Safety department requested an Airprox be raised.

He assessed the risk of collision as 'None'.

THE HAWK PILOT reports he had conducted a medium-level transit from his base to the North Wales MTA, under the Control of Swanwick Mil. He had cleared Class A airspace to the SW of Wallasey. Upon entering Class G airspace he requested a Traffic Service for his descent to approximately 5000ft AGL in VMC. Anticipating a further descent towards LFA 7, he routed northbound up the Conwy Valley and changed UHF frequency from Swanwick Mil to the UK Mil Low Flying frequency. As he coasted out, just to the west of the Conwy Estuary, he descended from approximately 2000ft AGL to 1000ft AGL, in a reasonably gentle right-hand turn. He entered the low-flying system as he coasted back in at the northern end of the Conwy Valley at 1000ft AGL, and continued his descent to 250ft AGL as he routed south towards Bala. He was informed that a S92 had filed an Airprox, at no time did he see the helicopter.

THE VALLEY CONTROLLER reports that whilst he was working as the Approach controller he was aware of the Radar controller working a rotary S92 under a Basic Service. As the S92 proceeded southwest bound and passed abeam the Gt Orme, an unknown squawking aircraft appeared heading north-bound out of the Conwy estuary towards the S92. It appeared this aircraft was already in a tight right-hand turn as it approached the S92, presumably to re-enter the low-level system. The S92 did not raise a concern at the time and, whilst the Radar controller spotted the event, both of them were comfortable that they did not come close enough to constitute a duty of care concern to require calling to a Basic Service aircraft. Later in the sortie, the S92 pilot asked if Valley had been controlling the Hawk that appeared out of low-level near the Gt Orme. The Radar controller confirmed that Valley had not been. The controller commented that, had the S92 been under a Traffic Service the unknown aircraft would have been called immediately. A large amount of traffic routinely routes around the area in question under a Basic Service and would not routinely be given Traffic Information in this scenario unless they were under a higher level of service.

He perceived the severity of the incident as 'Low'.

THE VALLEY SUPERVISOR reports that they were made aware by the Deps / LARS controller that the S92 had enquired about a Hawk exiting the low-level system that had caused them a TCAS alert. The S92 was under a Basic Service although clearly showing on both primary and secondary radar. The only known Hawk that was in the low level system was also still showing clearly on radar, and although in a similar area, did not appear to have come within about 5 miles of the S92. He noted the time of the incident but took no further action.

Factual Background

The weather at Valley was recorded as follows:

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METAR EGOV 071050Z 25008KT 9999 FEW024 08/03 Q1011 BLU TEMPO SCT020 WHT
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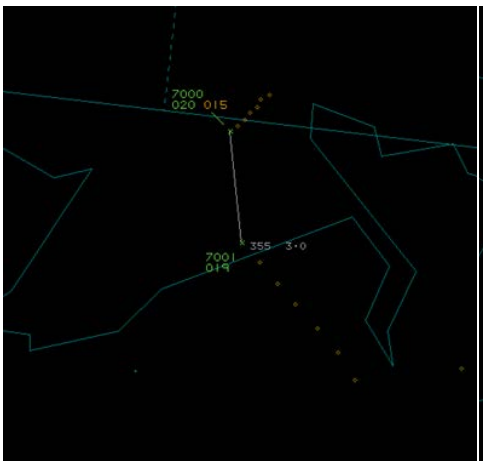
Analysis and Investigation

Military ATM

Portions of the tape transcripts between the Valley Radar controller and the S92 are below:

From	To	Speech Transcription	Time
[S92 C/S]	Valley Radar	Valley Radar [S92 C/S].	11:28:28
Valley Radar	[S92 C/S]	[S92 C/S] Valley Radar pass message.	11:28:34
[S92 C/S]	Valley Radar	Radar [S92 C/S] we're now complete at the end of the straights we're just routing up to north of Newborough to operate 500 and below for 10 minutes.	11:28:37
Valley Radar	[S92 C/S]	[S92 C/S] roger manoeuvre not above 500 feet on the Valley QFE 1010.	11:28:51
[S92 C/S]	Valley Radar	Manoeuvring not above 500 feet on 1010.	11:28:57
Valley Radar	[S92 C/S]	[S92 C/S] squawk 3753.	11:29:04
[S92 C/S]	Valley Radar	3753 [S92 C/S] and just for information when we were just South of the Orme we saw a Hawk manoeuvring at 2000 feet similar level to us to ourselves were they on your frequency?	11:29:08
Valley Radar	[S92 C/S]	[S92 C/S] negative not on my frequency.	11:29:23
[S92 C/S]	Valley Radar	Roger that's copied [S92 C/S].	11:29:26

Figures 1-3 are screen shots taken from replays of the Great Dun Fell radar, therefore do not represent the picture seen by the Valley Radar controller:



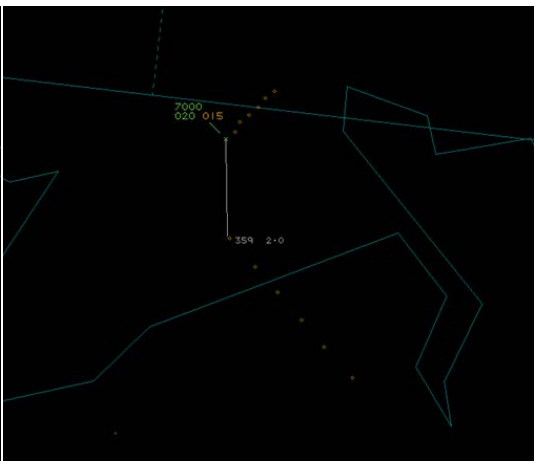


Figure 1: Geometry at 11:13:42 Figure 2: Geometry at 11:13:58
(S92 7000; Hawk 7001)

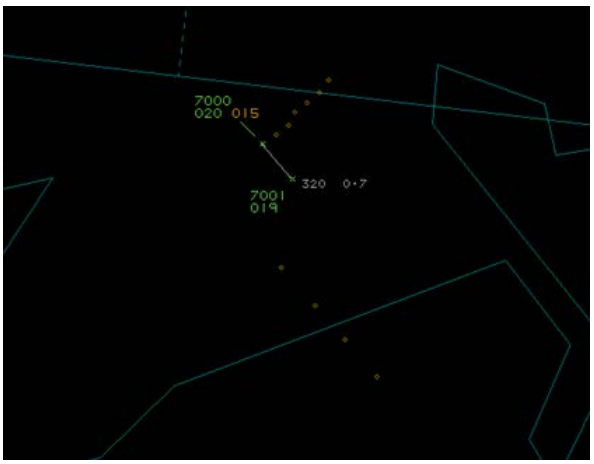


Figure 3: Geometry at 11:14:05

The S92 had not been formally identified but was receiving a BS from the Valley Radar controller. The controller was also aware of an aircraft operating on a low-level squawk in the vicinity of Conwy but did not consider it to be a factor to the S92, therefore did not pass Traffic Information (TI). The Valley Approach controller concurred with the belief that there was no risk of collision and the decision not to take action, based on experience of low-level traffic in the area. The Airprox was not reported on frequency at the time of the occurrence, but by landline approximately one day later.

In accordance with CAP 774:

> *Given that the provider of a Basic Service is not required to monitor the flight, pilots should not expect any form of traffic information from a controller/FISO. A pilot who considers that he requires a regular flow of specific traffic information shall request a Traffic Service.*
>
> *A controller with access to surveillance-derived information shall avoid the routine provision of traffic information on specific aircraft but may use that information to provide a more detailed warning to the pilot.*
>
> *If a controller/ FISO considers that a definite risk of collision exists, a warning shall be issued to the pilot (SERA.9005 (b)(2) and GM1 SERA.9005(b)(2)).*

UKAB Secretariat

The S92 and Hawk 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 Hawk pilot was required to give way to the S92[2].

Comments

HQ Air Command

This incident took place in an area that is familiar to controllers based at RAF Valley as a low-level entry point. The Hawk pilot had descended under a Traffic Service with Swanwick(Mil) and, on approaching low-level with good weather conditions, elected to switch directly from Swanwick(Mil) to the UHF low-level frequency in order to gain SA on any military traffic in the area (there is currently no VHF common frequency in use to the south of Latitude N56°). He had considered using an ATS from RAF Valley during the descent but deemed this unnecessary as his intentions were to fly a low-level route and Swanwick(Mil) was able to provide an appropriate ATS until his entry to low level. The S92 pilot had requested a BS from RAF Valley and was transiting the area as the Hawk entered low-level. The controller did not call the Hawk traffic to the S92 pilot as he expected the Hawk to turn and enter the Valley, as is common in that area, and also did not consider the Hawk's proximity to his S92 traffic to be relevant. However, had the S92 pilot been under a Traffic Service then the controller stated that Traffic Information would have been passed.

The TCAS on the S92 alerted its pilot to the presence of the Hawk and he was able to gain visual with the other aircraft as it turned to enter low-level. There is no Collision Warning System (CWS) currently fitted to Hawk T1 aircraft but the interaction of the S92's TCAS and the Hawk's transponder was an effective barrier, as was the cueing of the S92 pilot's lookout. Although the ATS barrier was weakened by the fact that the Hawk pilot was not speaking to the controller and the S92 pilot had requested a Basic Service, the aircraft never came closer to each other than 0.5nm. This highlights the importance of interactive means of electronic conspicuity as a means to reduce the risk of MAC in many flight regimes, as well as the importance of a disciplined lookout scan (aided where necessary by on-board and off-board sensors).

Summary

An Airprox was reported when a S92 and a Hawk flew into proximity at 1114 on Tuesday 7th February 2017. Both pilots were operating under VFR in VMC, the S92 pilot in receipt of a Basic Service from Valley and the Hawk pilot not in receipt of a Service.

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.

The Board began their discussions by looking at the actions of the Air Traffic Controllers. Controller members commented that the adage of 'Control what you see' was pertinent in this scenario and that there appeared to have been an assumption by the controllers that the unknown squawk would turn towards the coast based on what was previously observed activity for fast-jets in that area. Members opined that although this might be the norm, had the Hawk pilot decided to delay his turn, or not turn at all, then the time to react and pass Traffic Information to the S92 pilot would not have been sufficient to allow the S92 pilot to act on the information. Given that the Valley controllers stated that they would have passed Traffic Information if the S92 had been on a Traffic Service, controller members agreed that, notwithstanding the fact that the S92 was under a Basic Service, it would have

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

been prudent to have also done so in this case given the geometry of the encounter and the speed of the Hawk.

The Board then looked at the actions of the Hawk pilot. Accepting that he was operating under VFR in Class G airspace, members with military experience opined that, during his descent, it might have been prudent for him to have passed an information call to Valley in order to increase their situational awareness and his own regarding the local traffic situation; they stressed though that it was a finely balanced decision and there was no requirement to do so. Noting that the Hawk pilot had not seen the S92 at all, the Board wondered whether he had become task-focused on his low-level entry track and timings to the detriment of lookout; this was a timely reminder of the need to prioritise a robust lookout even when conducting detailed navigation tasks.

The Board then turned to the actions of the S92 pilot. They acknowledged that the pilot had seen the Hawk prior to it commencing its right turn and agreed that he had appropriately used the TCAS information to gain visual contact with the Hawk. The Board opined that the TCAS RA was probably only momentarily initiated due to the Hawk's speed and rate of turn, and that action had not been required by the S92 pilot because the Hawk was fortuitously already turning and passing abeam the S92 when sighted.

The Board then considered the cause and risk of the incident. Members quickly agreed that the S92 pilot had received the TCAS alert and made a visual sighting of the Hawk in sufficient time to assess whether avoiding action was required. Although there was an element of fortuitous timing in the Hawk's coincidental turn, members were satisfied that the S92 pilot could have conducted an avoiding manoeuvre had it been required. Notwithstanding that the Hawk pilot did not see the S92, members felt that the S92 pilot's sighting of the Hawk was sufficiently early that the incident was best described as a conflict in Class G airspace. Turning to the risk, members agreed that although safety had been degraded, the S92 pilot was visual with the Hawk sufficiently early to ensure that there was no risk of collision; accordingly, the Board assessed the risk as Category C.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in Class G.

Degree of Risk: C.

Safety Barrier Assessment[3]

The Board decided that the following key safety barriers were contributory in this Airprox:

ATC Conflict Detection and Resolution was considered to be **partially effective** because although the S92 was under a Basic Service, ATC had detected a potential conflict but did not pass on that information because they assumed that the Hawk would turn. Given that they did not know the Hawk pilot's intentions, and with the aircraft at the same altitude, it would have been pertinent for ATC to have passed Traffic Information to the S92 pilot.

Flight Crew Situational Awareness was also considered to be **partially effective** because the Hawk was not in communication with Valley ATC and neither aircraft was specifically aware of the other until just before CPA.

Onboard Warning/Collision Avoidance Equipment was also considered to be **partially effective** because the Hawk was not fitted with any collision warning equipment. Notwithstanding, the barrier did provide functionality because the S92 had TCAS II, and the Hawk was transponding, which alerted the S92 pilot to the presence of the Hawk.

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

See and Avoid was considered to be only **partially effective** because the Hawk pilot did not see the S92.