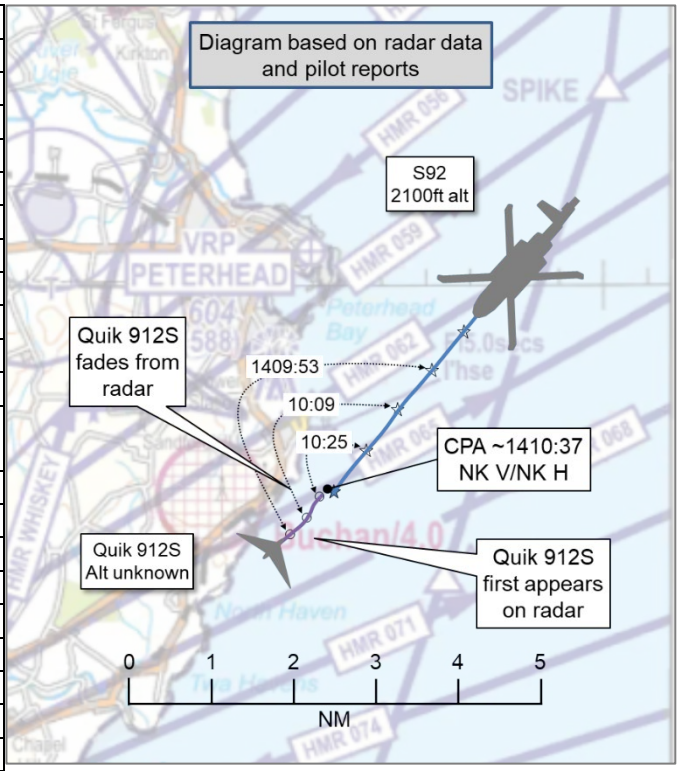
## AIRPROX REPORT No 2020121

Date: 14 Sep 2020 Time: 1411Z Position: 5728N 00147W Location: 2NM SSE of Peterhead

## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

| Recorded | Aircraft 1 | Aircraft 2 |
|---|---|---|
| Aircraft | S92 | Quik 912s |
| Operator | Civ Comm | Civ FW |
| Airspace | Scottish FIR | Scottish FIR |
| Class | G | G |
| Rules | VFR | VFR |
| Service | Traffic | None |
| Provider | Aberdeen Radar | Longside Radio |
| Altitude/FL | FL019 | NK |
| Transponder | A, C, S | Not fitted |
| **Reported** | | |
| Colours | Red, White, Blue | Red, White |
| Lighting | HISL, Anticolls, Position lights | NR |
| Conditions | VMC | NK |
| Visibility | >10km | NR |
| Altitude/FL | 1700ft | 1500ft |
| Altimeter | QNH (1018hPa) | 'Standard' |
| Heading | 216° | NR |
| Speed | 135kt | 65kt |
| ACAS/TAS | TCAS II | Not fitted |
| Alert | None | N/A |
| **Separation** | | |
| Reported | 200ft V/200m H | Not Seen |
| Recorded | NK V/<0.6NM H[1] | |




**THE S92 PILOT** reports in the descent, passing approximately 1700ft into Aberdeen and having just passed abeam Longside Aerodrome, just offshore, when the RH seat pilot noticed a dark object pass down the right-hand side of the aircraft. On looking back, it was observed that a microlight with a dark grey delta wing had passed closely down the right-hand side of the aircraft (the distances reported are rough visual estimates). They opine that the reason that it was spotted late was that it blended into the background (the pilot was looking towards the coastline). ATC was notified and replied stating that there was no reported microlight activity. They continued to land at Aberdeen.

The pilot assessed the risk of collision as 'None'.

**THE QUIK 912S PILOT** reports that they did not see the other aircraft.

**THE ABERDEEN HELS CONTROLLER** reports that [the S92 pilot] was recovering VFR into Aberdeen and had been routed offshore to Hackley Head due to activity at Peterhead/Longside airfield. [The S92] was descending to 1000ft approximately 2NM NE of the village of Cruden Bay when the pilot reported a "hang glider with an engine on the back" passing down their right-hand side, 200ft below. The top of the wing was dark grey/black in colour. No radar contact of any kind was observed. The pilot reported filing an Airprox.

[1] The Quik 912S fades from radar at 0.6NM.

## Factual Background

The weather at Aberdeen was recorded as follows:

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METAR COR EGPD 141420Z AUTO 22006KT 9999 NCD 19/13 Q1018 NOSIG=
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## Analysis and Investigation

### NATS Aberdeen

An S92 helicopter was inbound to Aberdeen from an offshore platform at A020 with 10NM to run to the coast at Peterhead, anticipating a VFR join. The pilot was initially receiving an Offshore Deconfliction Service with HELS, but this was changed to a Traffic Service before the reported Airprox occurred.

At **1407:22** the HELS controller called [the S92 C/S] and advised "*Traffic Service as you approach the coast*" and then passed Traffic Information on a contact squawking 7000 in the circuit at Longside airfield (just west of the town of Peterhead). The change in service was read back correctly and the pilot reported looking for the traffic.

For clarity in this report, the screenshots used are cropped from the full display. The HELS controller works with their displays expanded to 80NM from Aberdeen, to cover the whole sector.

At **1409:33** an intermittent PSR contact first appeared on the Allanshill radar about 4NM ahead of [the S92 C/S] (Figure 1). This was not visible on the Perwinnes radar, which is the source the HELS controller was primarily using at this time. Approximately 10sec later this contact had faded and was no longer visible on the Allanshill display either.


Figure 1

At **1409:38** the HELS controller called [the S92 pilot] again and the following exchange took place:

HELS - "*[S92 C/S], previously mentioned traffic now disappeared from radar contact, you can descend when ready altitude 1000ft*".

[S92 C/S] - "*That's copied, descending now, [S92 C/S]*".

HELS - "*[S92 C/S] clearance VFR via Hackley not above altitude 1000ft*".

[S92 C/S] - "*In the zone via Hackley, not above altitude 1000ft, [S92 C/S]*".

At **1409:59** the PSR return re-appeared on the Allanshill display, as shown in Figure 2. Again, nothing was seen on the Perwinnes radar display, as shown in Figure 3; both screenshots were taken at the same time.


Figure 2


Figure 3

At **1410:17** the Allanshill radar showed the PSR return about to merge with the combined PSR/SSR return of [the S92] (Figure 4). There was still nothing seen on the Perwinnes radar and, on the next sweep of the Allanshill radar, the PSR return faded again. It could be seen for one more sweep as the aircraft passed each other and was then not seen again.

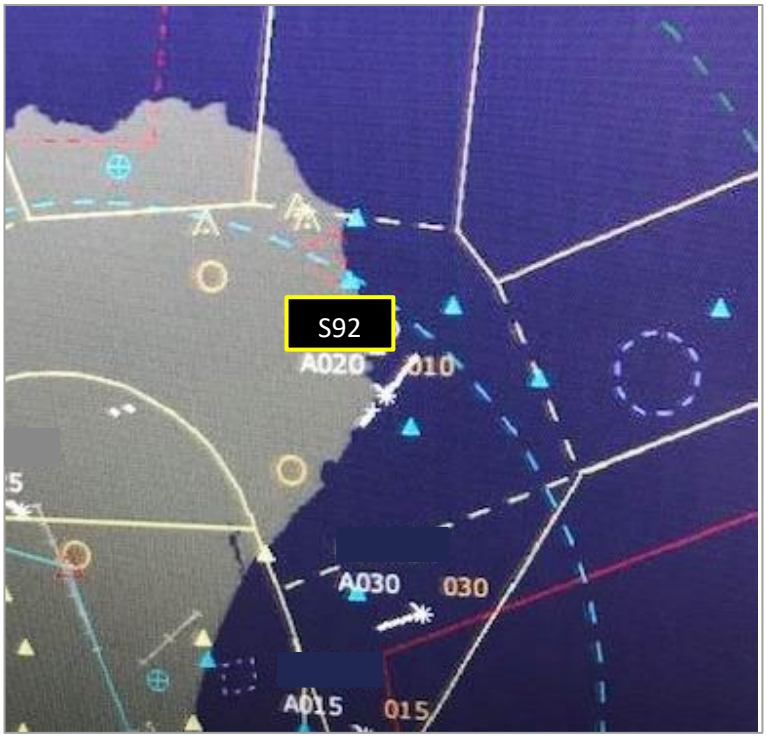


Figure 4

At **1411:01** the pilot of [the S92] called HELS to say - "*Yeah, we seem to have what looked like a hang glider or something along those lines with an engine at the back, just passed down our right hand side by about 200ft*"

HELS - "*[S92 C/S], that's copied nothing seen on radar, no reports of an aircraft in that area. Do you wish to file an Airprox?*"

By this time, the PSR return was not visible on either radar display.

[S92 C/S] -"*Yeah, we'll do that [S92 C/S].*"

HELS -"*OK, we'll get the details when you land, if you can give us a phone and I'll file it this end*".

[S92 C/S] -"*OK we'll do that [S92 C/S].*"

At **1411:58** the exchange continued:

HELS - "*[S92 C/S] Did you say left hand or right hand side?*"

[S92 C/S] - "*Right hand side, onshore side [S92 C/S].*"

HELS - "*Any colours?*"

[S92 C/S] - "*Er, nope, I could see the top of the wing, it kinda looked like dark grey maybe towards black.*"

The HELS controller confirmed that they were not aware of any traffic operating in the area where the Airprox was reported, and did not observe any radar contacts in that area. They did contact the aircraft that had been operating in the circuit [of a local airfield] to ask if they knew of any aircraft that were operating along the coast. They advised that a [local airfield]-based microlight had gone out and returned after a short period of time and offered to telephone the Watch Manager with more details.

The pilot of [the S92] called the Watch Manager at 1448Z and confirmed the events, stating that the aircraft had passed down the right-hand side and about 200ft below. Initially they thought it was a bird passing them, but on closer inspection identified it as a microlight with a V-wing and dark grey on top, as it passed behind them. They believe they were already in the descent passing 1700ft at that time.

At a similar time to the call received from the pilot of [the S92], someone representing the [local airfield] Flying Club called the VCR[2] ATSA[3] to advise they believe the unknown aircraft was a [local airfield]-based microlight and provided contact details for the pilot.

The Watch Manager called the pilot of [the Quik 912S]. The pilot stated that they had been flying along the coast at around 1500ft at the time of the event. They did not recall seeing any helicopters in the vicinity, and stated that they always keep an eye out for them as they are aware of the common routings along the coast.

The HELS controller at Aberdeen provides UK FIS, primarily to civil helicopters operating in support of the North Sea oil and gas industry. The sector extends east from the Aberdeen CTR/CTA boundary to 80NM from the ADN VOR, and vertically from SFC to FL85. The sector is configured with two radar displays, with the Allanshill radar on the upper display and the Perwinnes radar on the lower display. It is not possible at this time to have data from both these radar sources displayed on one screen at Aberdeen. The Perwinnes radar provides good coverage at all levels within at least 40NM of Aberdeen, and as far as 80NM to the east and south-east. The Allanshill radar

[2] Visual Control Room.
[3] Air Traffic Services Assistant.

provides better coverage beyond 40NM to the north-east and in the Moray Firth area. In the area where the Airprox was filed, the coverage from the Perwinnes radar would normally be as good as that from the Allanshill radar.

The PSR target believed to be the [Quik 912S] was intermittently visible, on the Allanshill display only, for a period of 1min 7sec. During this time, in addition to [the S92], the HELS controller's attention was with traffic in the southern part of the sector, so their scan was probably concentrated on the Perwinnes display. By the time [the S92 pilot] reported seeing the microlight, nothing was visible on either of the HELS controller's displays.

The encounter took place in Class G airspace and [the Quik 912S pilot] had not requested an ATS, nor were they operating a transponder. The pilot of [the Quick 912S] reported that they had not seen a helicopter, even though they were looking out for them as they are aware of the common routings in and out of Aberdeen.

[The S92 pilot] was receiving a Traffic Service from the Aberdeen HELS controller. Although an intermittent PSR return could be seen on the Allanshill radar for about a minute before [the Quick 912S] and [the S92] passed each other, this was not seen by the HELS controller who was working traffic on the Perwinnes radar display at the time.

NATS Aberdeen Recommendation: That Engineering explore if it would be possible to capture primary and secondary returns from both Perwinnes and Allanshill radars, combine the returns and display this combined picture on a single monitor in front of the controller.

**UKAB Secretariat**

Analysis of the NATS radar replay showed the S92 tracking southwest in accordance with the pilot's report. At 1409:49, a primary radar return appeared 2.9NM SW of the S92, in a position that was commensurate with both pilots' reports (Figure 5). The primary return tracked northeast, on a reciprocal track to that of the S92, for another 40sec until radar track was lost at 1410:29 (Figure 6). Separation at this time was 0.6NM horizontally; the altitude of the Quik 912S was not recorded so it was not possible to assess the vertical separation.

There was no perceptible deviation of track from the S92 until the 2 aircraft are assumed to have passed. It is estimated that CPA occurred at approximately 1410:37 but, due to the radar return from the Quik 912S fading some 8-10sec prior to the aircraft passing each other, it has not been possible to measure CPA.

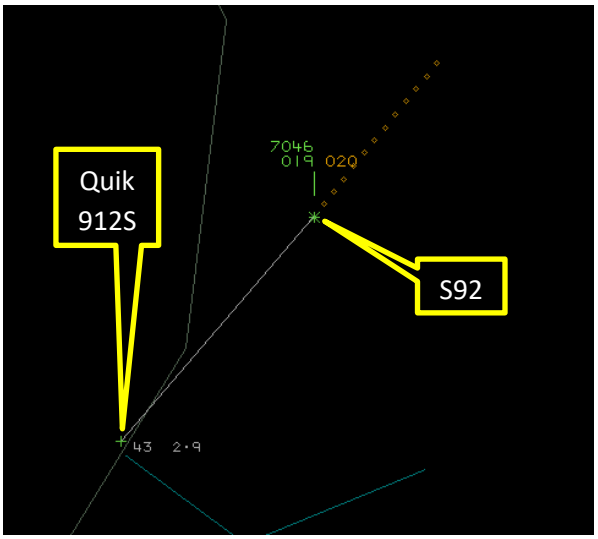


Figure 5 – 1409:49

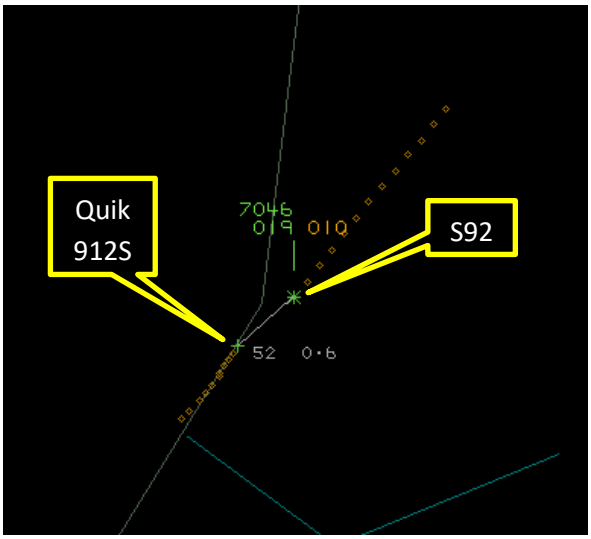


Figure 6 – 1410:29

The S92 and Quik 912S pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[4] If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.[5]

**Summary**

An Airprox was reported when an S92 helicopter and a Quik 912S flew into proximity 2NM SSE of Peterhead at 1411Z on Monday 14th September 2020. The S92 pilot was operating under IFR in VMC and in receipt of a Traffic Service from Aberdeen Radar. The Quik 912S pilot was operating under VFR and not in receipt of an Air Traffic Service.

## 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.

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.

The Board first considered the actions of the Aberdeen controller and heard from an ATC member that the controller could not have been expected to pass Traffic Information on the Quik to the pilot of the S92 as the radar screen that they had been using had not displayed the microlight (**CF2**, **CF3**). Members also heard from an ATC advisor that the Aberdeen controllers are required to cover large areas offshore and so they use whichever display provides them with the best picture in their area of interest. In this case, it had been the Perwinnes radar that the controller had been using, as this had given them the best coverage for the traffic situation that they were dealing with. Whilst the Board agreed that the fact that the fact that the controller's attention had been with traffic in the southern part of the sector – and that this had contributed to them not detecting the conflict (**CF4**) – members also considered that the configuration of the radar displays at Aberdeen had been sub-optimal in this case, in that the information available from both radars had not been presented to the controller on a single display (**CF1**). The Board was heartened to hear that Aberdeen ATC is looking into the possibility of combining the two radar feeds onto a single display.

Turning to the actions of the pilots involved, the Board noted that the Quik 912S pilot had been listening out on their local airfield's radio frequency but considered that they may have been better served talking to Aberdeen, particularly in light of the fact that they had been crossing the Helicopter Main Routes (HMRs) (**CF5**, **CF6**). Furthermore, members also felt that the S92 pilot's choice of routing close to the coast, where there would have been an increased likelihood of encountering General Aviation traffic, had also contributed to this Airprox (**CF5**). Members noted that the Quik 912S had not been fitted with any form of electronic conspicuity that could have interacted with the TCAS II equipment fitted to the S92 (**CF8**), thus totally defeating the Electronic Warning System barrier. This resulted in neither pilot having had any knowledge of the presence of the other aircraft (**CF7**) prior to the S92 pilot spotting the Quick 912S as it had passed down the right-hand side of their aircraft. The Board agreed that the sighting from the S92 pilot had been too late to materially affect the separation between the aircraft and noted that the Quik 912S pilot had not seen the helicopter (**CF10**).

Finally, the Board discussed the risk involved in this Airprox. Members noted that none of the parties involved (the 2 pilots and the Aberdeen controller) had had any situational awareness of the proximity of the 2 aircraft until they had passed each other, and thus any separation that had existed had been entirely fortuitous. Moreover, there was insufficient recorded data for the Board to conclusively judge the actual separation. That said, the S92 pilot's estimated separation and reported risk of collision, coupled with the fact that the Quik 912S pilot had neither heard nor seen the helicopter, led the Board

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

to conclude that, although safety had been reduced, there had been no risk of collision and that this encounter could be best described as a conflict in the FIR (**CF9**); therefore, the Board assigned a risk category C to this event.

## PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

| | 2020121 | | |
|---|---|---|---|
| CF | **Factor** | **Description** | **Amplification** |
| | **Ground Elements** | | |
| | **• Manning and Equipment** | | |
| 1 | Technical | • Aerodrome and ATM Equipment | Non-functional or unavailable equipment |
| | **• Situational Awareness and Action** | | |
| 2 | Contextual | • Situational Awareness and Sensory Events | The controller had only generic, late or no Situational Awareness |
| 3 | Human Factors | • Conflict Detection - Not Detected | |
| 4 | Human Factors | • Distraction - Job Related | Controller engaged in other tasks |
| | **Flight Elements** | | |
| | **• Tactical Planning and Execution** | | |
| 5 | Human Factors | • Flight Planning and Preparation | |
| 6 | Human Factors | • Communications by Flight Crew with ANS | Pilot did not communicate with appropriate ATS provider |
| | **• Situational Awareness of the Conflicting Aircraft and Action** | | |
| 7 | Contextual | • Situational Awareness and Sensory Events | Pilot had no, late or only generic, Situational Awareness |
| | **• Electronic Warning System Operation and Compliance** | | |
| 8 | Technical | • ACAS/TCAS System Failure | Incompatible CWS equipment |
| | **• See and Avoid** | | |
| 9 | Contextual | • Loss of Separation | A conflict in the FIR |
| 10 | Human Factors | • Monitoring of Other Aircraft | Non-sighting or effectively a non-sighting by one or both pilots |

Degree of Risk: C

Safety Barrier Assessment[6]

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

**Ground Elements:**

**Manning and Equipment** were assessed as **ineffective** because the radar feeds from the Allanshill and Perwinnes radars were not combined onto a single display for use by the Aberdeen controller.

**Situational Awareness of the Confliction and Action** were assessed as **ineffective** because the controller was using the Perwinnes radar which did not display the presence of the Quik 912S.

**Electronic Warning System Operation and Compliance** were assessed as **not used** because the STCA at Aberdeen could not detect the presence of the Quik 912S which was not transponder-equipped.

**Flight Elements:**

**Tactical Planning and Execution** was assessed as **partially effective** because the Quik 912S pilot had not planned to communicate with Aberdeen while crossing the HMRs, and the S92 pilot

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

had chosen to route close to the coast, where the likelihood of encountering other traffic would be increased.

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

**Electronic Warning System Operation and Compliance** were assessed as **ineffective** because the TCAS II equipment on the S92 could not detect the presence of the Quik 912S which was not transponder-equipped.

**See and Avoid** were assessed as **ineffective** because neither pilot saw the other aircraft in time to materially affect the separation between them.