

## AIRPROX REPORT No 2013154

Date/Time: 6 Nov 2013 1235Z

Position: 5733N 00233W  
(16nm NW Aberdeen Airport)

Airspace: Scot FIR (Class: G)

Aircraft 1 Aircraft 2

Type: S92A Rans S6  
Microlight

Operator: Civ Comm Civ Pte

Alt/FL: 3000ft 2500ft  
QNH (990hPa) QNH (997hPa)

Weather: VMC VMC

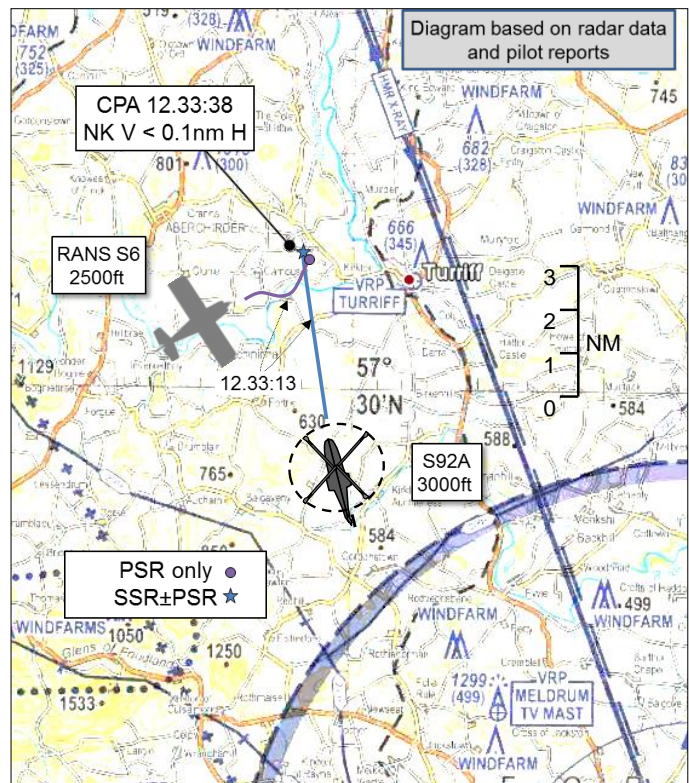
Visibility: >10km 10km

Reported Separation:

300-500ft V/0.5nm H 500ft V/1nm H

Recorded Separation:

NK V/<0.1nm H



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE SIKORSKY S92A HELICOPTER (S92) PILOT** reports operating an outbound flight from Aberdeen airport (ABZ) to a semi-submersible rig. He did not report which lights were illuminated but SSR Modes C and S were selected and the helicopter was equipped with TCAS I. On leaving ABZ Controlled Airspace on a heading of 340°, at 3000ft, a Traffic Service was agreed with Aberdeen Radar. About 2-3nm south of the incident location, Aberdeen Radar terminated the Traffic Service and instructed a handover to Lossiemouth Director. At this point, while the non-handling pilot (seated on the RHS) was making radio calls to acknowledge ATC, he saw a light aircraft in his 12 o'clock about 3-500ft below, and no further than 1nm ahead. The aircraft seemed to be on a more north-northeasterly heading than them (based on relative heading) but flying straight-and-level with its path passing left-to-right and on the helicopter's RHS. He elected not to deviate from his course as he assessed there was no risk of collision; the weather was CAVOK, and he remained in good visual contact throughout. He estimated that the aircraft was 0.5nm at its closest and 3-500ft below. He did not receive a TCAS alert. He thought that the pilot of the other aircraft was probably unaware of the presence of the helicopter due to their relative flight paths (the helicopter being above and behind the light aircraft).

He assessed the risk of collision as 'None'.

**THE RANS S-6-ES COYOTE 11 (S6) MICROLIGHT PILOT** reports operating on a local VFR flight from a small private airfield. The aircraft was coloured grey and black; wing-tip strobe lights were illuminated. It was not equipped with SSR. He believed he was receiving a Basic Service from Scottish Information. At 1225, whilst tracking from Turriff to Banff at 2500ft, heading 350°, he observed a helicopter to the north west 1nm away at 500ft above his level. The helicopter was flying northwards and increasing the separation distance from his aircraft. He therefore, took no avoiding action because any collision risk was reducing.

He assessed the risk of collision as 'None'.

**THE ABZ APPROACH RADAR CONTROLLER** reports he was working as an OJT<sup>1</sup> on the band-boxed Intermediate (INT) and Final (FIN) sectors. The S92 was outbound from Aberdeen to an oil rig on a Traffic Service at 3000ft. The helicopter had previously been pre-noted to Lossiemouth and, when it was overhead Turriff, the pilot was instructed to change squawk to the code assigned by Lossiemouth. As he was instructed to change frequency to Lossiemouth, the pilot advised that he could see a light aircraft approximately 500' below his level. The controller checked both the Perwinnes and the Allanshill radar screens and could not see any sign of an unknown aircraft, so he remained with the initial plan of changing the S92 to Lossiemouth's frequency. A few minutes later, Lossiemouth telephoned saying that the pilot of the S92 was reporting an Airprox, and that the Lossiemouth controller could see a primary-only contact in a similar position to where the initial report had been. Approximately half an hour later, a primary-only light aircraft (the subject S6) contacted the frequency returning to Whiterashes airfield. Lossiemouth called again to advise that they had been monitoring the course of the primary contact they had seen, and it correlated with the current position of the Coyote.

**THE LOSSIEMOUTH APPROACH RADAR CONTROLLER** reports having recently taken over the Approach Console which was band-boxed on all frequencies. He received a pre-note from Aberdeen Radar on the S92 transiting from Aberdeen to the an oil installation. At 1234 he was working three aircraft on frequency 119.350MHz (which were a mixture of Basic Service and Traffic Service), when the S92 pilot contacted his frequency 6nm north-northwest of Turriff and requested a Traffic Service. He noticed an intermittent extremely slow moving contact in the vicinity of the aircraft as it came onto his frequency. The contact had no Mode A or C; however, because the aircraft was already past the primary contact, and there was no risk of conflict or collision, he did not pass traffic information as he regarded it as no factor. Shortly after identification, the pilot of the S92 asked if he was working the primary contact in the position of the handover to which he replied 'no'. The pilot stated that he saw it as a light aircraft at about 2500ft which passed within 1nm of his helicopter. The pilot asked for the position of the incident, which he passed, then the pilot said that he would not be filing because safety was not compromised. However, at 1245, he reported that he now thought that safety had been infringed, so he would be filing an Airprox after all. The Controller contacted Aberdeen to find out if they were working a light aircraft; however, the Aberdeen Controller stated that he was not working anything in that area and that he could not see a primary contact on his radar screen.

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

**THE LOSSIEMOUTH ATC SUPERVISOR** reports that he was in the Approach room and was aware of a lengthy conversation between the S92 pilot and the controller about traffic in the vicinity of his handover. He asked the controller if the pilot of the S92 was wishing to report an Airprox. After the initial negative, he was surprised to find out 15mins later that the decision had been changed.

## Factual Background

The Aberdeen and Lossiemouth weather was reported as:

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EGPD 061220Z 22009KT 9999 FEW045 08/03 Q0990 NOSIG
EGQS 061150Z 24012KT 9999 FEW018CB 08/02 Q0989 BLU NOSIG
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## Analysis and Investigation

### CAA ATSI

The S92 was a scheduled passenger service from Aberdeen to a drilling rig in the west of Shetland area. At the time of the incident the S92 was in the process of being transferred from Aberdeen Radar on 119.050MHz to Lossiemouth Radar on 119.350MHz. The S6 was a private VFR flight from a strip within the Aberdeen CTR. The S6 had departed the vicinity of Aberdeen under a Basic Service from Aberdeen Radar; however for approximately 1 hour there had been

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<sup>1</sup> On-the-job training instructor

no two-way communication between the S6 and Aberdeen Radar. Aberdeen Radar (Intermediate (INT) and Final Director (FIN) combined) was operated by a mentor and trainee; this is deemed to have had no bearing on the incident. Services were being provided from the INT console using the Perwinnes radar. Both INT and FIN positions are provided with a double-header radar display. Normal INT configuration should have Perwinnes on both displays and normal FIN configuration should be Perwinnes on the bottom display and Allanshill on the top display. Each radar display has its own radar data processing unit. Traffic levels were described as light.

At 1140, the S6 became airborne from a local strip within the Aberdeen CTR and called Aberdeen Radar (Radar). The S6 was cleared to leave CAS to the north, not above altitude 1000ft. S6 aircraft are known to Aberdeen ATC as an aircraft type that often provides a poor radar return and Radar requested position reports from the pilot in order to keep apprised of the S6's position. Review of Prestwick Multi Radar Tracking (MRT) did not show the S6's departure. At 1144:40 the S6 reported half a mile south of the Meldrum TV Mast and was re-cleared not above altitude 2000ft. At that time, Prestwick MRT showed a brief slow-moving primary return in the vicinity of the mast, but its identity could not be verified. Transmissions from the S6 were also broken from time-to-time. At 1203:20, Radar requested a position report from the S6, this was given as 5nm east of Huntly. A further position report was requested at 1210:30, and the S6 reported over Huntly. Huntly is situated on the ADN 295 radial at 19DME. Prestwick MRT showed no activity in the vicinity of Huntly at the time of the S6's report. Prestwick Centre were requested to review the Scottish Information frequency between 1130 and 1330, and it was confirmed that no calls were received on frequency 119.875MHz from the S6.

A handover of the Radar position took place at approximately 1215. It is not known what information with regard to the S6 was given in the handover to the mentor and trainee. Radar pre-noted the S92 to Lossiemouth ATC at 1226:10. At 1230:10, Aberdeen TWR notified Radar of a ground incident. TWR instructed an inbound SB20 to execute the standard missed approach and Radar was requested to hold-off further inbounds until advised. The S92 exited Aberdeen CAS at 1230:26 on its own navigation for Track X at FL036 (approximately 3000ft on Aberdeen QNH). The S92 had requested, and was given, a Traffic Service from Aberdeen Radar. At 1232:37, the SB20 called Radar and an exchange took place regarding the reason for the missed approach., Replay of the Perwinnes radar showed an isolated primary position indication symbol ahead of the S92 for two non-sequential updates of the situation display during this exchange.

Figures 1 and 2 show the Perwinnes radar at 1232:35 and 1233:02 respectively. Figure 1 shows the appearance of a primary position indication symbol 2.3nm northwest of the S92 (Mode A 7071), after which the return disappeared. Figure 2 shows the re-appearance of the primary position indication symbol 1.2nm north-northwest of the S92; the primary symbol disappears on the next update of the Perwinnes radar..

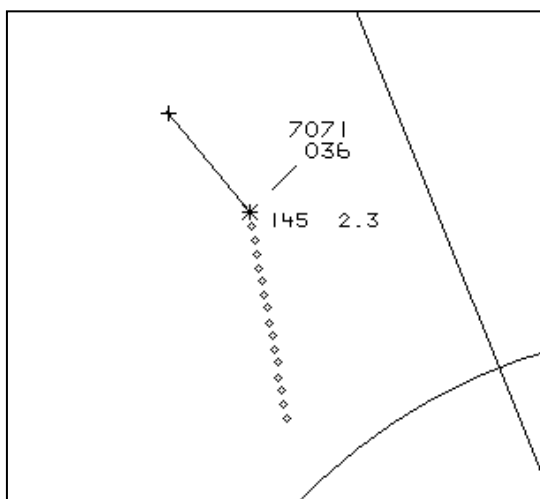


Figure 1: Perwinnes – 1232:35

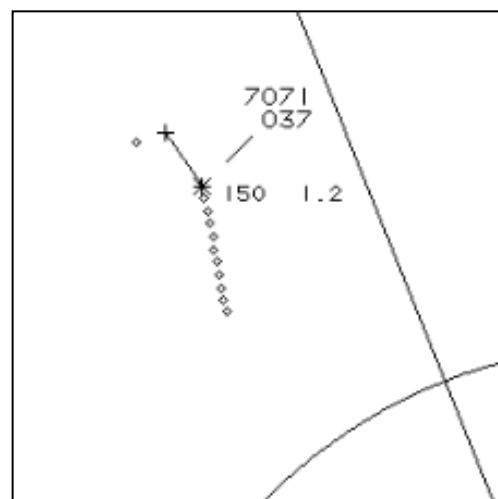


Figure 2: Perwinnes – 1233:02

In comparison, Figure 3 shows the Allanshill radar at 1233:02. A solid primary return can be seen on an easterly track converging with the S92.

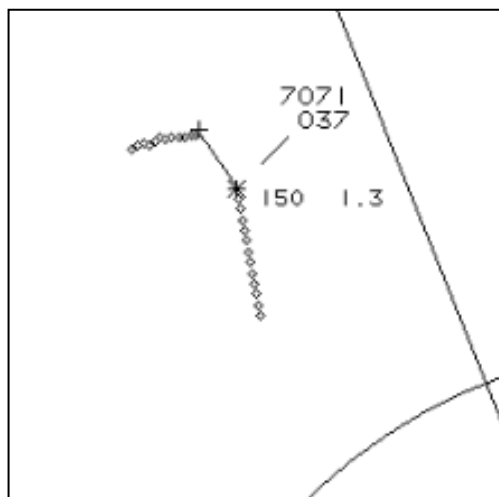


Figure 3: Allanshill – 1233:02

At 1233:00 the S92 was instructed to squawk 3730. At 1233:30 Aberdeen Radar informed the S92, “...my service terminates now contact Lossiemouth Radar 119.350.” The S92 read-back the frequency and stated, “...for your information we’ve got a er a light aircraft just to the right of er our location now erm about er five hundred feet below us...” This was acknowledged by the Radar controller. After the incident the controller reported that, at the time of the S92’s report, he had looked across and up at the Allanshill display on the adjacent FIN sector’s upper monitor.<sup>2</sup> Review of the adjacent sector’s screen showed that, at the time the controller would have looked across, the smaller primary return and trail of the S6 was merged with the S92’s larger primary/secondary symbol and information block. The controller reported that, had he observed another aircraft in the S92’s vicinity, he would not have allowed the S92 to leave the frequency.

The Allanshill radar replay continued to detect the primary return, which altered its track to the northeast as it diverged from the S92. At the time the two tracks crossed, the integrity of the primary return’s track decreased as the distance between the two aircraft reduced, with track jitter being observed. At 1233:34 the primary return had crossed the S92’s 12 o’clock from left to right

<sup>2</sup> The following information has been provided by Aberdeen ATC with regard to the utilisation of Perwinnes and Allanshill radars on the Aberdeen Radar function:

- INT has two screens. One is set on a range suitable for vectoring to the ILS, and Perwinnes is the preferred source for this as limitations on use of Allanshill in the Approach phase include not allowing 3nm separations to be used outside 25nm from the aerodrome.
- The upper INT screen is set to a range suitable to see pending traffic as the handover point from Scottish Control is 55nm from the aerodrome. The majority of Aberdeen traffic comes from the south and east; the best radar to see this is the Perwinnes. The Allanshill coverage to the south of the aerodrome is far more limited than the Perwinnes coverage is to the north of the aerodrome – as Perwinnes is centrally positioned just east abeam the aerodrome, while Allanshill is 30nm north of it.
- The Allanshill PSR is “gated” at 60nm from the radar head. Therefore if used to the south, the service would be limited to SSR-only in the area beyond 30nm south of the aerodrome.
- Although Aberdeen ATC is able to use Allanshill on the Airport sectors if Perwinnes is unavailable, the Allanshill radar has been optimised as an en route facility, primarily available at Aberdeen for Offshore use in the northern areas of the North Sea towards Sumburgh.
- The FIN role is focussed purely on vectoring traffic onto final approach and therefore the FIN controller only uses the lower display (Perwinnes). The upper FIN display is effectively “spare” and is set on Allanshill for information only, as it is not displayed anywhere else on the two Airport sectors.

and was 0.1nm northeast of the S92 (Figure 4). The S92 and primary return continued to diverge to the north and northeast respectively (Figure 5).

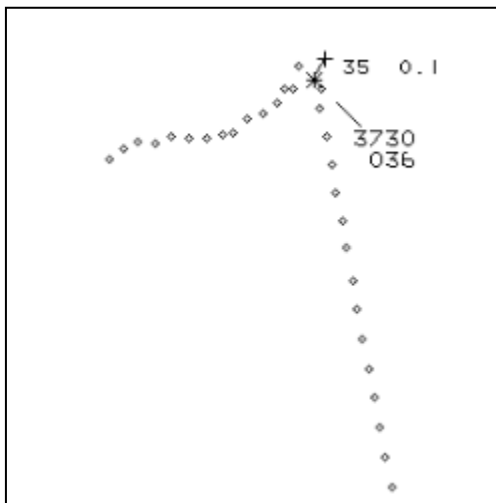


Figure 4: Allanshill – 1233:34

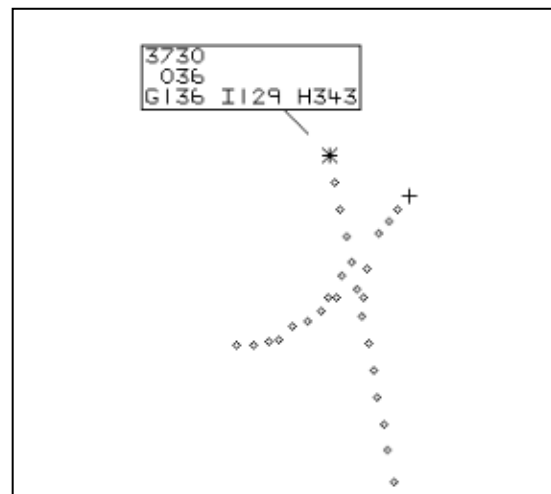


Figure 5: Allanshill – 1233:58

Lossiemouth Radar continued to track the primary return until it approached the Aberdeen CTR. Lossiemouth called Aberdeen, and the track's identity was established as the S6, which had called for clearance to re-enter CAS at 1257.

The last known position of the S6 was overhead Huntly at 1210:30, approximately 22 minutes before the incident and 12-13nm southwest of the CPA. There had been no further exchanges between the S6 and Radar since the last position report, and the incumbent Radar controllers had no way of knowing the position of the S6 at the time. It is reasonably likely that the S6 was operating with the Aberdeen Radar frequency selected between 1210 and 1257; whether or not the S6 pilot was aware of, or could hear any other transmissions on the frequency, is unknown. Aberdeen ATC has procedures in place with the S6's departure strip to enable movement of traffic in and out of CAS. Additionally the S6 is known to Aberdeen ATC as having poor reflective properties; therefore controllers, as demonstrated in this case, may use position reports as necessary to monitor the progress of the aircraft. The S92 was in receipt of a Traffic Service from Radar. Under a Traffic Service controllers will provide specific surveillance-derived traffic information to assist pilots in avoiding other traffic. The Radar controller was using the prescribed radar system for the given function, i.e. Aberdeen Approach (INT). However, in this instance the S6 was not visible to the Radar controller. Additionally, just prior to the encounter the Radar controller's workload had been unexpectedly increased due to an incident on the aerodrome.

ATSI also noted that the Prestwick Centre Replay Tool shows the theoretical base of Perwinnes primary and secondary radar coverage in the vicinity of the incident as FL030, which would equate to altitude 2400ft. It is therefore likely that the S6 was operating at or below the lower limit of the Perwinnes' coverage. Allanshill appears to have a slightly lower coverage minimum in the same area.

The accounts of the pilots appear to indicate that neither saw the other until their paths were crossing or had crossed. The radar replay confirms their recollection of the geometry of the encounter, and both pilots appear to agree with respect to vertical distance. Therefore, the likely closest distance between the two aircraft was approximately 0.1nm and 500ft. Given the pilots' statements, it appears likely that their assessments of collision risk were made after the aircrafts' closest point of approach. Additionally, as the S6 was not transponder equipped, no airborne electronic safety nets were available to the pilots. Pilots operating in uncontrolled airspace are ultimately responsible for their own collision avoidance, even when in receipt of an Air Traffic Service.

## Military ATM

Aberdeen were initially in control of the S92 and they provided a radar pre-note to Lossiemouth at 1226:13. The S92 was squawking 7071 with Aberdeen and Lossiemouth allocated a 3730 squawk. Lossiemouth allocated the squawk and frequency at 1226:46 but there was no agreement for a controller-to-controller radar handover. The Lossiemouth APP controller was band-boxing LARS and APP with 4 aircraft on frequency, subject to a mixture of Traffic Service and Basic Service; the controller described the workload as 'high to medium' and the task difficulty as 'average'.

As the Aberdeen controller instructed the S92 to change frequency to Lossiemouth, the pilot advised that they could see a light aircraft approximately 500ft below their level; the controller checked the Perwinnes and Allanshill radar screens and could not see any sign of the unknown aircraft and the S92 was instructed to change frequency. From the radar replay, Figure 1 shows the conflict at 1233:21, just as the Lossiemouth squawk appears on the S92.

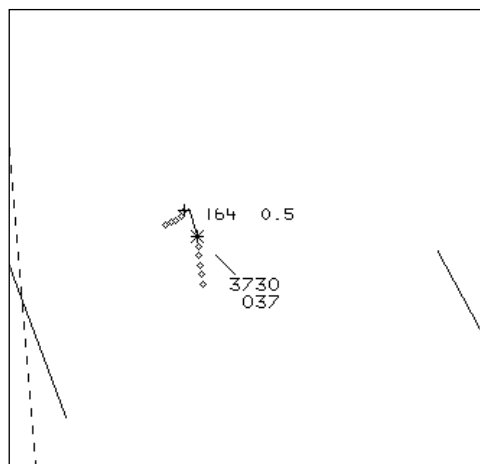


Figure 1 – Aircraft geometry at 1233:21.

At 1234:03, the S92 transferred to Lossiemouth APP, and the respective aircraft are illustrated at Figure 2, which is after the Airprox had taken place.

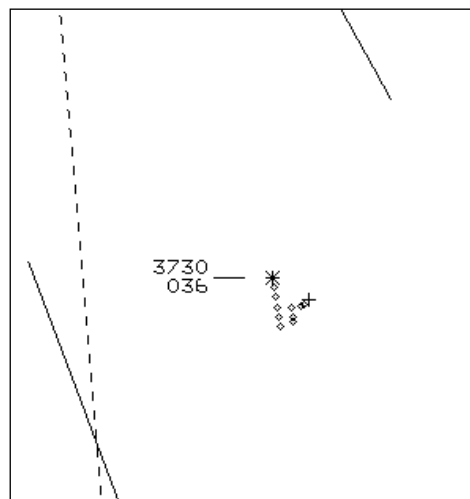


Figure 2 – Aircraft geometry at time of freecall to Lossiemouth APP at 1234:03.

At 1235:52, the S92 called Lossiemouth and, at 1235:58, the S92A transmitted, '[S92 callsign], we passed a light fixed wing about 5 miles in our 180, now just on handover, were you holding him on radar?' Lossiemouth APP responded with, '[S92 callsign], I had a contact but you were passed him so I didn't pass you traffic information on him because he was, uh, you were, you were

*already passed him.* The conversation continued with the S92 requesting who the conflicting aircraft was speaking to, and whether there was any height information on radar; the Lossiemouth radar had a primary contact only. Lossiemouth APP maintained track ident on the primary return, requested information from Aberdeen, who could not trace it on their radar, and passed the lat and long of the handover point to the S92. At 1240:15, the S92 stated that the conflicting aircraft had been spotted just as they were being handed over, that there was no risk of collision and that the other aircraft had passed within 1nm and about 500ft. At 1243:19, the pilot of the S92 stated, *'Ah yes, um, just on reflection I will speak with Aberdeen when we get back but I'll probably be filing an Airprox on that one, as uh you know, we were between services, one being stopped and one being given, but I will be looking to file an Airprox on that one, we were certainly within our, um, you know within our separation limits.'*

### **UKAB Secretariat**

Both pilots were operating in Class G airspace with equal responsibility for collision avoidance<sup>3</sup>, however the S6 pilot had the S92 on his right and was therefore required to give way<sup>4</sup>.

### **Summary**

An Airprox was reported between an S6 and an S92 in Class G airspace, both pilots were operating VFR in VMC. The S92 had been receiving a Traffic Service from Aberdeen Radar and was in the process of transferring frequencies to Lossiemouth.

### **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available included 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.

In considering the actions of the Lossiemouth Controller, the Board felt that because the helicopter came over to his frequency after the incident had happened there was nothing more the controller could have done to improve the situation. Turning to the Aberdeen Controller, the Board recognised that, in order to undertake his tasking in the Aberdeen area, the radar configuration that he was using meant that the S6 was operating beneath the base of his radar cover. The S92 was under a Traffic Service but, for these circumstances, through a combination of the limitations in radar system and display performance, the S6 was not immediately obvious to ATC and was therefore not called to the S92. However, some members opined that, in order to mitigate this, the controller could have continued to ask for position reports from the S6, which may then have acted as a reminder that he was in the same area as the S92.

Turning to the actions of the pilots involved, the Board noted that the S6 was on a local flight, and at a level that made it difficult for him to receive a radar service; although he had opted for a Basic Service, an increase in altitude might have enabled ATC to provide better Traffic Information. For his part, under the terms of his Traffic Service, the S92 pilot remained ultimately responsible for his own separation whether or not the traffic was called by the controller.<sup>5</sup> In this case, the two aircraft were at 500ft different heights, and some members of the Board wondered whether the S92 pilot was simply more used to receiving detailed deconfliction information from Aberdeen when operating within their ATZ, and was therefore just surprised to see the S6 as close as it was without any warnings.

Overall, when deciding on the cause and the risk, the Board agreed that normal separation standards had pertained and that this was simply a sighting report with an associated Risk Cat E.

<sup>3</sup> Rules of the Air 2007 (as amended), Rule 8, Avoiding aerial collisions.

<sup>4</sup> Rules of the Air 2007(as amended), Rule 9,Converging.

<sup>5</sup> CAP 774 UK Flight Information Services Chapter 3.1 Definition of Traffic Service

**PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: A sighting report.

Degree of Risk: E

ERC Score<sup>6</sup>: 2

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<sup>6</sup> Although the Event Risk Classification (ERC) trial had been formally terminated for future development at the time of the Board, for data continuity and consistency purposes, Director UKAB and the UKAB Secretariat provided a shadow assessment of ERC.