

AIRPROX REPORT No 2013141

Date/Time: 23 Sep 2013 1424Z

Position: 5712N 00212W
(Aberdeen Airport
-elevation 215ft)

Airspace: Aberdeen CTR (Class: D)

Aircraft 1 Aircraft 2

Type: JS41 S92A

Operator: CAT Civ Comm

Alt/FL: 300ft 10ft
QNH (1022hPa) NK

Conditions: VMC VMC

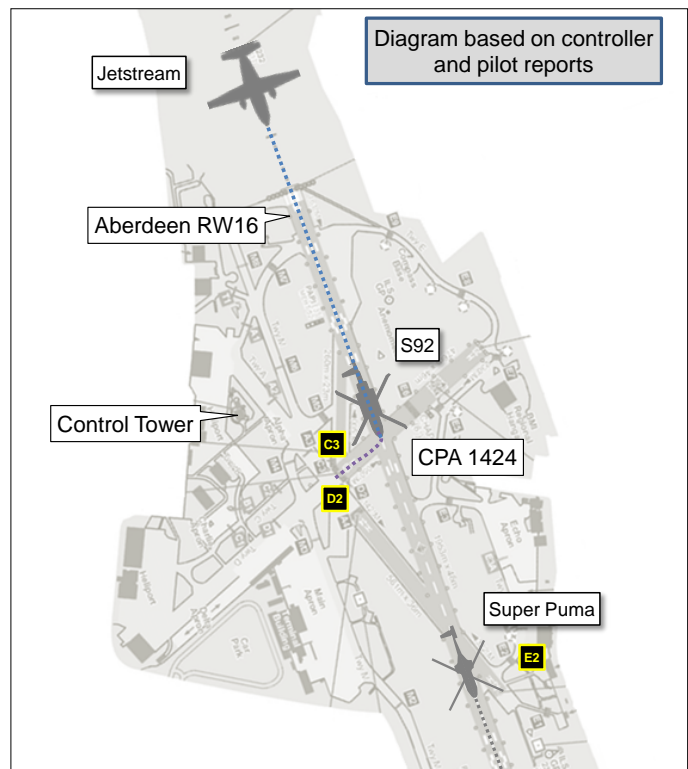
Visibility: 10km >10km

Reported Separation:

50ft V NK

Recorded Separation:

NK



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE JS41 (JETSTREAM) PILOT reports inbound IFR to Aberdeen airport (ABZ). Strobes, landing lights and wing conspicuity lights were illuminated; SSR Mode C was selected. He was being vectored to land on RW16. He was turned onto base-leg about 10nm from the runway and further cleared for the ILS approach to RW16. On the glide-slope he was advised that RW32 was available to vacate the runway, but no landing clearance was given. At 4nm he was instructed to reduce to minimum safe approach speed. The Aerodrome controller then asked a helicopter pilot if he was ready for an immediate departure. Receiving confirmation, the helicopter pilot was instructed to enter RW16 into the hover. At this point he could clearly see this helicopter towards the far end of the runway. The Jetstream pilot was advised that it would be a late landing clearance. He watched the helicopter climb away and his landing clearance followed. He was 100ft above decision at this time, 300ft above ground. At decision height/altitude he elected to land. At this point, on the threshold of RW16, its presence unknown to him, another helicopter became visible when it turned 90° in the hover and the fuselage markings became visible. He reported the first sighting distance as 400yd. Until the helicopter turned it was not visible on the runway as it blended in with the black rubber lines on the threshold and his focus was more on the departing helicopter at the far end of the runway. He immediately called going around and asked the First Officer (FO) to advise the Tower. He was never instructed by the Aerodrome controller to initiate a go-around. He did not know how close he came to a collision with the helicopter. As he climbed away on the standard missed approach (straight ahead, climbing to 3000ft) he became aware of catching up the previously departing helicopter and advised the FO that he would be turning right to avoid a collision with this helicopter. At this point he still had no communication with the Aerodrome controller. Finally, he was advised to contact radar and he immediately told the FO to make contact as a priority whilst he was maintaining visual separation with the helicopter climbing away. Advised to turn right 270° to avoid, the FO had to ask if he was to climb to 3000ft as nobody had said anything different. The answer was yes, and to take up the hold at the VOR whilst ATC figured out what had happened. He went twice round the hold before being vectored back to normal landing. He was positive that no communication took place between the helicopter on the threshold and the Aerodrome controller, the only aircraft he could think of was a preceding landing aircraft and the departing helicopter. He reiterated that after the go-around no instructions were issued to avoid the departing helicopter.

He assessed the risk of collision as High.

THE S92 PILOT reports outbound, VFR, [in fact ATC issued an IFR clearance] from ABZ. SSR Mode C was selected. He was holding at 'C3'. He believed that he received a clearance to 'Line up 16, lift into the hover, be ready immediate'. The Co-pilot acknowledged the clearance and confirmed that the stop-lights were clear. As he lined up, in the hover, both pilots were surprised to see another helicopter lined up further down the runway, abeam 'E2'. He commented about this, wondering if the controller was trying to get both helicopters airborne. The helicopter ahead departed, leaving him in the hover awaiting take-off clearance. He then heard an aircraft cleared to land. He commented that it is not uncommon for helicopters to be given clearance to land with others further down the runway, but, given that he was expecting an immediate clearance, something did not seem quite right. He turned the aircraft 90° to look behind and spotted a fixed-wing aircraft on short final. He called to the co-pilot 'fixed wing' and immediately vacated the runway, landing at 'D2'. As he carried this out, the fixed-wing aircraft called "going-around". He was unsure of the range and separation between his helicopter and the Jetstream, as it happened so quickly. He just glanced at the approach and saw the fixed-wing aircraft and vacated immediately. His lighting was the standard navigation and anti-collision lights. He did not think the lights were an issue, as it was CAVOK. The helicopter was equipped with TCAS but it is disabled on the ground (weight on wheels), so he was not in the habit of looking at it as he lined up. Albeit the helicopter was in the hover, it was essentially a ground movement. He did not recall receiving a TCAS alert, but even if he did, he would have assumed it was from the helicopter lined up ahead. He pointed out that on the EC225, the approaching aircraft could be seen on TCAS, whilst waiting at the holding point and this also applied on an oil-rig; this is not possible on the S92. He had been advised that it is illegal to operate TCAS on the ground.

He assessed the risk of collision as 'None', as the Jetstream pilot had carried out a go-around.

THE ABERDEEN AERODROME CONTROLLER reports he was on duty during a complex period of inbound and outbound traffic. The weather was 'beautiful' and there were a few flying-club aircraft airborne in addition to the usual commercial fixed-wing and rotary aircraft. He realised that, due to the inbound flying-club aircraft; a stream of helicopters inbound from the NE; ILS traffic; and another steady stream of outbound helicopters, that he would have to adjust tactically the gaps between aircraft and co-ordinate with the Helicopter Radar controller (HELS) his requirements for their aircraft. The Intermediate (INT) Director (DIR) was advised to keep two Jetstream's in a 'tight' sequence to allow minimal holding for the pilot of a light aircraft, who was holding on base-leg for RW16. This, he considered, would free-up the route for the inbound helicopters. He also had a light aircraft inbound, whose pilot had been instructed to hold at Kintore. He remembered departing a helicopter from RW16 abeam holding point 'C3' on an IFR clearance. There was a stream of helicopters taxiing to holding point 'C3' with the Ground Controller 'drip-feeding' them to his frequency. He had an S92 [actually a Super Puma] at holding point 'E2' and he asked its pilot if he could he take an immediate departure with a Jetstream at 4 miles (this would incur no wake turbulence issues with the Jetstream). The pilot said he could, and so he instructed him "via E2 to line up and wait runway 16 and bring it into the hover." After ensuring sequencing with another previously departing helicopter, he then cleared the [Super Puma] for immediate take-off. He remembered on watching it depart and, when it had cleared the end of the runway, he did a scan of the runway before he cleared the first Jetstream to land on RW16. He thought that he then spoke to HELS on the telephone and worked out a plan for his next aircraft (the light aircraft holding on base-leg). Just then, the Ground controller prodded him in the arm and asked 'what's your Jetstream doing?' As he looked back at the Jetstream he realised that it was going around. This confused him as he could not work out why. On looking back at the runway, he saw an S92 on RW16, in the hover, vacating back towards holding point 'D2' (adjacent to 'C3'). Being confused, he shouted to the Ground Controller asking which helicopter it was. As far as he was aware the Ground Controller could not work it out either. He then processed the Electronic Flight Progress Strip (EFPS) for the Jetstream as a go-around. The Jetstream pilot climbed quite quickly and he transferred him to the INT DIR. He immediately instructed the departing [Super Puma] pilot to "break left, with a Jetstream going around behind you." He requested a relief and continued to control until one arrived a few minutes later.

Factual Background

The ABZ weather was:

METAR EGPD 231420Z 14007KT 110V180 9999 FEW032 19/12 Q1022 NOSIG=
METAR EGPD 231450Z 12007KT 090V160 CAVOK 19/12 Q1021 NOSIG=

ABZ ATC is not equipped with Surface Movement Radar.

Analysis and Investigation

CAA ATSI

ATSI had access to reports from the pilot of the Jetstream, the pilot of the S92 and the Aerodrome controller, together with recorded area surveillance, transcription of the ABZ Tower and Radar frequencies. ATSI also interviewed the ABZ Aerodrome controller.

An Airprox was reported at ABZ by the pilot of a Jetstream following two separate incidents in quick succession. The first incident [the Airprox] occurred when the Jetstream was on final to land RW16 and an S92 lined up on the runway ahead. The second incident, not filed as an Airprox, occurred after the Jetstream pilot initiated a go-around and, whilst following the standard missed approach, came into conflict with a previously departed Eurocopter Super Puma.

The Jetstream pilot was operating IFR on a flight inbound to ABZ, and was in receipt of an Aerodrome Control Service from ABZ Tower on frequency 118.1MHz. The S92 pilot was operating IFR on a flight from ABZ to an oil rig, and had just been transferred to the ABZ Tower frequency 118.1MHz. The Super Puma pilot was operating IFR on a flight from ABZ to an oil rig.

At 1421:06 the pilot of the Jetstream contacted Aberdeen Tower on final approach at 10nm and was instructed to continue the approach. The Aerodrome controller was busy with a complex traffic situation, partially due to the integration of light aircraft with helicopters and the associated wake turbulence issues. In order to keep the controller's workload manageable, the ABZ Ground controller was transferring aircraft one-by-one to the Aerodrome controller. At 1423:03 the S92 pilot, having been given instructions to taxi to holding point 'C3', was instructed by the Ground controller to contact ABZ Tower. The EFPS was transferred to the Aerodrome controller's display. Another helicopter, not involved in the Airprox, was subsequently instructed to taxi to holding point 'C3'. This helicopter remained with the Ground controller and its EFPS remained in his display.

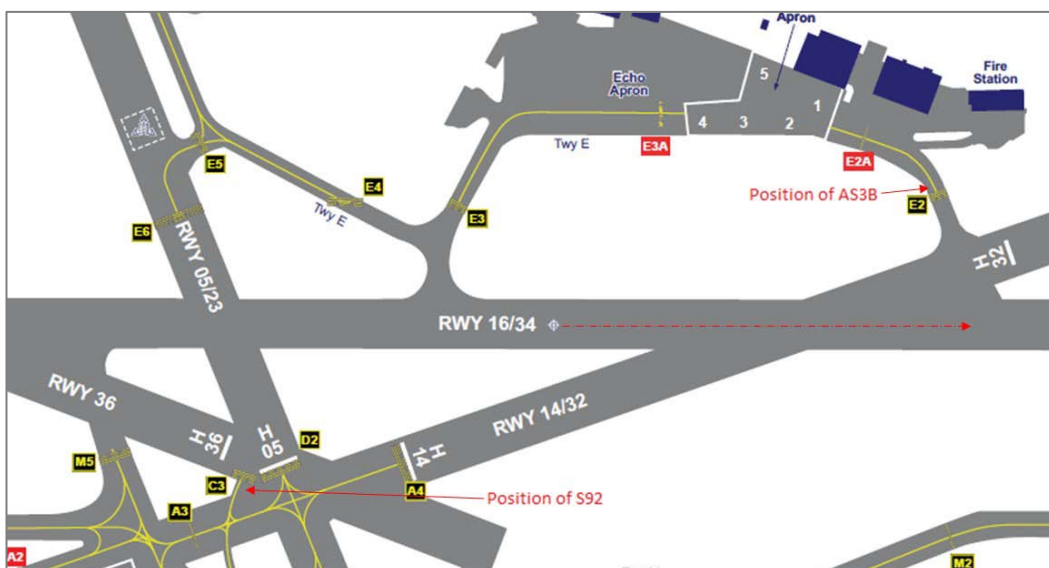


Figure 1

Figure 1 illustrates the layout of the holding points at ABZ with the positions of the Super Puma (AS3B) and the S92, prior to the Airprox, highlighted. At 1423:13 the Aerodrome controller asked the pilot of the Super Puma at holding point 'E2' if he could take an immediate take-off clearance. The pilot replied that he could, and he was instructed "[Super Puma C/S] *via echo two line up one six bring it to the hover be ready immediate*". The read-back from the Super Puma pilot was clear and correct but during the read-back there was a degree of background noise. Review of the RTF recordings revealed that another, crossed, transmission was made during the read-back from the Super Puma pilot but this was not detected by the Aerodrome controller. After analysis of the recording at full volume it is just possible to determine the words "*ready immediate*" in the background of the read-back; however, there was no other indication that might have alerted the Aerodrome controller to the crossed transmission such as a squeal, a significant difference in volume, or an unexpected additional word or phrase during the length of the transmission.

The Super Puma pilot was given a heading after departure of 160° and, at 1424:11, was given an immediate take-off clearance. The Aerodrome controller reported that after this transmission he watched the Super Puma depart and pass the threshold of RW34. He scanned the runway, as is his normal practice, but did not see the S92 and cleared the Jetstream pilot to land. The Aerodrome controller also had a VFR aircraft inbound that was blocking the approach for two inbound helicopters. The controller reported being aware that he needed to bring the light aircraft in and was focused on the situation in the air when the Ground controller tapped him on the shoulder and said "*watch your Jetstream*". The Aerodrome controller did not know what the Ground controller was referring to and asked him "*what about the Jetstream?*" at the same time as the Jetstream pilot reported going around. The Aerodrome controller acknowledged the transmission but did not know why the Jetstream pilot had gone around.

The Ground controller drew the Aerodrome controller's attention to the S92 on the runway, which was in the hover, and now vacating towards holding point 'D2'. The Aerodrome controller had no idea of the call-sign of the S92 or how it had entered the runway. When the Aerodrome controller looked at his EFPS display it seemed to display the correct situation with a helicopter holding at 'C3'. Unbeknown to the Aerodrome controller, the other helicopter that was still on the Ground controller's frequency had moved forward to 'C3' when the S92 pilot lined-up. This led to further confusion on the Aerodrome controller's part as to the identity of the S92 on the runway. The Aerodrome controller became extremely disorientated and requested to be relieved from the position. The Aerodrome controller transferred the Jetstream pilot to ABZ Radar on frequency 119.050MHz, informing the INT DIR that he could not accept any more inbounds and instructed the Ground controller to stop all ground movements.

At 1427:30 the S92 pilot contacted ABZ Tower and asked the relief Aerodrome controller "*can we just confirm what is happening at the moment we were sure we was cleared onto the runway I read it back, the stop bar has gone, and then obviously we vacated it when the fixed-wing was cleared to land*".

At interview, the Aerodrome controller stated that the stop-bar at 'C3' had been previously de-selected for another aircraft movement and had not been re-selected again. The Aerodrome controller also reported that, despite scanning the runway before issuing landing clearance to the Jetstream pilot, he did not see the S92 on the runway. He also stated that, depending upon where aircraft position themselves on the runway when lining up at 'C3', it can be difficult to see them due to being obscured by one of the Visual Control Room (VCR) pillars.

Summary

The pilot of the S92 read-back an instruction to line-up that had been issued to the pilot of another helicopter; the incorrect read-back was not discernible to the Aerodrome controller. The instruction contained the correct call-sign for the other helicopter's pilot and the relevant holding point ('E2'), not the holding point where the S92 was positioned ('C3'). The Aerodrome controller was not aware that the S92 pilot had lined-up on the runway. At the time, the runway stop-bar had been de-selected

following an earlier movement. The Jetstream pilot was cleared to land on RW16 after the previous helicopter had departed. The pilot of the Jetstream reported that, at a range of 400yds and at height 200ft, he saw the S92 on the runway after it had turned through 90° and reported going around.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both aircraft, transcript of the relevant RTF frequency, radar recordings, reports from the controller concerned and reports from the appropriate ATC and operating authorities.

The Board first considered the actions of the Aerodrome controller. The Board noted that he was operating during a busy period with a mixture of traffic, both fixed-wing and helicopters. His intention was to depart two helicopters in front of the arriving Jetstream. After the first helicopter had departed he instructed the Super Puma pilot to line up on RW16 from 'E2', in the hover, to be ready for an immediate departure. However, not only did the Super Puma's pilot read back the clearance but also it was read back, unknown to the controller, by the pilot of the S92 at 'C3', who then also lined up on the runway. Controller members were surprised that there was no indication (e.g. a squeal) to indicate to the controller that two responses had been made. A Board member explained that RTF equipment is now designed to prevent such interference during crossed transmissions. It was apparent to the Board that the controller did not see the S92 enter the runway during his scan prior to clearing the Jetstream to land. In this respect, members queried whether the strobe lights on the S92 had been illuminated as the helicopter entered the runway. The S92's operating company have since confirmed that their SOPs state that strobe lights are to be illuminated as a helicopter crosses the holding point as it lines up on the active runway.

The Board then considered the Airprox from the perspective of the pilot of the S92. Members wondered why the S92 pilot had responded to a line-up clearance before he had checked in on the Tower frequency. ATC members explained that, at certain airports, the Ground controller often instructs pilots to monitor rather than to contact the Tower frequency, as they approach the holding point in anticipation that the first transmission relevant to them will be the line-up or take-off clearance. However, the ATSI advisor confirmed that, on this occasion, the S92 pilot had been instructed to contact the Tower frequency. The Board considered that there was no apparent reason why the pilot had responded to the clearance addressed to the Super Puma pilot. It was not believed that a callsign confusion occurred because they were not similar. Additionally, the Aerodrome controller had specified the holding point when instructing the Super Puma pilot to line-up.

Having misheard the Aerodrome Controller's radio transmission very soon after changing frequency and prior to checking-in (which seemingly gave him clearance to line up) and then responded without challenge from the Aerodrome Controller (who had not heard his crossed transmission), in the absence of a lit stop-bar, the S92 pilot's mental model was that he had been cleared for line-up for an anticipated departure after the Super Puma ahead. The Board commented that it was fortunate that, given that he was expecting an immediate clearance, something did not seem quite right when he heard another aircraft being cleared to land. Had he not subsequently turned his aircraft to check the approach path, the Jetstream pilot may not have seen the S92 until too late to abort the landing, with potentially catastrophic results. That being said, the Board also opined that, once uncertainty entered his mind, a simple query from the S92 pilot to the Aerodrome Controller would also have been apposite to raise everyone's situational awareness even before he turned his aircraft to look up the approach path. Overall, though the Board considered that the S92 pilot had taken appropriate and timely action in turning his helicopter through 90° when he became uncertain as to who had clearance to do what on the runway; this allowed him to see the Jetstream on final approach, immediately vacate the runway, and land from the hover at 'D2'.

As for the Jetstream pilot, the Board noted that he had only become aware of the presence of the S92 on the runway after its pilot had made his 90° turn. Appropriately, he then commenced a go-around to resolve the situation and advised ATC accordingly. The Board commended his subsequent presence of mind, airmanship and pro-active actions in sequencing himself after the event in order to avoid other aircraft whilst ATC took stock of what was going on.

It was apparent to the Board that the Aerodrome Controller did not know why the Jetstream pilot was carrying out a go-around until the presence of the S92 was advised by the Ground Controller. It was also apparent that the Aerodrome Controller did not know the callsign of the S92, or how it had entered the runway. The ATSI advisor explained why the Aerodrome Controller's EFPS display still left him confused. When the S92 had lined-up from 'C3', the next helicopter in the sequence had proceeded to the holding point. This helicopter had been retained on the Ground frequency to help mitigate the Aerodrome Controller's workload and, consequently, its electronic flight progress strip had not been transferred to the Aerodrome controller's display. Therefore, the EFPS display indicated that a helicopter should be holding at 'C3'; the next helicopter had already positioned there which the Aerodrome Controller assimilated as the subject S92.

The Board concluded that this incident displayed the classic hallmarks of the holes in the many available safety barriers aligning to result in an unfortunate final outcome:

- The Aerodrome was busy with numerous mixed types with conflicting priorities that placed a heavy workload on the Aerodrome Controller.
- Although he had been told to contact the Aerodrome Controller first, the S92 pilot misinterpreted and actioned a call for another aircraft that was made soon after he came on frequency. Noting that the Aerodrome was busy, such a call might not have been considered out of place to him.
- The S92 pilot's RTF response to the 'clearance' to line up was perfectly blocked by the other helicopter's transmission, thus the Aerodrome Controller was not alerted to the confusion.
- In scanning the runway, the Aerodrome Controller did not see the S92 on the runway after it had lined up in the hover because it merged into the background and may have been at least partially obscured by a pillar in the Visual Control Room (VCR).
- The Aerodrome Controller had left the 'C3' stop-bar lights off after another aircraft had lined up before the S92, and the S92 pilot interpreted their absence as corroborating his impression that it was he who had been cleared to line up.

When discussing the cause of the Airprox, the Board quickly decided that the main factor was that the S92 pilot, albeit unintentionally, entered the runway without a clearance. A contributory factor was that the Aerodrome controller had forgotten to select the stop-bar at 'C3' after a previous departure. Several members and advisors wondered why the runway stop-bars at ABZ were not equipped with automatic 'time-out', which would result in them returning to the closed position after a selected time interval without controller interaction. Consequently, it was considered that a recommendation should be made to Aberdeen airport to consider the fitment of stop-bar 'auto-timeout' functionality. The Board also opined that a further contributory factor was that the controller had not seen the S92 on the runway when clearing the Jetstream pilot to land.

The NATS advisor stated that, when the Jetstream had actually passed the S92, it was estimated by ATC to be about 400-500ft above the helicopter. By this time the S92 pilot had vacated the runway. Although it was realised that in other circumstances this could have been a very serious incident, the Board therefore considered that the actual risk of collision in this case was Category C because the pilots concerned had taken effective and timely action to prevent the aircraft colliding..

PART C: ASSESSMENT OF CAUSE AND RISK

| | |
|-------------------------------|---|
| <u>Cause:</u> | The S92 pilot lined-up without clearance. |
| <u>Degree of Risk:</u> | C. |
| <u>ERC Score¹:</u> | 50 |
| <u>Contributory factors:</u> | <ol style="list-style-type: none">1. The Aerodrome controller did not operate the 'C3' stop-bar lights.2. The Aerodrome controller did not see the S92 during his visual check and cleared the JS41 pilot to land on an occupied runway. |
| <u>Recommendation:</u> | Aberdeen airport considers the fitment of stop-bar 'auto-timeout' functionality. |

¹ 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.