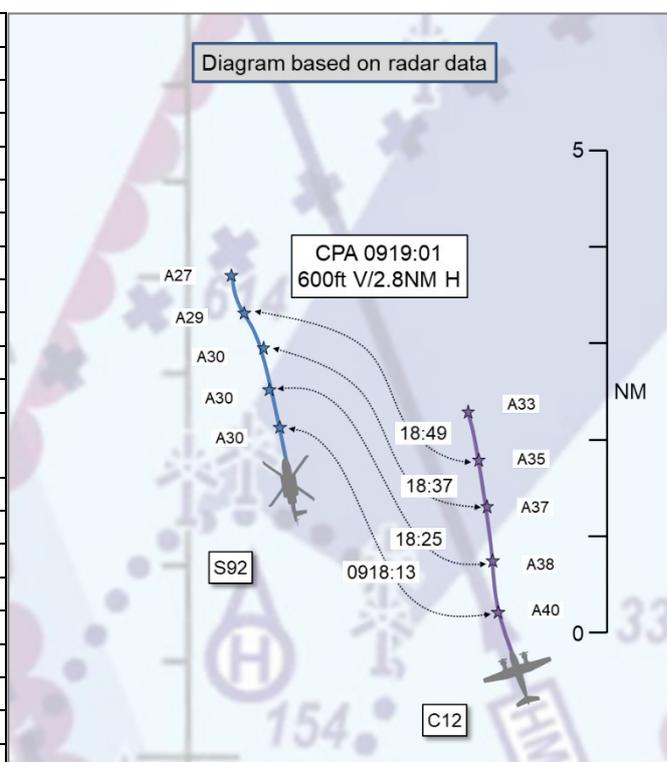


AIRPROX REPORT No 2021217

Date: 20 Oct 2021 Time: 0919Z Position: 5814N 00257W Location: 14NM SSE Wick

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	S92	C12 Huron
Operator	Civ Comm	Foreign Mil
Airspace	Scottish FIR	Scottish FIR
Class	G	G
Rules	IFR	IFR
Service	Basic	Procedural
Provider	Wick	Wick
Altitude/FL	2700ft	3300ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White, blue, red	White
Lighting	HISL, anti-col, position, landing	Nav, anti-col, recognition
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	3000ft	3550ft
Altimeter	QNH (985hPa)	QNH (985hPa)
Heading	350°	030°
Speed	135kt	220kt
ACAS/TAS	TCAS II	TCAS II
Alert	None	None
Separation at CPA		
Reported	500ft V/<1NM H	Not seen
Recorded	600ft V/2.8NM H ¹	



THE S92 PILOT reports routing to a ship via the Wick overhead. Wick ATC cleared the C12, which was on the same track and same position as the S92, to descend to altitude 4000ft on QNH 985. The C12 pilot twice read back 'descend flight level 4000' and did not read back QNH. On TCAS display, the S92 crew watched a contact within 1NM descend. Using TEM they briefed to monitor the contact and if necessary make an avoiding descent. The TCAS contact rate of descent was rapid and eventually indicated less than 1000ft to their level. They communicated their avoiding descent with ATC and expedited to altitude 2000ft, remaining in VMC. They levelled at 2000ft and the contact continued to descend and came within 500ft of their level. ATC repeated the clearance to the C12 pilot who climbed back to altitude 4000ft. Based on their TCAS observation and the C12 pilot's communication, the S92 crew surmised that the C12 pilot did not comply with their clearance and descended rapidly through the S92's level and within 1NM. Although VMC, at no time were they sighted with the C12, nor did it activate a TCAS TA or RA. The S92 crew perceived that the C12 was behind them throughout the event.

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

THE C12 PILOT reports being under procedural control in a 'non-radar environment', approaching the terminal area of Wick airport. They were given a descent to 4000ft on 'QNH 985'. The controller had previously cleared them to descend to a higher altitude on 'QNH 985', so when he cleared them for further descent to 4000ft on 'QNH 985', the pilot found it peculiar that he was abbreviating '2985' by omitting the '2'; he wondered why the controller would do that. The pilot noted that they were accustomed to receiving QNH in hectopascals (hPa) and the altimeter setting in inches of mercury (inHg), but that sometimes controllers would intermix the terms. Accordingly, while they found the

¹ The S92 and C12 subsequently closed to 0.7NM horizontal separation by 0925Z but by that time the aircraft were in level flight with 2000ft vertical separation. CPA is given in the context of the C12 descending below cleared altitude and then climbing again.

abbreviation of what they thought to be an altimeter setting of 29.85inHg to be peculiar, they weren't particularly shocked, and did not ask for clarification. The pilot noted that they should have asked for clarification and had to admit that, at the time, they considered that because of the 'sleepy little airport of Wick and the Scottish controllers out in the middle of nowhere' maybe the controllers were just a bit relaxed. In retrospect, the pilot considered that it was in fact themselves who were 'just a bit relaxed'. As they descended a couple of hundred feet past 4000ft, the pilot heard a helicopter pilot call the controller and ask about the C12's descent. The controller contacted them and reiterated the altitude assignment of 4000ft, 'QNH 985 hectopascals'. At that point, with the addition of 'hectopascals', the C12 pilot realized their error, immediately arrested the descent and simultaneously dialed-in 985hPa. With the correct setting, they could see that they were nearly 500ft below the assigned altitude and immediately climbed back up to 4000ft. The pilot and co-pilot discussed the incident immediately after occurrence. The co-pilot had dialed in 985hPa on their altimeter having taken the ATIS information while the pilot monitored the ATC frequency. The pilot did not recall a discussion of the altimeter setting when they briefed on the runway in use, wind velocity/direction, approach in use, etc. Additionally, neither of them recognised the discrepancy between their altimeters because they had completed the 'Descent/Arrival' checklist (where the altimeter setting is cross-checked) during the initial descent. Of course during that checklist the altimeter settings were the same at 29.92inHg (standard pressure setting). Later, during the crew debrief upon landing, they discussed the incident further and highlighted corrective actions/lessons learned for avoidance of such an occurrence in the future.

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

THE WICK CONTROLLER reports that an inbound C12 descended through their cleared level causing an S92 to descend to avoid conflict. Lossiemouth had pre-noted the S92 as overflying north-bound, to be overhead Wick at 09:39 at altitude 3000ft. Shortly after, the Moray Planner pre-noted the C12 inbound from the southeast to Wick, released and passing FL100, descending FL60, ETA 09:20Z. The C12 was handed over first, was placed under an ACS and told to report passing FL75, to which they replied, passed FL75 descending FL60. At this point the C12 was placed under a Procedural Service and told to maintain FL60 on reaching as there was an aircraft below to come on frequency. A quick call was made to Lossiemouth for an updated position on the S92. The Lossiemouth controller advised that they had passed traffic and was instructed by the Wick controller to set the Wick QNH and pass them over on frequency. Moments later, the S92 pilot came on frequency, at a range of 19 miles southeast, and was told for coordination to maintain altitude 3000ft and to report overhead Wick. A check from the C12 pilot placed them at 25 miles southeast. Traffic was passed to both pilots and after being given descent to altitude 4000ft, the C12 pilot was instructed to maintain 4000ft on reaching, cleared to the WIK VOR and to expect no delay for the VOR/DME approach from the overhead. A few minutes later the S92 pilot reported descending to avoid traffic above within 1000ft. The C12 pilot was asked for his level and replied '4000ft'. When questioned again, the C12 pilot reported passing 3900ft climbing to 4000ft.

Factual Background

The weather at Wick was recorded as follows:

METAR EGPC 200920Z 24015KT 9999 FEW024 11/07 Q0985=

TAF EGPC 200802Z 2009/2018 22015G25KT 9999 FEW012 BECMG 2009/2012 33015G28KT TEMPO 2009/2015 6000 RA SHRA BKN010 PROB30 TEMPO 2010/2013 2500 +RA RADZ BKN006 TEMPO 2015/2018 5000 SHRA BKN010=

Analysis and Investigation

UKAB Secretariat

The S92 and C12 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 geometry is considered

² (UK) SERA.3205 Proximity.

as overtaking then the S92 pilot had right of way and the C12 pilot was required to keep out of the way of the other aircraft by altering course to the right.³ For all transmissions, the word 'hectopascal' shall be appended to figures when transmitting a pressure setting below 1000hPa, or in cases where confusion or ambiguity may result.⁴

Wick Safety Investigation⁵

Wick RW31 in use, all ATS equipment serviceable, only one approach light (A10) had been reported as unserviceable. No WIP. Wick ATC – ADI/APP combined, procedural unit with no surveillance equipment available. Single working position, all met and ATSA tasks carried out by the duty ATCO. Aircraft on frequency at time of incident: [C12 C/S], American military Beech 200 inbound to Wick from [departure airfield] on a training flight. Under a Procedural Service with Wick Approach. [S92 C/S], Sikorsky S92 helicopter transiting Wick from Aberdeen to [a ship]. Under a Basic Service with Wick Approach. [C210 C/S], private Cessna 210 routing VFR from [departure] to [destination]. Under a Basic Service with Wick Approach. [EC145 C/S], [...] EC145 helicopter carrying out training in the vicinity of Wick, including practice instrument approaches. Under a Basic Service with Wick Approach. Traffic level assessed as “medium workload” at time of incident.

ATS Staff involved: The Wick ATCO involved was on a late shift, working the third day of a run of six. The whole of the previous week had been taken as annual leave. The ATCO had commenced duty at 0830Z and was due a SRATCOH break at 1000Z. On the day, there were also three other valid ATCOs rostered on, with one on an Admin shift and the other two on a split early/Admin shift.

Narrative: At 0902 a call was received by Wick Approach from Lossie Departures with details of [S92 C/S] transiting through the Wick overhead (south to north) at altitude 3000ft, requesting a Basic Service and estimating the overhead at 0939. Details of the flight were acknowledged and read back by the Wick ATCO and the Lossie Controller was asked to transfer it over to Wick whenever they were ready. At 0903 a call was received by Wick Approach from Moray Low with the release on inbound [C12 C/S]. This call was briefly interrupted by pilot of [C210 C/S] reporting in the Wick overhead; the Wick ATCO asked the pilot to report at Duncansby Head and then returned to the telephone call with Moray Low. An inbound release and contact passing flight level 100 descending flight level 60 and an estimate for Wick of 0920 was accepted and read back to Moray Low by Wick Approach. At 0904 a new QNH was passed to pilots of [C210 C/S] and [EC145 C/S] by the Wick ATCO and correctly read back by both pilots. At 0905 the Wick ATCO requested [EC145 C/S]'s estimate for OLNIT, as the pilot had previously asked to carry out the RNP approach for training under a Basic service. Pilot of [EC145 C/S] replied that they were expecting OLNIT at time 0920. The Wick ATCO advised [EC145 C/S] that [C12 C/S] was inbound and estimating at the same time and requested [EC145 C/S] to remain to the west until after [C12 C/S] had arrived. Pilot of [EC145 C/S] agreed, saying that they would slow down and stay clear until [C12 C/S] was out of the way. At 0908 a position report was obtained from pilot of [C210 C/S] – as he reported just approaching Duncansby Head and there was no traffic to affect, the Wick ATCO transferred them onwards. At 0912 [C12 C/S] called up Wick Approach and reported at flight level 820 [sic] descending flight level 600 [sic] - this was taken to mean flight level 82 descending flight level 60 by the Wick ATCO. The Wick ATCO replied, confirming the current ATIS letter, placing [C12 C/S] under an Approach Control Service and asking the pilot which type of approach they were wishing to fly. Pilot of [C12 C/S] said they'd get the current information and were requesting the VOR/DME approach to RW31. The reply was acknowledged by Wick Approach, who then requested a report passing flight level 75 and provided the Wick QNH of 985 hectopascals. [C12 C/S] reported as flight level 680 [sic] descending flight level 600 [sic] and acknowledged the QNH as 985 – the level reports were taken to mean flight level 68 descending flight level 60. At 0914 Wick Approach changed the service provision to a Procedural Service (as the aircraft was now outside controlled airspace) and advised [C12 C/S] to expect no delay for the VOR/DME approach for RW31. A call was made by Wick Approach to get an updated position report of [S92 C/S] from Lossiemouth. The Lossiemouth Controller immediately

³ (UK) SERA.3210 Right-of-way (c)(3).

⁴ CAP 413 Radiotelephony Manual, Chapter 3 General Phraseology, paragraph 3.4.

⁵ The Wick Safety Investigation report has been edited in parts in order to dis-identify the pilots and controllers concerned and to improve readability for the non-aviation audience.

stated that he had “called that conspicuity passing down the right hand side, 2000ft above descending to the [S92 C/S]” and continued “I assume you’re speaking to it?” The Wick ATCO immediately stated “yeah, it’s [C12 C/S]” and requested that [S92 C/S] be put on the Wick QNH of 985hPa and handed over to Wick as soon as possible. No position reports of either of the two aircraft were given or requested by either agency to confirm that both parties were talking about the same aircraft. At 0915 a position report was obtained by the Wick ATCO from pilot of [C12 C/S], who reported as 25 nautical miles from Wick. When providing this position report, the pilot referred to Wick as “Radar” which went unchallenged by the Wick ATCO. At 0915 [S92 C/S] checked in on frequency and was immediately placed under a Basic Service and given the QNH of 985hPa, which was read back by the pilot, who also advised that they were maintaining 3000ft and were estimating overhead at 0924. The overhead estimate provided by the pilot was 15 minutes earlier than that previously advised by the Lossiemouth ATCO, however, the Wick ATCO did not ask the pilot to re-confirm the estimate or report its current position in order to assess the validity of this estimate. As [S92 C/S] was operating on a Basic Service, the Wick ATCO requested, for co-ordination, that he maintain altitude 3000ft, which the pilot agreed to. At 0916 traffic information was passed to [S92 C/S] as “traffic you may see is a Beech 200 inbound, believed to be slightly behind you, just passed 25 D M E, he’ll be descending 1000ft above your level” This information was acknowledged by [S92 C/S] and it was only at this point that he provided his position report as “19 miles to the south” Whilst the traffic information proved to be relatively accurate, based on the information that the Wick ATCO had at the time there was no way that it could have been determined that [S92 C/S] was ahead of the inbound [C12 C/S]. When questioned on this issue, the Wick ATCO advised that they had worked out [S92 C/S]’s assumed position by working out that it was (according to the estimate for the overhead provided by the pilot) 9 minutes flying time away and travelling at approximately 2 miles per minute, which would place it approximate 18 miles south. At 0916 [C12 C/S] was instructed to descend to altitude 4000ft on the Wick QNH 985hPa, to which the pilot replied “Flight level 530 [sic] descending flight level 4000 [sic], QNH 985hPa” At this point it appears that [C12 C/S] had already bust the previously cleared level of flight level 60 (assuming that they meant flight level 53) The Wick ATCO re-confirmed “it’s altitude 4000ft on QNH 985hPa” which the pilot of [C12 C/S] then correctly read back. At 0917 traffic information was passed to [C12 C/S] on [S92 C/S] as “a northbound S92 helicopter maintaining altitude 3000ft, estimating overhead Wick at 24” and in the same transmission [C12 C/S] was instructed to “maintain altitude 4000ft on reaching, you are cleared to the WIK and it’ll be the VOR approach from the overhead” This was a lot of information for pilot of [C12 C/S] to take in, in the one transmission and ATCOs should try to avoid passing the actual altitude of the conflicting traffic in case a pilot mistakenly understands that to be their cleared level. [C12 C/S] reported that they had the helicopter on TCAS and then continued to say “I understand maintain flight level 4000 [sic] and cleared VOR/DME RW31 Wick” The Wick ATCO stated “Negative, you haven’t been cleared for the approach yet, you have only been cleared to the beacon, the WIK, and you can expect one hold before being cleared for the approach from the overhead” [C12 C/S]’s reply seems to confirm that the pilot now understood what was expected of them by the Wick ATCO. Having previously advised the pilot to expect no delay for the VOR approach just three minutes earlier and then clearing [C12 C/S] to the WIK for the VOR approach from the overhead, it was understandable that the pilot of [C12 C/S] believed that they had been cleared for the approach. At no point in their transmission at 0917 did the Wick ATCO indicate that they were expecting [C12 C/S] to take up the hold. At 0918 [S92 C/S]’s estimate for west abeam Kirkwall was obtained from the pilot and subsequently correctly co-ordinated with Kirkwall ATC via telephone. At 0919, pilot of [S92 C/S] reported commencing a descent due traffic behind descending 600ft above. The Wick ATCO immediately asked [C12 C/S] to report their level, but [S92 C/S] made a further transmission to advise they were descending at 1200ft per minute VMC. [C12 C/S] called “Radar” again and advised they were “correcting altitude 4000” The Wick ATCO took this to be “altitude 4000ft” and relayed this to the pilot of [S92 C/S]. [S92 C/S] replied that they’ve got TCAS and are now at 2300ft on QNH 985 and requested the Wick ATCO to get the [C12 C/S] to check their QNH. [C12 C/S] reported “985QNH set, correcting altitude right now, 3900 climbing 4000”. The Wick ATCO then instructed [C12 C/S] to maintain 4000ft on reaching. The “Radar” callsign remained unchallenged by the Wick ATCO. In such situations when querying levels, it should be routine for the ATCO to also confirm the QNH that the aircraft is flying on and not need to be prompted by the other aircraft on frequency. At 0919 [S92 C/S] reported at 2000ft, VMC, and that they would maintain their level until the other aircraft had passed. This was acknowledged by the Wick ATCO, who then

asked [S92 C/S] to report overhead. Updated position reports were obtained on both [S92 C/S] and [C12 C/S]. [S92 C/S] reported that they would continue to maintain 2000ft before climbing to 3000ft once they were clear of the area and to the north of Wick. At 0925 [S92 C/S] was observed in the overhead at Wick and was instructed to report 10 miles north. [C12 C/S] at this time reported 1 mile to the south and was cleared for the VOR/DME approach to RW31, with a restriction to maintain 4000ft and to report outbound on the 148 radial from the WIK VOR. At 0927 [S92 C/S] reported leaving 2000ft and climbing 3000ft. The Wick ATCO questioned the pilot as to whether they had received a TCAS TA or RA, and the pilot reported that he had received neither, but had instigated a VMC Basic Service descent of their own accord, based on what they had observed [C12 C/S] doing on TCAS.

Contributory factors

Training: Insufficient

Details: Despite reading back the descent instruction of “altitude 4000ft on QNH 985hPa” the pilot of [C12 C/S] did not adhere to the instruction. It was noted on several occasions throughout the transcript that pilot of [C12 C/S] used the callsign “Radar” when speaking with Wick Approach. At no point was the pilot of [C12 C/S] corrected by the Wick ATCO. At other times, the Wick ATCO, when calling up aircraft, just used the callsign “Wick” - which gives no indication of the service available. The pilot of [C12 C/S], therefore, may have been under the impression that they were still working a radar unit rather than a non-surveillance unit and assumed that their descent was being actively monitored by the Wick ATCO. Several examples of non-standard phraseology and use of non-standard procedures/techniques by the Wick ATCO were noted throughout the incident investigation.

Conclusion and Safety Recommendations

The primary cause of this Airprox has been assessed as the pilot of [C12 C/S] not adhering to the Wick ATCO’s instruction to descend and maintain altitude 4000ft on the Wick QNH, which resulted in the aircraft descending towards the transiting [S92 C/S].

Having already stated that they had the traffic ([S92 C/S]) on TCAS, the pilot of [C12 C/S] inexplicably continued to descend towards [S92 C/S].

Whilst the pilot of [S92 C/S] reported that no TCAS TA or RA had been received, it was only through their quick thinking and early decision to descend, based on what was observed on TCAS, that no such reports were forthcoming.

It is recommended that:

The SATCO debrief the ATCO concerned with the findings of the investigation.

All ATS staff are to be reminded to question validity of estimates or position reports if they should ever have any doubts.

With the permission of the ATCO involved, an anonymised version of this investigation should be made available to the wider ATS group at Wick to encourage discussion and potentially as the basis for future training.

Continued HIAL trend analysis into the risks associated with UK FIS and operations in Class G airspace.

Summary

An Airprox was reported when an S92 and a C12 Huron flew into proximity 14NM south-southeast of Wick aerodrome at 0919Z on Wednesday 20th October 2021. Both pilots were operating under IFR in

VMC, the S92 pilot in receipt of a Basic Service and the C12 pilot in receipt of a Procedural Service, both provided by the Wick ATSU.

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.

The Board first discussed the event from the S92 pilot's point of view and commended them for their presence of mind. Members were careful to distinguish between the Airprox and subsequent further reduction in slant range, but at a stabilised vertical separation of 2000ft, and agreed that the S92 pilot had sensibly used the situational awareness imparted by their electronic conspicuity equipment to take action. However, the Board agreed that, in hindsight, lateral separation was such that the S92 descent was not required (**CF7**). It was apparent that the C12 pilot had descended below their cleared altitude (**CF2,CF4**) having set the incorrect altimeter pressure setting (**CF5**). The Board felt that this was due to a combination of faulty CRM, the C12 co-pilot having set the correct altimeter pressure setting, and the use of incorrect phraseology by the Wick controller (**CF1**) in omitting the term 'hectopascals'. An air traffic control member commented that the requirement to append the word 'hectopascal' to figures when transmitting a pressure setting below 1000hPa was specifically designed to mitigate the risk of misapprehending three digits, starting with a 9, as an abbreviated altimeter pressure setting of inches of mercury. Members felt that the C12 co-pilot, having set the correct altimeter pressure setting, would have been expected to warn the pilot flying that they had descended below the cleared level. It was also commented that an altimeter cross-check would have to occur at a point designed to capture discrepancy, which may not, and in this case did not, occur during the initial descent, where both altimeters may still be set to the standard pressure setting. Altimeter cross-checks should occur, at least, after a change in altimeter pressure setting. Finally, a commercial and glider pilot member commented that the Wick TAF included periods of heavy rain and low cloud and that the C12 pilot's mistaken altimeter pressure setting had placed the aircraft 1000ft below its indicated altitude, introducing a risk of CFIT due to the high terrain to the southwest of Wick. Board members discussed the lack of effective communication from both the Wick controller and C12 pilot. Members were at a loss to understand why the C12 pilot read back flight levels in 'decafeet' (**CF6**), e.g. FL60 as 600, and equally why this was not corrected by the Wick controller. The Board expressed their gratitude for the comprehensive Wick safety investigation, which was key to understanding the nuances of the situation from the ATM point of view, and agreed that the Wick controller had not fully complied with the required regulations (**CF1**). Turning to risk, members agreed that there had not been a risk of collision but also that normal procedures had not been complied with.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021217			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Ground Elements				
• Regulations, Processes, Procedures and Compliance				
1	Human Factors	• ATM Regulatory Deviation	An event involving a deviation from an Air Traffic Management Regulation.	Regulations and/or procedures not fully complied with
Flight Elements				
• Regulations, Processes, Procedures and Compliance				
2	Human Factors	• Flight Crew ATC Clearance Deviation	An event involving a deviation from an air traffic control clearance.	
• Tactical Planning and Execution				
3	Human Factors	• Accuracy of Communication	Events involving flight crew using inaccurate communication - wrong or incomplete information provided	Ineffective communication of intentions

4	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
5	Human Factors	• Operation with Incorrect Altimeter Setting	An event involving the incorrect setting of functions associated with Altimeter instruments	
• Situational Awareness of the Conflicting Aircraft and Action				
6	Human Factors	• Readback Incorrect	An event involving incorrect readback	
7	Human Factors	• Unnecessary Action	Events involving flight crew performing an action that was not required	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: C.

Recommendation: Nil.

Safety Barrier Assessment⁶

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

Ground Elements:

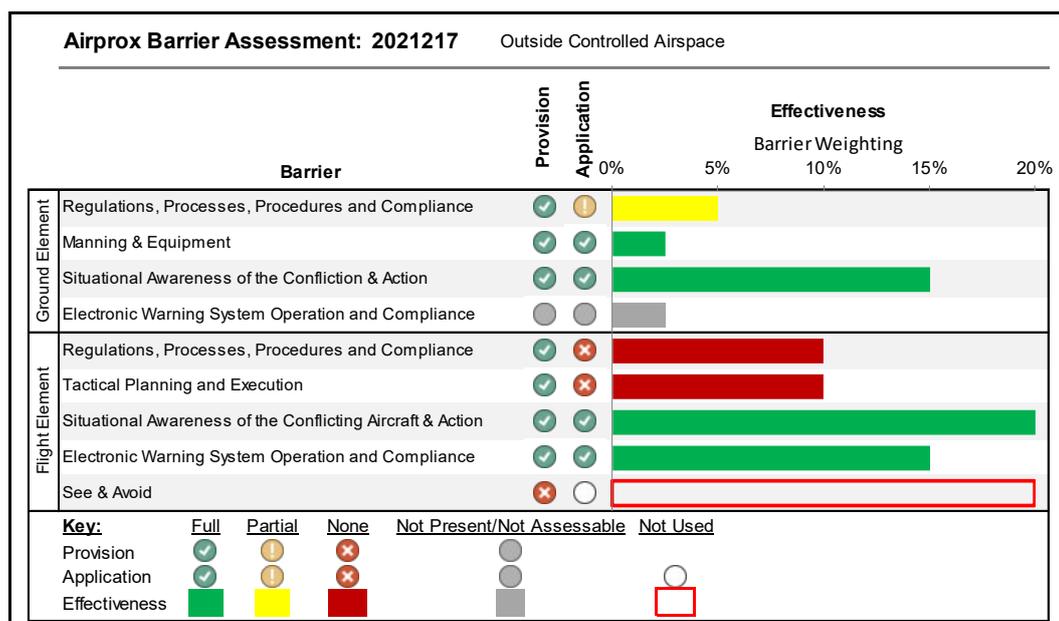
Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the Wick ATCO did not use ‘hectopascals’ when initially passing the QNH and did not correct the incorrect readback of levels/altitudes by the C12 pilot.

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the C12 pilot descended below their cleared altitude.

Tactical Planning and Execution was assessed as **ineffective** because the C12 pilot did not set the correct QNH and did not adhere to international standards of R/T phraseology.

See and Avoid were assessed as **not used** because the see-and-avoid barrier was not employed.



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