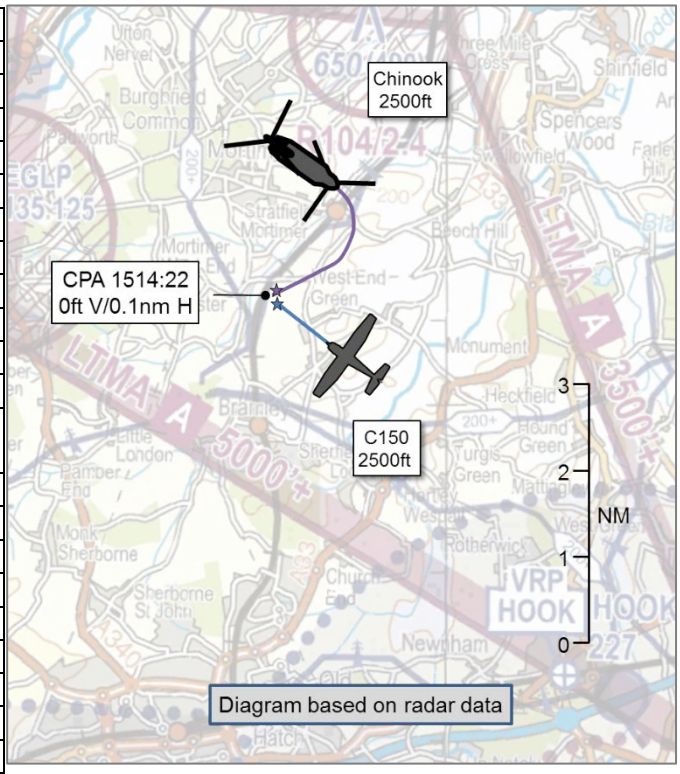
AIRPROX REPORT No 2018217

Date: 15 Aug 2019 Time: 1514Z Position: 5121N 00103W Location: 3nm N Basingstoke

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C150	Chinook
Operator	Civ FW	HQ JHC
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Listening Out	Traffic
Provider	Farnborough	Odiham
Altitude/FL	2500ft	2500ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White, Red	Green
Lighting	Beacon, Nav, Landing	Nav, HISLs,
Conditions	VMC	VMC
Visibility	40nm	NR
Altitude/FL	2700ft	2500ft
Altimeter	QNH (1017hPa)	QNH
Heading	250°	270°
Speed	80kt	NK
ACAS/TAS	Not fitted	TAS
Alert	N/A	Information
Separation		
Reported	10ft V/20m H	300ft V/500m H
Recorded	0ft V/0.1nm H	



THE C150 INSTRUCTOR reports that he was operating at about 2500ft conducting a stalling exercise with a student. Shortly after take-off he saw a Chinook 'at range' just north of Hook heading in a northerly direction and slightly lower; he turned slightly left to establish diverging tracks. He then demonstrated, and the student practised, a 'clean' stall and an 'approach' stall, aware that the Chinook had flown north and then turned east, still slightly lower. From a westerly heading, he asked the student to turn left 180° to complete a lookout turn prior to commencing a further stall. The student started to turn left, but without first raising the left wing to check for traffic to the left. The instructor took control to demonstrate the technique, important because the student's previous training had not been on high-wing aircraft. He raised the left wing slightly, and the student looked left and then turned right to say something to the instructor, at which point the student immediately shouted and pointed across the windscreen to the right. The instructor levelled the wings and looked forward and right, but couldn't see anything until the Chinook flew into his field of view as it emerged from behind the right wing-root, apparently overtaking on the right-hand-side on a converging heading. It was very close, and he heard it go past as it filled most of the windscreen. He instinctively broke left, but by then their tracks were already diverging. He believed they would have been struck by the rotor disc if the Chinook had not been very slightly higher than them. He immediately reported the Airprox to Farnborough ATC and requested the controller also inform Odiham ATC. After landing, he rang Odiham ATC to confirm the message had been passed, which the Tower assistant confirmed it had been. The C150 pilot questioned how the Chinook could have got so close and wondered whether it had a functioning TAS, was in receipt of a Traffic Service or had seen the C150 prior to CPA. The C150 pilot noted that he could just as easily have been about to turn right as the Chinook passed in extremely close proximity on the right, and that if the Chinook crew were aware of his position then in his opinion they had exposed the occupants of both aircraft to an extraordinarily high and wholly unwarranted level of risk.

He assessed the risk of collision as 'High'.

THE CHINOOK PILOT reports that he was conducting IF/GH at medium-level during an IRT and receiving a Traffic Service from Odiham. He was operating in the block surface-to-3500ft, but exact heights and speeds were not known because the event had occurred 2 weeks previously. An aircraft had been called by ATC and the crew acquired it visually and on TAS; it was a reasonable separation and below the Chinook and caused him no concerns. The Captain elected to continue the turning manoeuvre, keeping the traffic in sight throughout. At no point was the other aircraft close enough to cause concern in his opinion. No avoiding action was required because they were visual throughout and in a flight profile that was taking them away from the aircraft. It appeared to him that the other pilot had the Chinook in sight because it changed its profile away from the Chinook at a sensible distance. He assessed he was in a benign, level-flight profile, visual with the other aircraft throughout and had no concerns about separation; therefore, he was very surprised that an Airprox had been reported.

He assessed the risk of collision as 'Low'.

THE ODIHAM CONTROLLER reports that he was working both the DIR and APP frequencies. The Chinook was general handling between the surface and 3500ft. He recalled calling the Airprox aircraft to the Chinook pilot twice, and the pilot reported visual the second time. A short time later, the two aircraft were in different positions so he called the traffic again, and the pilot replied 'sighted'. At this time the two aircraft were within ½ mile of each other, with around 100ft height separation showing on the radar. Shortly afterwards he received a call from Farnborough stating that the other pilot was intending to file an Airprox. He elected not to tell the Chinook pilot about the Airprox over the RT in case it became a distraction, but he did inform the pilot that there was less traffic density to the north of his position. However, the Chinook pilot elected to stay in the same area.

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

THE ODIHAM SUPERVISOR reports that he was Supervising in the ACR at the time of the incident and witnessed the events as described by the App Controller. On being notified of the potential for an Airprox he impounded all the media pertaining to the events and informed the Sqn Duty Authoriser.

Factual Background

The weather at Odiham was recorded as follows:

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METAR EGVO 151550Z 23014KT 9999 FEW030 BKN035 21/13 Q1017 BLU NOSIG=
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Analysis and Investigation

Military ATM

The Chinook had departed Odiham on a Compton 27 SID and was placed under a Traffic Service, reduced due to limited surveillance performance. Following the SID, the Chinook conducted general handling in the block surface-3500ft. The Chinook received Traffic Information (TI) on 3 occasions, reporting visual with the traffic called on the second and third TI calls. The Chinook crew reported that they maintained visual with the conflicting traffic throughout and did not believe that an Airprox had occurred.

Figures 1-4 show the positions of the Chinook and the C150 at relevant times in the lead up to and during the Airprox. The screen shots are taken from a replay using the Swanwick radars, which are not utilised by Odiham RA and are therefore are not representative of the picture available to the controller.

Figure 1, timed at 1509:00, was the first time Traffic Information was passed to the Chinook. The Chinook reported that the traffic was 'not sighted'. Figure 2, timed at 1510:16 was the point at which the Traffic Information was updated. This time, the Chinook reported the traffic as in sight.

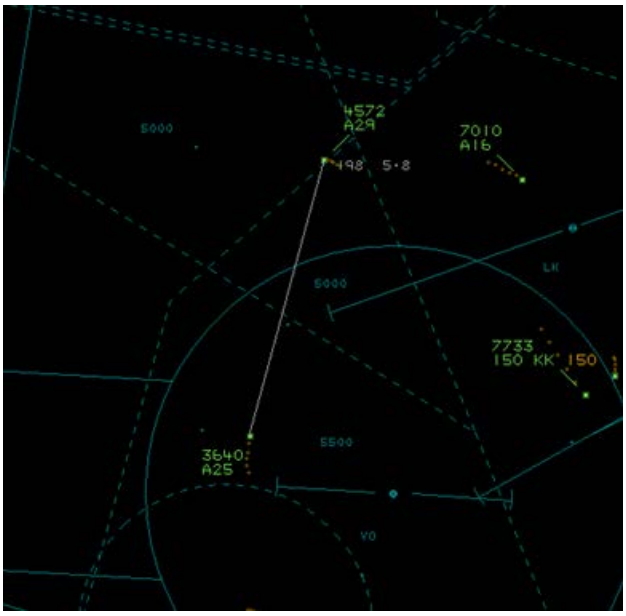


Figure 1

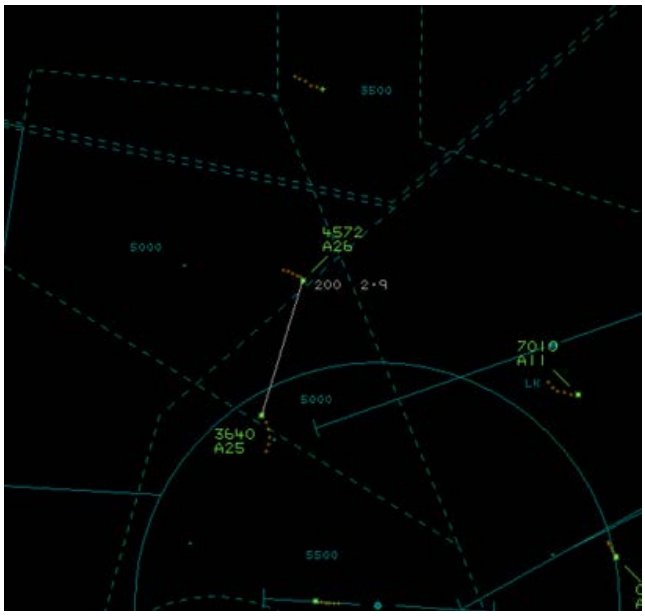


Figure 2

(Chinook Squawking 3640, C150 Squawking 4572)

Figure 3, timed at 1513:40, was the time at which Traffic Information was passed for a final time. The Chinook again reported visual with the traffic called. Figure 4 depicts CPA, which occurred at 1514:23. CPA was measured as 0.1nm lateral and 0ft vertical separation.

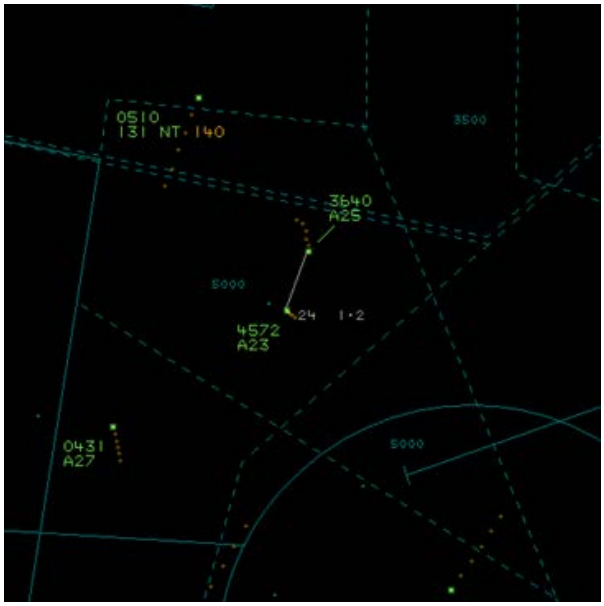


Figure 3

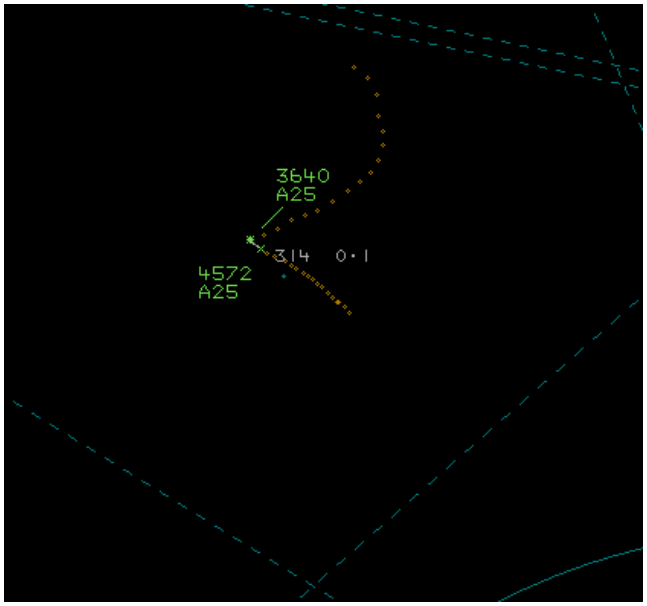


Figure 4 – CPA

The Chinook was identified and placed under a Traffic Service which was appropriately reduced due to surveillance performance issues. The Odiham RA Controller passed timely and accurate Traffic Information on 3 occasions and the Chinook reported visual with the C150 twice, the final time about 30sec prior to CPA. Given this, the Odiham RA Controller correctly discharged their duties for the provision of a Traffic Service in accordance with CAP 774.

UKAB Secretariat

The C150 and Chinook pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[1]. If the incident geometry

[1] SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

is considered as converging, then the C150 pilot was required to give way to the Chinook[2]. If the incident geometry is considered as overtaking, then the C150 pilot had right of way and the Chinook pilot was required to keep out of the way of the other aircraft by altering course to the right[3].

Comments

HQ JHC

The crew were carrying out exercises as briefed in an assigned block under an appropriate Traffic Service. The Chinook pilot reported that he was visual with the GA traffic throughout the manoeuvre having been given TI by ATC and was surprised to hear about the Airprox after landing. His assessment of distance to the other aircraft differs vastly from the C150 pilot's account and the radar recorded CPA. Given the choice of area for the C150 pilot's stalling exercise near an active military airfield, had the C150 pilot been talking to an Odiham controller he may have been better placed to receive his own TI.

Summary

An Airprox was reported when a C150 and a Chinook flew into proximity about 5nm SW of Reading at 1514hrs on Thursday 15th August 2018. Both pilots were operating under VFR in VMC, the C150 pilot was not in receipt of an ATS and the Chinook pilot in receipt of a Traffic Service from Odiham.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

The Board first looked at the actions of the C150 pilot. He was listening out on the Farnborough LARS frequency, wearing a listening squawk so that Farnborough could contact him if required. Acknowledging the JHC comments regarding the efficacy of using Odiham for a Traffic Service, members opined that the Farnborough and Odiham tasks were so closely entwined, and the airspace so congested in the area, that it was difficult to say which unit the C150 pilot would have been better off talking to. Anecdotal evidence suggested that he would be unlikely to get a Traffic Service from either and, whilst instructing, may not want one anyway given that he was generally manoeuvring and focusing on instructing his student. Nevertheless, without an ATS or a CWS, the pilot was relying on look-out as a final barrier to mid-air collision, and it was ironic that the incident had occurred whilst he was demonstrating lookout techniques in the opposite direction. This demonstrated the importance of a robust all-round look-out at all times, and GA members commented that, before raising the left-wing to check the area he was turning into, the instructor should also have raised the right-wing to confirm there was no other aircraft that might be conflicting from the outside of the turn. Although clearly aware of the Chinook in the area, the C150 pilot's mental model was that they were operating in different parts of the airspace. Unfortunately, when the Chinook turned onto a westerly heading towards the C150, the instructor was looking in the opposite direction and, to compound matters, the C150's high-wing obscured the Chinook from view as it got closer. Cognisant of the disparity in the assessments of separation from the C150 pilot and the Chinook pilot, the Board wondered whether there was a certain amount of startlement in the C150 pilot's assessment. However, noting that the radar showed the two aircraft at the same height and only 0.1nm apart, they concluded that the two aircraft had indeed been very close.

Turning to the Chinook pilot, the Board couldn't reconcile his estimate of separation with either the radar recording or the C150 pilot's perception. They at first wondered whether he had seen another aircraft, but were told that there was nothing in the vicinity close enough to mistake, bearing in mind he had been given Traffic Information 3 times and had the C150 on his TAS. They then wondered whether

[2] SERA.3210 Right-of-way (c)(2) Converging. Converging. MAA RA 2307 paragraph 12.
[3] SERA.3210 Right-of-way (c)(3) Overtaking. MAA RA 2307 paragraph 14.

he had misremembered the incident, commenting that he said he had written his report two weeks after the event. However, the JHC representative had spoken directly to the pilot and thought that the pilot was remembering the correct incident; it was simply that, in being visual with the C150 throughout, the Chinook pilot just didn't perceive the confliction to be as serious as the other pilot. Questioning the veracity of the radar, the Board were told that the NATS radars had exceptional coverage in that area and that although the radar tolerance could be up to +/-0.25nm, this degree of error was more likely to be at range from the radar head, which was not the case here. Furthermore, the two aircraft were showing the same SSR height according to the radar, and this was likely to be correct (albeit SSR tolerance was +/-200ft). Acknowledging that the Chinook pilot was visual with the C150 and obviously content with the separation, they wondered how he had come so uncomfortably close whilst tracking towards another aircraft. Some members wondered whether the Chinook pilot had been relying on the C150 pilot to give way, given that the Chinook was on the right. In this respect, an analysis of the radar returns seemed to indicate that the Chinook pilot had rolled out of his turn behind the wing-line of the C150 and so was in an overtaking situation at that point (being greater than 20º behind the wing-line). Although there may have been opportunities for the C150 pilot to have seen the Chinook before it turned, effectively, it appeared that the Chinook pilot had therefore turned into conflict with the C150 (whose pilots were probably task-focused on stall recoveries at the time).

For their part, the Board thought that there was very little more that ATC could have done in this case, the Odiham controller had given Traffic Information on the C150 twice before the Chinook pilot had reported visual. Seeing the geometry continue to close, and possibly a sign that he thought that the separation might result in conflict, the controller updated the Traffic Information at 1nm, despite the Chinook pilot having already called visual with the C150, and again the Chinook pilot reported visual. As a result, the Board agreed that the controller had discharged his duties correctly. There was some discussion about his decision not to tell the Chinook pilot on frequency that an Airprox had been reported, with some members agreeing with the decision and some believing that had the pilot been told it may have focused the incident in his mind. Nevertheless, the Supervisor had informed the Duty Authoriser, thinking that that would be enough to ensure the pilot was told of the incident on landing. Disappointingly, somewhere along the line, communication had broken down and the Chinook pilot did not appear to have been told for two weeks.

Finally, the Board discussed the cause of the Airprox and revisited whether it was for the C150 pilot to give way to the Chinook on his right or for the Chinook to avoid the C150 that he was overtaking. Members agreed that the geometry was on the cusp between approaching from the right and overtaking, but all agreed that, having the C150 in sight, the Chinook pilot should not have continued to track towards it to the extent he did in either circumstance because he could not know whether the C150 pilot had seen him or not. With the Chinook hidden by the high-wing configuration, the Board thought that although the C150 pilot should adopt mitigations to account for his aircraft's blind-spots, he could not reasonably have been expected to see the much faster Chinook as it bore down upon him from the right-rear quadrant. After much debate, the Board agreed that, ultimately, the cause of the incident had been that the Chinook pilot had turned into conflict with the C150. However, because of the Chinook pilot's sanguine report of separation compared to the radar recording and the C150 pilot's report, there followed a very lengthy discussion as to the risk involved. Whilst all agreed that there had been a risk of collision, the Board was split between those who thought that seeming inaction by the Chinook pilot had meant that the separation was such that it had been a Category A incident (a serious risk of collision where separation was reduced to the bare minimum), and those who believed that, notwithstanding the C150 pilot's assessment of the Chinook 'filling the windscreen' and that 'they would have been struck by the rotor disc if the Chinook had not been very slightly higher than them', in being visual with the C150, the Chinook pilot must have assessed that he would miss the C150 (and had perceived 300ft vertical separation). The debate ebbed and flowed and, in the end, the Chairman put it to a vote. By a majority of 1, the latter was agreed; Risk Category B, safety had been much reduced below the norm.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Chinook pilot turned into conflict with the C150.

Degree of Risk: B.

Safety Barrier Assessment[4]

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

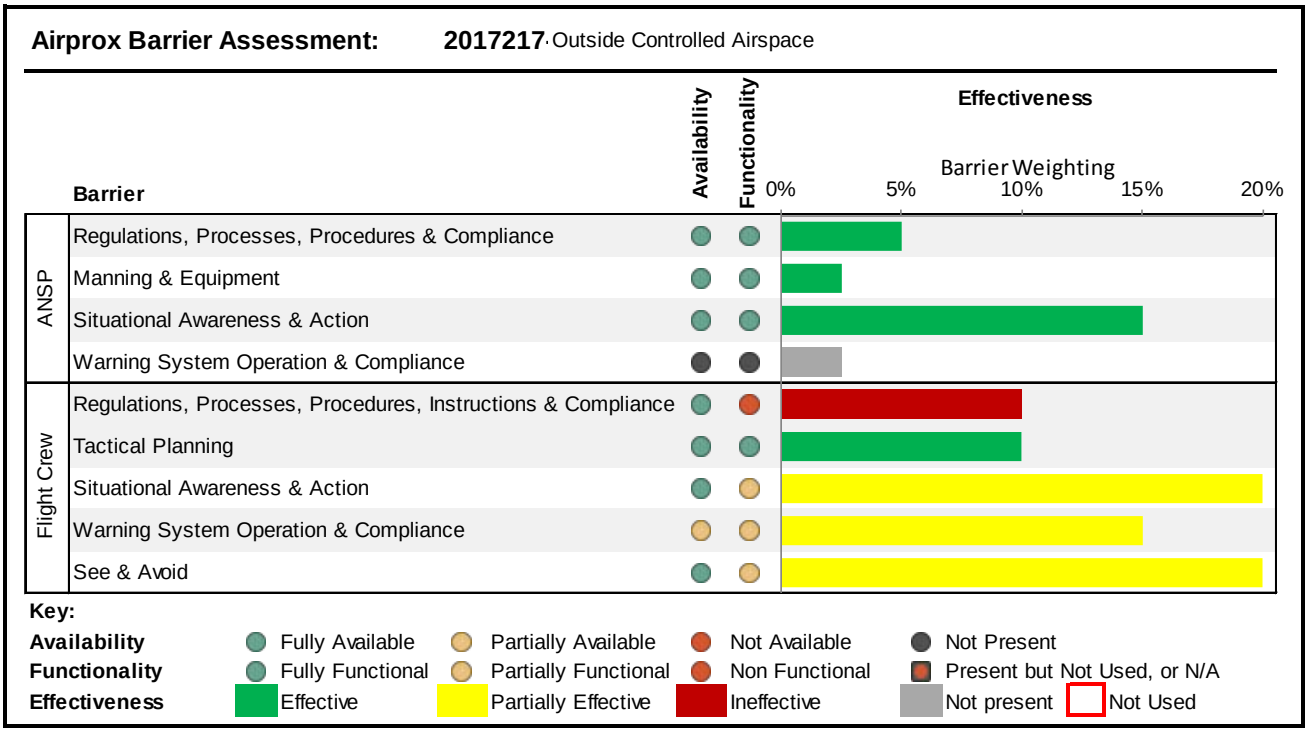
Flight Crew:

Regulations, Processes, Procedures, Instructions and Compliance were assessed as **ineffective** because the Chinook pilot was required not to pass in such proximity as to create a collision hazard.

Situational Awareness and Action were assessed as **partially effective** because the Chinook pilot didn't act sufficiently on the situational awareness provided by ATC.

Warning System Operation and Compliance were assessed as **partially effective** because although he had TAS information, the Chinook pilot didn't act sufficiently upon it.

See and Avoid were assessed as **partially effective** because although the Chinook pilot had the C150 in sight, he still passed in front of it at a distance of 0.1nm.



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