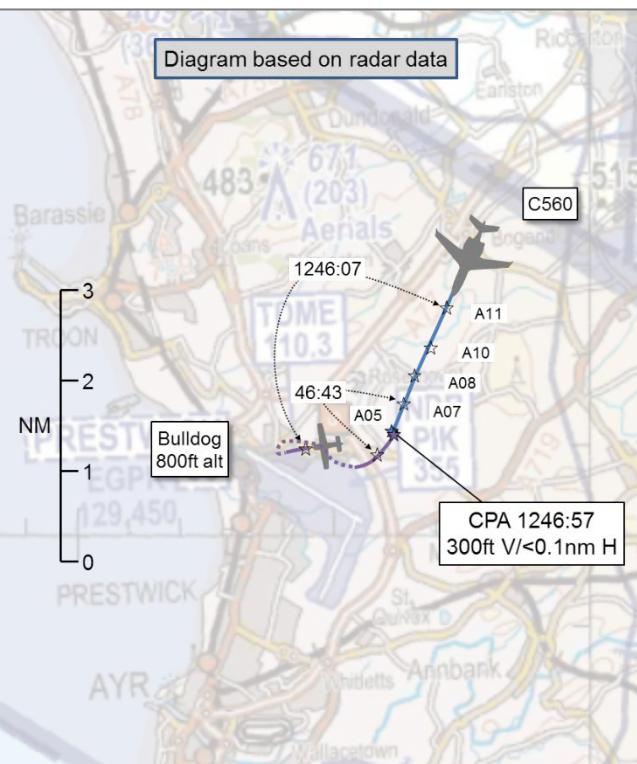


AIRPROX REPORT No 2019162

Date: 27 Jun 2019 Time: 1247Z Position: 5531N 00434W Location: Prestwick Airport – elev 66ft

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C560	Bulldog
Operator	Civ FW	Civ FW
Airspace	Prestwick CTR	Prestwick CTR
Class	D	D
Rules	IFR	VFR
Service	ACS	ACS
Provider	Prestwick Tower	Prestwick Tower
Altitude/FL	400ft	700ft
Transponder	A, C, S	A, C
Reported		
Colours	NK	Blue, white
Lighting	NK	Anti-col
Conditions	VMC	VMC
Visibility	NK	40km
Altitude/FL	300-500ft	800ft
Altimeter	NK	QFE (1029hPa)
Heading	NK	NK
Speed	130kt	95kt
ACAS/TAS	TCAS II	Not fitted
Alert	TA	N/A
Separation		
Reported	100ft V/0m H	Not seen at CPA
Recorded	300ft V/<0.1NM H	



THE C560 PILOT reports that while descending on the RNAV approach onto RW21, at approximately 2 miles final, a TCAS alert 'Traffic' was triggered. Shortly thereafter, both crewmembers spotted a single-engine airplane at the same altitude, turning opposite into their flightpath. Due to ground proximity and the other aircraft appearing higher than them, the approach descent on autopilot was continued. The aircraft passed directly over them with an estimated 100ft vertical separation. Immediately, the Tower controller was asked if he had seen this aircraft. TWR replied, that this aircraft was under his control and had been instructed to hold at base for RW21, No2 behind them. Essential Traffic Information was never given about this traffic. The pilot reported this to TWR as a near-miss, as the [other] aircraft turned into the final IFR approach.

The pilot did not make an assessment of the risk of collision.

THE BULLDOG PILOT reports conducting an air experience flight to the south of Prestwick. On rejoin to the circuit, a downwind left-hand join for RW21 was carried out as cleared, and ATC requested a call ready for base because there was traffic on a long final to RW21, the pilot thought at a range of 14 miles. He requested a low-approach and go-around to land from a right-hand circuit and reported ready for base. ATC then cleared him No1 to go-around into a left-hand circuit. On final to go-around, when further cleared go-around left-hand, the pilot requested right-hand again and this was approved with further clearance to hold at the end of the downwind leg due to Citation traffic. This was acknowledged by the pilot and a go-around was carried out right-hand with the intention of carrying out a left-hand orbit at the end of the downwind leg. On downwind the passenger suddenly announced that he felt unwell and needed a sick-bag urgently. While extracting one from its stowage and attending to the passenger, the pilot inadvertently entered a right-turn and, while the Citation had been visual in the 2 O'clock before this event and had been deemed by the pilot to be clear, he lost sight of it in the turn and became distracted by the passenger to the extent that about 180° into the turn he was horrified to see that he had allowed the aircraft to drift very close to the RW21 centreline; the right-turn being

exacerbated by the westerly upper wind. The Citation was seen on very short-final and the pilot heard the Citation pilot call out that he had seen a light-aircraft very close above him. He realised that he must have been close to it but, because he was unsighted and turning right but looking left at the passenger, that he could make no estimate of how close laterally or vertically he had been to the Citation. The Bulldog pilot stated that the cause of the event was that he had become distracted by the plight of the passenger to the extent that a major loss of situational awareness took place. While ensuring that the passenger was cared for and the aircraft under control, he turned the wrong way in the hold and allowed a dangerous loss of separation to take place. As an experienced instructor this was something that should not have happened and something that is taught to guard against during both initial and refresher training. He could not say why this had happened. The dangers of fixating on a task were well known and yet this happened to a very experienced individual and is a salutary lesson to the pilot which thankfully did not result in anything more tragic.

The pilot did not make an assessment of the risk of collision.

THE PRESTWICK TOWER CONTROLLER reports that [Bulldog C/S] was in the right-hand visual circuit for RW21 and [C560 C/S] was IFR inbound traffic on an RNAV approach to RW21. [Bulldog C/S] was instructed to hold at the end of the downwind leg and passed traffic information on [C560 C/S] who was No1 to land. [C560 C/S] was seen on the ATM at 8NM from touchdown and the controller was expecting the pilot to call on frequency. This did not happen, so the pilot was called twice but with no response. Radar then rang and the controller asked if [C560 C/S] had been put across to Tower frequency. Just then the pilot called, already inside 4NM, and was cleared to land. There was no opportunity to pass Traffic Information on [Bulldog C/S]. The [C560] pilot then asked about a light-aircraft which was above him. The controller passed Traffic Information on [Bulldog C/S]. At that point in time [Bulldog C/S] could not be seen but the controller was visual with [C560 C/S] and could see nothing either in front of, above, or near it. After [C560 C/S] had landed, the pilot later rang to advise that he would be filing an Airprox.

Factual Background

The weather at Prestwick was recorded as follows:

METAR EGPK 271220Z 26009KT CAVOK 22/14 Q1031=

Analysis and Investigation

CAA ATSI

ATSI had access to reports from the pilots of the C560 and the Bulldog, and Glasgow Prestwick ATC. The Area radar and Glasgow Prestwick R/T recordings were reviewed for the period. Screenshots in this report are taken from the Area Radar recording and, as such, all levels displayed are Flight Levels. The QNH was 1031hPa (486ft difference). All times are UTC.

An Airprox was reported in Class D airspace by the pilot of a Cessna 560 Citation when their aircraft came into proximity with a Bulldog while established on the final approach track for an RNAV Approach to RW21 at Glasgow Prestwick Airport. The C560 pilot was operating under IFR, inbound to the airport, and in receipt of an Aerodrome Control Service from Prestwick Tower. The Bulldog pilot had returned to the visual circuit at the end of an air experience flight, to and from the airport, and was also in receipt of an Aerodrome Control Service from Prestwick Tower.

At 12:35.30, the C560 pilot made initial contact with the Prestwick Radar controller. The pilot advised that they were inbound from Turnberry, in the descent to FL70. The controller responded that this would be an RNAV approach for RW21, and instructed the pilot to descend to altitude 6000ft.

At 12:36.45, the Bulldog pilot advised the Prestwick Radar controller that they were approaching Doonfoot for re-join and requested to route direct for RW21. The pilot was issued with a Zone entry

clearance via Doonfoot, not above altitude 2000ft, VFR. At 12:37.00, the Radar controller instructed the Bulldog pilot to hold at Doonfoot and contact Prestwick Tower.

At 12:38.10, the Radar controller cleared the C560 pilot for the RNAV Approach RW21 and instructed them to report at the Final Approach Fix.

At 12:39.40, the Bulldog pilot contacted the Tower controller and was instructed to join downwind left-hand RW21, QFE 1029, and report ready for left-base. The pilot advised that it would be for one low approach and go-around for a right-hand circuit to land RW21. The controller said that they would keep the pilot advised and that they were expecting a diversion and an inbound. At 12:42.30, the Bulldog pilot reported downwind to land and was instructed to report ready for base. The pilot asked the controller what traffic they should be looking for and the controller advised that there was a Citation with 14 miles to run for RW21.

At 12:43.45, the Radar controller passed Traffic information to the C560 pilot on unrelated traffic and instructed the pilot to report passing the final approach fix. The pilot responded “copied and report passing the final approach fix”

At 12:43.45, the Bulldog pilot reported ready for base and was instructed to report final No1 and advised that after the go-around it would be a left-hand circuit, VFR, not above 1500ft on the QFE.

At 12:44.20 (Figure 1), the Bulldog pilot asked if there was any chance of a right-hand circuit. A right-hand circuit was agreed at 12:44.40 and the Bulldog pilot was cleared for the low approach.

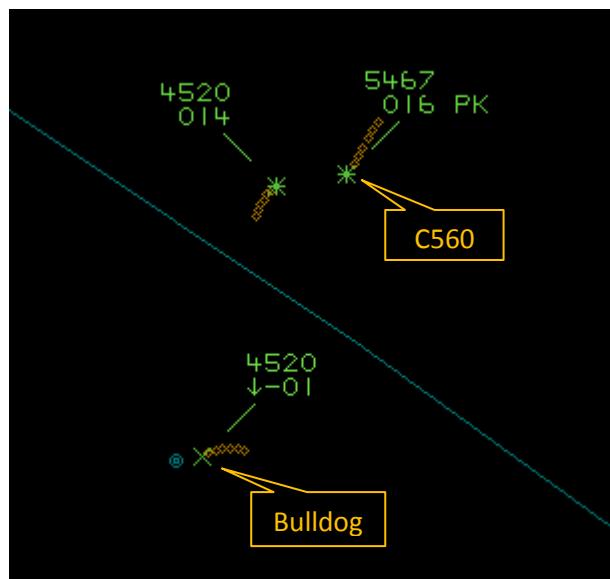


Figure 1 - 12:44.40

Between 12:44.45 and 12:45.15, the Tower controller made blind calls to the C560 pilot to establish whether they were on the Tower frequency. There was no response.

At 12:45.20 (Figure 2), the C560 pilot reported to the Radar controller that they were at the final approach fix (FAF). There was a change of Radar controller and the new controller asked the pilot to confirm their altitude. The pilot advised that they were at 2100 ft. The controller instructed the pilot to change to the Tower frequency.

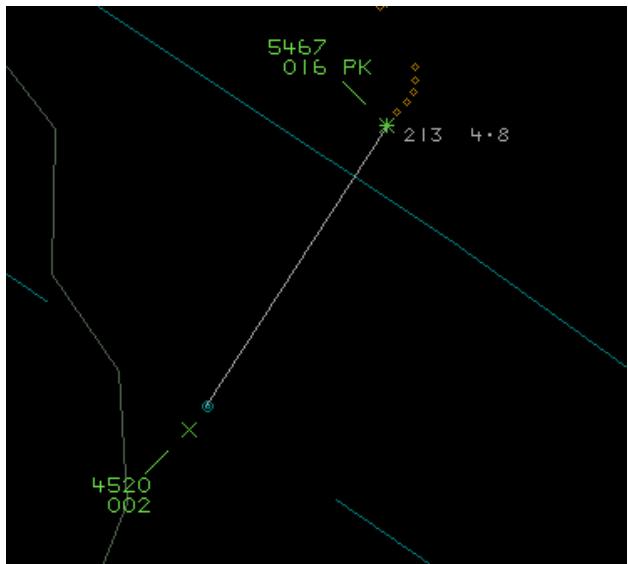


Figure 2 - 12:45.20

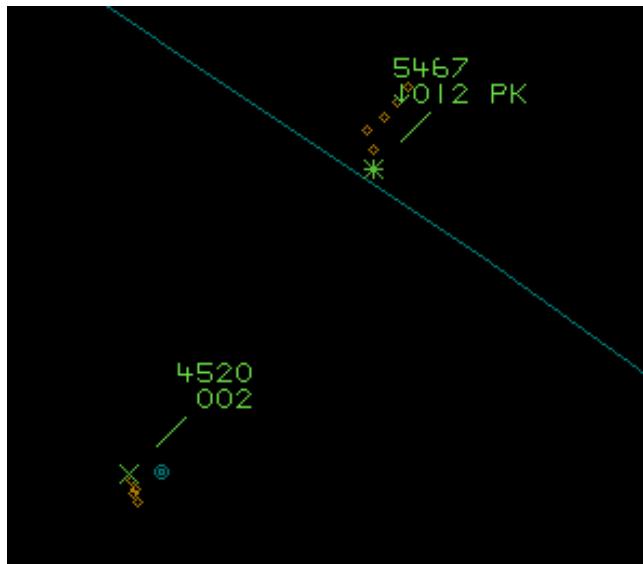


Figure 3 - 12:45.30

At 12:45.30 (Figure 3), the Bulldog pilot reported ready for base and the controller instructed them to hold at the end of the downwind leg and advised that they would be No2 to the Citation at 4 miles. The pilot readback *"number 2 hold at the end of downwind"*.

At 12:46.00, the C560 pilot made initial contact with the Tower controller and advised that they were at 3 miles. The controller issued the pilot with their landing clearance and passed the surface wind. Note: The Bulldog had faded from radar at this time.

At 12:46.50 (Figure 4), the Bulldog reappeared on the radar display in direct conflict with the C560. CPA occurred at 12:46.55 (Figure 5), with the aircraft separated by 0.1nm laterally and 300ft vertically.

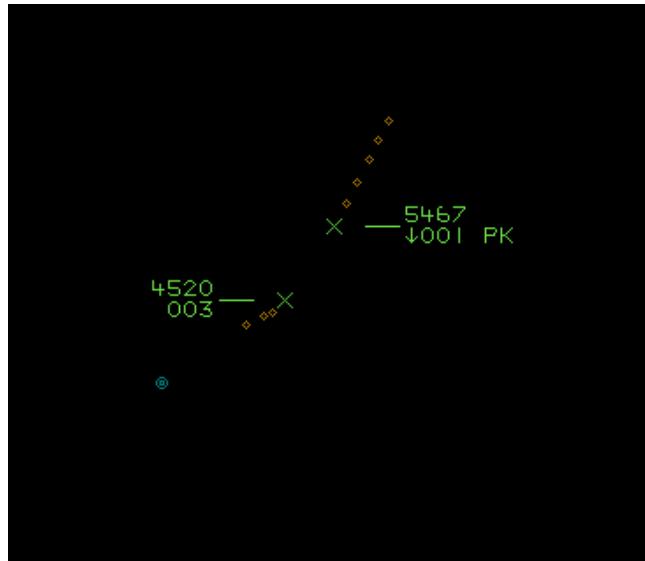


Figure 4 - 12:46.50

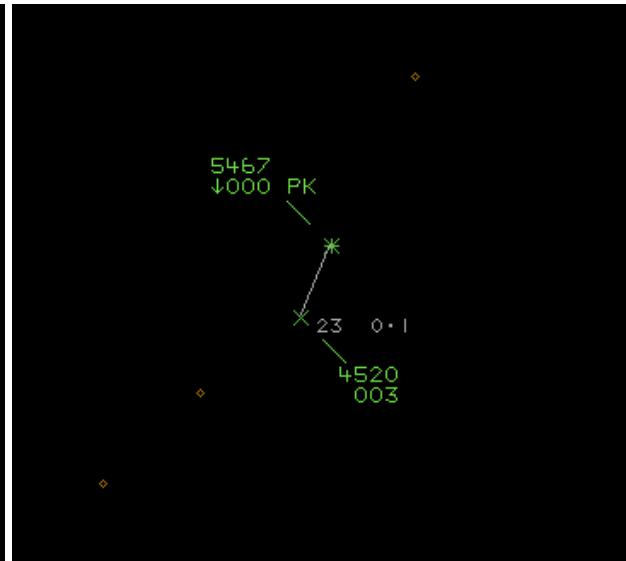


Figure 5 - 12:46.55 CPA

At 12:47.00, the C560 pilot advised the Tower controller that a single-engine aircraft was just passing over them. The controller advised the pilot that this aircraft was in the visual circuit and that the pilot had the C560 in sight. The C560 pilot advised that the aircraft was less than 100 ft above them. The controller advised the Bulldog pilot to exercise caution when holding and the pilot responded that they had seen the C560 and didn't think it was that close. The Bulldog pilot was observed to have flown the wrong way up the final approach track before commencing a left-hand orbit (Figure 6 displays the position of the aircraft at 12:47.30).

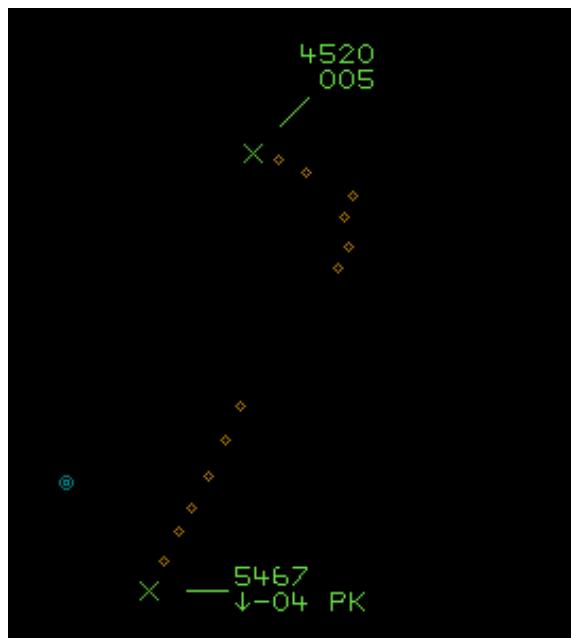


Figure 6 - 12:47.30

The Bulldog pilot was cleared for the low-approach into the right-hand circuit at 12:44.40. Fifty seconds later the Bulldog pilot reported ready for base, the aircraft was displayed in the crosswind position at this time. During this 50sec period, the Bulldog was not displayed on the Area radar replay. Traffic information was passed to the Bulldog pilot on the C560 on two occasions prior to their first go around, the second set of traffic information included the range of the C560 as 14 miles. The traffic information was updated when the Bulldog pilot reported ready for base on their subsequent circuit and the C560 was at 4 miles. During this call the Bulldog pilot was instructed to hold at the end of the downwind leg and this was acknowledged by the pilot.

The transfer of the C560 from the Radar controller to the Tower controller was relatively late (3 miles from touchdown) and no information had been passed to the C560 pilot on circuit activity. On first R/T contact with the Tower controller the landing clearance was issued to the C560 pilot; however, no traffic information was passed on the Bulldog, expected to be holding on right base. The Bulldog pilot did not comply with the instruction to hold at the end of the downwind leg and this was not picked up by the controller.

The Bulldog pilot asked the controller what traffic they should be looking for prior to turning final on their first circuit and were passed traffic information on the C560 when it had 14 miles to run. This traffic information was updated when the Bulldog pilot reported ready for base on their subsequent circuit, and the C560 was at 4 miles. The Tower controller issued an instruction (which was acknowledged by the Bulldog pilot) to hold in a position where they could be safely integrated behind the C560 but subsequently did not monitor compliance with the instruction and the Bulldog pilot flew directly toward the C560 which was established on short final. Traffic information was not passed to the C560 pilot on the position of the Bulldog at any point.

UKAB Secretariat

The Bulldog and Citation pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard¹. An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation².

¹ SERA.3205 Proximity.

² SERA.3225 Operation on and in the Vicinity of an Aerodrome.

Glasgow Prestwick Airport Incident Investigation

The Glasgow Prestwick Airport Incident Investigation established the following findings and recommendations:

FAC 1	Based on initial reports filed by both pilots and the ADC controller it would appear that the main causal factor can be attributed to a loss of situational awareness by the pilot of the circuit aircraft [Bulldog].
FAC 2	The CCT aircraft was being flown in a manner that was not what the ADC Controller would normally anticipate.
FAC 3	The pilot of the CCT aircraft states in his report that they were distracted by an unwell passenger.
FAC 4	The inbound Citation was carrying out an RNAV approach under which current procedures dictate that the aircraft is retained by the APS Controller until the FAF which, on RWY 21, is a little over 5NM from touchdown. This delayed the transfer to the ADC Controller and may have reduced the inbound crew's situational awareness and made it particularly difficult for the ADC Controller to pass traffic information in a timely manner.
FAC 5	Due to the size and proximity of the CCT aircraft to the radar head, the Aerodrome Traffic Monitor was of little use in allowing the ADC controller to determine the position of the CCT aircraft immediately prior to the AIRPROX.
FAC 6	The request to enter the CCT was made at short notice and had not been anticipated in advance by the ADC Controller and may have been an unwanted distraction during a reasonably busy period.
FAC 7	The main RWY 12/30 had been closed for maintenance and RWY 21 was in use at the time.
FAC 8	The incident occurred towards the end of the Controllers shift, which had commenced at 7am.

R1	FAC 2	Pilots of light aircraft should ensure that if they wish to fly any type of CCT which would be considered non-standard (see appendix 11. CAP 493 extract) they shall request permission to do so from the ADC Controller, giving ample time for the Controller to consider such a request.
R2	FAC 2,4,5 & 6	Local operators of light aircraft and Prestwick ATC staff should be fully briefed on this incident, along with its findings as a matter of priority, in order to make them aware of the importance of ensuring pilots fully comply with ATC instructions. Traffic at Prestwick can often be complex with a mix of aircraft with significant differences in performance characteristics.
R3	FAC 4	A review of RNAV Approach procedures and the way in which co-ordination between ADC and APC Controllers is effected, particularly in the case of RWY 21 .
R4	FAC 6	Due consideration should be given as to whether ATC will accept late requests to enter the visual CCT.
R5	FAC 6	The way in which light aircraft operate in the visual CCT at Prestwick should be reviewed, particularly with regard to the Circuit training booking process.
R6	FAC 7	Consideration should also be given to the way in which WIP is conducted which requires the closure of the main RWY and the manner in which it is returned to service.

The investigator also commented that, in conclusion, he considered [the Airprox] to be a very serious occurrence which may well have had a very different outcome.

Summary

An Airprox was reported when a Bulldog and a Citation flew into proximity on the final approach to RW21 at Prestwick at 1247hrs on Thursday 27th June 2019. Both pilots were operating in VMC in receipt of an Aerodrome Control Service from Prestwick Tower, the C560 pilot under IFR and the Bulldog pilot under VFR.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, a report from the air traffic controller 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 Bulldog pilot's actions, commending him for his full and frank report. He had been faced with a sudden deterioration in his passenger's health and, in attempting to deal with the situation, inadvertently deviated from his clearance to hold at the end of the downwind leg, No2 to the inbound C560 at 4nm (**CF7, CF9**). The Board felt that although he would rightly be concerned by his passenger's condition, the Bulldog pilot had not appropriately prioritised his actions (**CF8**) and that he had allowed himself to become distracted by (**CF12**) to the extent that he did not conform to the pattern of traffic intending to land (**CF10, CF13**) despite being in possession of appropriate SA (**CF11**). In the event, the Bulldog pilot saw the C560 at a late stage (**CF16**), no doubt at least in part due to his focus on managing the passenger (**CF15**). For his part, the C560 pilot had seen the Bulldog at a greater range and received a TCAS TA (**CF14**). He had time to assess that his descent would keep him clear, but was nonetheless concerned by the Bulldog's proximity (**CF17**).

Turning to the controller, members agreed that although he was busy with a late handover of the C560 (**CF6**), and that the ATM did not show the Bulldog (**CF2**), it was for him to monitor the Bulldog pilot's compliance with the clearance to hold at the end of the downwind leg (**CF1**). In the event, he did not pass Traffic Information to the C560 pilot due to the latter's late arrival on his frequency (**CF5**) and did not detect the Bulldog deviating from its position and into conflict with the C560 (**CF4**). The Board felt that the primary form of control in the visual circuit was observation through the window and that the controller had lost SA on the Bulldog's position (**CF3**). Members noted the late handover of the C560 from Approach to Tower and commented that the planned handover at the FAF, at 5NM, was in any case later than at many other airfields. Whilst there may well be local operational considerations, the Board felt that an earlier handover may help to build timely SA for pilots arriving at the airfield. The Board also commented on the Prestwick Safety Investigation and noted that its findings did not address the controller's responsibility to monitor the position of traffic in the visual circuit and to intervene if a clearance was not complied with. Although the Bulldog pilot was required to conform to the clearance issued, it was for the Tower controller to monitor circuit traffic, with or without a functioning ATM.

The Board discussed the risk at length. Some members felt that the C560 crew had seen the Bulldog with sufficient time to be able to assess that their approach path would take them clear and therefore that the risk of collision had been averted. Others felt that the unplanned proximity of the Bulldog was such that safety had been much reduced below the norm. In the end, the later view prevailed and the Board agreed a risk assessment of Category B.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**Contributory Factors:**

2019162			
CF	Factor	Description	Amplification
	Ground Elements		
	• Regulations, Processes, Procedures and Compliance		
1	Human Factors	• ATM Regulatory Deviation	Regulations and/or procedures not complied with
	• Manning and Equipment		
2	Organisational	• Aerodrome and ATM Equipment	Inadequate or unavailable equipment
	• Situational Awareness and Action		
3	Contextual	• Situational Awareness and Sensory Events	Generic, late, no or incorrect Situational Awareness
4	Human Factors	• Conflict Detection - Not Detected	
5	Human Factors	• Traffic Management Information Provision	Not provided, inaccurate, inadequate, or late
6	Human Factors	• ATM Coordination	Inadequate or ineffective
	Flight Elements		
	• Regulations, Processes, Procedures and Compliance		
7	Human Factors	• Flight Crew ATM Procedure Deviation	Regulations/procedures not complied with
	• Tactical Planning and Execution		
8	Human Factors	• Insufficient Decision/Plan	Inadequate plan adaption
9	Human Factors	• Action Performed Incorrectly	Did not follow instructions
10	Human Factors	• Aircraft Navigation	Did not avoid/conform with the pattern of traffic already formed
	• Situational Awareness of the Conflicting Aircraft and Action		
11	Human Factors	• Lack of Action	Pilot flew into conflict despite Situational Awareness
12	Human Factors	• Distraction - Job Related	Pilot was engaged in other tasks
13	Human Factors	• Monitoring of Other Aircraft	Pilot did not sufficiently integrate with the other aircraft
	• Electronic Warning System Operation and Compliance		
14	Contextual	• ACAS/TCAS TA	TCAS TA / CWS indication
	• See and Avoid		
15	Human Factors	• Distraction - Job Related	Pilot looking elsewhere
16	Human Factors	• Monitoring of Other Aircraft	Non-sighting or effectively a non-sighting by one or both pilots
17	Human Factors	• Lack of Action	Pilot flew close enough to cause the other pilot concern

Degree of Risk: B.**Recommendation:** Nil.

Safety Barrier Assessment³

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 traffic information on the Bulldog was not passed to the C560 pilot and the controller didn't monitor compliance with the instruction to the Bulldog pilot to hold at the end of the downwind leg.

Manning and Equipment were assessed as **partially effective** because the ATM did not depict traffic near the airfield overhead and did not show the Bulldog pilot deviating from his clearance.

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the controller was not aware of the Bulldog pilot deviating from his clearance and so did not take action.

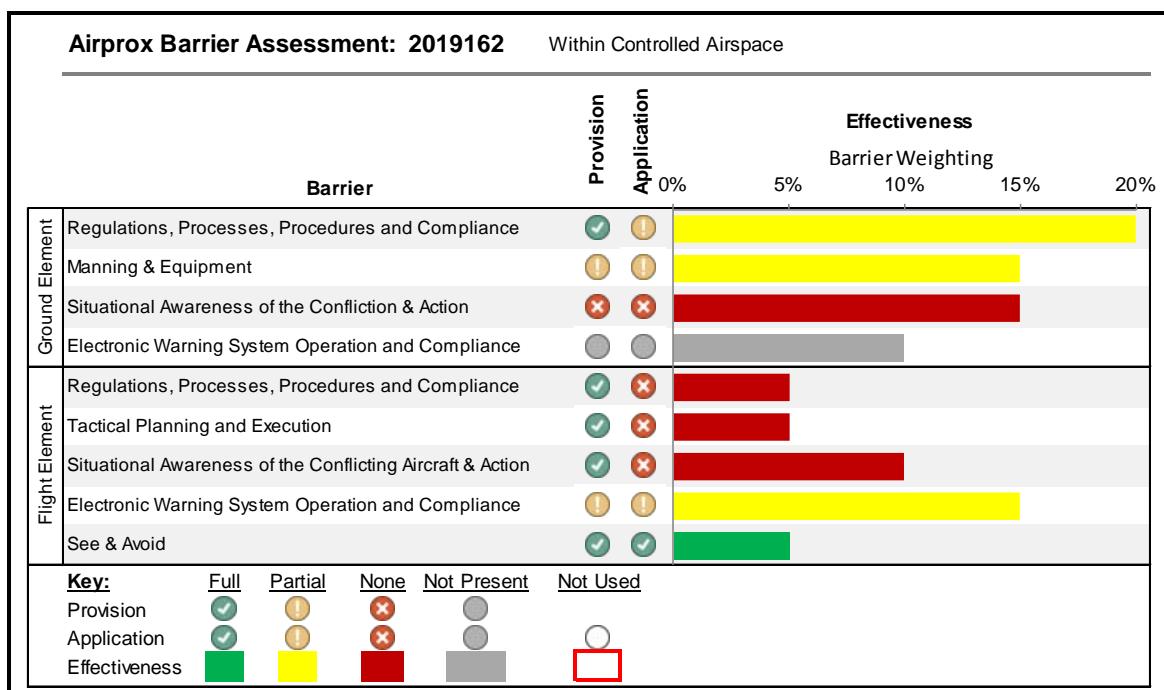
Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the Bulldog pilot was distracted by the passenger and did not comply with his clearance to orbit at the end of the downwind leg.

Tactical Planning and Execution was assessed as **ineffective** because the passenger distracted the Bulldog pilot to the extent that he inadvertently deviated from his clearance and into conflict with the C560.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because although the Bulldog pilot was aware of the approaching C560, the available SA was not acted upon, and the C560 pilot was not previously aware of the Bulldog in the visual circuit.

Electronic Warning System Operation and Compliance were assessed as **partially effective** because although the Bulldog was not fitted with a TAS, the C560 had TCAS, which alerted.



³ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).