AIRPROX REPORT No 2022141

Date: 16 Jul 2022 Time: 0855Z Position: 5558N 00356W Location: Cumbernauld

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C172	C152
Operator	Civ FW	Civ FW
Airspace	Scottish FIR	Scottish FIR
Class	G	G
Rules	VFR	VFR
Service	AGCS	AGCS
Provider	Cumbernauld	Cumbernauld
Altitude/FL	FL001	FL007
Transponder	A, C, S	A, C, S
Reported		
Colours	White, Blue	White, Grey
Lighting	Nav, Beacon, Strobe	Landing
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	500ft	650ft
Altimeter	QNH (1024hPa)	QFE (1014hPa)
Heading	250°	160°
Speed	70kt	70kt
ACAS/TAS	Not fitted	Not fitted
Separation at CPA		
Reported	2-300ft V/NK H	200ft V/100m H
Recorded	600ft V/0.2NM H	

THE C172 PILOT reports that they were inbound to Cumbernauld. Two-way communication was established with Cumbernauld Radio who passed airfield details (RW25 RH-circuits QNH1024, QFE 1011) and Traffic Information along with ([C152 C/S] in the circuit, [PA18 C/S] joining crosswind). They decided on a direct-to-final join due to their position (approximately 7NM to Cumbernauld, just north of the RW25 extended centreline). As they became abeam Denny (a common VRP), they became visual with [C152 C/S] however, they lost visual with [the C152] when they started to orbit. They radioed "[C/S] orbiting south Denny" and made two full left orbits just south of Denny to give way to circuit traffic. Just as they began the third orbit, a pilot called final for RW25. As [C152 C/S] had not yet made their downwind call, they decided to turn towards the runway, thinking there would be sufficient separation and radioed "[C/S], 3 mile final, visual one ahead" (ie visual with the PA18). They were 2.5NM from the RW25 threshold and approximately 1.5NM behind the PA18 when they made their radio call. A few moments later, [C152 C/S] made a "late downwind" radio call, by which point they were just under 2NM from the RW25 threshold. With the "late downwind" radio call, they began to scan downwind and base, however, they were unable to obtain visual contact. They decided to lift the starboard wing for a brief moment, in an attempt to make sure their wing wasn't hiding the C152, but were still unable to become visual. They then made a faulty assumption. Thinking [C152 C/S] only radioed "late downwind" just a few seconds before, and as they were approaching 1NM from the threshold, they decided to continue their approach, thinking [the other pilot] would be still on downwind or just about to turn base, and therefore would be behind them. They were roughly on a 2.5° glideslope, maintaining above standard speed (approximately 85KIAS) until short finals (approximately 0.5NM), decelerating to 65KIAS for a standard landing. They became aware of [the C152] being above them, on finals, about 0.8NM from the runway threshold and 500ft AMSL, when [C152 C/S] radioed "he just cut in-front of me". As [C152 C/S] radioed they were "going around", and because it was clear they were the lower traffic, they decided to continue the approach and made a normal landing. No further communication was established in the end as they did not manage to catch the other pilot in-between their instructional flights.

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

THE C152 PILOT reports that while in circuit training with a student, they were positioned on a right base for RW25, when a C172 flew below them and in close proximity to their aircraft. The pilot of the C172 had reported they were joining long final on an active circuit. They then reported they were over the town of Denny, which would have positioned their aircraft for a right-base join. The pilot reported they were orbiting at Denny, then the next report was a two mile final call. The C152 pilot altered course slightly to port to avoid.

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

THE CUMBERNAULD AGO reports that the C172 pilot called final at 0954, the C152 pilot reported downwind at 0954 shortly after the C172 pilot's call. At 0955 the C152 pilot asked the Tower staff to diary an Airprox, stating that the C172 had cut them up and they had had to go around (although the C172 pilot had called final first).

Factual Background

The weather at Glasgow was recorded as follows:

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METAR EGPF 160820Z AUTO 25006KT 9999 OVC019 14/10 Q1025=
METAR EGPF 160850Z AUTO 25007KT 9999 OVC018 14/10 Q1025=
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The Cumbernauld website provided the following circuit diagram and noise abatement information:

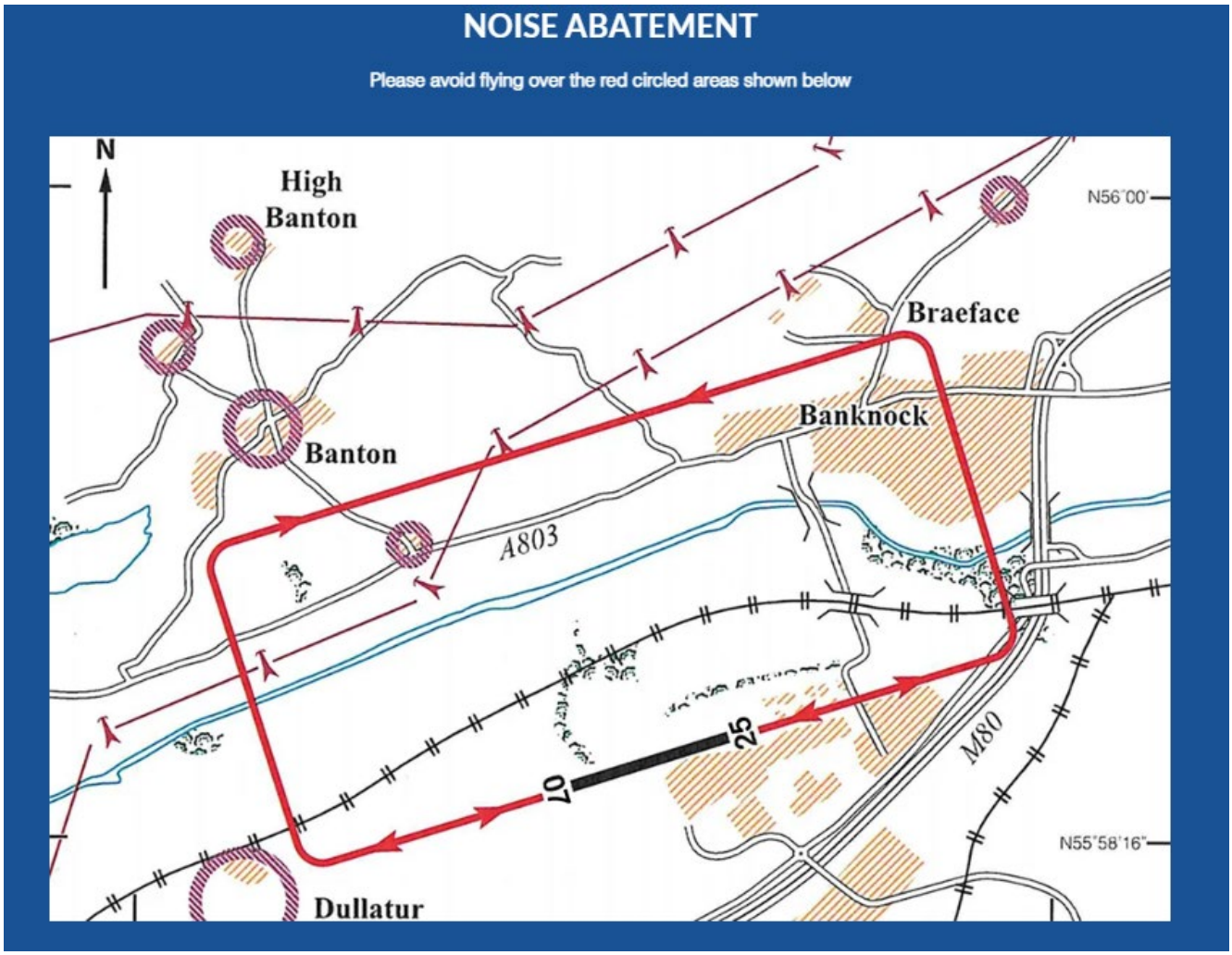


Figure 1: Cumbernauld circuit diagram

The Cumbernauld AIP entry provides the following information:

EGPG AD 2.22 FLIGHT PROCEDURES

1 ARRIVALS

a. Aircraft operating under IFR may let down at Edinburgh or Glasgow and proceed to Cumbernauld in VMC.

2 CIRCUITS

a. Circuit directions: Runway 25 - RH; Runway 07 - LH for all circuit traffic. Circuit height: 800 FT QFE.
b. When circuit is active standard overhead join at 2000 FT QFE, descending dead-side to join the circuit: 800 FT QFE.

Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was undertaken. Both aircraft could be seen and identified using Mode S information; altitude information on the screenshots below is displayed in flight level. At 0850:03 the C152 could be seen downwind and the C172 was orbiting to the northeast of the airfield (Figure 2).The C152 made an approach to the runway and at 0853:53 could be seen once again climbing back into the circuit. At the same time, the C172 had reversed a turn at Denny and was heading toward the airfield (Figure 3).

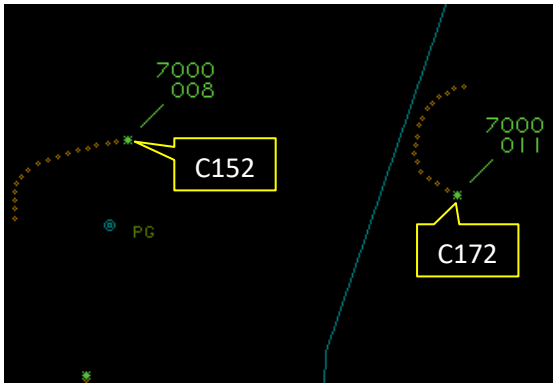


Figure 2 - 0850:03

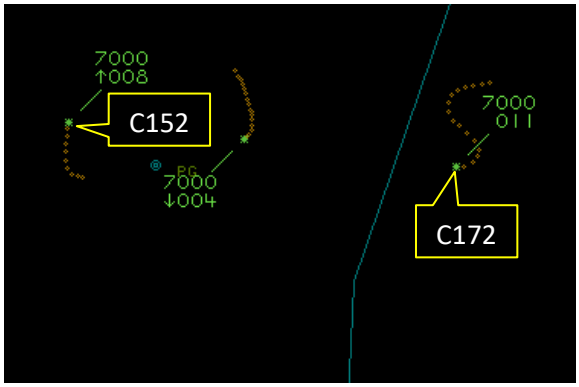


Figure 3 – 0853:53

At Figure 4, the C172 was on a long final and indicated an altitude of FL006 (radar QNH 1026hPa) and the C152 appeared to have turned onto a base leg; the two aircraft were 1.2NM apart by this point. The two aircraft continued until the C172 crossed ahead of the C152 by 0.4NM, with an indicated 400ft separation (Figure 5).

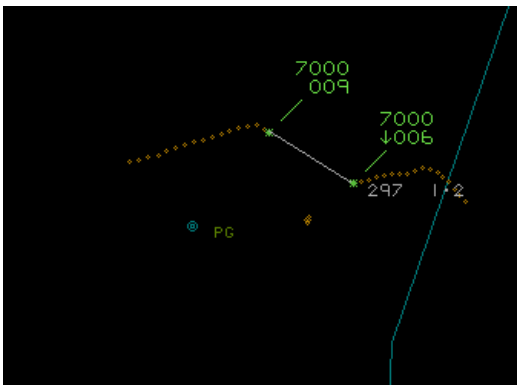


Figure 4 – 0855:11

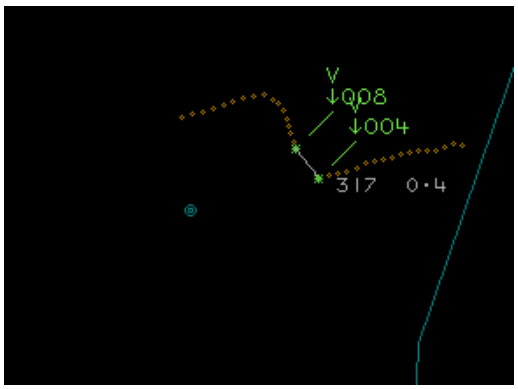


Figure 5 – 0855:35

Radar CPA occurred at 0855:47 with an indicated separation of 0.2NM and 600ft.

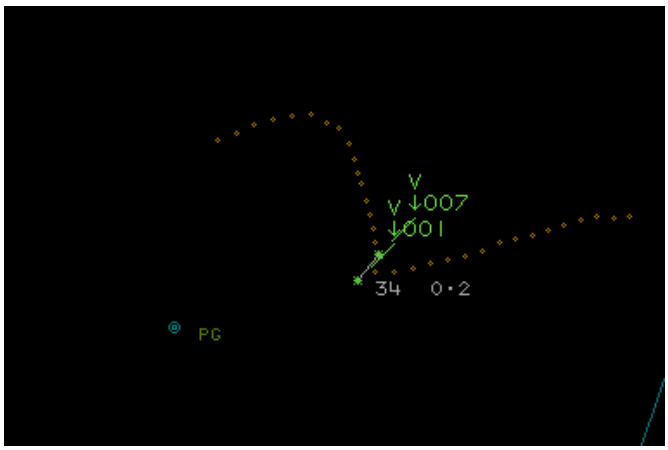


Figure 5 – Radar CPA

The C172 and C152 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] 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 operation.[2]

Summary

An Airprox was reported when a C172 and a C152 flew into proximity in the visual circuit at Cumbernauld at 0855Z on Saturday 16th July 2022. Both pilots were operating under VFR in VMC, both in receipt of an AGCS from Cumbernauld.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings and a report from the AGO involved. 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 looked at the actions of the C172 pilot. They noted that the pilot had been listening-out to build a picture of the circuit traffic and had held-off prior to joining in order to try to integrate with it. Although they had made a call that they were holding at Denny, members noted that the C172 was further south than the town itself and that this had probably misled the C152 pilot into thinking the C172 would have been joining on a base-leg, demonstrating the importance of accurate position reporting. Members commented that because it was difficult to fit into an active visual circuit by making a long straight-in join, the CAA advised that pilots should conduct an overhead join,[3] and that this was also the instruction in the Cumbernauld AIP entry. Once in the overhead, pilots could then accurately assess the position of the circuit traffic, orbiting above the circuit in order to ensure they could fit in appropriately. They noted that the cloudbase at Glasgow had been relatively low and that this may have precluded the C172 pilot making an overhead join at 2000ft, but commented that joining in the overhead at a lower altitude, but above circuit altitude, or making a deadside join was preferrable to making a straight-in approach. The Board agreed that, in making the straight-in approach directly onto final, the C172 pilot had not integrated with the C152 in the circuit (**CF1**). Members noted that reporting final at range (in this case 3 miles) did not automatically entitle a pilot to assume they were next in line for the runway (**CF2**, **CF4**). However, the Board noted that the C152 pilot had made a late downwind call, which would have made it difficult for the C172 pilot to have predicted its position. The C172 pilot reported that they had been uncertain of the position of the C152, and had unsuccessfully tried looking for it, and members wondered why at this point the pilot had not made a call on the RT asking the C152 pilot for a position report (**CF5**, **CF6**). The high-wing on the C172 would have made it difficult for the C172 pilot to see the

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.
[3] CAA Skyway code available here, overhead joining procedures on page 103.

C152 as they continued on final and, although the pilot reported trying to lift the wing in order to look for the C152, they did not see it until after CPA (**CF7**).

The C152 had been operating in the circuit and the pilot had heard the C172 pilot report at Denny. They had assumed that the other pilot would therefore join via the base-leg and not for a straight-in approach. Members noted that the pilot had been instructing within the visual circuit, cockpit workload would have been high and there was a likelihood that there had been a lot of in-cockpit communication, and that this had probably led to the late downwind call. However, accurate calls are necessary to allow other pilots to integrate into the circuit and members thought that the late call had been contributory to the C172 pilot assessing that they would be able to fit in ahead (**CF1**). Having heard the C172 pilot make the long final call, members wondered why the C152 pilot had not asked for an updated position report from the other pilot (**CF5**, **CF6**). They highlighted the good practice of always looking up the approach path prior to turning onto final to check for any other aircraft (who potentially could be joining without RT), and noted that, despite knowing about the C172 on long final, the C152 pilot had continued with their circuit without making allowances for the potential that the other aircraft could be close by (**CF3**) and that a more defensive form of flying would have been to go around from base-leg. Once the C152 pilot had become visual with the C172, they had been able to take avoiding action, but had been concerned by its proximity (**CF8**).

When assessing the risk of the Airprox, members considered the reports from both pilots and the radar screenshots. They quickly agreed that because of the height separation and the fact that the C152 pilot had been visual and able to take timely avoiding action, there had been no risk of collision. However, because there had been a lack of communication from both pilots, together with a lack of accurate position reporting and with both believing they had the right of way and continuing with their approach, members thought that safety had been degraded; Risk Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022141			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Flight Elements			
	• Regulations, Processes, Procedures and Compliance			
1	Human Factors	• Use of policy/Procedures	Events involving the use of the relevant policy or procedures by flight crew	Regulations and/or procedures not complied with
	• Tactical Planning and Execution			
2	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
3	Human Factors	• Insufficient Decision/Plan	Events involving flight crew not making a sufficiently detailed decision or plan to meet the needs of the situation	Inadequate plan adaption
4	Human Factors	• Monitoring of Environment	Events involving flight crew not to appropriately monitoring the environment	Did not avoid/conform with the pattern of traffic already formed
	• Situational Awareness of the Conflicting Aircraft and Action			
5	Human Factors	• Lack of Action	Events involving flight crew not taking any action at all when they should have done so	Pilot flew close enough to cause concern despite Situational Awareness
6	Human Factors	• Lack of Communication	Events involving flight crew that did not communicate enough - not enough communication	Pilot did not request additional information
	• See and Avoid			
7	Human Factors	• Monitoring of Other Aircraft	Events involving flight crew not fully monitoring another aircraft	Non-sighting or effectively a non-sighting by one or both pilots
8	Human Factors	• Perception of Visual Information	Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: C.

Safety Barrier Assessment[4]

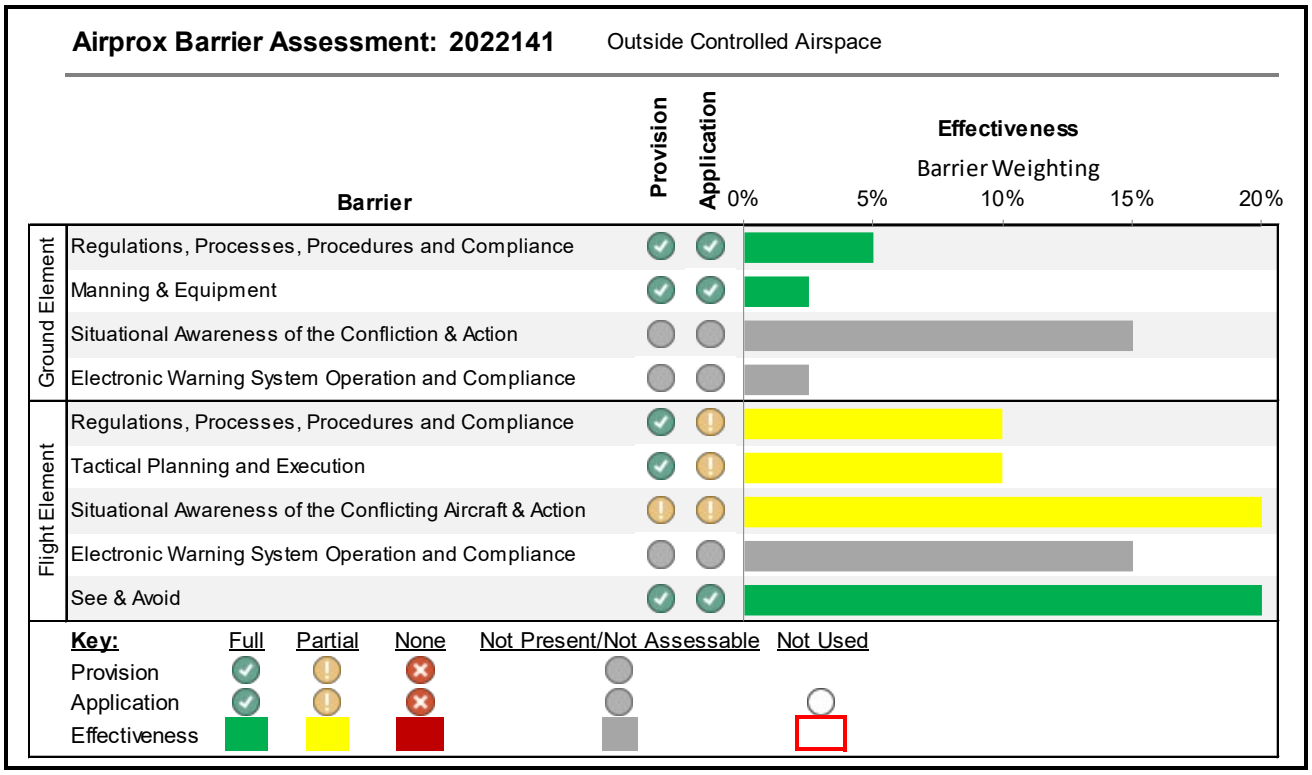
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the C152 pilot had not made an accurate 'downwind' call and because the C172 pilot had not integrated with the traffic already established in the circuit.

Tactical Planning and Execution was assessed as **partially effective** because the C152 pilot had been aware of the C172, but still continued with their base-leg, but also because the C172 pilot had not conformed with the pattern of traffic formed by the C152.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because although both pilots knew the other was there, neither had full situational awareness, and neither had asked for more information.



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