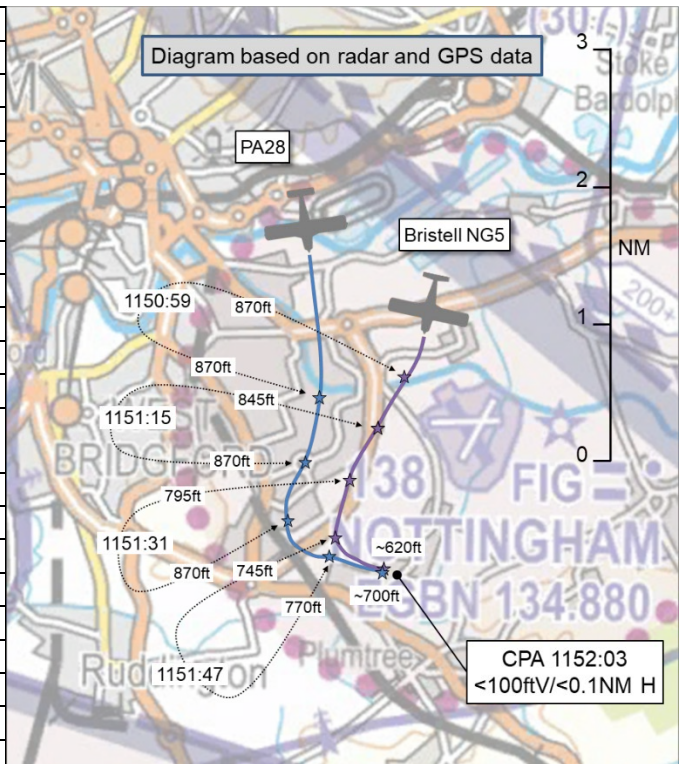


**AIRPROX REPORT No 2023010**

Date: 27 Jan 2023 Time: 1152Z Position: 5254N 00106W Location: Nottingham ATZ

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	PA28	Bristell NG5
Operator	Civ FW	Civ FW
Airspace	Nottingham ATZ	Nottingham ATZ
Class	G	G
Rules	VFR	VFR
Service	AGCS	AGCS
Provider	Nottingham Radio	Nottingham Radio
Altitude/FL	~700ft	~620ft
Transponder	A, C, S	A, C, S
<b>Reported</b>		
Colours	White, blue	Red, white
Lighting	Strobes, landing	LED lights, nav, strobe
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	600ft	800ft
Altimeter	QFE (1028hPa)	QFE (NK hPa)
Heading	120°	300°
Speed	75kt	85kt
ACAS/TAS	Not fitted	Not fitted
<b>Separation at CPA</b>		
Reported	20ft V/150ft H	75ft V/200m H
Recorded	<100ft V/<0.1NM H	



**THE PA28 PILOT** reports that they were conducting a circuit-check flight with a student PPL prior to them being released to do some solo circuit consolidation. The runway in use was 03, with a left-hand circuit pattern, and it had been good VFR conditions, albeit a bit gloomy. Prior to departing, they noticed two other aircraft at the 'Sierra' hold, one waiting to taxi to the fuel bay and the other being [the Bristell NG5]. Their student initially flew a reasonably accurate circuit pattern but under-banked on the turn onto downwind which put them slightly wide, but not unreasonably so, and they made an accurate position report of 'Downwind, touch-and-go' abeam the upwind threshold, started their checks, but continued to drift in towards the runway on downwind. They heard [the pilot of the Bristell NG5] report 'downwind' and about 10-15sec later [the pilot of the PA28] started their descent on base from the circuit height of 800ft. Shortly after, [they heard the pilot of the Bristell NG5] report 'left base for 03'. [The pilot of the PA28] immediately looked left to spot it, and reported '[PA28 callsign], we're on left-base and not visual with the other aircraft'. As they were finishing that transmission they spotted [the Bristell NG5] at a distance of about 300m in their 8 o'clock position, about 20-30ft below and converging. They told their student to go-around and, as they started to enter a climb, [the student] saw [the Bristell NG5] track underneath their aircraft. [The Bristell NG5] continued onto final approach and completed a touch-and-go as [the pilot of the PA28] climbed on the deadside up to circuit height and re-joined the circuit above the upwind threshold. They carried out a few touch-and-go's with [the Bristell NG5] behind but its pilot reporting each time 'downwind, visual with the aircraft ahead'.

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

**THE BRISTELL NG5 PILOT** reports that they are a Class Rating Instructor and had been in the P2 seat, with a safety pilot occupying the P1 seat. The winds were light and northerly and they departed RW03. They were aware that there had been another aircraft that had departed but had not been aware of the pilot's intentions.

They had decided to keep within the boundary of the A52 on the downwind leg of RW03 and not fly over the congested area for the following reasons: believing it prudent to keep clear of housing when safety allows to reduce the noise footprint; the aircraft is not a certified aircraft and operates on an LAA permit and the engine and aircraft have only done proving flights, thus believing for safety it is only wise to keep well clear of built-up areas until confidence has been built-up in the aircraft and engine; it was the aircraft's first flight since August so, for safety, believing it best to stay close to the airfield.

A radio position call was made downwind. They do not recall hearing any other aircraft giving a radio call, however, the workload in the cockpit was high as it was a new aircraft type for them and they were concentrating on flying. Prior to turning base-leg, they could not see or hear any other traffic.

A further position radio call was made as they established base-leg. At this point they stabilised the speed so they could select the first stage of flap (below 75kts). As they looked-out prior to turning final, they saw the other aircraft, slightly in front, 50-75ft higher and an estimated 200–300m away to their right. They could see that the other aircraft was positioning for a go-around, and they [heard the PA28 pilot] make a radio call confirming that. [The pilot of the Bristell NG5] proceeded to turn left and establish the aircraft for final while the other aircraft performed a go-around.

The Bristell NG5 is fitted with two very bright LED landing lights located in each wing, a strobe light and nav lights. All of which were on and working. [The pilot of the Bristell NG5 opined that] their aircraft was very visible.

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

**THE NOTTINGHAM AIR GROUND RADIO OPERATOR** reports that they were on duty as ATC in the tower at Nottingham at the time of this Airprox. The runway in use was 03. The instructor in the PA28 had been in the circuit with a student and had completed a number of touch-and-go's when the [pilot of the] Bristell NG5 joined the circuit.

The student in [the PA28] called 'Downwind, touch-and-go, 03'. A few seconds later, [the Bristell NG5 pilot] also entered and called downwind. As [the PA28 pilot] was just about to turn left-base, they noticed [the Bristell NG5 pilot] also turning base but inside and considerably below the PA28. They then heard the instructor in [the PA28] calling a warning to the pilot in the Bristell NG5. The instructor also said they would extend the base-leg and perform a go-around. [The Bristell NG5 pilot] turned final and carried out a touch-and-go while [the PA28 pilot] extended deadside to allow for separation.

## Factual Background

The weather at East Midlands was recorded as follows:

EGNX 271150Z 02006KT 320V070 9999 BKN023 05/02 Q1032

The entry for Nottingham in the AIP provides the following procedure:

EGBN AD 2.22 Flight procedures

*1 Circuits*

- a. Circuit height: 800 FT QFE.*

The website for Nottingham Airport provides the following circuit diagram for RW03:

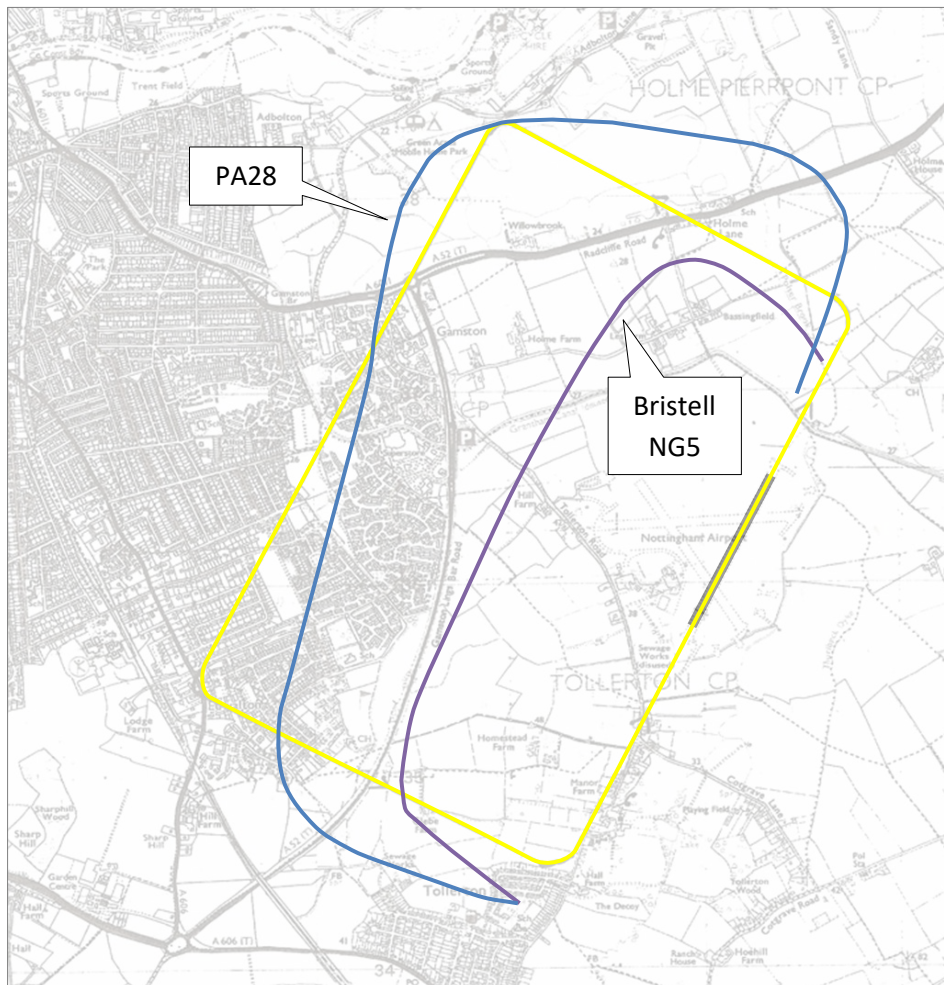


Figure 1 – Circuit diagram for RW03 (highlighted in yellow). The approximate aircraft tracks, from ADS-B data, have been overlaid.

## Analysis and Investigation

### UKAB Secretariat

An analysis of the NATS radar replay was undertaken and both aircraft could be positively identified from Mode S data. The QNH correction observed on the radar replay did not represent the QNH recorded at East Midlands Airport at 1150. An appropriate altitude correction was applied and corroborated with information obtained from ADS-B data. The diagram was constructed and the CPA assessed by combining these separate sources.

The aircraft were observed to have been within 100ft vertically and <0.1NM horizontally for approximately 12sec. The CPA was determined to have occurred at 1152:03 (see Figure 2).

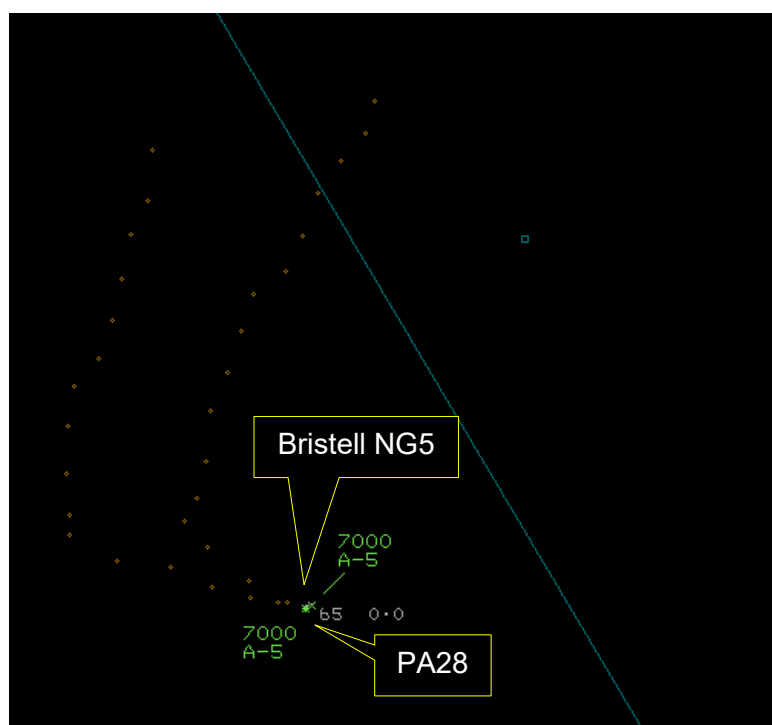


Figure 2 – CPA at 1152:03

The PA28 and Bristell NG5 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.<sup>1</sup> 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.<sup>2</sup>

## Summary

An Airprox was reported when a PA28 and a Bristell NG5 flew into proximity in the Nottingham ATZ at 1152Z on Friday 27<sup>th</sup> January 2023. Both pilots were operating under VFR in VMC, in receipt of an AGCS from Nottingham Radio.

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available consisted of reports from both pilots, radar photographs/video recordings, ADS-B ground track data, and a report from the A/G operator 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.

Members first considered the actions of the pilot of the PA28, and, noting that they had had generic situational awareness of the presence of the Bristell NG5 (**CF6**), commended their student for their effective lookout. Members acknowledged that the pilot of the PA28 had reacted quickly to their student's alert and had manoeuvred the PA28 to increase the separation as they had been concerned by the proximity of the Bristell NG5 (**CF9**).

Indicating that they had nothing further to add to the discussion, members next turned their attention to the actions of the pilot of the Bristell NG5. Noting that the pilot had described some concern for the reliability of their aircraft, members thought that it had been a good idea to have conducted the flight with a safety-pilot with particular knowledge of the aircraft type. However, some members wondered why, given that the pilot of the Bristell NG5 had intended to join the circuit and had had generic awareness that another aircraft had recently taken-off, they had not been aware of its pilot's intentions (**CF6**). Members noted that the Nottingham A/G operator had been aware that the pilot of the PA28 had

<sup>1</sup> (UK) SERA.3205 Proximity.

<sup>2</sup> (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

been operating in the circuit, and had the pilot of the Bristell NG5 made an enquiry on the radio, they may have had garnered specific situational awareness on the presence of the PA28 (CF4). Considering their thoughts regarding the use of the radio further, members acknowledged that the pilot of the Bristell NG5 had intended to fly an unusual and irregular circuit pattern but wondered why they had not communicated their intentions for the benefit of situational awareness of others on the frequency (CF1). Additionally, it was noted that the pilot of the Bristell NG5 had not heard, or had not assimilated any information from, the radio calls made by the pilot of the PA28 and, as such, members agreed that their radio had not been appropriately monitored (CF5). Consequently, the pilot of the Bristell NG5 had not been aware that they had not conformed with the existing pattern of traffic in the circuit (CF2), nor that their significantly tighter circuit had brought them into conflict with the PA28 (CF7).

Members noted that the pilot of the Bristell NG5 had first visually acquired the PA28 as its pilot had commenced a go-around. This, members agreed, had been after CPA and, therefore, this had effectively constituted a non-sighting (CF8). Summarising their thoughts, members concluded that the pilot of the Bristell NG5 had focussed their attention on their own aircraft and had not adequately monitored their environment (CF3). Noting the presence of a safety-pilot, members were surprised that no action had been taken to have prevented such close proximity between the aircraft.

Turning their attention to the actions of the Nottingham A/G operator, one member highlighted the wording of a sentence from their narrative report. The Nottingham A/G operator had described that they had been “*on duty as ATC in the tower at Nottingham*”. Suggesting that this had probably just been a casual turn of phrase, members agreed that there had been nothing in this incident to suggest that the Nottingham A/G operator had acted beyond their responsibilities as an AGO.

In determination of risk, members were in agreement that safety had been degraded through the pilot of the Bristell NG5 having been focussed on the operation of their aircraft to the detriment of their awareness of events around them. Members agreed that it had been the actions of the pilot of the PA28 that had prevented the situation developing further. As such, members were satisfied that the risk of collision had been averted and assigned Risk Category C to this Airprox.

## **PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**

### Contributory Factors:

	2023010			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
	<b>Flight Elements</b>			
	<b>• Tactical Planning and Execution</b>			
1	Human Factors	• Accuracy of Communication	Events involving flight crew using inaccurate communication - wrong or incomplete information provided	Ineffective communication of intentions
2	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
	<b>• Situational Awareness of the Conflicting Aircraft and Action</b>			
3	Human Factors	• Interpretation of Automation or Flight Deck Information	Interpretation of Automation or Flight Deck Information by the flight crew.	Pilot engaged in other tasks
4	Human Factors	• Lack of Communication	Events involving flight crew that did not communicate enough - not enough communication	Pilot did not request additional information
5	Human Factors	• Monitoring of Communications	Events involving flight crew that did not appropriately monitor communications	
6	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
7	Human Factors	• Understanding/Comprehension	Events involving flight crew that did not understand or comprehend a situation or instruction	Pilot did not assimilate conflict information
	<b>• See and Avoid</b>			



8	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
9	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<sup>3</sup>

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

#### Ground Elements:

**Situational Awareness of the Confliction and Action** were assessed as **not used** because the Nottingham Radio A/G operator had not been required to have monitored the flight.

#### Flight Elements:

**Tactical Planning and Execution** was assessed as **ineffective** because the pilot of the Bristell NG5 had not integrated into the existing pattern of traffic (formed by the PA28 ahead).

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **ineffective** because the pilot of the Bristell NG5 had not assimilated conflict information regarding their proximity to the PA28.

Airprox Barrier Assessment: 2023010		Outside Controlled Airspace		Effectiveness Barrier Weighting				
Barrier		Provision	Application	0%	5%	10%	15%	20%
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✓	[Green bar to 5%]				
	Manning & Equipment	✓	✓	[Green bar to 5%]				
	Situational Awareness of the Confliction & Action	✗	○	[Red bar to 15%]				
	Electronic Warning System Operation and Compliance	●	●	[Grey bar to 5%]				
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✓	[Green bar to 10%]				
	Tactical Planning and Execution	✓	✗	[Red bar to 10%]				
	Situational Awareness of the Conflicting Aircraft & Action	!	✗	[Red bar to 20%]				
	Electronic Warning System Operation and Compliance	●	●	[Grey bar to 15%]				
	See & Avoid	✓	✓	[Green bar to 20%]				
<b>Key:</b>		Full	Partial	None	Not Present/Not Assessable	Not Used		
Provision	✓	!	✗	●				
Application	✓	!	✗	●	○			
Effectiveness	Green	Yellow	Red	Grey	Red box			

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