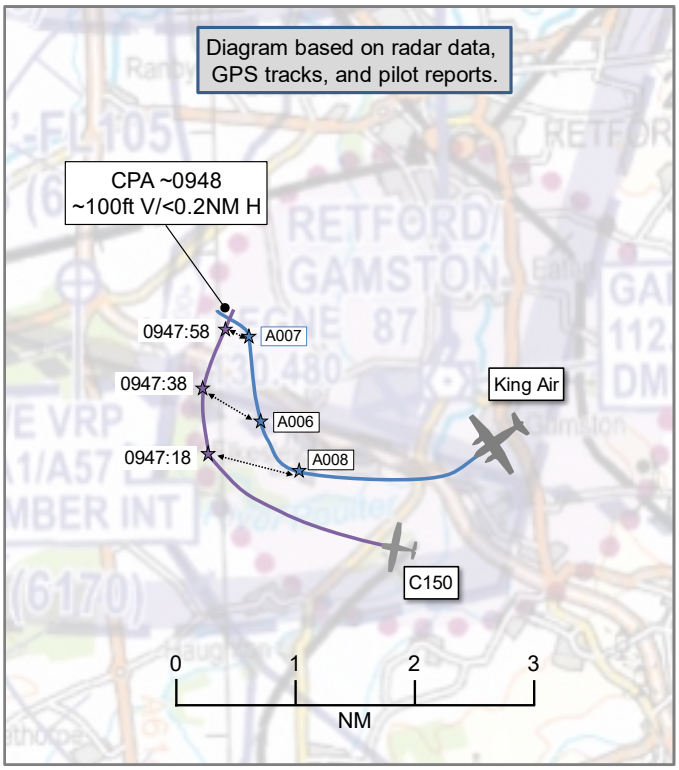
AIRPROX REPORT No 2024051

Date: 10 Apr 2024 Time: ~0948Z Position: 5317N 00100W Location: Retford/Gamston Airport ATZ

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	King Air	C150
Operator	Civ Comm	Civ FW
Airspace	Gamston ATZ	Gamston ATZ
Class	G	G
Rules	VFR	VFR
Service	AGCS	AGCS
Provider	Gamston Radio	Gamston Radio
Altitude/FL	700ft	NK
Transponder	A, C, S	A, S[1]
Reported		
Colours	White and Black	White and blue
Lighting	Strobe, nav and beacon.	Landing, taxi & beacon.
Conditions	VMC	VMC
Visibility	>10km	NR
Altitude/FL	1100ft	1000ft
Altimeter	QNH	QFE (1020hPa)
Heading	230°	320°
Speed	140kt	90kt
ACAS/TAS	TAS	Not fitted
Alert	TA	None
Separation at CPA		
Reported	100ft V/800m H	NK V/NK H
Recorded	~100ft V/<0.2NM H	



THE KING AIR PILOT reports that, while turning to right-hand downwind after a deadside descent for RW14 at Gamston, they experienced an Airprox with a Cessna aircraft. The aircraft passed behind them, 100ft above. They found it hard to [assess] a distance between the two aircraft but would estimate [approximately] 500m-800m using the RW as a reference. They were not sure [whether] the [pilot of the] other aircraft was aware of the Airprox and they were unable to get a chance to talk to the other pilot.

The deadside descent was completed accordingly and callouts made by themselves at adequate times. While they were descending deadside the Cessna [pilot] called downwind for a 'touch and go' and the Airprox happened approximately 1min later. They believed that the Cessna was further down the downwind than it really was but were unable to see them prior to the Airprox.

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

THE C150 PILOT reports that they had been flying normal circuits making all calls downwind, turning right-base and final for RW14 right-hand, with a good lookout and wing lifts to minimise blind spots before turning. They did not know of any conflict either visually or by radio.

THE GAMSTON AIR GROUND OPERATOR reports that an Airprox had been filed for the 10th April 2024 regarding a King Air and an unknown Cessna. They were in the Tower between approximately 0630 and 1200 on that day and they did not visually observe any incident, nor did they receive or monitor any radio communication to suggest that one had taken place.

[1] The pilot reported that Mode C was selected, but no altitude reporting was seen on the radar replay.

Factual Background

The weather at Waddington was recorded as follows:

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METAR EGXW 100920Z 21013KT 9999 FEW025 SCT250 11/05 Q1023 NOSIG RMK BLU BLU
METAR EGXW 100950Z 21015KT 9999 FEW028 SCT200 12/06 Q1022 NOSIG RMK BLU BLU
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Analysis and Investigation

UKAB Secretariat

The NATS radar replay was reviewed in conjunction with ADS-B and the GPS data from both aircraft which were positively identified on radar using Mode S, although the C150 displayed no height information and did not appear on ADS-B. At 0947:58 the two aircraft converged on the downwind leg for RW14 at Gamston (Figure 1).

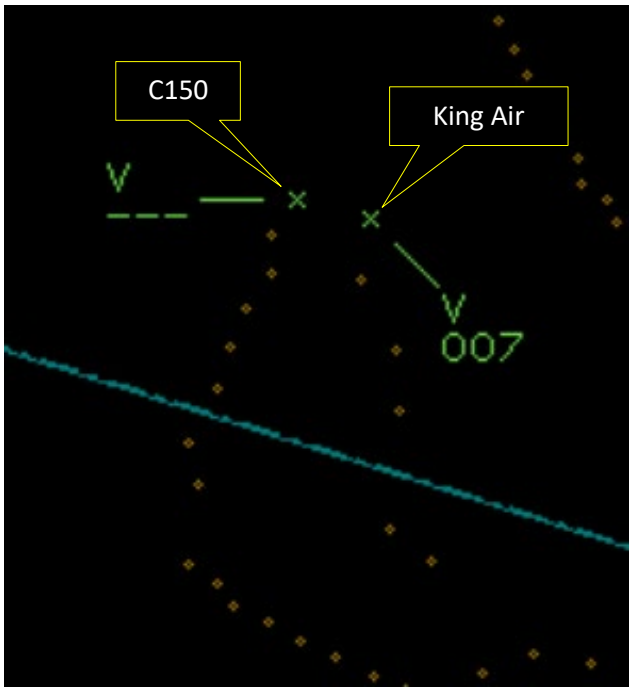


Figure 1 – Time 0947:58 the King Air and C150 converged downwind. Separation 0.2NM

The next radar sweep at 0948:02 showed that the King Air altered track to the left slightly and the C150 passed behind it (Figure 2).

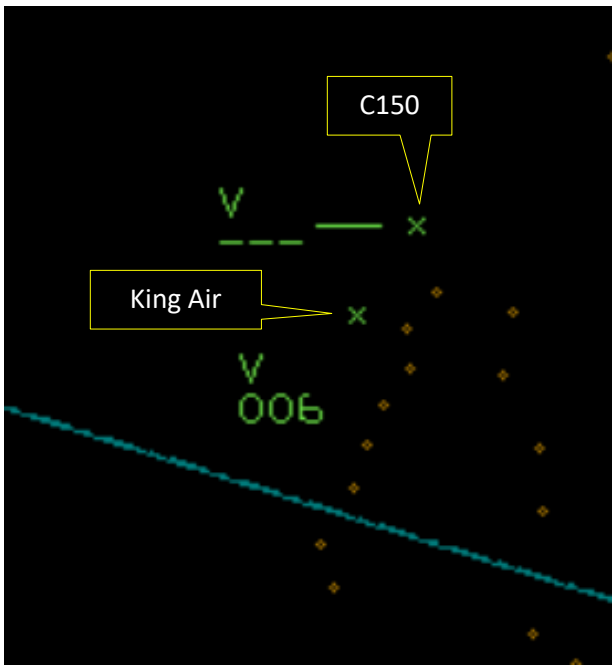


Figure 2 – Time 0948:02 the C150 passed behind the King Air. Separation 0.2NM

A comparison with the GPS tracks of both aircraft confirmed the flightpaths and relative positions of the aircraft (Figure 3). On both radar sweeps, pictured above, the aircraft were positioned 0.2NM apart; however, the C150 had been reported to, and appeared to, pass behind the King Air between 0947:58 and 0948:02, therefore the CPA was determined to be at ~0948 with horizontal separation less than 0.2NM and the vertical separation not recorded.

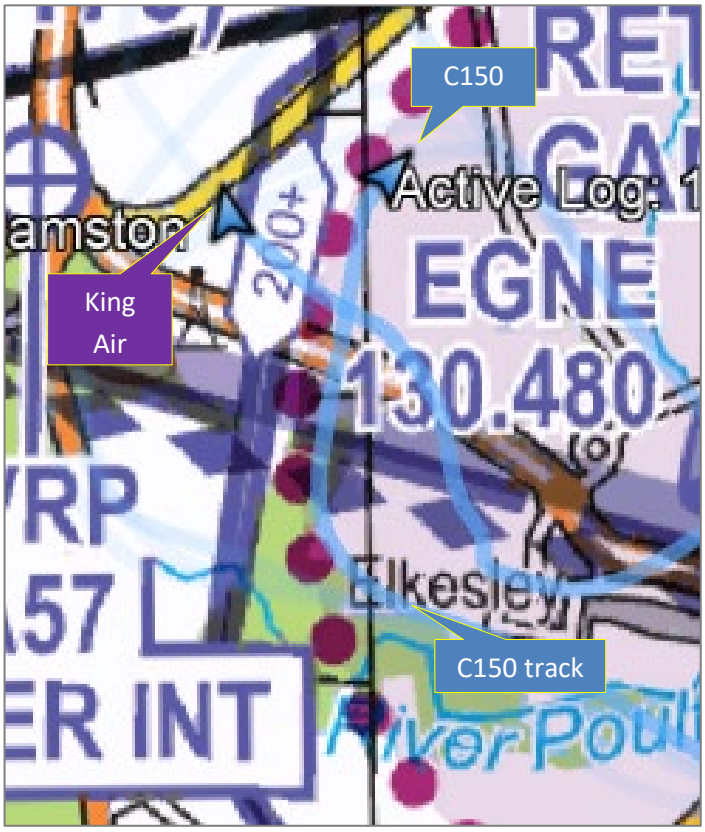


Figure 3 – Time 0948:10

The relative altitude of the King Air to the C150 at CPA was calculated to be between approximately -100ft to co-altitude based on the following criteria: all Gamston circuits are 1000ft QFE which was 1020hPa on the day; the QNH calculated to 1023hPa in line with the Waddington METAR. The

reported 1100ft altitude by the King Air pilot correlated with the difference to the transponder altitude and equated to a height of 1000ft QFE, which was the same as that reported by the C150 pilot, and at 0948:02 the King Air displayed a reduction of altitude by approximately 100ft.

The King Air and C150 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] 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.[3]

Summary

An Airprox was reported when a King Air and a C150 flew into proximity downwind for RW14 at Retford Gamston Airport at approximately 0948Z on Wednesday 10th April 2024. Both pilots were operating under VFR in VMC and in receipt of an AGCS from Gamston Radio.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS data 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 discussed the actions of the King Air pilot when they had made an overhead join for the Gamston circuit. Members considered that, because the King Air pilot had been aware of a C150 in the circuit, they would have been expected to conform with the circuit pattern formed by the C150 and to have integrated with that aircraft, but they had not achieved this (**CF1**). They debated whether the King Air pilot's circuit integration could have improved had they made a call to the C150 pilot for an update of their current position, rather than mistakenly believing that the C150 had been further downwind than they actually had been, and consequently agreed that the King Air pilot's situational awareness of the C150's position had therefore been inaccurate (**CF2**). Members further noted that the King Air's TAS had alerted the pilot of nearby traffic (**CF3**) and members wondered why the King Air pilot had not reacted in a more positive manner to the information that equipment had provided (**CF4**). The Board further agreed that the King Air pilot had not seen the C150 until it had passed above them, making this an effective non-sighting of the C150 by the King Air pilot (**CF5**). However, the Board did agree that a mitigating circumstance would be that it was highly likely that the right turn onto the downwind leg would have led to the left wing and engine nacelle obscuring the King Air pilot's view of the circuit (**CF6**).

Turning their attention to the C150 pilot, the Board was disappointed that they had, seemingly, not had any situational awareness of the King Air's join into the circuit (**CF2**) despite the radio calls reportedly made by the King Air pilot. However, the Board agreed that, without any situational awareness of the joining King Air, the C150 pilot would have been relying on their lookout to detect other aircraft and, in the event, had not sighted the King Air at any stage (**CF5**).

Members agreed that there were no contributory factors resulting from the ATS provided (AGCS) and, in concluding their discussion, agreed that the combination of factors discussed had led to a situation where the aircraft proximity had resulted in safety margins being much reduced below the norm and that a collision (**CF7**) had been averted largely through providence. However, given the recorded lateral separation at CPA of around 0.2NM, the Board agreed that this event warranted a Risk Category Cat B.

[2] (UK) SERA.3205 Proximity.
[3] (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	204051			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
	Flight Elements			
	• Tactical Planning and Execution			
1	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			
2	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
	• Electronic Warning System Operation and Compliance			
3	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
4	Human Factors	• Response to Warning System	An event involving the incorrect response of flight crew following the operation of an aircraft warning system	CWS misinterpreted, not optimally actioned or CWS alert expected but none reported
	• See and Avoid			
5	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
6	Contextual	• Visual Impairment	Events involving impairment due to an inability to see properly	One or both aircraft were obscured from the other
	• Outcome Events			
7	Contextual	• Near Airborne Collision with Aircraft	An event involving a near collision by an aircraft with an aircraft, balloon, dirigible or other piloted air vehicles	

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 Elements:

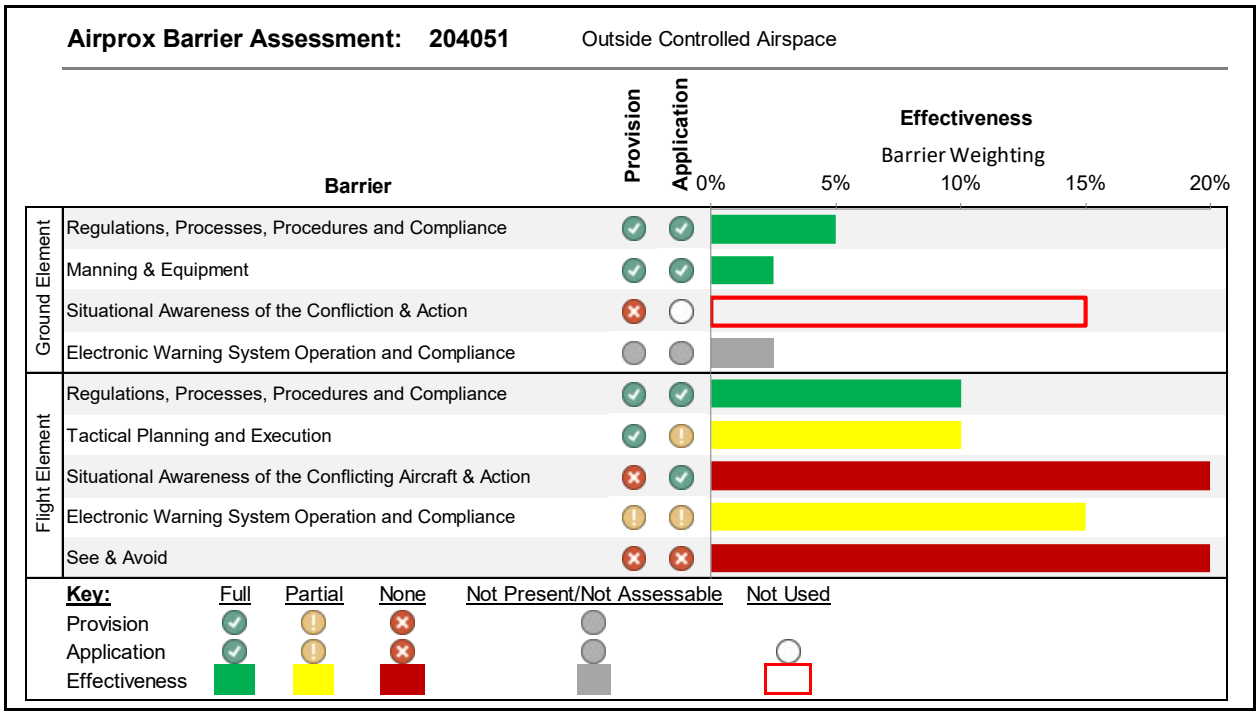
Tactical Planning and Execution was assessed as **partially effective** because the King Air pilot did not integrate with the circuit pattern already formed by the C150.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the King Air pilot had inaccurate situational awareness of the position of the C150, and the C150 pilot had no situational awareness of the presence of the King Air.

Electronic Warning System Operation and Compliance were assessed as **partially effective** because the King Air pilot's response to the Traffic Alert received from their TAS had not enabled them to generate sufficient separation from the traffic.

See and Avoid were assessed as **ineffective** because the King Air pilot had not seen the C150 prior to CPA, and the C150 pilot had not sighted the King Air at all.

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


Airprox Barrier Assessment: 204051
Outside Controlled Airspace
Barrier
Provision
Application
Effectiveness
Barrier Weighting
0%
5%
10%
15%
20%
Ground Element
Regulations, Processes, Procedures and Compliance
Manning & Equipment
Situational Awareness of the Confliction & Action
Electronic Warning System Operation and Compliance
Flight Element
Regulations, Processes, Procedures and Compliance
Tactical Planning and Execution
Situational Awareness of the Conflicting Aircraft & Action
Electronic Warning System Operation and Compliance
See & Avoid
Key:
Full
Partial
None
Not Present/Not Assessable
Not Used
Provision
Application
Effectiveness