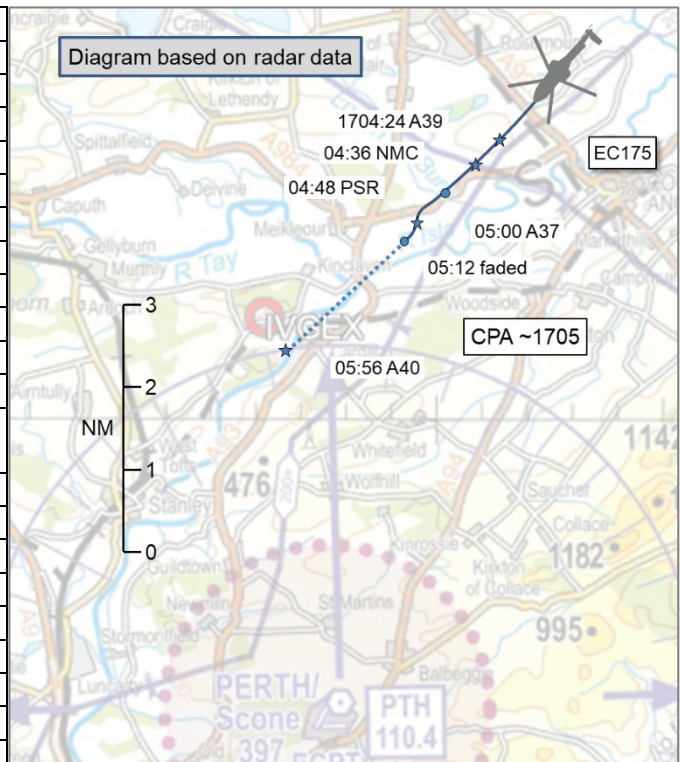


AIRPROX REPORT No 2021101

Date: 30 Jun 2021 Time: 1705Z Position: 5631N 00324W Location: ivo IVGEX

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	EC175	Pitts
Operator	Civ Comm	Civ FW
Airspace	Scottish FIR	Scottish FIR
Class	G	G
Rules	IFR	VFR
Service	Procedural	NK
Provider	Dundee	NK
Altitude/FL	NK	NK
Transponder	A, C, S	A, C, S ¹
Reported		
Colours	Yellow	NK
Lighting	Position, landing HISL	NK
Conditions	VMC	VMC
Visibility	>10km	NK
Altitude/FL	4400ft	NK
Altimeter	QNH (NK hPa)	NK
Heading	200°	NK
Speed	145kt	NK
ACAS/TAS	TCAS II	Unknown
Alert	RA	Unknown
Separation		
Reported	0ft V/0.5NM H	NK V/~800m H
Recorded	NK	



THE EC175 PILOT reports routing inbound to Dundee for an RNP 09 approach. When in the descent to altitude 3600ft and about 8NM to run to the IAF the TCAS audio warning TRAFFIC was heard and an amber traffic indication seen on the MFD, approximately 10 o'clock, 500ft below, climbing at greater than 500fpm and within 3NM. The target was visually acquired climbing rapidly and crossing from left to right. It looked to turn towards them before then initiating a dive and slight turn away toward the 1 o'clock. It then pulled back up again before a wing-over to its right that put it passing down the right hand side at approximately a half mile. In response to this the AFCS armed and then flew a TCAS RA, initially a crossing climb, a descent, briefly clear of conflict before a further climb RA and ultimately clear of conflict having climbed about 600ft. Following initial visual acquisition, contact was maintained with the presumed target throughout. The crew considered a horizontal turn away from the conflict as 'RA was working hard' to react to a rapidly changing situation and at one stage the crew was worried about an actual collision (and unsure whether this was the RA target). Dundee ATC was informed. The risk assessment was medium to high. TCAS RA indicates that they were within 30sec of a collision and both the system and crew were working hard to formulate a plan to cope with a fast manoeuvring aircraft flying seemingly random aerobatics. It was hard to judge whether the other pilot gained visual contact. Although, in retrospect, the risk of impact whilst the aircraft was flying an RA could be judged to be medium, if they were not TCAS equipped and/or the other aircraft had no transponder, the outcome may have been different. The only traffic Dundee was aware of (and of which they had been informed), was an aircraft in the circuit at Perth at 1000ft.

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

THE PITTS PILOT did not submit an Airprox report but provided a narrative account of the event in which they reported undergoing training for aerobatics to the northwest of Scone aerodrome, in class

¹ The Pitts' secondary and primary surveillance radar responses were not observed on radar replay at the time of the Airprox.

G airspace, operating VMC between 3 and 4.5 thousand feet. When climbing to gain height they observed a helicopter transiting from left to right, in a southerly direction, maintaining speed on a straight and level course. They discontinued the exercise until the helicopter had passed, at approximately 800m ahead. At no time did they consider it a threat, and carried on with the exercise afterwards.

The pilot assessed the risk of collision as 'None'.

THE DUNDEE CONTROLLER reports the EC175 established comms with Dundee ATC at 16:57Z and stated being at 6000ft, 18NM from and routing towards IVGEX (IAF for RNP09). At 16:59Z, the EC175 requested descent to 4900ft and was cleared for the RNP procedure RW09 and instructed to descend with the procedure. The crew were given Traffic Information on traffic passing Broughty Castle departing to the north. The other traffic was also passed Traffic Information on the EC175.

At 17:00Z, Perth A/G were telephoned and informed of the helicopter inbound to IVGEX from the north and given an estimate for IVGEX of about 6-7 minutes from then. Perth A/G advised that they had one aircraft operating in their circuit up to 1000ft aal.

At 17:01Z, the EC175 was informed that Perth ATZ was active and informed of the traffic operating within the Perth circuit.

At 17:04Z there was a handover of watch at Dundee ATC.

At 17:05Z EC175 reported TCAS RA.

At 17:06Z EC175 reported clear of conflict and returned to follow the RNP approach.

After the incident, Dundee ATC phoned Perth and asked if they were aware of an aircraft carrying out aerobatics north of Perth. Perth A/G confirmed there was a Pitts aircraft doing aerobatics north of Perth at the time of the incident. On a further phone call Perth A/G advised that the aircraft was on a Perth to Perth flight and hadn't stated changing frequency at any point but didn't respond on the frequency when called by Perth A/G.

Factual Background

The weather at Dundee was recorded as follows:

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METAR EGNP 301720Z 12006KT 9999 FEW030 17/12 Q1019=
METAR EGNP 301650Z 11006KT 9999 FEW030 17/13 Q1019=
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Analysis and Investigation

UKAB Secretariat

The EC175 and Pitts 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 The Pitts did appear on radar replay intermittently but did not appear as either a primary or secondary return at the time of the Airprox.

Summary

An Airprox was reported when an EC175 and a Pitts flew into proximity ivo IVGEX at about 1705Z on Wednesday 30th June 2021. Both pilots were operating under VFR in VMC, the EC175 pilot in receipt of a Procedural Service from Dundee and the Pitts pilot most likely listening out on the Perth AGCS frequency.

² (UK) SERA.3205 Proximity.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, reports from the air traffic controllers 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 degree to which each pilot could reasonably have known of the other pilot's position and intentions. Dundee does not have a radar and the Dundee controller consequently had no situational awareness on the position of the Pitts (**CF2**) and so could not detect a potential confliction (**CF1**) or pass Traffic Information. The Board wondered why the Perth A/G Operator did not inform the Dundee controller of the Pitts conducting aerobatics to the north of Perth during the 1700Z telephone call and thought that this was a missed opportunity to increase pilot and controller situational awareness. Turning to the pilots' actions; the Pitts pilot had no situational awareness on the closing EC175 and the EC175 pilot only had a degree of late situational awareness provided by their TCAS display and Traffic Alert (**CF4**). Members agreed that both pilots were entitled to be operating where they were, both in VMC in Class G. They also agreed that the EC175 pilot was constrained in operating area, to a degree, by the requirements of the RNP 09 approach and felt that the Pitts pilot, not being so constrained, may have been able to plan to operate in an area that would not have presented a potential confliction (**CF3**). This would of course have required knowledge of the Dundee RNP 09 approach track and the Board wondered to what degree pilots operating from Perth were aware of such. The Board thought that the Pitts pilot may also have been better served by contacting Dundee to pass their position and intentions and perhaps receive Traffic Information on inbound IFR traffic. In the event, the EC175 pilot received a TCAS TA and RAs (**CF6**), the latter coupled to the autopilot which resulted in various climbs and descents. Members agreed that this was no doubt alarming (**CF5**) but also that TCAS is not designed to provide collision avoidance from another aircraft that is flying aerobatics. Given that each pilot saw the other aircraft before CPA and that both pilots estimated a similar separation at CPA of about ½ mile, the Board felt that although safety may have been degraded, there was no risk of collision.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2021101				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Ground Elements				
• Situational Awareness and Action				
1	Human Factors	• Conflict Detection - Not Detected	An event involving Air Navigation Services conflict not being detected.	
2	Contextual	• Traffic Management Information Action	An event involving traffic management information actions	The ground element had only generic, late or no Situational Awareness
Flight Elements				
• Tactical Planning and Execution				
3	Human Factors	• Pre-flight briefing and flight preparation	An event involving incorrect, poor or insufficient pre-flight briefing	
• Situational Awareness of the Conflicting Aircraft and Action				
4	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late or only generic, Situational Awareness
5	Human Factors	• Unnecessary Action	Events involving flight crew performing an action that was not required	Pilot was concerned by the proximity of the other aircraft
• Electronic Warning System Operation and Compliance				
6	Contextual	• ACAS/TCAS RA	An event involving a genuine airborne collision avoidance system/traffic alert and collision avoidance system resolution advisory warning triggered	

Degree of Risk: C.

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:

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the Dundee controller had no surveillance and was not aware of the presence of the Pitts in the vicinity of IVGEX.

Flight Elements:

Tactical Planning and Execution were assessed as **partially effective** because the Pitts pilot did not take into account the proximity of the Dundee instrument approach.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because although the EC175 pilot had received a TCAS warning and alert, the Pitts pilot was not aware of the closing EC175 until it was sighted.

Airprox Barrier Assessment: 2021101		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 2.5%]					
	Situational Awareness of the Confliction & Action	✗	✗	[Red bar to 15%]					
	Electronic Warning System Operation and Compliance	○	○	[Grey bar to 2.5%]					
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✓	[Green bar to 10%]					
	Tactical Planning and Execution	✓	!	[Yellow bar to 10%]					
	Situational Awareness of the Conflicting Aircraft & Action	!	✓	[Yellow bar to 20%]					
	Electronic Warning System Operation and Compliance	!	✓	[Green bar to 15%]					
	See & Avoid	✓	✓	[Green bar to 20%]					
Key:		Full	Partial	None	Not Present/Not Assessable	Not Used			
Provision	✓	!	✗	○					
Application	✓	!	✗	○				○	
Effectiveness	Green	Yellow	Red	Grey				White	

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