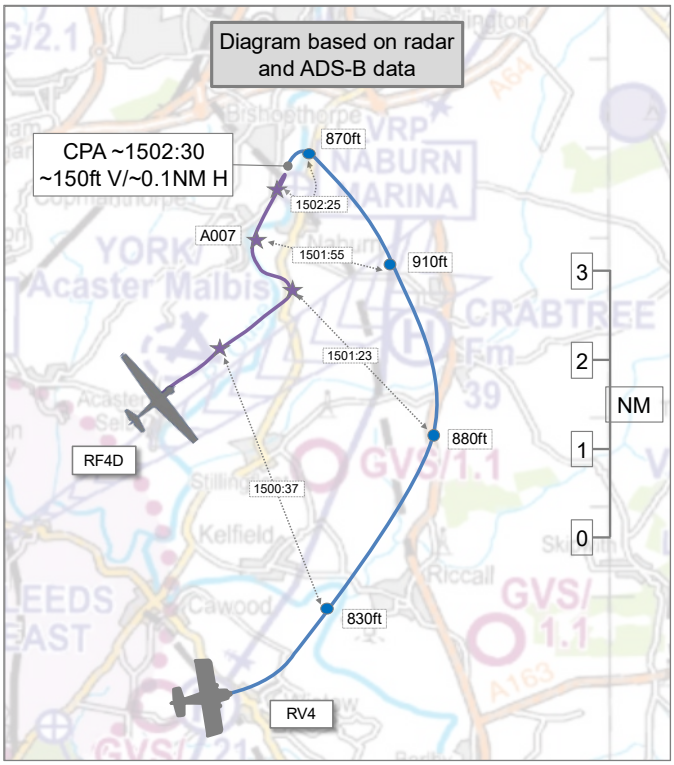
AIRPROX REPORT No 2023140

Date: 24 Jun 2023 Time: 1502Z Position: 5355N 00106W Location: Naburn Marina

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Vans RV4	RF4D
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	RA(T)	RA(T)
Rules	VFR	VFR
Service	AGCS	Listening Out
Provider	Fenton Radio	Breighton
Altitude/FL	870ft	700ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Blue and white	White and green
Lighting	Strobes	None
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1000ft	800ft
Altimeter	QFE (1021hPa)	QFE
Heading	220°	090°
Speed	160kt	80kt
ACAS/TAS	PilotAware	Not fitted
Alert	Unknown	N/A
Separation at CPA		
Reported	50ft V/15m H	50ft V/100m H
Recorded	~150ft V/~0.1NM H	



THE VANS RV4 PILOT reports they had been participating in an air race when they encountered the RF4D aircraft inside the RA(T) as they rolled out of turn point #4 at Naburn Marina Visual Reporting Point. They had been locating ground features to confirm their roll-out point when the other aircraft came into view. The RF4D [appeared] slightly lower than them, on a reciprocal heading and executing a turn to their right at a bank angle of between 30° and 45°. Initially the RF4D was head-on to them but passed down their left hand side. They initiated a roll to the right to avoid them. They reported the incident via their radio on the airfield/race control frequency and also to the Clerk of the Course on landing.

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

THE RF4D PILOT reports they were on an unplanned local flight, in unregulated airspace over terrain that they frequently fly. They did not have navigation equipment and had not accessed the NOTAMs for the day, and consequently were not aware that they had flown into a RA(T).

[They were operating from their local] airfield, attending a fly-in, which they participated in by flying some circuits with the two aircraft they had serviceable. They had not planned to do anything else, but as the circuit traffic was sometimes too busy they decided on a short local flight as it was a very nice flying day. The reasons for not following their normal pre-flying day planning were two-fold; an overly long working day before of 16 hours, and an unlikely need to fly away from the airfield as it was a fly-in which is usually social, and tiring to do much more. There had been some complacency in this also, as the local airspace is unregulated with only moderate activity, so they would feel comfortable flying in the local area without any planning.

They were continuing with their flight, and were aware of other aircraft at similar heights. They

did not have to take any avoiding action (they thought), as they had maintained a good lookout and monitored their track. They subsequently returned eastwards towards [their point of departure].

They have assessed their pre-flight planning and will in future always access the available NOTAMs and flight planning information for any flight that they undertake.

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

THE LEEDS EAST AGO reports an air race had been staged to the east of Leeds East Airport. Leeds East Airport had been subject to a closure by NOTAM submitted by Leeds East, and the area to the east subject to a RA(T).

Leeds East operates an Air-to-Ground service only and the incident happened during the race. Leeds East Air Ground Operators have access to [TAS unit] but are not allowed to give position reports from this software package. However they did see an aircraft in the RA(T) with an aircraft registration that they did not recognise as part of the race and informed the Clerk of the Course.

Factual Background

The air race had been promulgated via CANP/NOTAM as follows:

(J2471/23 NOTAMN
Q) EGTT/QRTCA/IV/BO /AW/000/015/5352N00109W006
A) EGCM
B) 2306241045
C) 2306251515
D) 24 1045-1215 1415-1545, 25 1015-1145 1345-1515
E) RESTRICTED AREA (TEMPORARY) AT (LEEDS EAST). RESTRICTION OF FLYING REGULATIONS MADE UNDER ARTICLE 239 OF THE AIR NAVIGATION ORDER 2016. AIC M055/2023, WHICH INCLUDES A CHART, WILL REFER. NO ACFT IS TO FLY WI THE AREA BOUNDED BY STRAIGHT LINES JOINING SUCCESSIVELY THE FOLLOWING POINTS 535046N 0011623W - 535606N 0010517W - 535215N 0010037W - 534832N 0010506W - 534847N 0011514W - 535046N 0011623W. EXCEPT ACFT FLYING IN ACCORDANCE WITH A PERMISSION FROM FENTON RADIO ON 120.710MHZ WHILST IN THE LOCAL FLYING AREA OR OPERATING WITH THE PERMISSION OF THE ROYAL AERO CLUB RECORDS, RACING AND RALLY ASSOCIATION CLERK OF THE COURSE WHO MAY BE CONTACTED ON 07725 629947. 2023-06-0032/AS6
F) SFC G) 1500FT AMSL

The weather at Leeds Bradford was recorded as follows:

```
METAR EGNM 241450Z 25009KT 9999 SCT032 25/17 Q1021
```

Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and the RF4D was positively identified from Mode S data. The pilot of the RV4 kindly supplied GPS track data for their flight and although it was not possible to identify them on the radar replay, it was possible to track them via ADS-B. When questioned about the transponder the pilot of the RV4 had stated that they had no previous problems. The difficulty of determining a radar track for the RV4, even as a primary target, was compounded by the total number of returns at the time. The RF4D had conflicted with a number of other aircraft tracks after entry into the RA(T) (Figures 1 and 2).

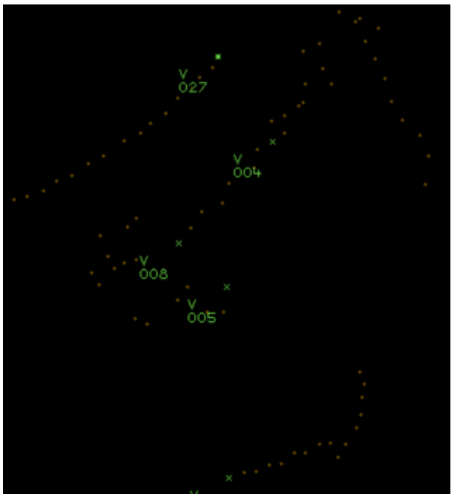


Figure 1- 1500:37

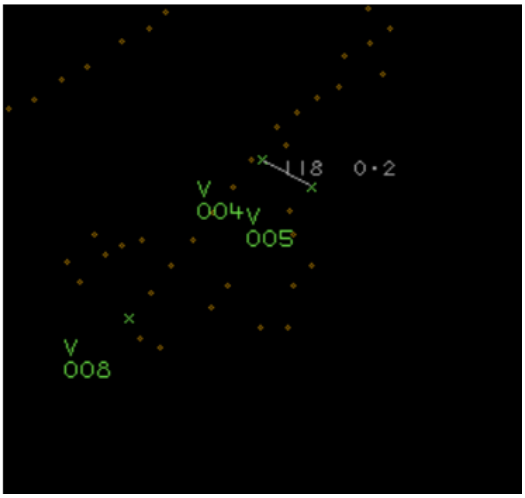


Figure 2 – 1500:51 other proximate aircraft.

The track of the RF4D had also been supplied via ADS-B data and plotted onto a chart containing the position of the RA(T) and the race-track pattern followed by the competing aircraft pilots (Figure 3).

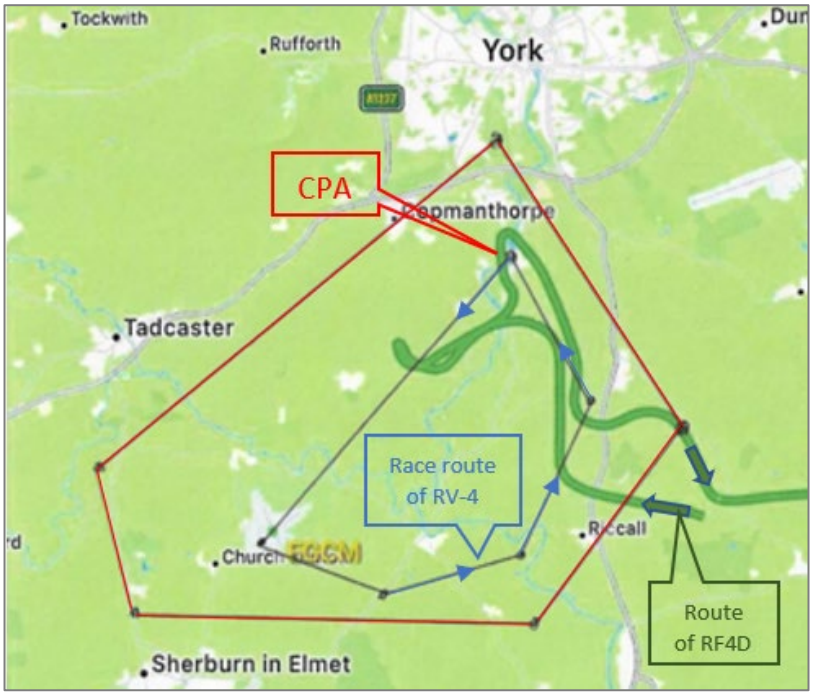


Figure 3 – RA(T) and aircraft routes.

The diagram was constructed and the separation at CPA determined by combining the radar and ADS-B data.

The RV4 and RF4D 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] If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.[2] If the incident geometry is considered as converging then the RF4D pilot was required to give way to the RV4.[3]

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.
[3] (UK) SERA.3210 Right-of-way (c)(2) Converging.

Summary

An Airprox was reported when an RV4 and a RF4D flew into proximity at Naburn Marina VRP at 1502Z on Saturday 24th June 2023. Both pilots were operating under VFR in VMC, the RV4 pilot in receipt of an Air-to-Ground Communication Service from Leeds East and the RF4D pilot listening out on the Breighton frequency.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs and ADS-B 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.

Members first looked at the actions of the RV4 pilot. They had been taking part in an air race which had been NOTAM'd and had protective airspace in place in the form of a RA(T), recognising that the primary focus of those taking part in the air race would be on navigation and concentrating on fellow competitors in their immediate vicinity, and that the pilots involved may not have been able to maintain the normal levels of lookout. The RV4 pilot had not reported that the EWS fitted to their aircraft had alerted, although members agreed that it would have been expected to detect the Mode C transponder in the RF4D (**CF5**). However, members wondered whether the EWS had been constantly alerting to other race aircraft and thus the RV4 pilot had been desensitised to its alerting and had not noticed that it had been alerting to the RF4D. Notwithstanding, the Board agreed that the RV4 pilot had not been aware of the presence of the RF4D and had therefore not been expecting to see other traffic within the RA(T) (**CF4**). Members noted that it had been fortunate that the RV4 pilot had seen the RF4D flying in the opposite direction to the air race because it would have been difficult to spot head-on, and that, although it had been a late sighting (**CF6**), it had likely been their avoiding action that had increased the separation. Members noted that this incident provided a salutary lesson in why, even when protective measures are in place, disciplined lookout is still vital.

Turning to the actions of the RF4D pilot, members wished to thank the pilot for their frank and honest account of the day's events. Within their report, the pilot described the many human factors that in all likelihood affected how they approached the flight that day. Members noted that, whilst flying was a recreation for many GA pilots, and perhaps an outlet to offset stressful work, nevertheless, it had inherent dangers and therefore all flights should be appropriately prepared for and planned. They expressed disappointment that the pilot had elected to fly without having fully prepared, briefed and checked NOTAMs and restrictions in their intended operating area, even though their intent had been to remain within the local circuit pattern at their departure airfield (**CF1**, **CF3**). Members noted that even if planning a circuit detail, a diversion airfield and a plan to get there should always be planned in case the runway becomes unusable for some reason. On this occasion the RF4D pilot had relied on familiarity with the local airspace and had not requested an ATS which, had they called a controller, may have provided information on the restricted airspace, and had therefore not been aware of the RA(T) and flew within it (**CF2**). Without an ATS, or any form of CWS, the RF4D pilot had received no situational awareness that the aircraft within the air race were in the vicinity (**CF4**). The pilot reported seeing a number of aircraft routing in the opposite direction and the Board noted that Airprox 2023133 occurred shortly after this event. Furthermore, the Secretariat informed the Board that further reports had been received from other pilots also involved in the air race but that it had been decided that, given the lessons to be identified would likely be the same for each event, only the closest two were put forward as Airprox. Members agreed that, given the final geometry, it had been likely that the RF4D pilot had seen the RV4 late (**CF6**).

Board members went on to discuss the role of the Leeds East AGO and their link to the event Clerk of the Course. Members accepted that as an AGO they had no responsibility for flight or traffic monitoring under normal circumstances, but in this event they received and passed messages from competitors to the Clerk of the Course and, ultimately, any decision concerning continuation or cancellation of the event would have been disseminated via the AGO. On this occasion, no decision to cancel had been made by the Clerk of the Course or announced by the AGO.

When determining the risk, the Board considered the reports from both pilots and that of the AGO together with the radar screenshots and GPS data. They agreed that both pilots had seen the other late, but that the RV4 pilot had taken avoiding action to increase the separation. However, given the final separation, together with nature of the air race, with the RF4D effectively flying the wrong way around the circuit, they agreed that safety had been much reduced and that there had been a risk of collision (**CF7**); Risk Category B.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2023140			
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	• Airspace Infringement	An event involving an infringement / unauthorized penetration of a controlled or restricted airspace.	E.g. ATZ or Controlled Airspace
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, inaccurate or only generic, Situational Awareness
	• Electronic Warning System Operation and Compliance			
5	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			
6	Human Factors	• Identification/ Recognition	Events involving flight crew not fully identifying or recognising the reality of a situation	Late sighting by one or both pilots
	• 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:

Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **not used** because the AGO had not been required to sequence the aircraft.

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the RF4D pilot had been required to seek permission prior to entering the RA(T).

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

Tactical Planning and Execution was assessed as **ineffective** because the RF4D pilot had not pre-briefed before undertaking the local flight and had not been aware of the NOTAM detailing the RA(T).

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had any situational awareness that the other aircraft had been in the vicinity.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the CWS in the RV4 would have been expected to detect the Mode C on the RF4D, but no alert had been reported.

See and Avoid were assessed as **partially effective** because it had been a late sighting by both pilots.