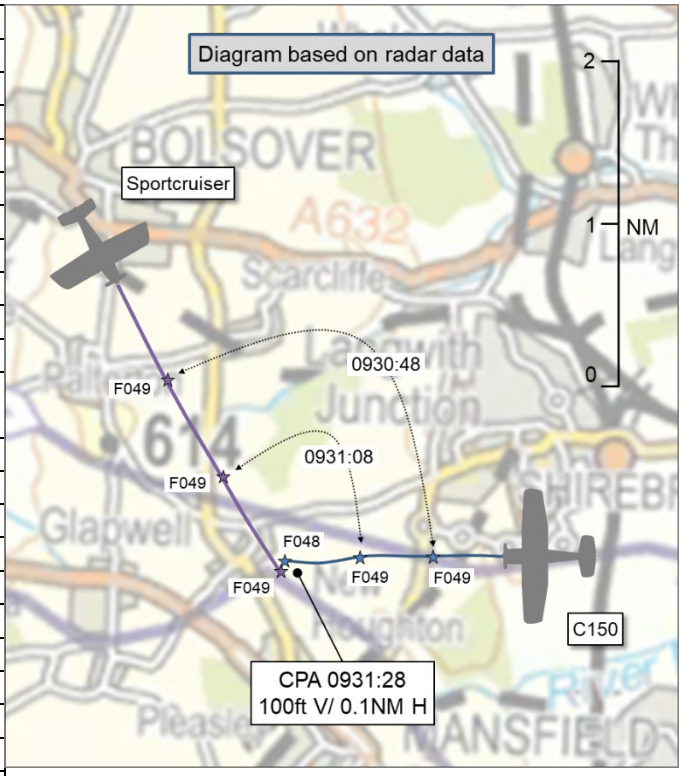
## AIRPROX REPORT No 2022165

Date: 07 Aug 2022 Time: 0931Z Position: 5312N 00116W Location: 4NM NW Mansfield

## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

| Recorded | Aircraft 1 | Aircraft 2 |
|---|---|---|
| Aircraft | CSA Sportcruiser | C150 |
| Operator | Civ FW | Civ FW |
| Airspace | London FIR | London FIR |
| Class | G | G |
| Rules | VFR | VFR |
| Service | None | None |
| Altitude/FL | FL049 | FL048 |
| Transponder | A, C, S | A, C |
| **Reported** | | |
| Colours | Blue, white | Blue, white |
| Lighting | Strobes | Beacon, Strobes, Nav, Landing |
| Conditions | VMC | VMC |
| Visibility | >10km | >10km |
| Altitude/FL | FL055 | NK |
| Altimeter | NK | QNH (NK hPa) |
| Heading | 150° | 270° |
| Speed | 105kt | 105kt |
| ACAS/TAS | SkyEcho | Not fitted |
| Alert | None | N/A |
| **Separation at CPA** | | |
| Reported | 0ft V/300m H | 50ft V/0.25NM H |
| Recorded | 100ft V/0.1NM H | |




**THE SPORTCRUISER PILOT** reports that they were on a flight from [departure airfield] to [destination airfield] and after about 15min and clear of Class A airspace, they climbed to FL055 to cruise above a scattered cloud layer. Ten minutes later, whilst settled in the cruise, they were talking with their passenger who suddenly made them aware of an aircraft to their left at about the 9 o'clock position. They turned to look and saw a high wing Cessna at the same altitude and in a sharp right turn approximately 300m away. They assessed that it would easily clear behind and felt no avoiding action was necessary. They were monitoring their [EC device] throughout the flight and the other aircraft was not visible. The Sportcruiser pilot opines that the other aircraft may have been on a constant bearing so, with a better lookout, they may have detected it sooner.

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

**THE C150 PILOT** reports that this was the first sortie of the day for the crew and was part of a Flight Instructor Course (FIC). The altitude was believed to be 5500ft with QNH set but this cannot be remembered exactly. The Instructor was in the left seat and commenced a right-hand, medium-level turn with the standard "*clear left, clear centre, clear right*" patter which accompanied the lookout. No traffic was seen by either crew member. Approximately 3sec into the turn, traffic was seen on the right, 1 o'clock, co-altitude, and perhaps slightly less than a quarter of a mile away. The other aircraft was travelling right-to-left in the windscreen and was flying straight-and-level. Given the attitude and flightpath of the other aircraft, and the fact that a turn was being conducted, it was decided that the greatest separation would be achieved by continuing with the turn. The other aircraft was not seen to adjust attitude or flightpath, and because of this it was believed that the pilot had not seen [the C150]. The other aircraft was estimated to be greater than 500ft away and there was no loss of safe separation. The Gamston A/G frequency was being utilised to deconflict with inbound traffic to Gamston and the use of a Doncaster listening squawk (6170) had been briefed for later in the sortie.

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

**THE DONCASTER CONTROLLER** reports that [the C150 pilot] did not make contact with Doncaster Radar until 1123.

## Factual Background

The weather at Doncaster Sheffield was recorded as follows:

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METAR EGCN 070920Z 26009KT 220V300 9999 FEW026 BKN032 20/10 Q1027
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## Analysis and Investigation

### UKAB Secretariat

An analysis of the NATS radar replay was undertaken and the Sportcruiser could be positively identified from Mode S data (see Figure 1). The C150 pilot was traced from information available to the Secretariat. The CPA was assessed and the diagram constructed from the radar replay.

The squawk displayed by the C150 (6170) is listed with the description that it 'may be used when flying in the vicinity of Doncaster Sheffield, operating outside of Doncaster Sheffield CTR/Doncaster Sheffield CTA and monitoring Doncaster Sheffield radar frequency'.

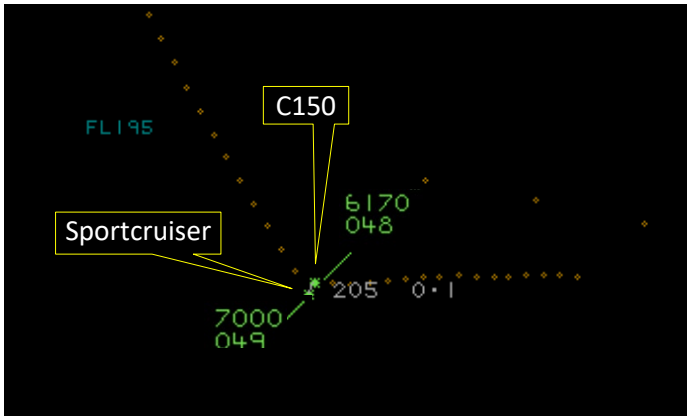



Figure 1 - CPA at 0931:28

The Sportcruiser 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.[1] If the incident geometry is considered as converging then the C150 pilot was required to give way to the Sportcruiser.[2]

## Summary

An Airprox was reported when a Sportcruiser and a C150 flew into proximity 4NM northwest of Mansfield at 0931Z on Sunday 7th August 2022. Both pilots were operating under VFR in VMC, neither pilot in receipt of an ATS.

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

Information available consisted of reports from both pilots, radar photographs/video recordings 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 considered the actions of the pilot of the Sportcruiser. Members were surprised that the pilot had elected to not be in receipt of an ATS (**CF2**) and felt that it may have been more prudent to have requested a Traffic Service, particularly as they had been flying in a busy area that had had good

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

LARS coverage. The EC equipment fitted to the Sportcruiser would not have been expected to have provided an alert to the presence of the C150 (**CF4**) and members agreed that, consequently, the pilot of the Sportcruiser had had no situational awareness of the presence of the C150 (**CF3**). Members noted that the pilot of the Sportcruiser had not sighted the C150 until alerted by their passenger, and that they had judged that an avoiding manoeuvre had not been necessary. Notwithstanding, members concluded that the pilot of the Sportcruiser had not had sufficient time to have increased the separation between the aircraft, effectively making this a 'non-sighting' (**CF6**).

Turning their attention to the actions of the pilot of the C150, members acknowledged that the airborne phase of a Flight Instructor course can often be intensive, that the crew's attention may often be divided, and that there may be many distractions. The Board wished to emphasise the importance of maintaining the capacity to conduct a flight in a wholly safe manner whilst attending to the instructional nature of the flight. Members' attention was drawn to Standards Document 10(A)[3] and the assessment criteria for airborne exercises in Appendix 1, point 11(b) which states:

> 'The instructor ensures that the student is comfortable and that communication is unhindered (radio and intercom volume and squelch are correctly set). Where possible, a "quiet" frequency is selected so that the lesson is not interrupted with background radio chatter'.

Members discussed this point and that the pilot of the C150 had elected to not be in receipt of an ATS (**CF2**) and had been transponding the Doncaster Sheffield 'listening squawk'. This action, some members proffered, may be considered as being congruent with the above guidance, but may also be considered contrary to the conduct of a flight in the safest manner and with the greatest situational awareness that could reasonably be expected. Members of the Board observed that there is an apparent contradiction not resolved within the existing guidance (**CF1**) and, whilst they thought that it was not for the Board to dictate solutions, they felt that the operating risk to airspace users engaged in instructional flights required further understanding. The Board therefore resolved to make a recommendation that '*The CAA considers reviewing the extant guidance to flight instructors for conducting exercises on quiet frequencies and include a recommendation that the flight be conducted in receipt of an appropriate level of ATS*'. Further, some members remarked that the electronic conspicuity of the C150, specifically referring to the transponder without Mode S capability and there having been no additional EC device, had not provided the most favourable barriers for MAC prevention. Whilst it was fully acknowledged that installing the most modern electronic equipment in an aircraft can require significant financial investment, the safety benefit might have been considered invaluable in this case if the aircraft had been so equipped. In this instance, the pilot of the C150 had not had any situational awareness of the presence of the Sportcruiser (**CF3**), and had not visually acquired it during their verbally-emphasised lookout checks. Members concluded that the pilot of the C150 had sighted the Sportcruiser late (**CF5**) during their turn to the right and noted that they had continued their turn to increase separation.

Concluding their discussions, and in determination of risk, members agreed that there had been no risk of collision but that safety had been degraded. As such, the Board assigned a Risk Category C to this event.

## PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

| | **2022165** | | | |
|---|---|---|---|---|
| CF | **Factor** | **Description** | **ECCAIRS Amplification** | **UKAB Amplification** |
| | **Flight Elements** | | | |
| | **• Regulations, Processes, Procedures and Compliance** | | | |
| 1 | Organisational | • Flight Operations Documentation and Publications | Flight Operations Documentation and Publications | Inadequate regulations or procedures |
| | **• Tactical Planning and Execution** | | | |

[3] CAA SRG Standards Document 10(A) v8 October 2020, Appendix 1, 11(b)

| | | | | |
|---|---|---|---|---|
| 2 | Human Factors | • Communications by Flight Crew with ANS | An event related to the communications between the flight crew and the air navigation service. | Pilot did not request appropriate ATS service or communicate with appropriate provider |
| | **• Situational Awareness of the Conflicting Aircraft and Action** | | | |
| 3 | 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** | | | |
| 4 | Technical | • ACAS/TCAS System Failure | An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations | Incompatible CWS equipment |
| | **• See and Avoid** | | | |
| 5 | 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 |
| 6 | 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 |

Degree of Risk: C

Recommendation: The CAA considers reviewing the extant guidance to flight instructors for conducting exercises on quiet frequencies and include a recommendation that the flight be conducted in receipt of an appropriate level of ATS.

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 extant guidance to flight instructors for conducting exercises on quiet frequencies potentially removes the possibility for pilots to benefit from a surveillance-based FIS.

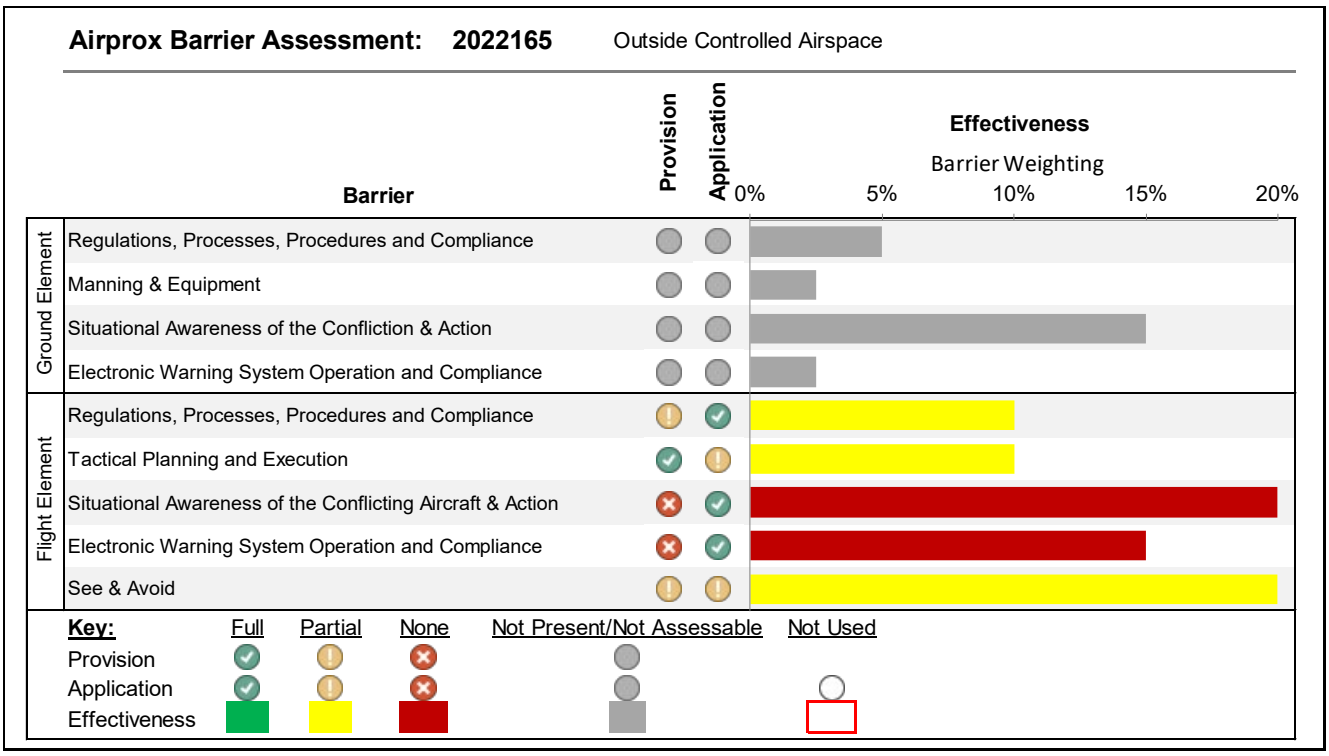
**Tactical Planning and Execution** was assessed as **partially effective** because neither pilot had been in receipt of an ATS.

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **ineffective** because neither pilot had been aware of the presence of the other.

**Electronic Warning System Operation and Compliance** were assessed as **ineffective** because the EC equipment fitted to the Sportcruiser would not have been expected to detect the presence of the C150.

**See and Avoid** were assessed as **partially effective** because the pilot of the C150 had sighted the Sportcruiser late, but in time to take avoiding action. The pilot of the Sportcruiser had effectively not seen the C150.

[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: 2022165
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