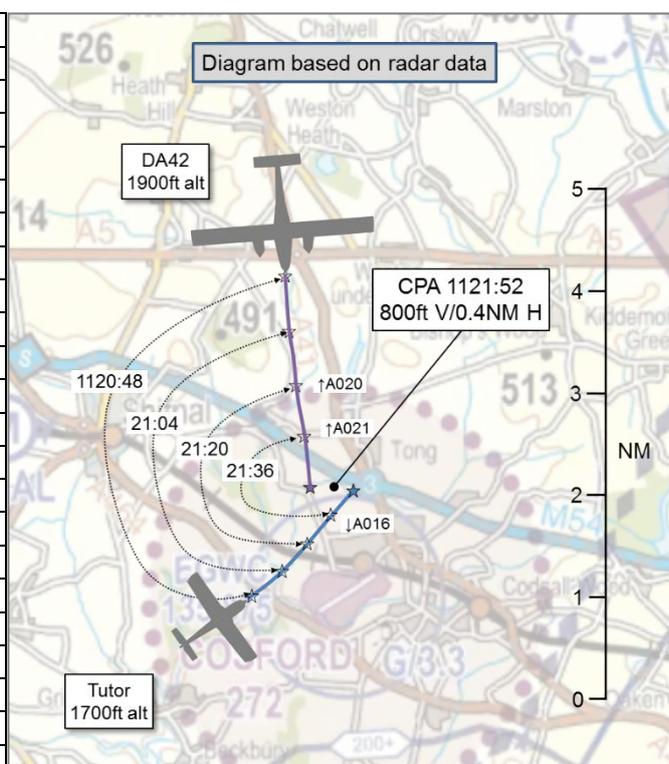


## AIRPROX REPORT No 2020019

Date: 03 Feb 2020 Time: 1122Z Position: 5239N 00218W Location: Cosford ATZ

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

| Recorded          | Aircraft 1      | Aircraft 2        |
|-------------------|-----------------|-------------------|
| Aircraft          | Tutor           | DA42              |
| Operator          | HQ Air (Trg)    | Civ FW            |
| Airspace          | Cosford ATZ     | Cosford ATZ       |
| Class             | G               | G                 |
| Rules             | VFR             | VFR               |
| Service           | ACS             | None <sup>1</sup> |
| Provider          | Cosford Tower   | Cosford Tower     |
| Altitude/FL       | 1400ft          | 2200ft            |
| Transponder       | A, C, S         | A, C, S           |
| <b>Reported</b>   |                 |                   |
| Colours           | White           | NR                |
| Lighting          | Strobes         | NR                |
| Conditions        | VMC             | VMC               |
| Visibility        | NR              | NR                |
| Altitude/FL       | 1600ft          | 2000ft            |
| Altimeter         | QFE             | QNH               |
| Heading           | NR              | NR </td           |
| Speed             | 80kt            | NR                |
| ACAS/TAS          | TAS             | Unknown           |
| Alert             | TA              | Unknown           |
| <b>Separation</b> |                 |                   |
| Reported          | 100ft V/500m H  | Not Seen          |
| Recorded          | 800ft V/0.4NM H |                   |



**THE TUTOR PILOT** reports climbing to 1500ft for a right-hand PFL to RW24. The student was in the right-hand seat and was the handling pilot. On levelling at 1500ft, ATC advised them of a radar contact at approximately their level in the 10 o'clock. Simultaneously, a TAS alert indicated a contact within 1NM, 100ft above and in the 11 o'clock; he could not see this target. ATC repeated the warning and he saw the DA42 at approximately 100ft above his level, passing down his port side at an estimated range of 500m. Due to the warning, their climb was restricted to 1500ft. Once the DA42 had passed safely, they continued with the PFL profile.

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

**THE DA42 PILOT** reports that they were flying at an altitude of 2000ft QNH. Approaching Cosford, they were advised by Shawbury to contact Cosford and, when they contacted them, they were virtually in the Cosford zone. They climbed to 2500ft QNH. Cosford advised that they would have preferred an earlier call. There was no traffic and no conflict. They apologised and continued en-route.

**THE COSFORD CONTROLLER** reports that he had approved a Station-based Tutor to conduct a right-hand pattern PFL to RW24 (the duty runway). Due to a hangar obstruction and the severe lack of visibility to the north of the airfield from the VCR, circuits at Cosford are normally conducted to the south. However, due to the Tutor pilot sitting in the right-hand seat, permission is occasionally granted for RH pattern PFLs. As the aircraft commenced the RH PFL, the controller's attention was on the airfield because bird activity was being controlled around the RW24 threshold. Then, using the ATM, he looked at the Tutor, which was established in a descent, and became aware of a Shawbury squawk at approximately 3NM north, heading south towards the ATZ and indicating 2000ft on the Watchman radar. He quickly calculated that, with a Cosford QFE of 1002hPa, the aircraft's height would be 330ft below the indicated altitude, equivalent to 1670ft QFE. The Tutor was approaching low key at 1500ft

<sup>1</sup> The DA42 pilot was in the process of making his initial call to Cosford Tower.

and the unknown aircraft was now entering the ATZ and changing squawk to 7000, so he called this traffic to the Tutor pilot; the Tutor instructor acknowledged this call and was visual with this unknown aircraft, which was now calling on the separate Approach frequency. He informed the DA42 pilot about the Tutor and the pilot called climbing, having acknowledged the position of the Tutor and probably realizing that he had entered the ATZ. The controller perceived that the proximity of the 2 aircraft was within 1/4NM of each other at a similar height, and that it was fortuitous that he was able to provide Traffic Information to both aircraft from the ATM because this equipment is due to be removed from Cosford in the near future.

The controller perceived the severity of the incident as 'Medium'.

## Factual Background

The weather at Cosford was recorded as follows:

METAR EGWC 031050Z 25006KT 9999 FEW020 BKN250 08/03 Q1013 RMK BLU=  
METAR EGWC 031150Z 27012KT 9999 FEW010 SCT030 09/01 Q1013 RMK BLU=

## Analysis and Investigation

### Military ATM

The Tutor was established in the visual circuit at Cosford and was positioning for a glide circuit to RW24. As the Tutor established downwind at 1500ft, the Cosford Tower controller alerted the Tutor pilot to the presence of unknown traffic 1.5NM away, which was almost concurrent with the Tutor TAS alerting indicating the DA42 was approximately 100ft above. Traffic Information was passed again shortly afterwards by the Cosford Tower controller. The Tutor pilot reported the horizontal separation as 500m.

The DA42 was under a Basic Service from Shawbury LARS. Although the Shawbury controller did not file a DASOR, a written report was received from the Unit which indicated that the controller had identified that the DA42 was transiting towards Cosford at a level which would see it enter the Cosford ATZ. The Shawbury RT transcript is reproduced below:

| Line No | To   | From                 | Speech Transcription                                   | Time     | Remarks |
|---------|------|----------------------|--|----------|---------|
| 1       | DA42 | Shawbury LARS (Zone) | DA42 C/SIGN are you inbound to Cosford?                | 11:20:34 |         |
| 2       | DA42 | Zone                 | DA42 C/SIGN Shawbury Zone.                             | 11:20:43 |         |
| 3       | Zone | DA42                 | Shawbury Zone, DA42 C/SIGN going en route many thanks. | 11:20:49 |         |
| 4       | DA42 | Zone                 | DA42 C/SIGN squawk 7000 free-call Cosford 135.875      | 11:20:53 |         |
| 5       | Zone | DA42                 | and free-call Cosford er, 135.875 DA42 C/SIGN          | 11:21:00 |         |

Only a partial radar replay was provided which did not allow for full analysis of the situation. However, it was evident that the DA42 was transferred to Cosford Tower 30sec before the DA42 entered the Cosford ATZ and one minute prior to the Airprox occurring. Analysis of the Cosford RT transcript shows that the DA42 pilot free-called Cosford as it entered the ATZ and some 30sec prior to the Airprox occurring, and was immediately passed Traffic Information on the Tutor by the Cosford Tower controller.

The Cosford Tower controller was placed in an unenviable position. Having identified that there was potential for conflict, it was entirely appropriate that Traffic Information was passed (twice) to the

aircraft under his control rather than seeking clarification of the conflicting aircraft's intentions from Shawbury, because he could reasonably have expected Shawbury LARS to ensure no ATZ infringement occurred. The limited RT transcript provided indicates that the Shawbury LARS controller was aware of the potential for an ATZ infringement and had attempted to elicit if the DA42 was inbound to Cosford. It is unfortunate that no warning was passed to the DA42 pilot about the proximity of the Cosford ATZ and no Traffic Information was passed to Cosford Tower about the adjacent transit. Finally, it is disappointing that the DA42 entered the Cosford ATZ without permission.

### **UKAB Secretariat**

During the time leading-up to the Airprox, the DA42 pilot was in receipt of a Basic Service from Shawbury LARS. The NATS radar replay was examined and showed the aircraft tracking towards the Cosford overhead and maintaining 2000-2100ft from 1115:00 until CPA (1121:52). At CPA, the aircraft's SFL is seen to change from '20' to '23' and the aircraft climbs to exit the Cosford ATZ.

The Tutor and DA42 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>2</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>3</sup> An aircraft must not fly, take-off or land within the aerodrome traffic zone of an aerodrome unless the commander of the aircraft has obtained the permission of that unit to enable the flight to be conducted safely within the aerodrome traffic zone.<sup>4</sup>

### **Comments**

#### **HQ Air Command**

This Airprox was subject to a Local Investigation. As with other ATZ incursions, the Cosford DDH has no scope to change aviation-type matters and rules pertaining to Air Traffic Control, thus no formal recommendations were made. The Flight Safety Officer at Cosford is reallocating the report to come under the ownership of 6FTS as the reporting Tutor fell under the jurisdiction of 6FTS. The Cosford DDH felt that the DDH of 6FTS had as much, if not more, interest in this occurrence.

With the DA42 under the control of Shawbury and fast approaching the Cosford ATZ, it is unfortunate that Shawbury passed no warning regarding the proximity of the Cosford ATZ and did not pass Traffic Information to Cosford Tower. The crew of the DA42 also should have realised that they were heading for the Cosford overhead. It is poor airmanship to fly at the vertical limit of an ATZ with no situational awareness of traffic within it. It is worth noting, due to hangar obstruction and the severe lack of visibility to the north of the airfield from the Visual Control Room (VCR), circuits at Cosford are normally conducted to the south, but occasionally due to the Tutor pilot sitting in the RH seat, permission is provided for RH pattern PFLs. As the Tutor was unsighted from the VCR, the ATCO went to use the Air Traffic Monitor (ATM) to gain visual. It was because of the ATM, they noticed a Shawbury squawk at approximately 3NM north, heading south towards the ATZ and indicating 2000ft. Calculating the difference between the QFE and QNH of 330ft below, the ATCO informed the Tutor of the traffic transiting close to their level. Aided by the Traffic Alert System and the call from ATC, the crew of the Tutor were able get visual. The DA42 had also started to climb to exit the ATZ, meaning that the risk of collision was low.

### **Summary**

An Airprox was reported when a Tutor and a DA42 flew into proximity in the Cosford ATZ at 1122Z on Monday 3<sup>rd</sup> February 2020. Both pilots were operating under VFR in VMC, the Tutor pilot was in receipt of an Aerodrome Control Service from Cosford Tower and the DA42 pilot was not in receipt of an ATS.

<sup>2</sup> SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

<sup>3</sup> SERA.3225 Operation on and in the Vicinity of an Aerodrome. MAA RA 2307 paragraph 15.

<sup>4</sup> The Rules of the Air Regulations 2015, Rule 11.

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

Information available consisted of reports from the pilots of both aircraft, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and 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.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided a combination of written contributions and dial-in/VTC comments. Although not all Board members were present for the entirety of the meeting and, as a result, the usual wide-ranging discussions involving all Board members were more limited, sufficient engagement was achieved to enable a formal assessment to be agreed along with the following associated comments.

The Board first considered the actions of the Tutor pilot and quickly agreed that there was little more that he could have done to prevent the Airprox. The earliest he had known about the presence of the DA42 had been when Traffic Information was passed to him by the Tower controller, coincident with an alert from his on-board TAS (**CF9**). The Board commended him for his immediate actions of restricting his climb based on the Traffic Information and TAS indications, as this had undoubtedly prevented the encounter from being closer than it had been.

Turning to the actions of the DA42 pilot, the Board wondered why he had chosen a transit altitude that would put him at risk of unintentionally penetrating an ATZ in that area and considered that, given the weather on the day, he may have been better served by flying at around 2500ft QNH (**CF4**). Additionally, members wondered if, in fact, the DA42 pilot had been aware of his proximity to the Cosford ATZ. The Board noted that by the time the pilot had realised that he was about to enter the Cosford ATZ, a penetration of that airspace had been inevitable and that he had not secured permission to enter from the Cosford Tower controller (**CF3, CF5, CF6, CF7**), although it was acknowledged that he had been in the process of contacting the Cosford controller at the time. Members felt that, due to the tardiness of the initial contact with Cosford, the DA42 pilot had not had any prior knowledge of the presence of the Tutor (**CF8**) and, once within the ATZ, had not seen the Tutor either (**CF10**).

The Board went on to discuss the actions of the controllers involved and agreed that, given the circumstances of an unannounced aircraft penetrating the ATZ (**CF1**) and coming into conflict with the Tutor already established in the circuit, the Cosford Tower controller had done all that he could to try and prevent the Airprox. Indeed, members applauded his proactive use of the ATM display but noted that this facility is shortly to be removed from the Cosford tower. Notwithstanding the Cosford controller's use of the ATM, ATC members in particular felt that the Shawbury controller could have been more proactive and informed the Cosford Tower controller of the approaching DA42 (**CF2**); the aircraft had been tracking towards Cosford at an altitude below the ceiling of the ATZ for a full 5min prior to the Airprox occurring. The Board acknowledged that the Shawbury controller had asked the DA42 pilot if Cosford had been his destination, but felt that the situation had warranted a more direct intervention by warning the DA42 pilot that he had been about to enter the Cosford ATZ and informing the Cosford Tower controller of the same. Moreover, yet acknowledging that the Shawbury controller had been delivering a Basic Service, the Board felt that because the Shawbury controller had clearly devoted a degree of attention to the position of the DA42 on the radar then it was reasonable to expect this increased level of intervention.

Turning to the risk involved in this encounter, the Board noted that, ultimately, the aircraft had passed each other with 800ft of vertical separation and almost ½NM of lateral separation. Although the DA42 pilot had not seen the Tutor, the Tutor pilot had received Traffic Information as soon as the controller had become aware of the presence of the DA42 and also received a TAS alert, leading him to arrest his climb and therefore preserve the initial vertical separation. This separation was then further increased by the DA42 pilot climbing as he entered the lateral limits of the Cosford ATZ and so the Board quickly concluded that, although safety had been degraded, there had been no risk of collision; Risk Category C.

**PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK****Contributory Factors:**

|   | 2020019       |  |   |
|---|---------------|--|---|
| CF  | Factor        | Description  | Amplification   |
| <b>Ground Elements</b>  |               |  |   |
| <b>• Situational Awareness and Action</b>                             |               |  |   |
| 1   | Contextual    | • Situational Awareness and Sensory Events         | The controller had only generic, late or no Situational Awareness |
| 2   | Human Factors | • ANS Traffic Information Provision                | TI not provided, inaccurate, inadequate, or late                  |
| <b>Flight Elements</b>  |               |  |   |
| <b>• Regulations, Processes, Procedures and Compliance</b>            |               |  |   |
| 3   | Human Factors | • Flight Operations Documentation and Publications | Regulations and/or procedures not complied with                   |
| <b>• Tactical Planning and Execution</b>                              |               |  |   |
| 4   | Human Factors | • Insufficient Decision/Plan                       | Inadequate plan adaption  |
| 5   | Human Factors | • Action Performed Incorrectly                     | Incorrect or ineffective execution                                |
| 6   | Human Factors | • Aircraft Navigation                              | Flew through promulgated and active airspace                      |
| 7   | Human Factors | • Accuracy of Communication                        | Ineffective communication of intentions                           |
| <b>• Situational Awareness of the Conflicting Aircraft and Action</b> |               |  |   |
| 8   | Contextual    | • Situational Awareness and Sensory Events         | Pilot had no, late or only generic, Situational Awareness         |
| <b>• Electronic Warning System Operation and Compliance</b>           |               |  |   |
| 9   | Contextual    | • ACAS/TCAS TA                                     |   |
| <b>• See and Avoid</b>  |               |  |   |
| 10  | Human Factors | • Monitoring of Other Aircraft                     | Non-sighting or effectively a non-sighting by one or both pilots  |

**Degree of Risk:** C

**Safety Barrier Assessment<sup>5</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 **partially effective** because the Shawbury LARS controller did not inform the Cosford Tower controller of the approaching DA42 and did not specifically warn the DA42 pilot of his proximity to Cosford ATZ.

**Flight Elements:**

**Regulations, Processes, Procedures and Compliance** were assessed as **ineffective** because the DA42 pilot did not gain permission prior to entering the Cosford ATZ.

**Tactical Planning and Execution** was assessed as **ineffective** because the DA42 pilot did not alter his altitude to avoid, or gain permission to enter, the Cosford ATZ.

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **partially effective** because the DA42 pilot only had generic situational awareness of aircraft activity due to the presence of the Cosford ATZ.

<sup>5</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

| <b>Airprox Barrier Assessment: 2020019</b> |  | Outside Controlled Airspace |                    | <b>Effectiveness</b>     |                                   |                 |     |     |
|--|--|-----------------------------|--------------------|--------------------------|-----------------------------------|-----------------|-----|-----|
| <b>Barrier</b>                             |  | <b>Provision</b>            | <b>Application</b> | <b>Barrier Weighting</b> |                                   |                 |     |     |
|  |  |                             |                    | 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  | ✔                           | ✔                  |                          |                                   |                 |     |     |
| <b>Key:</b>                                |  | <u>Full</u>                 | <u>Partial</u>     | <u>None</u>              | <u>Not Present/Not Assessable</u> | <u>Not Used</u> |     |     |
| Provision                                  | ✔  | ⚠                           | ✘                  | ⊘                        |                                   |                 |     |     |
| Application                                | ✔  | ⚠                           | ✘                  | ⊘                        | ⊘                                 |                 |     |     |
| Effectiveness                              |  |                             |                    |                          |                                   |                 |     |     |