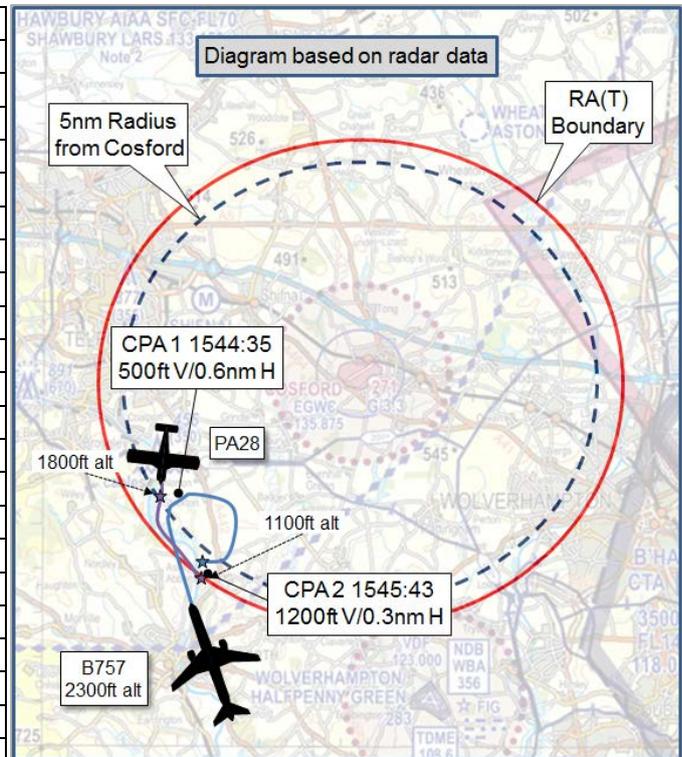


**AIRPROX REPORT No 2018123**

Date: 09 Jun 2018 Time: 1545Z Position: 5235N 00224W Location: Cosford

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	B757	PA28
Operator	Foreign Mil	Civ FW
Airspace	Cosford RA(T)	Cosford RA(T)
Class	G	G
Rules	VFR	VFR
Service	Aerodrome	Listening Out
Provider	Cosford	Birmingham
Altitude/FL	2300ft	N/K
Transponder	A, C, S	A, C, S
<b>Reported</b>	Not reported	Not reported
Colours		
Lighting		
Conditions		
Visibility		
Altitude/FL		
Altimeter		
Heading		
Speed		
ACAS/TAS		
Alert		
<b>Separation</b>		
Reported	Not seen	Not reported
Recorded	500ft V/0.6nm H & 1200ft V/0.3nm H	



**THE COSFORD APPROACH CONTROLLER** reports that an RA(T) was in place 6nm radius and 5000ft AMSL for the Cosford Air Show; the B757 was inbound for a display, on frequency. He noticed on the ATM a Mode A of 0010 transiting from the west towards the ATZ indicating 2200ft (SPS pressure datum) approx 3nm from the overhead. On questioning the ADC controller if that aircraft was talking to him at all, it moved south from the edge of the ATZ boundary. As 0010 is a Birmingham radar listening squawk he immediately requested the assistant to contact them. The B757 pilot was passed TI about the aircraft inside the RA(T) and the pilot reported not visual. Birmingham radar said they were in touch with the aircraft and were giving it an immediate descent and it was tracking south to take it outside of the RA(T). At this point both aircraft were on a reciprocal heading with approx 1.5nm between them indicating the same level. He looked at the ATM which indicated the 0010 squawking aircraft descending below the B757, however he was unable to see by how much due to the contacts merging; he noted that the last seen height separation was 300ft. Birmingham were requested to ask the PA28 pilot to contact Cosford Approach so he could find out what they were doing in the RA(T). When the PA28 pilot contacted Cosford he said that he had forgotten about the RA(T) and was exiting immediately to the south and would be filing as he had a TCAS alert. The controller believed, from the ATM information, that there was an imminent risk of collision.

He perceived the severity of the incident as ‘High’.

**THE B757 PILOT** reports that he did not see the PA28 and unfortunately cannot provide any further information.

**THE PA28 PILOT** chose not to report.

**THE BIRMINGHAM CONTROLLER** reports that he was instructing on Radar during the period of the RA(T) surrounding Cosford. He noticed a 0010 squawk approximately 2nm north of RAF Cosford

tracking south indicating 2300ft amsl inside the RA(T). Using Mode S, he identified the aircraft callsign and the aircraft pilot was blind-called. The pilot responded immediately, was advised that he was inside the RA(T), and it was suggested he turn west to vacate the area by the most expeditious route. A call from a separate console was made to Shawbury, who he believed was controlling the RA(T) but whilst on hold for the controller, Cosford Approach called and passed information on an aircraft that was positioning into a hold prior to display that would shortly be in direct conflict with the PA28, Traffic Information was passed to the PA28 pilot who responded he was visual and turning/descending to avoid. The PA28 was then transferred to Cosford Approach.

## Factual Background

The weather at Cosford was recorded as follows:

METAR EGWC 091550Z 06004KT 9999 FEW030 BKN060 19/11 Q1015 BLU

A copy of the NOTAM issued for the RA(T) is below:

RESTRICTED AREA (TEMPORARY) AT COSFORD. RESTRICTION OF FLYING REGULATIONS MADE UNDER ARTICLE 239 OF THE AIR NAVIGATION ORDER 2016. AIC M024/2018 WILL REFER. NO ACFT IS TO FLY WI AREA BOUNDED BY CIRCLE OF RADIUS 6NM CENTRED AT 523824N 0021819W (ROYAL AIR FORCE COSFORD AD) EXCEPT ACFT FLYING WITH A CLEARANCE ISSUED BY THE AIR TRAFFIC CONTROL UNIT AT ROYAL AIR FORCE COSFORD, OR THE AIR TRAFFIC CONTROL UNIT AT ROYAL AIR FORCE SHAWBURY. THESE RESTRICTIONS ALSO APPLY TO THE OPERATION OF ALL SMALL UNMANNED AIRCRAFT SYSTEMS, ANY KITE, ANY SMALL UNMANNED AIRCRAFT AND ANY PARACHUTE INCLUDING A PARASCENDING PARACHUTE. ADDITIONAL RESTRICTED AREA (TEMPORARY) OF A HIGHER ALTITUDE WILL BE NOTIFIED BY SEPARATE NOTAM FOR DISPLAYS BY JET FORMATION DISPLAY TEAMS AT COSFORD DURING THESE TIMES.

2017-06-0010/AS6.

FROM: 07 Jun 2018 13:00 GMT (14:00 BST)

TO: 10 Jun 2018 17:30 GMT (18:30 BST)

SCHEDULE: 07-09 1300-1700, 10 0930-1730

## Analysis and Investigation

### CAA ATSI

At 1541:30 (Figure 1), the Birmingham controller established communication with the PA28 which was displaying the SSR code 0010, assigned to aircraft that are monitoring the Birmingham Radar frequency. The controller informed the pilot that the RA(T) around Cosford was about to become active and suggested that they route to the west. The pilot acknowledged and stated that they would now route west.



Figure 1: 1541:30

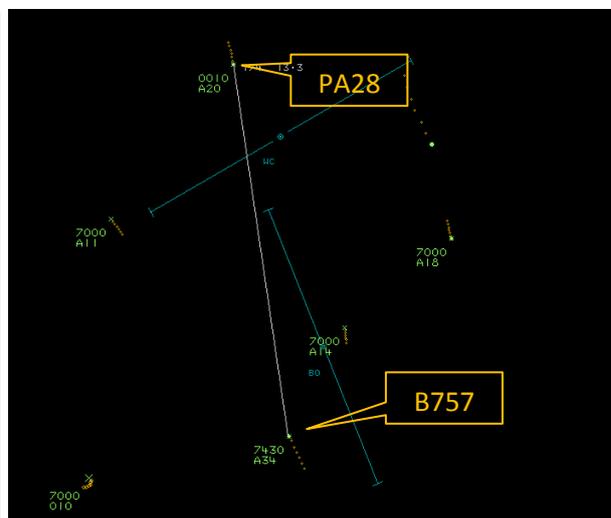


Figure 2: 1542:58

At 1542:27 the PA28 asked the Birmingham controller if the restricted airspace was around the ATZ. The Birmingham controller informed the pilot that the airspace extended from the airfield, out to about 5nm and up to 5000ft. This was acknowledged by the pilot with an apology for not being aware of the RA(T). In fact, contrary to the controller's response, the RA(T) extended out to a 6nm radius, centred at RAF Cosford.

At 1542:58 (Figure 2), the B757 established communication with the Cosford controller reporting at 2000 feet. The Cosford controller passed the ATIS, runway and QFE, which was readback correctly by the pilot.

At 1543:32, the Cosford controller requested traffic information on the PA28 from the Birmingham controller. The Birmingham controller stated that they had just spoken to the PA28 and told them to track west. The Cosford controller informed the Birmingham controller that the B757 was inbound to hold over the position that the PA28 was currently over. The Cosford controller also requested the callsign of the PA28.

At 1544:00 (Figure 3), the Birmingham controller passed traffic information to the PA28 on the B757. The pilot reported that they were visual with the B757, were descending, and that they had received a TCAS (RA).

At 1544:02 the Cosford controller passed traffic information on the PA28 to the B757. The pilot reported they were looking.

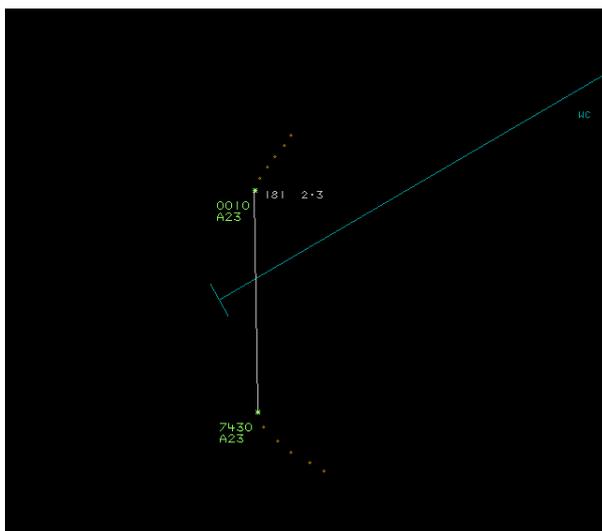


Figure 3: 1544:00

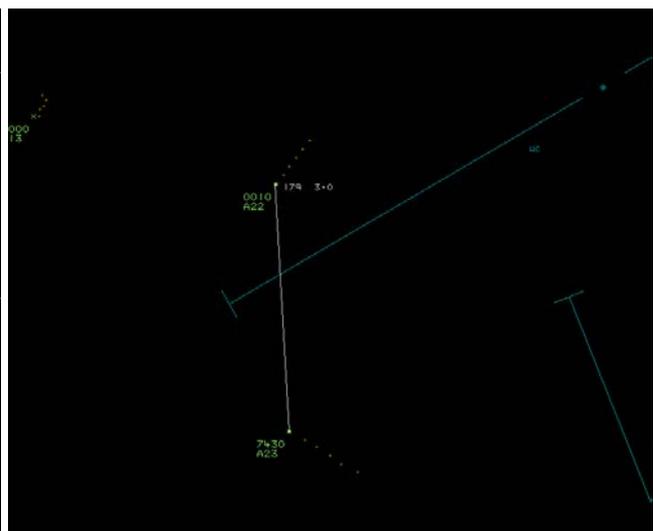


Figure 4: 1544:12

At 1544:12 (Figure 4) the Birmingham controller informed the Cosford controller that the PA28 was descending to 1500ft. The Cosford controller updated the traffic information to the B757 to reflect this. The Birmingham controller informed the Cosford controller that the PA28 was visual with the B757 and passed the callsign. The Birmingham controller then stated that the PA28 was leaving the RA(T) and that they would transfer the PA28 to the Cosford Frequency.

At 1544:35 (Figure 5) the aircraft closed to within 0.6nm and 500ft of each other [CPA 1] and, at 1545:45, the B757 was transferred to Cosford Tower.

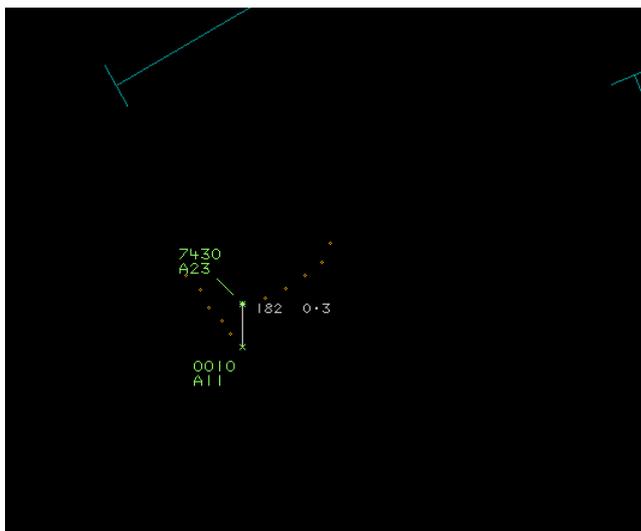


Figure 5: 1544:35

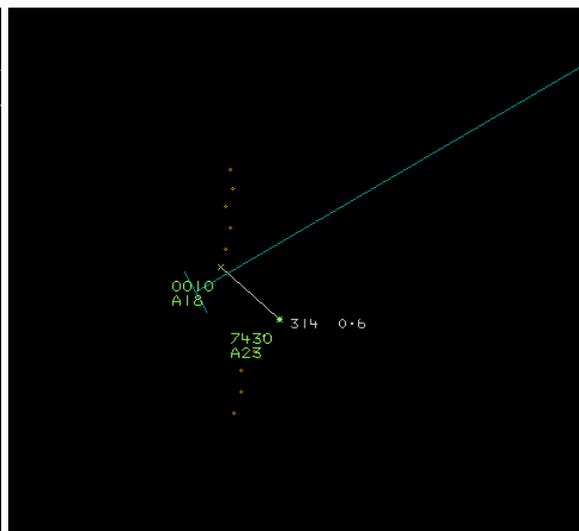


Figure 6: 1545:43

The B757 then took up a right-hand orbit and the PA28 turned to track south-southeast. CPA [1] occurred at 1545:43 (Figure 6) at which point the aircraft were separated by 0.3nm and 1200 feet.

At 1545:58 the PA28 was instructed to contact the Cosford frequency.

At the time of the Airprox, a service had not been agreed between the PA28 and the Birmingham controller or the B757 and the Cosford controller. The Airprox occurred in Class G airspace but within an established RA(T). Traffic information was given to the PA28 but was not updated as the B757 completed the orbit which brought it into conflict with the PA28.

CAP 774 states:

*Regardless of the ATS being provided, pilots are ultimately responsible for collision avoidance and terrain clearance.*

### Military ATM

The B757 was receiving a Basic Service from Cosford Approach, the PA28 was not receiving an Air Traffic Service but was monitoring the Birmingham Radar frequency.

A RA(T) had been established to support the Cosford Airshow and was active with a radius of 6nm and 5000ft centred on Cosford Airfield. The Cosford Approach task is non-surveillance based as there is no radar although there is an Air Traffic Monitor which provides a slave radar feed from RAF Shawbury. This is used for Situational Awareness purposes only in accordance with RA 3273. All aircraft arriving and departing Cosford were provided a surveillance service by RAF Shawbury until they were approaching the RA(T) and were visual with Cosford Aerodrome.

Figures 7-11 show the positions of the B757 and PA28 at relevant times in the lead up to and during the Airprox. The screen shots are taken from a replay using the Clee Hill radar, which is not utilised by Cosford or Shawbury, therefore it is not necessarily representative of the picture available to the controllers.

At 1442:03 (Figure 7), the Cosford Approach Controller noticed on the Air Traffic Monitor that an aircraft squawking 0010 (Birmingham listening Squawk) had infringed the RA(T) from the north and began the process (through the Cosford Approach Assistant) of establishing contact with Birmingham to ascertain the intentions of the aircraft. The B757 was receiving a Deconfliction Service from Shawbury. The B757 had reported visual with the aerodrome and was therefore in the process of being transferred to the Cosford Approach frequency.

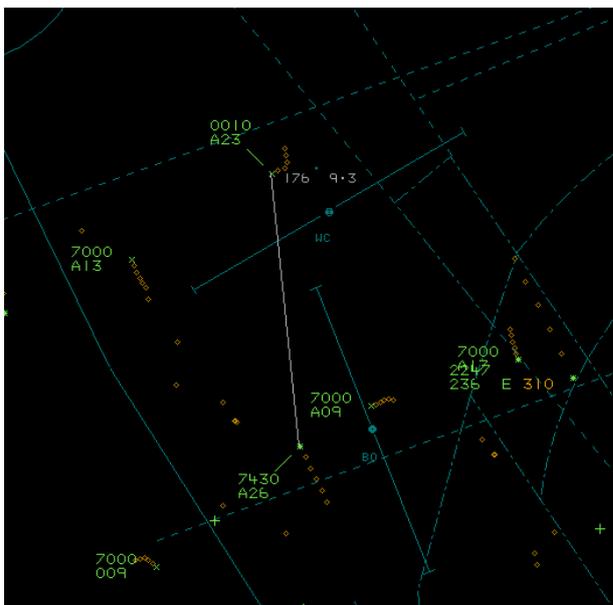


Figure 7: timed at 1442:03

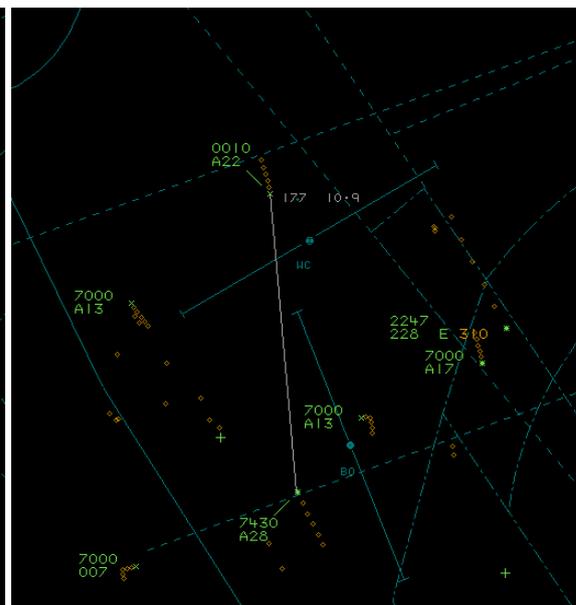


Figure 8: timed at 1542:08

Co-incidentally, the Birmingham Radar Controller noted that an aircraft squawking 0010 had infringed the RA(T) and, via Mode S, were able to identify and speak to the PA28, suggesting a westerly heading to clear the RA(T), there is 9nm separation at this point.

At 1543:01, the B757 called the Cosford Approach Frequency and was passed the relevant airfield details and requested to confirm POB.

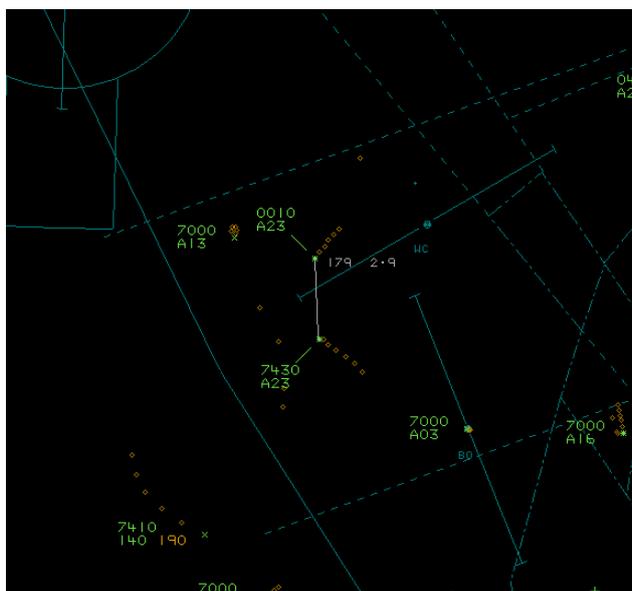


Figure 9: timed at 1543:01



Figure 10: timed at 1544:03

Following a discussion between the Birmingham Radar Controller and the Cosford Approach Assistant, the Birmingham Radar controller passed Traffic Information to the PA28 at 1543:55 who subsequently reported visual with the B757. Some 8 secs later, the Cosford Approach Controller, utilising the information provided by the Air Traffic Monitor, passed Traffic Information to the B757.

CPA [2] occurred at 1544:33 and was measured at 0.7nm lateral and 500ft vertical separation [UKAB note: Using a different radar, UKAB determined the separation as 500ft vertically and 0.6nm horizontally].

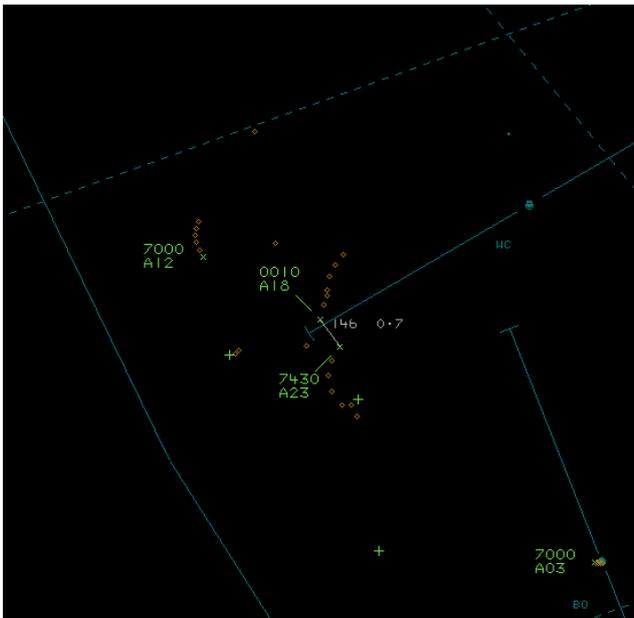


Figure 11: timed at 1544:33

The investigation into this incident revealed some discrepancies in the understanding between Cosford and Shawbury with respect to the level of service being provided by Shawbury, this has been noted as a lesson identified for the planning of Cosford Airshow 2019. The Shawbury Approach Controller does not recall seeing the conflict between the B757 and the PA28. Once the Cosford Approach Controller noted the RA(T) infringement they immediately took steps to contact the aircraft (via Birmingham) and, when it appeared that a conflict was likely, passed Traffic Information to the B757 using the Air Traffic Monitor thereby discharging their duties in accordance with RA 3273 which states:

*'Where the controller feels that there is a definite risk of collision, they should use the Air Traffic Monitor to pass Traffic Information.'*

### UKAB Secretariat

The B757 and PA28 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>1</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>2</sup>.

### Summary

An Airprox was reported when a B757 and a PA28 flew into proximity at 1545hrs on Saturday 9<sup>th</sup> June 2018. Both pilots were operating under VFR in VMC, the B757 pilot in receipt of a Service from Cosford and the PA28 pilot listening out on the Birmingham frequency.

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

Information available consisted of reports from the pilot of the B757 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.

First the Board began by discussing the actions of the PA28 pilot. They agreed that by not properly noting the presence of the RA(T) and its relevance to his flight he had clearly not adequately briefed himself prior to his flight; had he done so, the PA28 pilot could easily have avoided the RA(T) by an adequate margin. The Board noted that when the Birmingham controller contacted the PA28 pilot (who was listening out on the Birmingham frequency and not receiving a service) and informed him of his infringement of the RA(T) and the presence of the B757, the controller had informed him that the RA(T) was 'about 5nm' in radius when in fact it was 6nm. Looking at the PA28 pilot's subsequent track on the radar, it appeared that he had routed south to exit the RA(T) but had not quite done so before he then turned southeast and into conflict with the B757; it appeared to the Board that the PA28 had reached about 5nm before turning to then maintain 5nm from Cosford, probably as a result of the Birmingham controller's comment. Some members opined that, had the PA28 pilot been informed that the RA(T) was 6nm radius then he may have continued further south before turning and thus avoided the B757 by a greater margin. Nevertheless, having been given Traffic Information by the Birmingham controller, the PA28 pilot reported visual with the B757 and descended to increase separation.

<sup>1</sup> SERA.3205 Proximity.

<sup>2</sup> SERA.3225 Operation on and in the Vicinity of an Aerodrome.

The Board then turned to the actions of the controllers. The Military ATC representative informed the Board that Cosford does not have a radar capability and relies on an ATM display showing a remote feed from Shawbury. Aircraft inbound to Cosford normally receive a service from Shawbury until the aircraft pilot reports visual with Cosford, at which point they are transferred to the Cosford frequency. Due to the location that the B757 pilot reported visual with Cosford (and was accordingly transferred to the Cosford frequency), this resulted in Shawbury not passing any Traffic Information to the B757 pilot about the PA28 because it was not a conflict at the time. For his part, the Board commended the diligence of the Cosford controller in detecting the PA28 infringement and the developing conflict on his ATM, and the controller's subsequent actions in contacting the Birmingham controller to endeavour to ensure the PA28 pilot vacated the RA(T) as quickly as possible whilst also giving Traffic Information to the B757 pilot. The Board commented that there was little else the Cosford controller could have done to resolve the conflict.

The Board also commended the Birmingham controller for also seeing the PA28 infringement and establishing two-way communication with the PA28 pilot to advise him of his infringement of the RA(T). The Board agreed that it was unfortunate that the Birmingham controller had probably estimated the size of the RA(T) as having a 5nm radius (rather than the notified 6nm radius), from the information available on his radar screen. The Board thought that this had resulted in the PA28 pilot turning south-east too early and therefore resulted in him remaining within the RA(T) when he turned back onto his planned track.

The Board then looked at the actions of the B757 pilot and noted that when the Shawbury controller transferred him to Cosford the controller did not perceive a threat from the PA28 and therefore the B757 pilot did not receive any Traffic Information. Having transferred from a radar unit to an aerodrome-only unit, the B757 pilot was then receiving only a Basic Service from Cosford. Notwithstanding, the B757 pilot did receive Traffic Information from Cosford on the PA28, at a similar level, but did not see the PA28 whilst positioning for his approach to Cosford or when turning back towards the PA28, albeit whilst within the protection of the RA(T).

The Board then discussed the cause of the Airprox. They quickly agreed that the PA28 pilot had not adequately briefed himself on the RA(T) and had infringed the airspace that had been established to protect aircraft operating at the Cosford Airshow. They therefore agreed that the cause was the PA28 pilot flew into the RA(T) without clearance and into proximity with the B757. Turning to the risk, members noted that the PA28 pilot was visual with the B757 and had descended to increase the separation. The Board therefore agreed that for the two times the aircraft had come into proximity safety had been reduced but there had been no risk of collision because the PA28 pilot was visual with the B757 throughout. Accordingly, the Board agreed that the risk was Category C, there had been no risk of collision.

### **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: The PA28 pilot flew into the RA(T) without clearance and into proximity with the B757.

Degree of Risk: C.

#### **Safety Barrier Assessment<sup>3</sup>**

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

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

**ANSP:**

**Regulations, Processes, Procedures and Compliance** were assessed as **partially effective** because the Birmingham controller estimated the size of the RA(T) as 5nm rather than the 6nm radius stated in the NOTAM. This appears to have resulted in the PA28 pilot turning south-east whilst still within the RA(T) boundary.

**Flight Crew:**

**Regulations, Processes, Procedures, Instructions and Compliance** were assessed as **ineffective** because the PA28 pilot infringed the active and promulgated Cosford RA(T).

**Tactical Planning** was assessed as **ineffective** because the PA28 pilot did not remain outside the Cosford RA(T).

