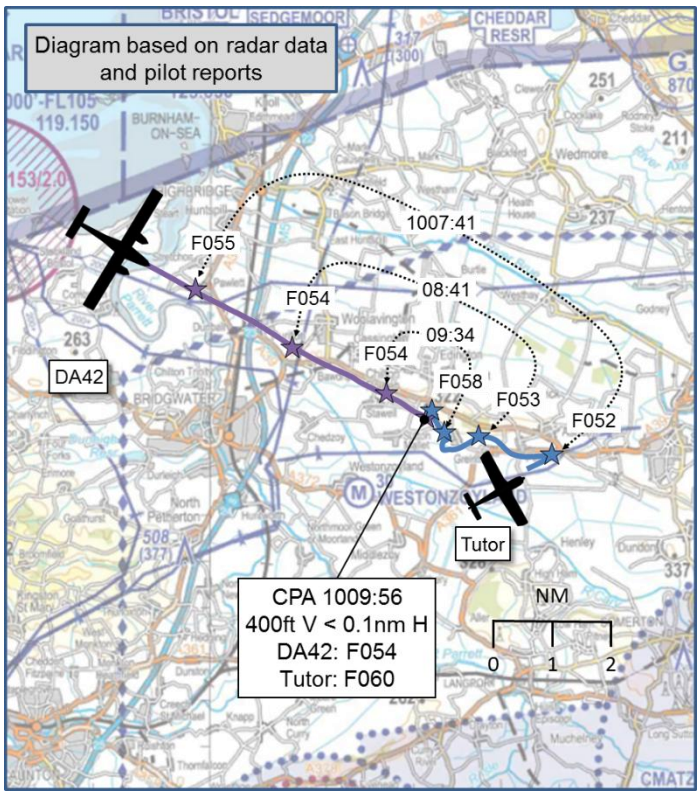
AIRPROX REPORT No 2014215

Date/Time: 14 Nov 2014 1010Z

Position: 5108N 00253W (11nm NW Yeovilton)

Airspace: Yeovilton AIAA (*Class*: G)
London FIR

	Aircraft 1	*Aircraft 2*
Type:	Tutor	DA42
Operator:	RN	Civ Trg
Alt/FL:	5300ft RPS (993hPa)	FL55
Conditions:	VMC	VMC
Visibility:	40km	>10km
Reported Separation:	200ft V/40m H	200ft V/200m H
Recorded Separation:	600ft V/<0.1nm H	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE TUTOR PILOT reports instructing a GH sortie, drawing to the end of an aerobatic sequence. The predominantly white aircraft had HISLs, navigation and landing lights selected on, as was the SSR transponder with Modes A, C and S. The aircraft was fitted with a TAS. The pilot was operating under VFR in VMC, in receipt of a Traffic Service from Yeovilton Approach on UHF cross-coupled[1] with the LARS frequency. Traffic Information was received on traffic, northwest at FL55, at about 5nm. At the time, the pilot had not assimilated the large difference between SPS and RPS and made a quick judgement that the traffic was about 1000ft above him. The traffic then 'appeared on TAS' in the 12 o'clock, 200ft above at 6nm range. ATC was still passing Traffic Information, which was now converging. The pilot had stopped the aerobatic sequence by this point and was manoeuvring to gain visual on the reported traffic. As the distance closed to 2nm and level (as indicated on TAS), the Tutor pilot decided to climb, heading west to fly clear whilst still presenting as much of his own aircraft profile to the conflicting traffic as he could. During a turn to the left, the student spotted the traffic, now passing almost directly beneath, approximately 200ft below and on a steady heading. Once he called visual, the conflicting traffic also called visual on the VHF frequency having made no change to heading. The instructor stated that throughout the sequence of events described good 'traffic alerts' were passed by ATC and updated at sufficient and regular intervals. The traffic alerts were backed up by TAS throughout. He noted that a flight safety hazard had presented itself purely by being unable to acquire the other aircraft visually and that, in hindsight, he would have upgraded to a Deconfliction Service, or asked for avoiding action. He had not done so as he had been in 'essentially CAVOK conditions' with extremely good visibility, expecting to gain visual contact with the conflicting traffic sooner than had occurred.

He assessed the risk of collision as 'High'.

THE DA42 PILOT reports instructing an IF sortie. The white aircraft had strobe lights selected on, as was the SSR transponder with Modes A, C and S. The aircraft was not fitted with an ACAS or TAS. The pilot was operating under IFR in VMC, in receipt of a Traffic Service from Yeovilton LARS on VHF, cross-coupled with the Approach frequency. The student was flying 'under the hood', heading 120° at 140kt in straight and level cruise at FL55, with both the instructor and a rear seat passenger

[1] If frequencies are cross-coupled, any transmission by a pilot or controller, is automatically broadcast on both frequencies.

looking out for other traffic. They were passed Traffic Information on the Tutor and, sometime later, were passed Traffic Information with traffic '2 miles, similar altitude, southeast'. The DA42 pilot and passenger continued their lookout in the expectation of gaining visual contact in the 'good VMC' conditions, albeit with the reported traffic into sun. He gained visual contact with the Tutor in the right 1 o'clock at a similar altitude; it appeared to climb and then cross above them. Both pilots acknowledged visual contact on the radio. The instructor stated that he had expected the Tutor to turn away from them as he was manoeuvering and 'he knew they were there'. He noted that in hindsight he could have requested a Deconfliction Service or climbed to the next available quadrantal level of FL75

He assessed the risk of collision as 'Medium' to 'High'.

THE YEOVILTON APPROACH/LARS CONTROLLER reports controlling with 3 Grob Tutor aircraft on the Approach frequency, cross-coupled with LARS frequency on which she had one DA42 and 2 rotary wing aircraft. The DA42 was handed over from Cardiff ATC on a direct route to Bournemouth at FL55, receiving a Traffic Service. The Airprox Tutor pilot was operating between altitudes 4000-8000ft, Portland RPS 993hPa, approximately 11nm northwest of Yeovilton. At the point when both aircraft were 5nm apart the controller passed Traffic Information to both pilots. At this point the Tutor SSR Mode C was indicating 051 [FL51]. The controller recalled that both pilots acknowledged Traffic Information but neither reported visual. The controller then passed Traffic Information to both pilots at 3nm; the Tutor SSR Mode C indicated 056. She again received acknowledgement but neither pilot called visual. She then passed Traffic Information to the Tutor pilot at 1nm, was informed he was in the climb to 6000ft Portland RPS to deconflict and he called visual. The DA42 pilot also then called visual. A few minutes later the Tutor pilot stated that he intended to file an Airprox.

She perceived the severity of the incident as 'Medium'.

THE YEOVILTON SUPERVISOR reports that the Approach controller reported that 2 aircraft in confliction had been passed Traffic Information on each other. This information was then passed on 2 more occasions, whilst the aircraft tracked towards each other. After the third traffic call, the Tutor pilot informed the controller that he was taking action to resolve the confliction. Both pilots then reported visual with each other prior to the Tutor pilot declaring an Airprox.

Factual Background

The weather at RNAS Yeovilton was recorded as follows:

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METAR EGDY 140950Z 22007KT 9999 FEW012 12/09 Q0997 BLU NOSIG
METAR EGDY 141050Z 21010KT 9999 FEW020 13/07 Q0998 BLU NOSIG
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Analysis and Investigation

Military ATM

At 1007:45 (Figure 1), Approach called, "[Tutor C/S] *traffic north-west 5 miles tracking south east at FL55 with me*." The Tutor pilot acknowledged the call.

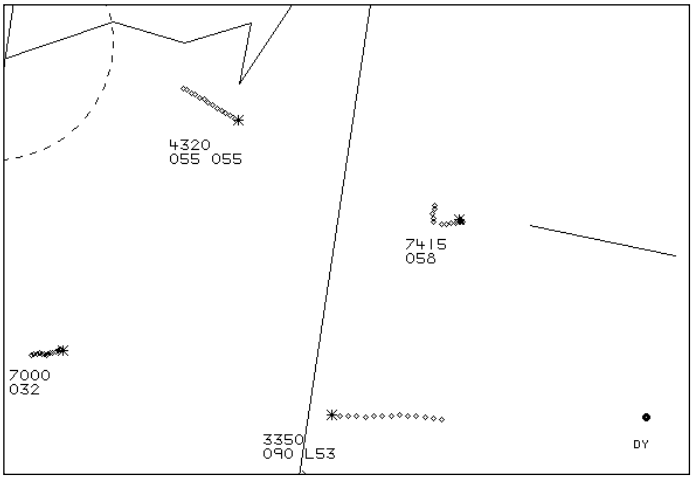

Figure 1: Traffic Information at 1007:45
(Tutor squawk 7415; DA42 squawk 4320)

At 1007:55 (Figure 2), Approach passed the first set of information to the DA42 pilot, "[DA42 C/S] *traffic south east manoeuvring currently indicating 500 feet below, Grob aircraft with me*." The pilot replied with an acknowledgement.

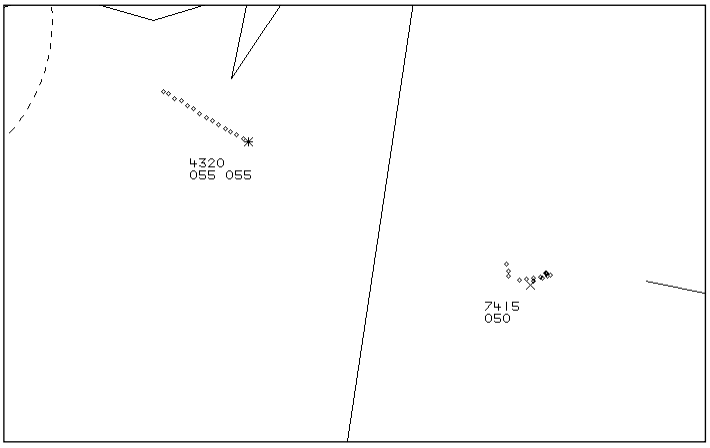

Figure 2: Traffic Information at 1007:55

At 1008:41, Approach updated with, "[DA42 C/S] *previously reported traffic now south east 3 miles manoeuvring, similar height Grob aircraft*." At 1009:00 (Figure 3), Approach updated with, "[Tutor C/S] *previously reported traffic north west 3 miles tracking south east at FL55 similar height fixed wing*."

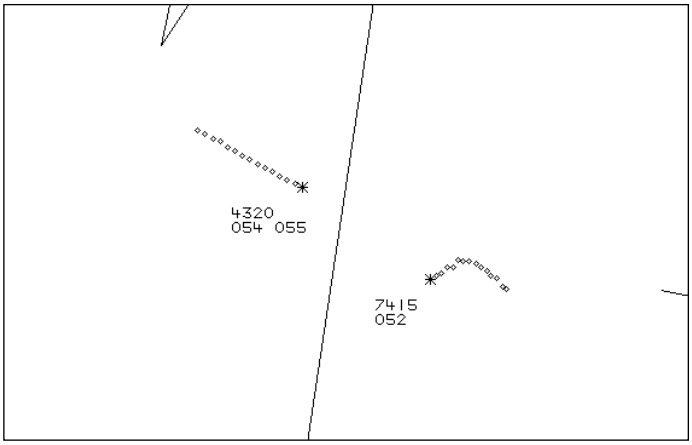

Figure 3: Traffic Information at 1009:00

At 1009:38 (Figure 4), the final update from Approach was, "[Tutor C/S] *previously reported traffic now north west half a mile tracking south east indicating 500 feet below*."

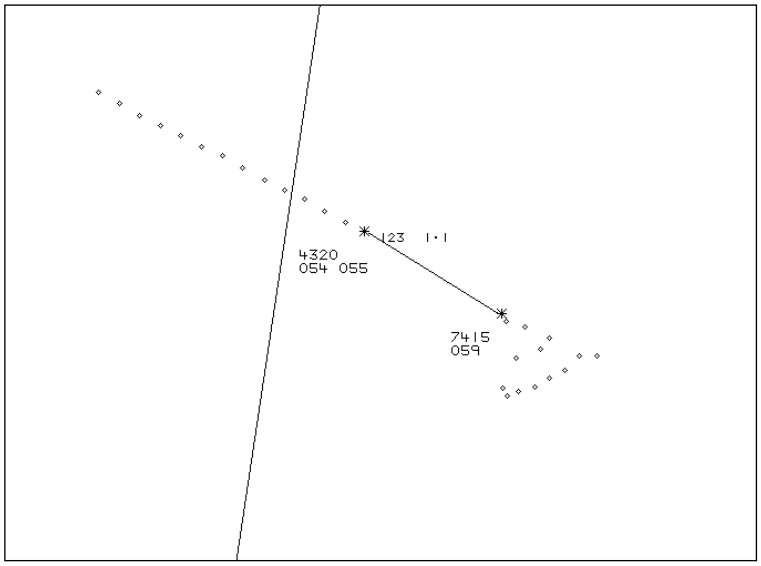

Figure 4: Traffic Information at 1009:38

The reply at 1009:48 was, "[Tutor C/S] *in the climb to separate*." The Tutor pilot reported visual at 1009:55; the DA42 pilot reported visual at 1009:59. The CPA on radar replay was at 1009:56 (Figure 5) with 0.1nm horizontal and 600ft vertical separation.

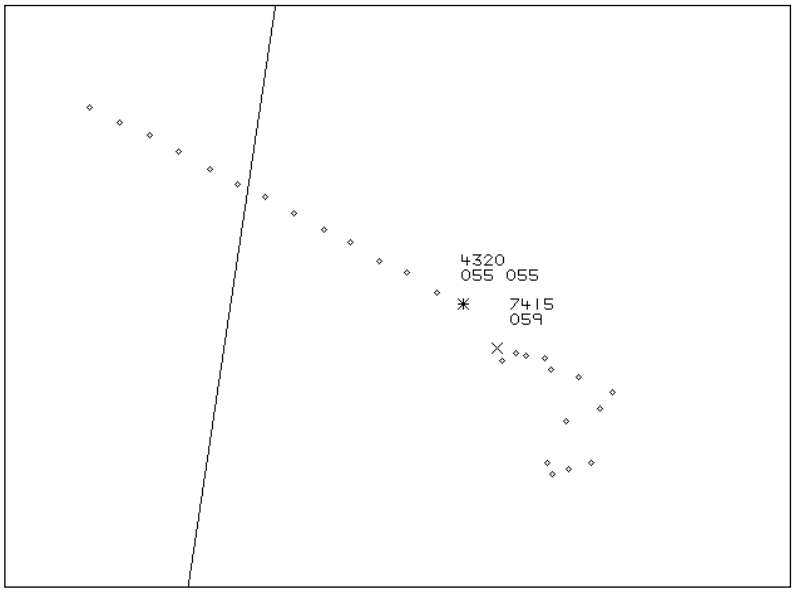

Figure 5: Just prior to CPA at 1009:54

The Approach controller provided regular updates to both crews, as per the provision of a Traffic Service, in CAP 774. The controller should be commended for the information and for persisting with updates to both crews.

The DA42 pilot had chosen a quadrantal level for an IFR flight and the student was under an IF hood. Aware of their collision avoidance responsibilities in Class G, a passenger and the instructor provided lookout. The aircraft did not have an ACAS or TAS and the limitations of 'see-and-avoid' meant that the crew struggled to see the Tutor, especially as it was approaching from the direction of the sun. The Tutor crew was general handling on the RPS and was under an appropriate type of service for the conditions. The onboard TAS and traffic updates allowed the pilot to maintain situational awareness on the DA42. Any change in pressure settings may have

delayed calculations of height separation but the Traffic Information call at 3nm stipulated similar heights and the final set of Traffic Information confirmed that the DA42 was 500ft below at half a mile range.

The normal barriers to a conflict in Class G would be radar-derived Traffic Information, ACAS/TAS and the 'see-and-avoid' principle. Traffic Information was passed by the controller, in accordance with the Traffic Services being provided to both crews. Both crews mentioned an upgrade to a Deconfliction Service; this was an option available, especially if the collision concerns were so high. Either pilot could have also asked for updated Traffic Information. Only the Tutor was fitted with a TAS and this was an absent barrier for the DA42. The limitations of 'see-and-avoid' were evident in this Airprox as two small, white aircraft were difficult to acquire visually, particularly with the position of the sun and the backdrop of the white clouds. Ultimately, both crews maintained a closing geometry until late avoiding action was taken.

UKAB Secretariat

The Tutor and DA42 pilots shared an equal responsibility for collision avoidance and not to fly into such proximity as to create a danger of collision[2]. If the incident geometry is considered as head-on then both pilots were required to turn to the right[3], notwithstanding their overriding responsibility not to collide.

Summary

An Airprox was reported when a Tutor and a DA42 flew into proximity at 1010 on Friday 14th November 2014. The Tutor pilot was operating under VFR in VMC, the DA42 pilot was operating under IFR in VMC; both were in receipt of a Traffic Service from Yeovilton, the Tutor pilot on a UHF Approach frequency and the DA42 pilot on a VHF LARS frequency; the frequencies were cross-coupled with a single controller providing the services.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included 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.

Board members were pleased to see the excellent service provided by the Yeovilton controller, who not only passed accurate Traffic Information as required under a Traffic Service, but continued to show good judgement by updating the Traffic Information accurately and at timely intervals in an effort to help the pilots see each other's aircraft. The Board noted that both pilot's mentioned that, with hindsight, they might have been better served by requesting a Deconfliction Service, and the Board agreed with them – requests for a Deconfliction Service should not simply be reserved for poor weather conditions. The Board also noted that the Tutor pilot reported that on receipt of the Traffic Information he stopped his aerobatic sequence and began manoeuvring to improve his chance of seeing the DA42; although members could not clearly see a difference between the two activities from the radar recording, they agreed that this had been a good decision which, combined with using his TAS to improve his Situational Awareness, and his decision to climb, had improved separation considerably.

The DA42 pilot reported simulating Instrument Flying conditions and the Board agreed that, although probably not a factor in this incident, it was worth all pilots noting that the use of IF screens is no longer a mandatory requirement; the use of alternatives, (such as 'foggles') can, in many aircraft types, achieve the desired effect without inhibiting the instructor's look-out. In the end, the Board agreed that this was a late sighting by both pilots but that timely Traffic Information and the effective action taken by the Tutor pilot meant that the Degree of Risk was Category C.

[2] Rules of the Air 2007 (as amended), Rule 8 (Avoiding aerial collisions).
[3] ibid., Rule 10 (Approaching head-on).

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A late sighting by both pilots.

Degree of Risk: C.

ERC Score[4]: 4.

[4] Although the Event Risk Classification (ERC) trial had been formally terminated for future development at the time of the Board, for data continuity and consistency purposes, Director UKAB and the UKAB Secretariat provided a shadow assessment of ERC.