

AIRPROX REPORT No 2012064

Date/Time: 11 May 2012 1445Z

Position: 5103N 00215W (22nm NW Bournemouth)

Airspace: Boscombe Down ARA (Class: G)

Reporting Ac Reported Ac

Type: ATR72 Hawk T Mk1

Operator: CAT HQ Air (Ops)

Alt/FL: FL90↓ FL100

Weather: VMC CLBC VMC NR

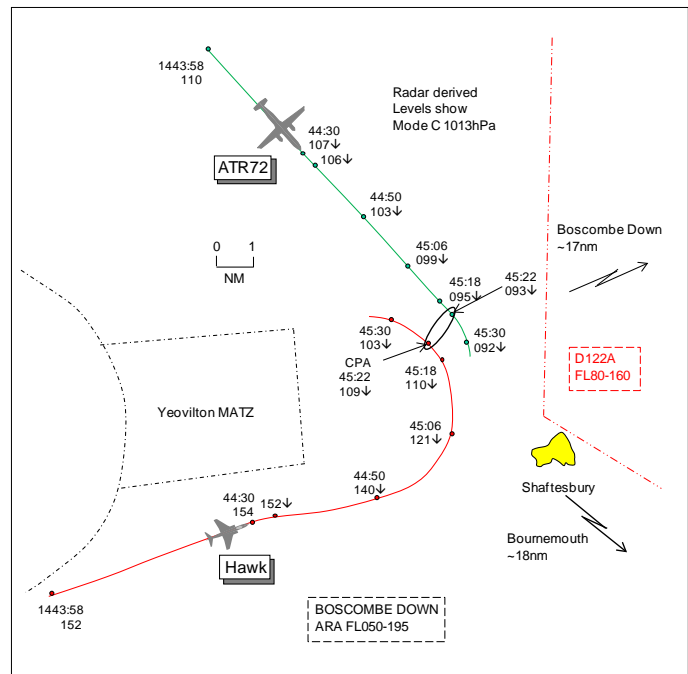
Visibility: >10km

Reported Separation:

NR Not seen

Recorded Separation:

1600ft V/0.7nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE ATR72 PILOT reports inbound to Bournemouth, IFR and in receipt of a DS from Western Radar squawking an assigned code with Modes S and C. Heading 140° at 270kt descending through FL90, he thought, to FL70 traffic appeared on TCAS descending towards them from the SE. TCAS then generated an RA 'descend' commanding a ROD 2000-3000fpm; the time between the traffic first appearing and the RA was approximately 10sec. The RA was followed and 5sec after the RA was generated the Western controller told them to take "urgent avoiding action turn R heading 250°" which was actioned. The TCAS RA changed to 'adjust v/s' before 'clear of conflict' was received. The visibility was >10km flying below cloud in VMC but the conflicting traffic was not seen visually. The controller then informed them they were clear of traffic and to fly heading 180° but almost immediately changed the clearance to "avoiding action turn L 090°". No further TCAS TAs or RAs were generated and the flight continued before landing at Bournemouth without further incident. He assessed the risk as medium.

THE HAWK T MK1 PILOT reports flying a dual advanced training sortie from Boscombe Down and in receipt of a BS from Boscombe Approach squawking an assigned code with Modes S and C. The sortie involved some benign manoeuvring and some aerobatics and, in accordance with the FOB standard, a BS was provided although normally he would upgrade to a TS but he forgot. During the sortie when about 20nm W of Boscombe, within the Boscombe Down 'triangle' at about FL100 traffic was called to him by ATC but he was unable to obtain visual contact with it. At the time he was doing light to moderate manoeuvring. Post sortie he was informed that an Airprox had been filed by the pilot of the other ac.

THE WESTERN RADAR CONTROLLER reports working on Radar 1 position with an Allocator in position. The ATR72 was routing from BCN direct to Bournemouth in the descent to FL170. On leaving CAS he gave the flight a DS and instructed the flight to descend to FL110 to remain clear of the Bristol CTR. He had observed 2 ac squawking 2652 [actually 2626] and 2602 [the Hawk] departing Boscombe Down heading W, 2652 [2626] was observed maintaining FL100 and 2602 was seen to maintain FL140. As soon as the ATR72 was clear of the CTR he gave the flight descent to FL70. The 2652 [2626] turned to the R (N'ly) and proceeded to track E. The Allocator telephoned the Boscombe controller and coordinated the 2602 [the Hawk], he thought [actually the 2626], not

above FL100 with the ATR72 not below FL110 until clear, he thought. He duly changed the ATR72's cleared level to FL110 and shortly after this the 2652 [2626] squawk turned to the L (again N'ly) and proceeded to track W so he instructed the ATR72 to descend to FL70. Whilst these events were taking place, he had been monitoring the Hawk which had been tracking W until approaching airway N864 whereupon the flight turned around to head in an E'ly direction, tracking just N of L620. It had been operating initially at FL140 and had climbed to FL150. As the flight had not deviated from this level or heading and that it was passing >10nm ahead of the ATR72's track and 5000ft above it, he did not attempt coordination with the Boscombe controller. As the 2602 [the Hawk] crossed through the 12 o'clock of the ATR72, which was descending through FL100, the 2602 was seen descending rapidly and turning towards the N. He gave the ATR72 flight an avoiding action turn onto heading 250° to take the ac out of conflict. As he was attempting to give TI he saw the 2602 [Hawk] turning further W and he informed the ATR72 crew that the traffic was passing close down their RHS. At this time both ac were between FL90-100 approximately 1-2nm apart. He amended the heading to 180° judging this to be a better resolution heading, with the 2602 [Hawk] continuing to turn and then track W, before issuing the ATR72 flight an E'ly heading to gain as much separation as possible in the shortest time. The ATR72 crew told him that they had experienced a TCAS RA and would be filing a report. As soon as the ATR72 was clear of the conflicting traffic he changed its squawk to 7360 and transferred the flight to Bournemouth.

UKAB Note (1): Danger Area D122A was not active.

ATSI reports that the Airprox occurred at 1445:22 UTC, 22.6nm NW of Bournemouth Airport, within Class G airspace, between an ATR72 and a Hawk Mk 1, Hawk (A).

The ATR72 was operating an IFR flight from Dublin to Bournemouth Airport and was in receipt of a DS from Western Radar on frequency 132.3MHz.

The Hawk (A) was operating from Boscombe Down squawking 2602, on a flight to the W and was in receipt of a BS from Boscombe Radar. A second Hawk, Hawk (B) squawking 2626 was also operating in the area.

CAA ATSI had access to: RT recording of Western Radar; area radar recordings; written reports from both pilots and from the Western Radar controller. The QNH used by the radar system was 1025hPa. The Western Radar controller's workload was assessed as light.

The METARs for Bournemouth show: EGHH 111420Z 30015KT 270V350 9999 SCT038 14/05 Q1026= and EGHH 111450Z 31014KT 280V360 9999 FEW040 15/05 Q1026=

At 1426:43 the LAC Sector 23 assistant contacted Western Radar regarding the ATR72 leaving CAS at BCN inbound to Bournemouth. Western Radar agreed to provide a DS outside CAS, allocated FL170, with a squawk 3772 and frequency 132.3MHz.

At 1436:57 the ATR72 flight contacted Western Radar descending to FL170 on a direct track to Bournemouth. The controller advised the ATR72 pilot to expect a DS on leaving CAS; this was acknowledged by the crew. As the ATR72 left CAS, the controller instructed the ATR72 flight to descend FL110 and shortly after gave further descent to FL70.

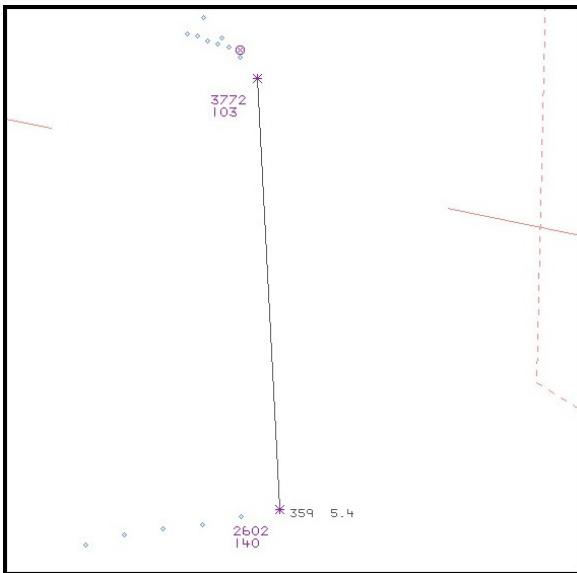
The controller's written report indicated that he had observed 2 ac departing from Boscombe Down on a W'ly track at FL100 (squawk 2626 Hawk (B)) and FL140 (squawk 2602 Hawk (A)). [Note: the controller's written report incorrectly referred to the 2626 squawk as 2652].

At 1442:23 the controller observed the 2626 squawk turn E'bound at FL100. The controller stopped the descent of the ATR72 flight at FL110 and requested coordination with Boscombe Radar. The Western controller passed details on the ATR72, which was passing FL126, and requested that Hawk (B) descend not below FL100. Boscombe Radar advised that Hawk (B) was unable, but would be not below FL80. However, the situation resolved itself, when Hawk (B) turned N and was no longer a potential conflict. The ATR72 flight was again given descent to FL70, "...we've just

coordinated the traffic he's going to avoid you". At this time, 1443:58, the radar shows Hawk (A) GS 460kt, in the ATR72's 2 o'clock at a range of 10.8nm, tracking ENE at FL152; the ATR72 is passing FL110 GS 300kt. The controller's written report indicated that he was monitoring Hawk (A) and judged that it would pass 10nm ahead of the ATR72 and 5000ft above. The deconfliction minima against uncoordinated traffic is 5nm laterally or 3000 ft vertically. The controller had no reason to anticipate the intentions of Hawk (A) but continued to monitor the flight and judged that it was not necessary to coordinate with Boscombe Radar.

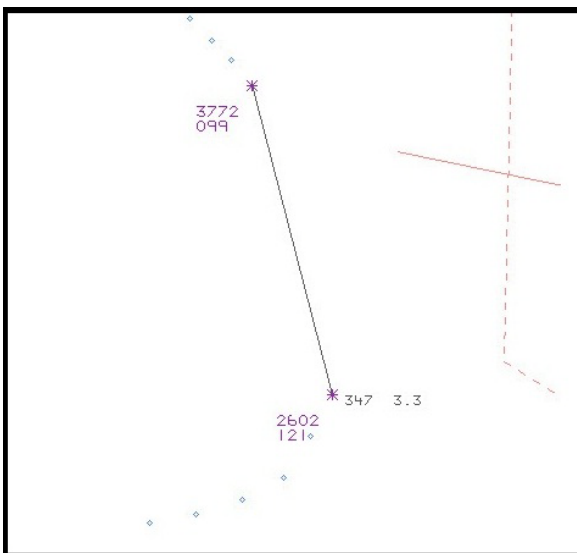
At 1444:30 radar shows the ATR72 at FL107 with Hawk (A) at FL154, now in the ATR72's half past one position at a range of 7.1nm crossing from R to L. Hawk (A) then commenced a descent.

At 1444:50 Hawk (A) is passing FL140 in the ATR72's 1 o'clock position at a range of 5.4nm as shown in picture 1.



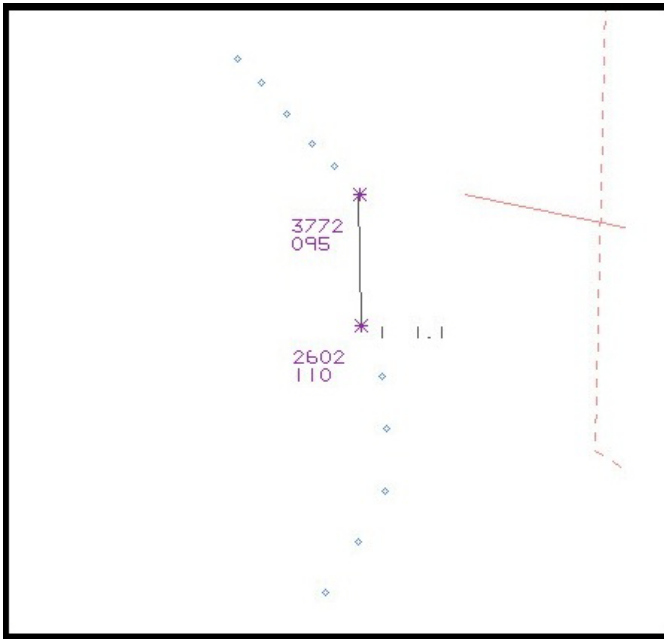
Picture 1 (1444:50) using Pease Radar & Gatwick 10cm

At 1445:01 the Western controller transmitted, "(ATR72 c/s) there is traffic in your twelve o'clock in fact erm (ATR72 c/s) avoiding action turn right immediately heading er two five zero degrees." The ATR72 crew responded, "Right heading two five zero (ATR72 c/s)." At 1445:06, picture 2 shows Hawk (A) continuing in the descent and turning L, with less than the required deconfliction minima.



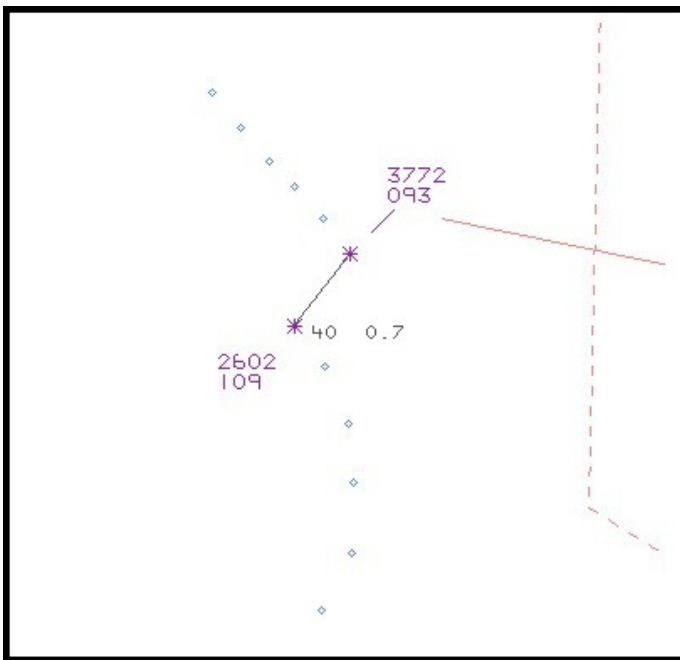
Picture 2 (1445:06)

At 1445:18 Hawk (A), at FL110, passes 1.1nm due S of the ATR72, at FL095, as shown in picture 3. This is considered to be the point at which the ATR72 received a TCAS RA as described in the ATR72 pilot's written report.



Picture 3 (1445:18)

At 1445:22 Hawk (A) continued in the L turn passing 0.7nm SW of the ATR72 on a reciprocal track (CPA) as shown in picture 4. The Western controller updated the ATR72 crew on the position of Hawk (A), amending the avoiding action turn by advising the ATR72 crew to fly S.



Picture 4 (1445:22)

At 1446:04 Hawk (A) commenced a manoeuvre, 4.2nm NW of the ATR72 and at one stage appeared to roll out towards the ATR72 before turning away. The Western controller concerned about the further intentions of Hawk (A) again amended the avoiding action and instructed the ATR72 crew to take up an E'ly heading.

The controller advised the ATR72 crew that the fast-jet was believed to be on a testing exercise and that information on the ATR72 had been passed to the military. The ATR72 pilot reported that he had received a TCAS RA.

Hawk (A) pilot's written report indicated that he had been passed TI on the civil ac by Boscombe Radar, but had not obtained a visual sighting of the ATR72.

The ATR72 flight subsequently routed direct to Bournemouth without further incident and at 1447:50 was transferred to Bournemouth Radar on 119.475MHz.

At 1449:30, in a telephone conversation, Boscombe Radar confirmed that the ac squawking 2602 was Hawk (A), and that it was, erroneously, in receipt of a TS [actually in receipt of a BS].

Hawk (A) had climbed to FL150 and turned E'bound. The controller judged that the track and level of Hawk (A) (if maintained) would pass 10nm ahead and 5000ft above the ATR72, which is greater than the required deconfliction minima for uncoordinated traffic. The unpredictable nature of the Class G environment can result in unknown and uncoordinated traffic quickly amending their flight profile and coming into conflict with other ac. Given the unpredictable nature of the airspace, coordination with Boscombe Radar may have resolved the situation.

In accordance with MATS Part 1, Section1 Chapter 10 Page 3 Para 5.2, controllers are individually responsible for deciding whether they need tactical coordination when offering services outside CAS. The controller very likely judged and felt confident that the deconfliction minima (3000ft) would be maintained, with the ATR72 descending from FL110 and the Hawk (A) observed to be maintaining FL150. When the Western Radar controller assessed Hawk (A) against the ATR72 he determined that coordination was not necessary at that time. Approximately 30sec later, as Hawk (A) approached within 6nm of the ATR72, it commenced a rapid descent and 15sec later at a range of 3-3nm, Hawk (A) turned L towards the ATR72 which was 2200ft below.

Given that Hawk (A) was initially approaching the ATR72's 12 o'clock on a track that appeared it might cross from R to L, the controller gave the ATR72 flight hurried TI and an avoiding action R turn, which also conformed with RoA, Rule 10 – 'When two aircraft are approaching head-on, or approximately so, in the air and there is a danger of collision, each shall alter its course to the right. At this point the ATR72 had received a TCAS RA 'descend descend' instruction.

Hawk (A) continued the L turn and passed SW of the ATR72 (CPA) down its RHS at a range of 0.7nm, with a vertical distance of 1600ft.

Once Hawk (A) had commenced the manoeuvre, there was very little time for the controller to take any effective preventative action. For ac operating within Class G airspace. CAP774, Chapter 1, Page1, Paragraph 2, states:

'Within Class F and G airspace, regardless of the service being provided, pilots are ultimately responsible for collision avoidance and terrain clearance, and they should consider service provision to be constrained by the unpredictable nature of this environment...'

The Airprox occurred when Hawk (A) descended and turned towards the ATR72, resulting in avoiding action and a TCAS RA. The following were considered to be contributory factors:

The controller was monitoring Hawk (A) and noted that it had not deviated from its heading or level and estimated that it would pass 10nm ahead and 5000ft above the ATR72 with greater than the required deconfliction minima.

The controller judged that coordination with Boscombe Radar was not required. The intentions of Hawk (A) were not known to the controller and given the unpredictable nature of the airspace, coordination may have assisted in resolving the situation.

The unknown nature of the airspace environment, together with the speed at which events occurred, reduced the controller's options and ability to maintain the required Deconfliction Minima.

BM SAFETY MANAGEMENT reports that this Airprox occurred on 11 May 12 between an ATR72 operating IFR in receipt of a DS from Western Radar and a Hawk operating VFR in receipt of a BS from Boscombe Radar.

All heights/altitudes quoted are based upon SSR Mode C from the radar replay unless otherwise stated.

Both pilots report VMC, with the ATR72 pilot reporting in excess of 10km visibility in nil Wx. APP's task complexity was reportedly low; workload was moderate with 2 ac on frequency, both flying flight testing profiles, the second ac was in receipt of a TS.

At 1442:52, Western Radar contacted Boscombe Radar to attempt to coordinate the passage of the ATR72 against the unrelated second ac on Boscombe Radar's frequency. As this unrelated ac manoeuvred away from the ATR72, no agreement was reached and the landline conversation was terminated at 1443:57. Western Radar did not seek coordination with Boscombe Radar between the ATR72 and the Hawk. At this point, the Hawk was 10.9nm SSW of the ATR72, tracking ENE'ly, indicating FL152; the ATR72 was tracking SE'ly, indicating FL110.

At 1445:03, Boscombe Radar passed accurate TI to the Hawk flight on the ATR72 stating "*...traffic north, three miles, tracking south-east, flight level one hundred descending, believed to be under a Deconfliction Service, inbound to Bournemouth*" which was acknowledged. At this point, the Hawk's SSR Mode C was not displayed on the radar replay and the ac had entered a L turn passing through NE. However, the sweep at 1444:53 indicated the Hawk descending through FL138 with the next visible sweep at 1445:17 indicating the Hawk descending through FL111. The ATR72 was 1.3nm N of the Hawk, indicating descent through FL95.

The CPA occurred at approximately 1445:21 as the Hawk passed 0.7nm WSW of the ATR72; 1500ft vertical separation was indicated on SSR Mode C. The ATR72 does not appear to have taken any form of lateral avoiding action prior to the CPA, with a S'ly turn becoming evident on the radar replay at 1445:33. Whilst the ATR72 crew responded to a TCAS RA against the Hawk, neither the ATR72 crew nor the Hawk pilot visually acquired the other ac.

From an ATM perspective, Boscombe Radar fulfilled their Duty of Care towards the Hawk pilot by providing TI on the ATR72 at 1445:03. There are no RAF ATM issues that warrant investigation.

HQ AIR (OPS) comments that as they approached a N'ly heading the Hawk crew received TI indicating an ac 3nm N tracking SE. This would have suggested no conflict would be presented by continuing the L turn. The limitations of descriptors available to controllers meant this TI was slightly misleading but a safe separation was maintained, albeit a TCAS RA was generated and the Western Radar controller's attempt to maintain DS minima was frustrated.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequencies, radar video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

A CAT Member commented that the ATR72 flight had flown outside CAS, through the Boscombe ARA, by choice when a routeing within CAS, although involving more track distance, was available. Another CAT Member informed Members that Company SOPs, as part of their SMS, normally require flights in Class G airspace to be in receipt of a radar service which the ATR72 crew had

secured from Western Radar whilst flying the direct track. Civil controller Members believed that Western Radar had acted appropriately, having seen Hawk (A) and assessed that it would pass well ahead and above without any need to coordinate with Boscombe Radar. Military Members thought this situation required a 'belt and braces' approach; Western Radar assumed Hawk (A) would maintain straight and level whereas coordination may have revealed Hawk (A)'s intentions and thus resolved the situation and negated the need to issue avoiding action instructions to the ATR72 flight when Hawk (A) descended and turned L unexpectedly. At this late stage Western Radar was using his best endeavours to achieve deconfliction minima, judging Hawk (A) was going to cross from R to L ahead and that a R turn was the best option. However, Hawk (A)'s flightpath triggered a TCAS RA in the ATR72, which the crew complied with, but as they did not inform ATC that they were reacting to a TCAS RA, Western Radar continued to attempt to turn the ATR72 when Hawk (A) manoeuvred. The ATR72 crew informed the controller of the TCAS RA only after the third avoiding action instruction had been issued. A military pilot Member thought that Western Radar had been unwise to assume that Hawk (A) would maintain its E'ly course and flight level as it is unusual for sortie profiles flown by Boscombe Down fast-jets to maintain straight and level, with ac more likely to be manoeuvring as the norm. The Board noted that when Western Radar had attempted to coordinate the ATR72 earlier against Hawk (B), his requested resolution was not accepted; when the alternative level restriction was offered by Boscombe Radar, the traffic situation had resolved itself and no agreement was reached. A controller Member opined that perhaps this lack of agreement may have swayed Western Radar's mindset such that he did not anticipate that coordination against Hawk (A) would be achieved. Although Hawk (A) was only in receipt of a BS, Boscombe Radar did provide the crew with a traffic warning on the ATR72. The information passed, using a relative bearing, may have swayed Hawk (A) pilot to continue his L turn through N towards the W as the ATR72 was perceived not to be in conflict to the N of his ac tracking SE'ly. It was noteworthy that despite the reported reasonable Wx, neither crews visually acquired each other's ac. However Hawk (A) was turning 'belly-up' to the ATR72 and the Hawk presented a small target aspect during its turn and descent towards the airliner whilst its crew was responding to the TCAS RA. A controller Member wondered whether an Airprox report would have been filed had TCAS not been involved, the ac passing with reasonably large separation of 1600ft/0.7nm at the CPA, with the event being simply a TCAS sighting report. This view was not shared by the majority of Members who thought that the actions taken by all parties and the flightpaths flown by both ac had resulted in a conflict within the Class G airspace.

Turning to risk, Members could not agree. On deciding the risk category, some thought that this had been a benign event, where normal practices, safety standards and parameters pertained, i.e. risk E. Other Members thought that the ATR72's TCAS RA had not been a normal occurrence and agreed that in the scenario that unfolded, the actions taken by all parties had ensured there was no risk of collision, risk C. In the end, with no clear majority apparent, the Chairman asked Members to vote via a show of hands which led to a tie. In casting his deciding vote the Chairman was swayed by the second argument and classified the Airprox risk as C.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in Class G airspace.

Degree of Risk: C.