

ASSESSMENT SUMMARY SHEET FOR UKAB MEETING ON 20 Jul 2011

Total: 10	Risk A: 1	Risk B: 3	Risk C: 5	Risk D: 0	Risk E: 1
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<u>No</u>	<u>Reporting</u>	<u>Reported</u>	<u>Airspace</u>	<u>Cause</u>	<u>Risk</u>
2010174	B757 (CAT)	B737-800 (CAT)	D	An incomplete handover of the Approach Control function between TWR/APP and APR.	C
2011016	DA42 (CIV)	PA34 (CIV)	G	The PA34 flew close enough to cause the DA42 crew concern.	C
2011027	Grob Tutor TMk1 (MIL)	Grob Tutor TMk1 (MIL)	G	Late sightings by the pilots of both ac.	B
2011031	C152 (CIV)	C172 (CIV)	G	The C172 pilot did not comply with the Rules of the Air or ATC instructions and gave incorrect position reports, flying into conflict with the C152, which he did not see.	A
2011033	PA34-200T (CIV)	Grob Tutor TMk 1 (MIL)	G	Sighting Report.	E
2011037	Sentinel (MIL)	F15E x 2 (MIL)	G	A conflict in Class G airspace resolved by the crews in both flights.	C
2011038	B737-800 (CAT)	PA28 (CIV)	D	The PA28 pilot entered controlled airspace without clearance and into conflict with the B737 established on the ILS.	C

2011040	Puma(A) (MIL)	Puma(B) (MIL)	G	Effectively a non-sighting by Puma (B) crew and a late appreciation of Puma (B)'s range by Puma (A) crew.	B
2011042	Tucano TMk1 (MIL)	Untraced Glider (NK)	G	Possibly a non-sighting by the glider pilot and a late sighting by the Tucano crew.	B
2011054	Tucano TMk1 (MIL)	Microlight (CIV)	G	A conflict in Class G airspace resolved by the Tucano pilot.	C

- end -

AIRPROX REPORT No 2010174

Date/Time: 16 Dec 2010 1714Z NIGHT

Position: 5527N 00426W (6nm SE of Prestwick Airport elev: 65ft)

Airspace: S TMA/Prestwick CTR (Class: D)

Reporter: SAC Galloway Sector

	<u>1st Ac</u>	<u>2nd Ac</u>
<u>Type:</u>	B757	B737-800

<u>Operator:</u>	CAT	CAT
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<u>Alt/FL:</u>	6000ft↓ QNH (1008mb)	3000ft↑ QNH (1008mb)
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<u>Weather:</u>	IMC In Cloud	NR
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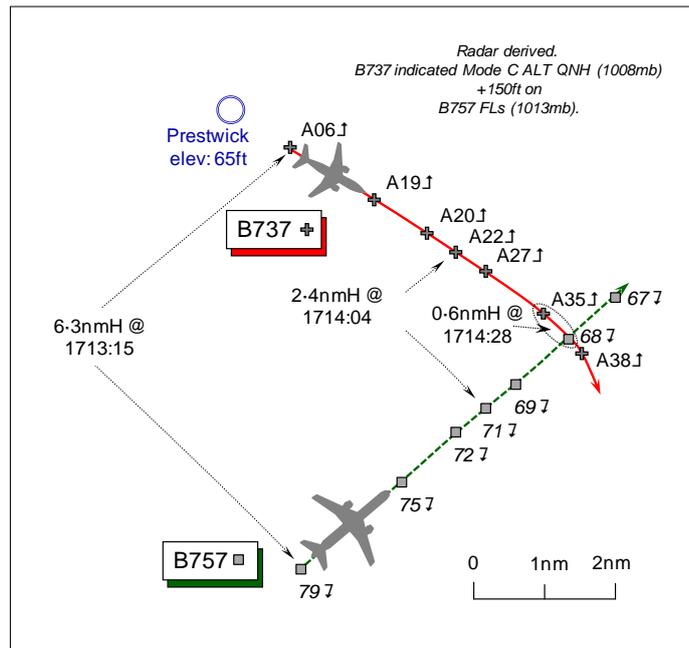
<u>Visibility:</u>	10km	NR
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Reported Separation:

	Not seen	NR
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Recorded Separation:

3250ft V @ 0.5nm min H



CONTROLLER REPORTED

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE SAC (PRESTWICK) GALLOWAY SECTOR TACTICAL CONTROLLER (GAL-T) reports that a military ac working ScATCC (Mil) had declared an emergency and was diverting into Prestwick Airport from the vicinity of FOYLE – 17nm N of Glasgow. This emergency traffic was co-ordinated with his Planner (GAL-P), descending to the min stack level of FL80, proceeding direct to a position 10nm Final for RW13 at Prestwick. He agreed to remain clear of this emergency ac with all GALLOWAY Sector traffic or coordinate as required. The B757, inbound to Glasgow through TURNBERRY VOR (TRN), was released at FL80 towards LANAK and transferred to Glasgow RADAR about 10nm SSE of Prestwick Airport. Glasgow then transferred an outbound flight [ac3] on a TRN SID from RW05 climbing to an altitude of 6000ft. He also detected, from the B757's Mode S Selected Level (SEL), that Glasgow had descended this ac to 6000ft. No co-ordination had been offered by Glasgow regarding the separation between ac3 and the B757, therefore, he immediately climbed ac3 and asked GAL-P to tell Glasgow. However, he then observed on radar another ac - the B737 - outbound from Prestwick off RW13 (not the notified RW in use) showing a Mode S SEL of 6000ft on a direct track in conflict with the B757 also showing a SEL of FL60 Mode S. He called Prestwick, whilst his Planner called Glasgow, asking Prestwick to stop the B737 at 5000ft which was agreed. Prestwick then called back almost immediately stating that the B737 had already been transferred to his GALLOWAY frequency, that it was climbing on the SID to 6000ft and that they had given Glasgow RADAR approval for their inbound B757 to descend in Prestwick's airspace to 6000ft. Whilst on the phone to Prestwick, the B737 crew called on his frequency passing 4000ft in the climb to 6000ft so he immediately gave the B737 crew an avoiding action to turn onto a heading of 180° to avoid the B757 and stopped the B737's climb at 5000ft QNH. Separation was not lost and eventually the B737 was co-ordinated, climbed and transferred to the TALLA sector.

THE BOEING B757 PILOT reports flying inbound to Glasgow but was unaware of any Airprox. He recalled being given extended vectors to the E, whilst flying in IMC, because of military traffic inbound to Prestwick with an emergency. However, no other ac was seen and as far as he was aware at the time, nothing untoward occurred.

THE BOEING B737-800 PILOT (B737) reports that the only indication of an impending incident was an ATC instruction to turn preceded by the term 'avoiding action'. They did not receive a TCAS TA or RA and understood from ATC that minimum separation was 2000ft.

THE PRESTWICK TOWER CONTROLLER (TWR) reports that he took over the position at 1700UTC with 1 pending departure and no other scheduled traffic until 1950UTC. Some 6min later he answered the ScATCC (Mil) line and was advised of a Tornado that had declared a PAN and was inbound to Prestwick low on fuel. A local Standby was initiated for the safety services at 1710. The B737 departed from RW13 at 1713 after co-ordination with the GAL Sector. About 1min later he advised the APR of the B737's departure via intercom; the APR requested further details which were passed, whereupon the APR intimated the B737 could be passed direct to the GAL Sector. The B737 was duly transferred to GAL-T on 124.825MHz. A few secs later the APR requested that the outbound B737 be given a level restriction of ALT 5000ft, but he advised that the B737 had already been transferred to the GAL Sector.

THE PRESTWICK APPROACH RADAR CONTROLLER (APR) reports that he opened the APR position at short notice due to a Tornado that had called a PAN and was now inbound. After taking the Tornado's details from ScATCC (Mil), Glasgow telephoned asking for ALT 6000ft for an inbound that was passing about 3nm E of Prestwick, which was coordinated. GAL Sector was telephoned about the PAN ac to coordinate it entering the TMA. During this call, the B737 departed from RW13 - the RW in use was RW31 - but the VCR ATSA was unable to pass the airborne time to the APR. TWR came through on the intercom with the departure time, but he (the APR) had no details of the B737 and so queried its routing; since the route was through NEW GALLOWAY NDB (NGY), he did not perceive a conflict. GAL Sector phoned shortly afterwards requesting the B737 be stopped at ALT 5000ft; he requested TWR to do this but the B737 had already been transferred to GAL-T. He immediately phoned GAL Sector to tell them the B737 had been transferred with no level restriction; during the call the B737 crew called GAL-T who stopped the climb at ALT 5000ft and passed an avoiding action turn. The B737 was passing about ALT 3000ft at this time; at no point was vertical separation eroded.

ATSI reports that the Airprox occurred in Class D CAS, SE of Prestwick Airport and was reported by the Prestwick Centre (PC) Galloway Tactical controller (GAL-T).

The B737 had departed Prestwick and was in contact with GAL-T on 124.825MHz. The B757 was inbound to Glasgow from Lanzarote and had been transferred to Glasgow APPROACH, having worked the GAL Sector previously. The GAL Sector was being operated by GAL-T and a Planning controller - GAL-P. There were no reported unserviceabilities and the controllers were using Multi Radar Tracking on their situation displays. Transcription of the telephone recordings was not possible due to technical difficulties and the quality of the recording. These issues have been addressed separately with Prestwick by the CAA's Transcription Unit.

Prestwick TOWER (TWR) and APPROACH Procedural (APP) functions were bandboxed in the Tower due to very low traffic levels. The notified runway in use was RW31. At 1704 the B737 crew called TWR on 118.150 MHz requesting start, which was approved and TWR gave RW13 [sic] for departure.

Scottish Military called TWR at 1705 pre-noting a Tornado in a state of emergency and requested a radar-to-visual approach for RW13. The Tornado was accepted by Prestwick at 6000ft. At this time the stand-by controller proceeded to open the Approach Radar (APR) position. In a subsequent conversation between the two units shortly after the ILS was confirmed as operational for RW13, an ETA for the Tornado was given as 1720.

At 1705:20 the B757 crew called GAL-T descending FL110 to be level by GIRVA on a heading of 025°. The B757 was 26.5nm SW of TURNBERRY VOR (TRN). GAL-T instructed the B757 crew to resume their own navigation to TRN, but shortly afterwards instructed the crew to route direct to LANAK.

The B737 commenced taxi to holding point Juliet for RW13 at 1708:30; Juliet/RW13 is situated a short distance from the terminal building at Prestwick Airport.

At 1709:20 the B757 crew was instructed to descend to FL80. The B757 was 16nm SW of Prestwick on a NE'ly track when it was transferred to Glasgow APPROACH on 119.1MHz at 1710:40.

The B737 crew reported ready at Juliet at 1710:45 and was instructed to line-up and wait. TWR then made a call to the airport's fire service to initiate the local standby for the Tornado; then, at 1711:45 cleared the B737 for take-off. At 1711:44, Glasgow Approach called the APR to point-out the B757 and co-ordinate its descent to 6000ft, which was approved. This was in accordance with agreed procedures as the B757 was above the Prestwick Local Area (defined in Glasgow MATS Part 2 and extending to altitude 6000ft). The B757 was 9nm S of Prestwick.

The B737 appeared on the GAL-T's situation display at 1713:15 passing ALT 600ft QNH (1008mb) with Mode S SEL observed to be set to FL60. At 1713:54, TWR called the APR to enquire if the APR "*wanted*" the B737. This was the first indication to the APR of the departure, which by now was airborne. APR asked which way the B737 was routing and later reported that there were no details on the outbound at the radar console. ADC replied "*NEW GALLOWAY*" but did not state that the B737 was departing from the 'non-duty' RW13. At 1714:04 APR stated, "*not interested*". TWR transferred the B737 to the GAL Sector at 1714:06 as the ac was climbing through ALT 2200ft. The B757 was in the B737's 2 o'clock range 2.4nm descending through FL71 for ALT 6000ft.

At 1714:09, GAL-T called the APR and asked the controller to stop the B737 at ALT 5000ft, explaining that Glasgow Approach was dropping the B757 to 6000ft and the call terminated. The descent rate of the B757 was observed to be approximately 500ft/min and the ac had approximately 45nm to run for Glasgow's RW05.

At 1714:12, the B737 crew commenced their read-back of the frequency change, during which the land-line between TWR and APR was heard to re-engage. A voice was discernible under the B737's read-back but the content of the message was inaudible. The B737 crew completed the read-back at 1714:17, immediately after which TWR stated (to APR), "*Sorry he's just gone*".

At 1714:25, the APR called-back GAL-T explaining that the B737 had already been transferred to the GAL Sector. GAL-T asked if APR had given Glasgow lower on an inbound. APR replied, "*I've given Glasgow six thousand, yes, sorry the TOWER have just chucked him to you*". By this time the tabular data blocks of both aircraft on the GAL-T's situation display had merged.

The B757 passed through the 12 o'clock of the B737 at a range of 0.6nm at 1714:28. The B737 was climbing through ALT 3500ft QNH (1008mb) as the B757 was descending through FL68, 6nm SE of Prestwick. Horizontal separation reduced to 0.5nm at 1714:32 as the B757 crossed into the B737's 11 o'clock. STCA did not activate on the GAL-T controller's situation display.

[UKAB Note (1): The B757 was displayed at FL068 within the Scottish TMA and the B737 at ALT 3700ft (1008mb) within the Prestwick CTR giving vertical separation of about 3250ft at minimum horizontal separation of 0.5nm.]

As this conversation was taking place the B737 crew called GAL-T passing 3700ft for 6000ft on the NEW GALLOWAY 1L SID. GAL-T interrupted the conversation with APR and, at 1714:39, instructed the B737 crew, "*avoiding action turn right immediately heading south stop climb at 5 thousand feet*". This was read-back accurately by the B737 crew. By 1714:57 the B737's turn onto a southerly heading begins to take effect.

The telephone line to the APR remained open as GAL-T co-ordinated with the GAL-P and at 1715:20 the APR interjected, asking if GAL-T had the B737 on frequency. GAL-T replied, "*affirm*" and the call was terminated. Shortly afterwards the B737 crew was informed they were clear of the traffic and climbed/vectored in accordance with requisite Standing Agreement. The B737 crew later reported

that the turn and 'stop climb' instruction was unusual but 'not worth reporting'. The B757 crew continued inbound to Glasgow and subsequently reported being unaware of the Airprox.

GAL Sector and Glasgow Approach followed the published procedures for handling the B757 inbound to Glasgow via TRN – LANAK. Glasgow co-ordinated the descent of the B757 to altitude 6000ft in the Prestwick Local Area as required by unit procedures.

The B737 was cleared to depart from RW13, the non-duty runway, by TWR. Immediately after informing the B737 crew that departure would be from RW13, this RW was allocated to the inbound emergency Tornado and configured accordingly. APR was opened as a separate operational position in anticipation of the Tornado's arrival. However, APR had no details of the B737's imminent departure. Additionally, when TWR requested whether or not APR required to work the B737 on a NEW GALLOWAY SID, the B737's departure from the non-duty runway was not highlighted to the APR. The APR agreed co-ordination with Glasgow for the B757's descent when the APR did not know that the B737 would be departing from the non-duty RW13.

It is likely that the distraction of the inbound Tornado and the short notice opening of the APR position lead to an incomplete transfer of information between TWR and APR with regard to the traffic situation.

Further to GAL-T's request to stop the B737 at 5000ft, the APR's attempts to relay this message to TWR were unsuccessful and the B737 called GAL-T climbing into conflict with the B757. The profiles of both ac were such that there was no loss of separation; however, the sequence of events led the GAL-T controller to believe that safety had been compromised.

Subsequent to this Airprox, appropriate remedial actions were completed at Prestwick in co-ordination with the CAA Air Traffic Standards Division's Northern Regional Inspectorate.

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 authorities.

The B757 crew, descending IMC in cloud, could not see the B737 visually and, at over 3000ft below their ac at the CPA, would have been unconcerned if it was displayed on TCAS. Neither was the B737 pilot concerned it would seem, despite his initial climb being interrupted. Whilst stipulated vertical separation had not been eroded during this encounter there was significant potential for a more serious situation to occur. Some Members were surprised that this incident was reported as an Airprox because of the eventual separation, but the prevailing view was that the reporting GAL-T controller had rightly perceived the seriousness of the occurrence and was justified in raising this as an Airprox.

Controller Members were of the view that if the APR position had not been opened for the inbound Tornado, then the conflict might not have arisen. Neither the oncoming APR, nor the receiving GAL Sector were aware that the B737 would depart from RW13, when the APR agreed to Glasgow's request to descend their B757 to 6000ft within Prestwick's assigned airspace, just as the B737 departed off RW13 climbing to the same altitude. This was a significant factor and the catalyst that initiated the conflict. A CAT pilot Member queried if the B737's departure would have been subject to a 'release' from the APR, but at the time it departed it was the same controller in the VCR that was providing the combined TWR and APP control service, so such a 'release' would not have been sought. Although the combined TWR/APP controller had offered the B737 to the APR when he was opening the position in the ACR, TWR had not mentioned the departure was from other than RW31 and a salutary omission. Therefore, the APR would not have appreciated the potential for a conflict to the SE of the airport and had declined to afford a radar service to the B737 in the erroneous belief the B737 would depart initially to the NW. Plainly, if the APR had been aware the B737 was taking-

off from the opposite RW13 he would have realised it was in direct conflict with the descending B757 and would not have agreed to the co-ordination. Similarly in the VCR, TWR/APP was unaware that the APR had just allowed Glasgow to descend their B757 to 6000ft in Prestwick's assigned airspace. Thus the TWR/APP controller in the VCR did not have a full understanding of the traffic situation and neither did the controller in the ACR have the complete 'picture' of what was occurring with these two ac. This all stemmed from the APR position being opened at short notice and the controller agreeing co-ordination when he was not in full possession of the actual traffic situation. It seemed that the handover of approach control from the procedural environment controlled by APP in the VCR to that of a radar environment controlled from the ACR had been deficient and in the Member's overwhelming view was the fundamental cause of the Airprox. The Board concluded therefore, that this Airprox had resulted from an incomplete handover of the Approach Control function between TWR/APP and the APR.

In an area controller Member's view, GAL-T had done a good job in resolving this situation which required prompt action when he detected the B737 departing from RW13 in conflict with the descending B757. GAL-T had not been privy to the co-ordination between Prestwick and Glasgow, but Mode S proved its worth here by displaying to GAL-T that the B757 crew were intending to descend to the same level that the B737 crew had been cleared to. A controller member familiar with this airspace opined that Glasgow would have been endeavouring to descend the inbound B757 promptly, to get their inbound ac clear below traffic outbound on Edinburgh SIDs. Hence the B757's early descent. Nonetheless, when asked to level the B737 at 5000ft by GAL-T at 1714:09, the APR was unable to do so as the crew had already been instructed to switch to GAL-T earlier by TWR, an instruction that was read-back by the crew 3 sec later allowing insufficient time for the APR to relay the message. Therefore GAL-T, as the receiving controller, had to wait until the B737 crew called before he could interject and resolve the situation at 1714:39, when he transmitted his avoiding action turn and stop climb. The B737 was climbing through 3700ft QNH when the crew called and the radar recording revealed this was after the minimum horizontal separation of 0.5nm was achieved when the B757 had already crossed ahead of the B737. Nonetheless, 3250ft of vertical separation existed at the CPA. Some Members considered that, as both ac had been cleared to the same altitude, this was purely fortuitous and GAL-T's avoiding action turn had had little effect on the outcome. Some Members were also critical that the avoiding action was phrased in this way; however, controller Members pointed out that when dealing with TCAS equipped ac avoidance in the horizontal plane was the preferred option followed by action to ensure vertical separation, thereby reducing the potential for avoiding action instructions contrary to that demanded by an RA. The flight path of the B737 was such that it was always going to pass below and astern the B757 and the overwhelming view of the Members was that appropriate action had been taken and there had been enough time to rectify the situation. Whilst GAL-T's stop climb instruction prevented the situation from deteriorating further, there was ample separation in the vertical plane when the two ac were at their closest horizontally, thus the Board concluded no actual Risk of a collision had existed in these circumstances.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: An incomplete handover of the Approach Control function between TWR/APP and the APR.

Degree of Risk: C.

AIRPROX REPORT No 2011016

Date/Time: 7 Mar 2011 1415Z

Position: 5219N 00128W (3.5nm
S Coventry - elev 267ft)

Airspace: LFIR (Class: G)

Reporting Ac Reported Ac

Type: DA42 PA34

Operator: Civ Trg Civ Trg

Alt/FL: 1320ft NR
(QNH 1028mb)

Weather: VMC CLOC NR

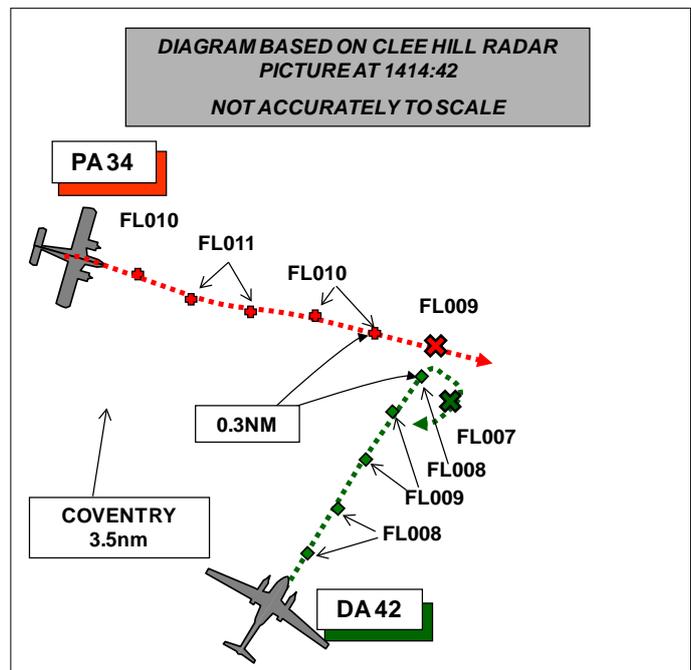
Visibility: >10km NR

Reported Separation:

NR NR

Recorded Separation:

200ft V/0.3nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE DA42 PILOT reports conducting a CPL skills test from Coventry and in communication with Coventry APP using an 'Exam' callsign, squawking with Modes S and C. The visibility was good and the ac was coloured white with nav, landing, taxi and strobe lights all switched on. The candidate was the handling pilot and they were joining the cct from the Wellesbourne direction having been given a downwind join for RW23. Other traffic [the subject PA34] on frequency was conducting a standard missed approach and was informed of their position and reported that they had his ac in sight.

About 10 sec later when they were 2.5nm S of the airfield, heading 050° at 130kt and 1320ft QNH, he visually acquired the PA34 1nm away and it initially appeared that it would pass clear of them and slightly above. However, it then started to descend slightly and it appeared to be either on a collision course or about to pass very close. As the candidate [HP] was not taking any avoiding action he took control and executed a steep RH turn and they passed behind the PA34 after a 360° turn. He could not judge how close they passed as their wing and engine completely obscured the PA34. Due to his avoidance, he assessed the risk as low to medium. He noted that on initial sighting of the PA34 he anticipated the commander would comply with Rule 9(3) [the ac which has the other on the right shall give way] which he estimated required a 10° L turn by the PA34 to avoid a conflict.

THE PA34 PILOT declined to submit a report.

UKAB Note (1): The circuit direction for RW23 at Coventry is left.

ATSI reports that this Airprox occurred at 1414:32, in Class G airspace, 3.6nm to the S of Coventry Airport, just outside the Coventry ATZ which comprises a circle of radius 2.5nm, centred on RW 05/23 and extending to a level of 2000ft aal (Aerodrome elevation 267ft). Coventry is situated below the Birmingham CTA, Class D airspace, base altitude 1500ft.

The PA34 was an IFR training flight inbound to Coventry from Oxford and was in receipt of a TS from Coventry Radar. After the completion of a radar vectored ILS approach to RW23, the PA34 pilot conducted a standard MAP published as:

'Climb to 1500. Straight ahead to 765 or I-CT DME 1 outbound whichever is later, NO DME; straight ahead to 1265, then turn left to track 179° to intercept VOR DTY R304 towards DTY VOR. When within DTY DME 14 (HON DME9 or more) turn left to NDB(L) CT and continue climb to 2000 or as directed.'

The DA42 was returning to Coventry Airport from the SSW after a local VFR (CPL skills test) exam flight in the vicinity of Wellesbourne Mountford, situated 12nm SSW of Coventry.

The Coventry primary radar data source is the local S511, with an SSR feed from NATS, Clee Hill radar. The Radar controller was providing an Approach Radar Control service with a 30nm range displayed on the radar.

CAA ATSI had access to RTF and radar recordings, together with reports from the controller and DA42 pilot; no report was available from the PA34 pilot.

The METAR was:

EGBE 071350Z 09004KT 050V140 CAVOK 09/M00 Q1029=

At 1218 the DA42 departed VFR from Coventry towards Wellesbourne, in receipt of a BS, in order to complete a CPL skills test. The ac flight progress strip indicated that the ac transferred to Wellesbourne Info at 1220

At 1400:46, the PA34, called Coventry Radar, squawking 4376, in receipt of information 'Uniform' and heading 350°; at the request of the pilot, a TS was agreed, with vectors for the ILS RW23 and QNH 1029. Following an ILS the PA34 pilot requested a standard MAP towards DTY and then a return to Oxford.

The PA34 was given descent to an alt of 2000ft and, at 1406:02, the Coventry Radar controller passed the missed approach instructions, "*(PA34)c/s on the go around it'll be a standard missed approach procedure until one four D M E from Daventry initially not above altitude one thousand five hundred feet*". The PA34 pilot's initial readback needed to be clarified by the controller and a correct readback was obtained. The PA34 was vectored onto the ILS and at 1407:38, the pilot reported localiser established. The PA34 pilot was given further descent on the glide path and asked to report at 4nm DME. At 1409:53, as the PA34 reached 3.9nm from touchdown, the controller instructed the PA34 to continue the approach and, at 1410:22 he passed go around instructions, "*(PA34)c/s cleared for a low approach report going around off runway two three one three zero at three knots*".

At 1410:48, the DA42 established contact with Coventry and requested rejoin, "*(DA42)c/s just ??? from Wellesbourne er to er Coventry for rejoining*"; the radar recording showed the DA42, 10nm SSW of Coventry squawking 7000. Radar responded, "*Roger (DA42)c/s route to the field VFR QNH one zero two nine*"; this was correctly acknowledged and the controller allocated a squawk of 0260 which was correctly acknowledged. At 1411:38, the DA42 transponder code changed to 0260 while the ac was 9nm SSW of the airfield.

Although not considered to be a factor in the Airprox, it is noted that the DA42 pilot did not request, nor did the controller specify, a level of service. On being informed of this the controller was suprised, as he always attempts to specify a level of service. The ac's flight progress strip indicated that a BS was being provided and the controller considered that the outbound agreement 2hr previously might have been a factor.

At 1412:08, the PA34 reported going around.

At 1412:22 Radar passed joining instructions to the DA42, "*(DA42)c/s position downwind lefthand runway two three the Q N H one zero two nine*", this was acknowledged correctly and at 1412:42 Radar passed T1, "*Roger information for you a P A thirty four just going around off Runway two three standard missed approach*"; the DA42 pilot responded, "*Roger looking*".

The controller was asked whether he considered that the VFR pilot would have been familiar with the standard MAP and, although he acknowledged that better information could have been passed, he considered that the exam instructor would have been familiar with the standard missed approach.

At 1412:55, Radar passed TI to the PA34, *“(PA34)c/s traffic er just called me inbound to the field from the southwest it’s a D A forty two VFR er level unknown”* and this was acknowledged by the pilot; the radar recording indicated that the DA42 was at FL009 with the PA34 was passing FL008 on the climb out.

At 1413:07, Radar advised the PA34, *“...that contact is believed to be in your left eleven o’clock at a range of three miles”* and this was acknowledged by the pilot. At 1413:12, the radar recording showed the PA34 commencing a left turn off the RW centreline; the distance between the ac was 4.6nm.

At 1413:32, Radar updated the PA34 on the position of the DA42, *“(PA34)c/s that traffic converging from your er righthand side now right one o’clock a mile and a half about to join downwind indicating one thousand three hundred feet unverified”*. The PA34 pilot responded, *“Roger we’re visual (PA34)c/s”*. The radar recording showed the range between the ac was 3.7nm.

At 1413:45, the DA42 was advised, *“(DA42)c/s the PA thirty four just gone around on your lefthand side is visual with you”*. The DA42 pilot replied, *“Roger that er (DA42)c/s”*. The radar recording showed the distance between the ac was 2.7nm, with the PA34 in a left turn indicating FL011 (converts to altitude 1500ft on QNH 1029, with 1mb equal to 27ft) and the DA42 indicating FL009 (1300ft). The DA42 pilot’s report indicated that the PA34 was sighted at about this time, (i.e. 10sec after the PA34 pilot’s sighting report); the report gives the first sighting distance as 1nm.

At 1414:03, the DA42 was transferred to the TWR frequency and the radar recording showed the ac converging at a distance of 1.7nm with a vertical separation of 200ft.

The DA42 pilot’s report indicated that the pilot initially considered that the PA34 would pass clear, but stated that it started to descend. At 1414:24, Mode C showed the minimum vertical separation between the two ac decrease to 100ft as the PA34 Mode C changed from FL011 to FL010, with the DA42 indicating FL009. The next radar return showed the vertical separation as 200ft.

At 1414:32, the radar recording showed the two ac in close proximity, with the PA34 crossing the DA42 from left to right and 200ft above. At 1414:41 the radar recording shows the DA42, 0.3nm S of the PA34, commencing a right hand orbit, with the respective ac Mode C readouts indicating a vertical distance between the ac of 200ft. The DA42 completed the orbit and then set course at 1415:05 and the first call to the TWR was made at 1415:12.

The controller was asked if he considered giving the PA34 a heading, as a method of traffic management under a TS; he indicated that had the pilot requested a DS, he would have applied a more positive method of control; however, in formulating a plan in CAVOK weather and the (training) PA34’s request for missed approach, he was content that he passed appropriate TI and this TI resulted in the PA34 pilot acquiring visual contact with the DA42.

The controller was also asked whether he thought that it might have been appropriate to retain control of the DA42 until after the two ac had passed, he indicated however, that the DA42 was under a BS, appropriate TI had been passed and there was a need to transfer it to TWR for integration into the circuit.

In good weather conditions, the PA34 had requested a missed approach procedure as part of a training exercise; it was in receipt of a TS and the controller passed TI regarding the DA42, which resulted in the PA34 pilot acquiring the DA42 visually.

MATS, Part 1, Section 1, Chapter 11, states:

'A Traffic Service is a surveillance based ATS, where in addition to the provisions of a Basic Service, the controller provides specific surveillance derived traffic information to assist the pilot in avoiding other traffic. Controllers may provide headings and/or levels for the purposes of positioning and/or sequencing; however, the controller is not required to achieve deconfliction minima, and the avoidance of other traffic is ultimately the pilot's responsibility.

The controller shall pass traffic information on relevant traffic, and shall update the traffic information if it continues to constitute a definite hazard, or if requested by the pilot. However, high controller workload and RTF loading may reduce the ability of the controller to pass traffic information, and the timeliness of such information.'

The DA42, in receipt of a BS, was passed TI regarding the PA34 prior to its transfer to the TWR frequency. MATS Part 1, Section 1, Chapter 11, Page 4, Paragraph 3.1.1, states:

'A Basic Service is an ATS provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights. This may include weather information, changes of serviceability of facilities, conditions at aerodromes, general airspace activity information, and any other information likely to affect safety. The avoidance of other traffic is solely the pilot's responsibility.'

and Part 1, Section 3, Chapter 1, Page 5, states:

'8.1 Approach Control shall retain all arriving VFR flights under its jurisdiction until appropriate traffic information on IFR flights and other VFR flights has been issued and co-ordination effected with Aerodrome Control.

8.3 Approach Control must ensure that VFR flights are transferred in sufficient time for Aerodrome Control to pass additional information in respect of local traffic.'

The Coventry Radar controller passed TI to both ac and the PA34 reported seeing the DA42.

The written report from the DA42 pilot, indicated that after seeing the PA34, the pilot initially considered the PA34 would pass clear, but became concerned when the PA34 started to descend slightly. From the radar recording and the PA34 pilot's report, the data available would indicate that the PA34 appeared to descend momentarily, just prior to the Airprox occurrence.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the DA42 pilot, transcripts of the relevant RT frequencies, radar recordings, reports from the air traffic controller involved and reports from the appropriate ATC authorities.

The Board considered the PA34 pilot unprofessional in declining to submit a report, thereby limiting the investigation.

The Board was briefed on the complexities of the airspace and MAP for RW23 at Coventry. Members were also briefed by the CAA Flight Ops Advisor that, although an Examiner is Captain of the ac and ultimately responsible for its safety, he has very little other operating responsibility and it is assumed the candidate is fully responsible for all tasks concerning the operation of the ac.

Although engaged on differing activities, with both pilots in receipt of an ATS while in the vicinity of Coventry, this was essentially an encounter in Class G airspace where the ROA and the 'see and avoid' principle applied. Further, since the PA34 had the DA42 on its right throughout, notwithstanding that it was under IFR and the DA42 was VFR, the former should have given way. Consideration of why the PA34 crew elected to 'stand on' having seen the DA42 was limited to conjecture due to the absence of a report from the pilot. A Member suggested that since the PA34

was an IFR training flight, the HP (student) had probably been flying under an IF hood. The transcript however, confirmed that the crew called visual with the DA42 suggesting that it must have been the instructor/safety pilot who was visual with it and it was his responsibility to initiate visual avoidance, despite that they were flying an IFR MAP. Bearing in mind airspace constraints such avoidance would have had to be lateral and behind the DA42. He went on to say (considering the DA42) it is always a fine line deciding whether or not your ac has been seen when exercising one's right/obligation to 'stand on'; in his view it is better to give way earlier rather than later.

Controller Members agreed that the APR Controller had more than fulfilled his obligations to both ac under an Approach service. In any case, probably as a result of the information he passed, both pilots had called visual with each other's ac. Without any knowledge of the other ac in the cct/pattern Members could not agree whether the DA42 could have been held by APR until after the two ac had crossed, thereby allowing the controller to separate them.

Members observed that this incident could easily have been avoided had the PA34 pilot made a small track alteration soon after he first reported that he was visual with the DA42.

Notwithstanding the factors above, when the DA42 Examiner considered that a collision risk was imminent, he took effective action by orbiting the ac to negate that risk without compromise to the safety of either ac.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The PA34 flew close enough to cause the DA42 crew concern.

Degree of Risk: C.

AIRPROX REPORT No 2011027

Date/Time: 1 Apr 2011 1050Z

Position: 5056N 00152W (9½nm
N of Bournemouth
Airport)

Airspace: London FIR (Class: G)

Reporting Ac (A) Reporting Ac (B)

Type: Grob Tutor TMk1 Grob Tutor TMk1

Operator: HQ Air (Trg) HQ Air (Trg)

Alt/FL: 4500ft 5000ft
RPS (1014mb) RPS (1014mb)

Weather: VMC VMC

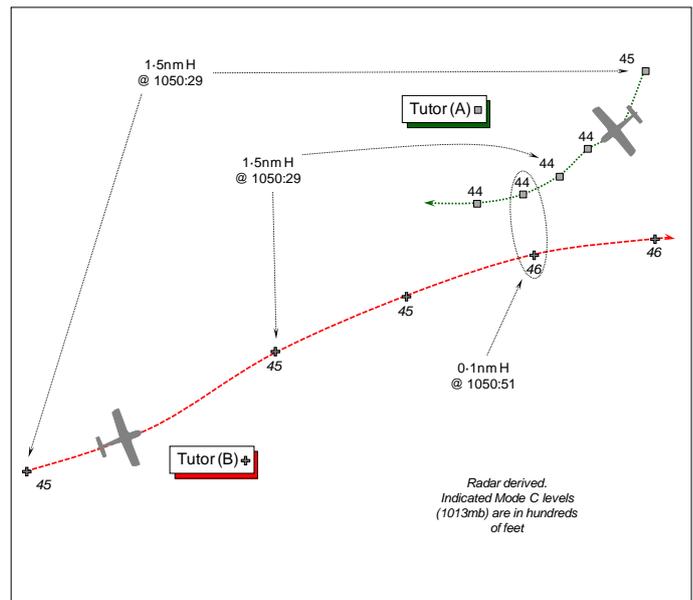
Visibility: 30km 30km

Reported Separation:

120ft V 200-300ft

Recorded Separation:

200ft V @ 0.1nm H



BOTH PILOTS FILED

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE PILOT OF GROB TUTOR T Mk1 (A), a QFI, reports that he was conducting a basic flying grading exercise in VMC above overcast cloud cover with tops to 3000ft amsl. He was in receipt of a 'listening watch' from Boscombe ZONE, on UHF and a squawk of A2677 selected with Mode C; elementary Mode S is fitted, but TCAS is not.

Flying level at 4500ft PORTLAND RPS (1014mb), heading 270° at a position about 270SAM24d [the Airprox occurred at 271SAM20d] with the candidate in control, maintaining straight and level flight, a late spot of conflicting traffic necessitated avoiding action being taken by him as the P-I-C. The conflicting ac – another Grob Tutor – was first sighted 200m ahead and to avoid it he dived to the R as simultaneously, the other ac climbed. Minimum vertical separation was about 120ft and the Risk 'very high'. Subsequently, he set course approximately E to continue the teaching element of the sortie. The conflicting traffic was identified as an ac from his Unit and the decision was made to discuss the Airprox on the ground before reporting action was initiated.

He added that the contrast between the cloud tops and the sky was affected by milky cirrus cloud above the horizon. His ac is coloured white; the HISLs and landing light were on.

THE PILOT OF GROB TUTOR T Mk1 (B), a QFI, reports he was teaching flying grading exercise 2 (effects of controls 2) to a candidate whilst keeping a listening watch with Boscombe ZONE on 256.5MHz; a squawk of A2677 was selected with Mode C; elementary Mode S is fitted, but TCAS is not.

Flying wings level at 5000ft (1014mb) above solid 8/8th cloud, heading 120° at 100kt to the N of Bournemouth, he became aware of another Tutor ac in his 11 o'clock, 100m away, slightly below the horizon and closing on a constant bearing. He broke to the R immediately and estimated that the two ac passed within 200 to 300ft of each other. As the other ac was well camouflaged against the undercast he saw it later than he would have liked. Initially he did not think an Airprox report was necessary, but he decided to discuss the situation with this colleague on the ground after landing; the

Airprox was filed subsequently and he assessed the Risk as medium. His ac is coloured white; the HISLs and landing light was on.

THE GROB TUTOR PILOTS' UNIT commented that the Tutor colour-scheme is notoriously difficult to spot under the conditions experienced during this Airprox. Middle Wallop asked if the colour-scheme could be altered but was told this was not possible, although it is interesting to note that the display Tutor has a different colour scheme. None of the Middle Wallop Tutor fleet currently has a Collision Avoidance System fitted, but the Unit's ac are scheduled to be fitted starting in June 2011.

THE BOSCOMBE DOWN ZONE CONTROLLER (ZONE) reports that he was operating LARS during a quiet period with little traffic when two Grobs called on UHF 256.5MHz. These flights were operating on a 'Listening Watch', where no ATS is provided. However, as they have a duty of care, he requested these two ac to squawk 'ident'. A further Grob Tutor pilot called up whom he also requested to squawk 'ident'. Observing two of these Grob Tutor ac in close proximity to each other, he called the other ac to the two crews; one called visual and the other just acknowledged his transmission. Shortly afterwards he handed over the position. Subsequent to the Airprox being filed, he listened to the RT tape recordings, but no mention of any Airprox was made by the pilots of any Tutor ac whilst on the frequency.

HQ 1GP BM SM reports that this Airprox occurred between a pair of Middle Wallop based Tutors operating VFR in receipt of a "Listening Watch" from Boscombe ZONE.

'Listening Watch' was introduced for Middle Wallop based Tutor ac conducting general handling in the vicinity of Boscombe Down, to facilitate co-ordination with Boscombe Down's IFR traffic when required. There is no form of flight following or undertaking to provide an ATS inherent in this 'listening watch'; the Tutor pilots simply 'check-in' on the ZONE frequency and are acknowledged. However, following the unit's investigation into this occurrence and that of Airprox 2011029, Boscombe Down ATC became concerned that their controller's perception of their 'duty of care' had blurred the line between their responsibilities toward ATSOCAS mandated within CAP774 and that of a 'Listening Watch'. Consequently, this concept has been withdrawn with Boscombe Down ATC applying ATSOCAS iaw CAP 774. A manning study is also being undertaken at Middle Wallop ATC to facilitate greater provision of ATSOCAS by that unit to their own station-based ac.

Both pilots report 30km visibility with nil weather and OVC cloud at 3000ft. The pilot of Tutor (A) reports that their visual acquisition task was hampered with the contrast between the cloud tops and the sky affected due to milky cirrus cloud above the horizon. The pilot of Tutor (B) reports a similar difficulty due to the lack of contrast between the colour scheme of Tutor (A) and the white background, compounded by their constant relative bearing.

Tutor (B) called ZONE initially at 1027:57 and, as ZONE was 'quiet...with little traffic', was instructed to squawk ident. At 1035:33, [over 15min before the Airprox occurred] the crew of Tutor (A) called ZONE and was also asked to squawk ident. Shortly after the pilot of Tutor (A) acknowledged this instruction, ZONE passed TI to Tutor (A) stating, "[callsign (A)] *Tutor 12 o'clock 1 mile manoeuvring indicating 8 hundred feet, correction 5 hundred feet below.*" The pilot of Tutor (A) replied that they were visual. ZONE then immediately passed TI to Tutor (B), stating that the ac that was the subject of that TI was "*visual with you,*" making it clear that it was Tutor (A). This TI was acknowledged by Tutor (B) at 1036:24 and there were no further transmissions from ZONE to the subject Tutors until 1054:44.

ZONE states in their report that shortly after passing TI to the Tutors, they handed over the console position to a second controller. Subsequently, ZONE has confirmed that this handover took place between 1036:24 and 1054:44, with the second controller's voice evident on the tape at 1054:44. However, neither controller nor the Supervisor could state exactly when the transfer of control position occurred, nor were any details of the handover evident on the RT tape transcript due to the absence of 'live mic' recording.

The CPA occurred at 1050:51, with 200ft vertical separation and a minimum horizontal separation of 0.1nm.

Notwithstanding the conceptual limitations of the 'Listening Watch', perceiving a duty of care to exist, the first ZONE controller identified the subject Tutors and passed them TI on each other, with Tutor (A) replying that they were visual with Tutor (B). Although it has proved impossible to determine the point at which the handover of control position took place, the limitations of the 'Listening Watch' as briefed to Boscombe Down Controllers meant that they were not required to provide any flight following or TI. Moreover, the Tutor pilots' reports and subsequent conversation with the pilot of Tutor (B) have highlighted that the aircrew were under no illusion that they were in receipt of an ATS. Furthermore, given the time elapsed from the passing of TI to the CPA it is clear that the TI passed between 1036:10 and 1036:23 was irrelevant to the air situation at the time the Airprox occurred.

From a BM perspective, notwithstanding the first ZONE controller's perceived 'Duty of Care', Boscombe Down ATC had no responsibility towards the provision of TI to the Tutor crews.

HQ AIR (TRG) comments that the procedures for avoiding mid-air collisions are currently being reviewed at Middle Wallop. The embodiment of TCAS should help reduce this risk further but only against transponding traffic.

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.

ZONE had conscientiously passed a warning to the Tutor pilots about each over 15min before the close quarters situation, despite the 'Listening Watch' provided, but this was plainly not relevant to the air situation when the Airprox occurred later. A 'Listening Watch' was not an effective ATS and contributed nothing to the pilot's SA. Members were encouraged that the Unit, in the interests of standardisation, has subsequently reviewed their procedures and applied the extant FIS stipulated for use nationally in conformity with CAP774. The HQ Air Trg Member added that the outcome of the review initiated by No1 EFTS subsequent to Airprox 2011029, whereby the Army Flying Grading organisation was seeking an increase in controller manpower with a view to Middle Wallop ATC providing a TS to such flights, was still awaited. There was, however, a fine balance to be struck between achieving the primary training goals of the sortie and the provision of a compatible ATS to enhance the pilots' SA with the attendant increase in RT and potential interruption to flying instruction. The Traffic Alert System (TAS) embodiment to the Tutor fleet would probably have averted this Airprox and a current Tutor pilot Member, familiar with TAS, extolled its worth. [Post Meeting Note: The UKAB was subsequently advised that two of Middle Wallop's Tutor airframes had already been equipped with TAS, two are currently being fitted out, with the last due for fitment by the end of September 2011.]

The Board was briefed by the HQ Air Training Member that the issue of a more conspicuous colour scheme for service Grob Tutor ac has been considered in great detail. Unfortunately, there was no 'easy fix' as the dark colours that have been applied to other training ac, eg black to Hawk and Tucano ac, can adversely affect the Glass Reinforced Plastic (GRP) structure of the Tutor because of the heat absorption characteristics of dark colours.

Turning to the Airprox itself, it was apparent that both pilots were operating VFR and approaching each other head-on, or nearly so, separated vertically by only 100ft Mode C. Each was therefore responsible for sighting the other ac in sufficient time to afford appropriate visual separation. The pilot of Tutor (A) reports that Tutor (B) was first sighted 200m ahead and to avoid it he dived to the R as, the other ac climbed. The pilot of Tutor (B) notes that he saw the other ac marginally later at a range of 100m and broke to the R immediately, estimating that the two ac passed within 200 to 300ft of each other. This led Members to agree, unanimously, that this Airprox had been the result of a

late sighting by both pilots. Whilst not doubting the veracity of the report from the pilot of Tutor (A) in any way, the dive was not readily apparent on the radar recording, whereas the R turn was shown clearly taking effect at the CPA of 0.1nm – 185m. At this point Tutor (B)'s Mode C evinces a climb of 100ft. It was indeed fortunate that each pilot had chosen to take the action that he did, complimentary to that of his colleague and in conformity with the Rules of the Air, thereby averting a more serious situation. Nevertheless, the Board concluded that at these distances the safety of the ac involved had been compromised.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Late sightings by the pilots of both ac.

Degree of Risk: B.

AIRPROX REPORT No 2011031

Date/Time: 9 Apr 2011 1612Z (Saturday)

Position: 5050N 00019W
(Shoreham DW RW 20 -
elev 7ft)

Airspace: Shoreham ATZ (Class: G)

Reporting Ac Reported Ac

Type: C152 C172

Operator: Civ Trg Civ Comm

Alt/FL: 1100ft 1100ft
(QFE 1022mb)

Weather: VMC CLBC VMC CAVOK

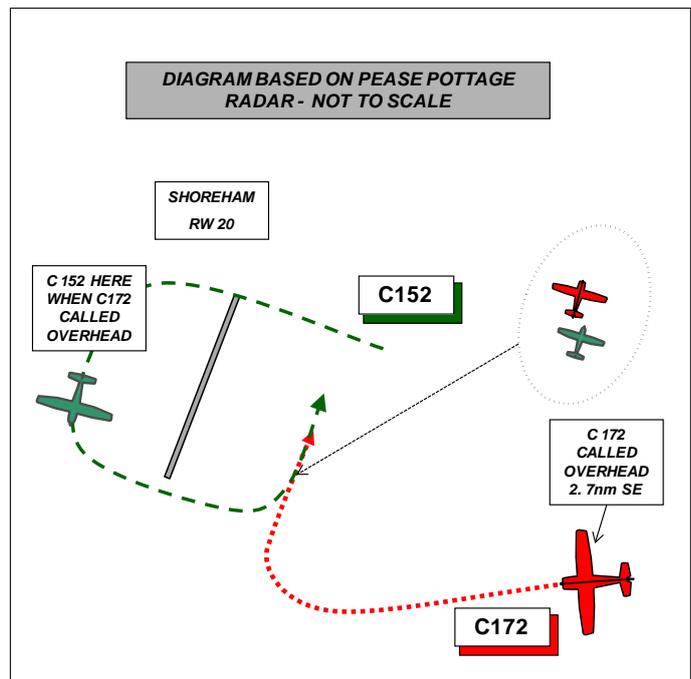
Visibility: >10km 10km

Reported Separation:

0ft V/40m H NR

Recorded Separation:

NR



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE C152 PILOT reports flying a VFR instructional flight in a blue and white ac, in contact with Shoreham TWR, squawking 7000 [he thought] but Mode C was not fitted. Having been cleared for an overhead (O/H) join, he was in the overhead at 2000ft descending to be downwind at 1100ft, when a C172 [with a C/S that he recognised] reported at the Brighton VRP and was also cleared for an O/H join after requesting a L base join. He [the C152 pilot] descended dead side and flew crosswind at the cct height of 1100ft then turned downwind heading 020° at 90kt. As he was rolling out of the turn onto downwind from crosswind he saw the C172 appear in his 11 o'clock, 40m away, descending onto downwind from above. The C172 then reported downwind before him and ATC then asked for his position; he responded that he was downwind behind the C172 that had just cut in front of him.

He reported the Airprox to TWR on the frequency in use and slowed his ac by using flap to reposition behind the C172. He assessed the risk as being medium.

After landing he went to the TWR and explained that the C172 had descended on the live side onto downwind traffic having not reached the dead side after being cleared for the overhead join. The C172 pilot reported at Brighton when he [the C152 pilot] was already in the overhead, leading him to believe that there would be no conflicting traffic.

THE C172 PILOT reports that at the time of the reported Airprox, he was flying a VFR local flight, squawking with Mode S and rejoining the Shoreham cct and in communication with TWR. He did not hear any Airprox call on the RT or receive any notification at the time; furthermore the Airprox reporting form was sent by email and went directly to his 'junk' folder so he did not see it for over a week.

He believes that the other ac came close behind him just after he had joined the cct at 1100ft.

He flew two O/H joins that day descending on deadside and crossing exactly over the upwind end of the RW; he also joined via base and cross-wind. He recalls that other ac had been flying wide ccts,

not slowing down expeditiously and not making RT calls in the correct positions. On occasion ac were flying outside the ATZ boundary which made sequencing difficult. Since he was not given the timing of the incident, he could not recall the precise details and he saw many ac as Shoreham is always busy on Saturdays; however, he always slows down to achieve correct spacing with other ac. He does recall that on that day the cct sequencing was becoming hazardous due to ac flying wide ccts, others joining wide upwind, (not across the upwind threshold) and some flying standard O/H joins.

He did not see the other ac but assessed the risk as being low.

ATSI reports that the Airprox occurred in the Class G airspace of the Shoreham ATZ which is a circle of 2nm radius centred on RW 02/20 and extending to 2000ft aal (7ft).

The Shoreham controller was operating a combined Aerodrome and Approach control position, without the aid of surveillance equipment and RW20 was in use with a left hand traffic pattern. The controller reported the workload as being high but due to a staff shortage he was unable to split the two positions. As part of the tactical management of the circuit, the controller was instructing ac to join overhead which allowed them to position sensibly into the busy traffic pattern.

The UK AIP page AD 2-EGKA-1-7 (29 Jul 10), paragraph 6, states:

c) Circuit heights are 1100ft aal for all runways.

d) Variable circuits at discretion of ATC.

e) Unless otherwise instructed aircraft joining the circuit will overfly the aerodrome maintaining 2000ft aal, until instructed to descend to circuit height on the inactive (dead) side of the runway in use and join the circuit by crossing the upwind end. Pilots should note that there would frequently be helicopters operating both 'liveside' and 'deadside' in the ATZ up to 600ft'.

CAA ATSI had access to radar recordings provided by NATS Swanwick and written reports from the controller and pilots.

The weather for Shoreham was:

METAR EGKA 091550Z 13010KT CAVOK 14/10 Q1023=
METAR EGKA 091650Z 11005KT CAVOK 14/10 Q1022=

At 1605:30 the C152 in receipt of a BS, reported N of Brighton pier at 2700ft and requested a join for ccts. The TWR controller replied, "*(C152)c/s roger circuits approved report er overhead at two thousand feet Q F E one zero two two*", the pilot responded, "*Q F E one zero two two report overhead (C152)c/s.*"

At 1608:30, the C172, in receipt of a BS, called at Brighton pier and requested a left base rejoin but TWR replied, "*(C172)c/s overhead join at the moment I'll advise if I can improve Q F E one zero two two*" and the pilot responded, "*overhead join (C172)c/s.*"

Using Mode S the C172 was observed on the radar recording approaching from the E.

ATSI noted that the controller did not obtain a readback of the QFE, did not give the RW in use, the cct direction or traffic information; however, the RT loading was high and it was evident that the circuit was extremely busy.

At 1609:40 the C152 pilot reported overhead and TWR responded, "*(C152)c/s descend deadside report downwind*" and the pilot acknowledged, "*report deadside (C152)c/s*". It is not possible to identify the C152 using the radar recording; the pilot's report states that the transponder was selected

ON with a code of 7000, however a primary only contact (with no SSR) can be seen approaching the overhead from the E co-incident with the RTF reports made by the C152 pilot.

At 1609:50 the radar recording shows the C172, 4.4nm E of the airfield indicating FL012, and following the coastline Westbound.

At 1611:02 the C172 reported overhead but the radar recording shows it was positioned 2.7nm SE of the airfield tracking W at FL016 (1843ft alt). The TWR controller responded, “(C172)c/s descend deadside report downwind” and the pilot acknowledged saying, “descend deadside report downwind (C172)c/s”. At the same time, the primary contact is observed passing 0.5nm SW of the airfield tracking E and crossing the upwind end of the RW.

At 1611:46 radar recording shows the C172, 1.4nm SE of the airfield in a right turn at FL014 (Alt 1643ft), towards the beginning of the downwind leg with the primary contact in the crosswind position, tracking E with the ac 1nm apart and converging; the radar return on the primary contact is then lost.

At 1612:32, radar recording shows the position of the C172 is 1.2nm to the E of the airfield, the pilot reporting, “(C172)c/s downwind to land”. During the investigation, the controller stated that he expected both ac to join overhead in sequence and was not expecting the C172 to be ahead. The TWR controller then requested the position of the C152 saying, “(C152) report your position” and the pilot replied, “(C152)c/s just er turned downwind been cut up by the Cessna”; the C152 pilot was then instructed to follow the C172.

The Manual of Air Traffic Control, Part 1, Section 2, Chapter 1, Page1 Paragraph 2.1 states:

‘Aerodrome Control is responsible for issuing information and instructions to aircraft under its control to achieve a safe, orderly and expeditious flow of air traffic and to assist pilots in preventing collisions between:

a) aircraft flying in, and in the vicinity of, the ATZ’

The controller’s workload was high and in order to ensure that traffic was sequenced appropriately into the busy traffic pattern, he instructed both pilots to join overhead. The radar recording shows that when the C152 reported overhead, the C172 was 4.5nm E of the airfield. The overhead call from the C172 pilot was made when the aircraft was 2.7nm SE of the airfield, approaching the ATZ boundary. The C172 was then seen to route directly to the downwind position.

The C172 pilot did not correctly communicate the aircraft position to ATC. Rule 45 of the Rules of the Air (RoA), paragraph 6 (c) states:

‘.....communicate his position and height to the air traffic control unit,at the Aerodrome on entering the zone and immediately prior to leaving it.’

The C172 pilot did not comply with the controller’s instruction to join overhead the airfield. Rule 45, paragraph 3 states:

‘If the aerodrome has an air traffic control unit the commander shall obtain the permission of the air traffic control unit to enable the flight to be conducted safely within the zone.’

Further Rule 12 (a) of RoA, states:

‘the commander of the aircraft.....shall:

(a) conform to the pattern of traffic formed by other aircraft intending to land at that aerodrome or keep clear of the airspace in which the pattern is formed’

UKAB Note (1): Although the C172 shows on the radar recording (as outlined above in the ATSI report), the primary response believed to be the C152 had disappeared before the CPA. The separation could not therefore, be determined.

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 recordings, reports from the air traffic controller involved and reports from the appropriate ATC authorities.

Although Members were aware of other recent incidents at Shoreham, in keeping with current practice, this incident was assessed in isolation and without reference to other agencies or reports.

In assessing the part played in this incident by the participants, Members noted that the C152 pilot had flown 'by the book' integrating safely into the visual fixed-wing cct and as expected by the Controller.

However, the Board considered this incident to be a serious case of flying indiscipline by the C172 pilot.

There is little doubt from the reports, the RT transcript and the radar recording, that at the time of the incident Shoreham was very busy, the ccts being flown were not all standard and the controller was working to his capacity. A GA Member observed that when non-radar equipped airfields are busy and the airspace permits, standard overhead joins are a straightforward way of ensuring safe sequencing of ac joining the visual cct and, wisely in the view of Members, the Controller elected to implement this. The Shoreham AIP entry, as detailed in the ATSI report above, makes it clear that, unless otherwise approved by ATC, this is the preferred method of joining the Shoreham cct; in this case ATC specifically and clearly rejected the C172 pilot's request to join on left base, due to the heavy traffic load, and the pilot read-back the instruction indicating that he fully understood that he was required to join over head. Notwithstanding this instruction, Members agreed that there was no doubt that the C172 pilot had disregarded it, gave inaccurate position reports contrary to ROA Rule 45, and, as clearly described in the ATSI report, proceeded to join directly downwind. Furthermore, he did not integrate safely into the visual circuit pattern being formed by ac ahead (the C152) as required by the ROA Rule 12. Had the C172 pilot joined as instructed by the Controller, Members agreed unanimously, that the incident would most likely not have occurred.

A GA Member pointed out that, although ATC procedures might sometimes seem lengthy and inefficient, they are designed to ensure safety even in the busiest scenarios.

The Board was informed by the ATSI Advisor that the Controller was not aware that the C172 had joined the visual circuit downwind when he submitted his report in response to the reported Airprox; he became aware of the geometry of the Airprox only when it emerged during the investigation. There was some discussion by Controller Members as to whether the Controller could have noticed that the C172 pilot was not complying with his instruction to join overhead. They noted however, the high workload, that the control position faces in the opposite direction to that of the C172's approach and has a restricted view behind and none overhead; that being the case Members agreed that it would be unreasonable to expect the Controller to note that the C172 was not flying an overhead join and to attempt to correct the situation.

In assessing the risk, Members noted that the C152 did not see the C172 until it appeared 40m away in his 11 o'clock, descending from above; in the absence of any information to the contrary, it was accepted that this estimate of range was accurate. That being the case the C152 pilot was not in a position to take any avoiding action to influence events. Since during the C172's turn onto downwind the C152 would have been obscured by the former's floor then, on rolling out, it would be almost directly below, the C172 pilot did not see the C152 before the CPA.. In these circumstances there was, in the Board's unanimous view, an actual risk that the ac would have collided.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The C172 pilot did not comply with the ROA or ATC instructions and gave incorrect position reports, flying into conflict with the C152 which he did not see.

Degree of Risk: A.

AIRPROX REPORT No 2011033

Date/Time: 13 Apr 2011 0905Z

Position: 5139N 00123W (10nm
SE of Brize Norton A/D)

Airspace: Oxford AIAA (Class: G)

Reporting Ac Reported Ac

Type: PA34-200T Grob Tutor T Mk1

Operator: Civ Trg HQ Air (Trg)

Alt/FL: 5000ft NR
QNH (1023mb) NR

Weather: IMC IICL NR

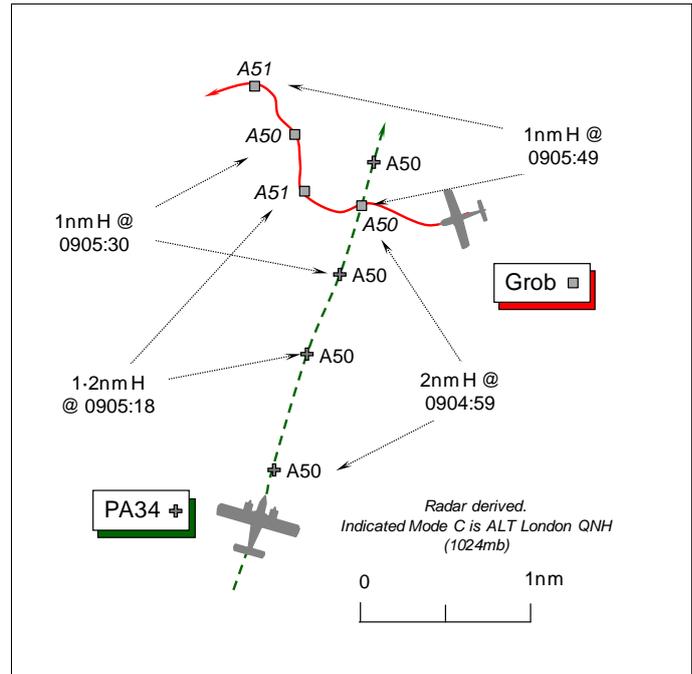
Visibility: 10km NR

Reported Separation:

Nil V/0.5nm H NR

Recorded Separation:

Nil V/1nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE PIPER PA34-200T (PA34) PILOT reports he was conducting a local IFR training flight from Oxford and was tracking towards the OX NDB whilst in receipt of a TS from Brize RADAR on 124.275MHz. The assigned squawk was selected with Modes S and C on; TCAS is not fitted.

Heading 005° at a position 190° OX 11.5nm, flying level at the cloudbase of 5000ft QNH (1023mb) at 150kt, he spotted a light single-engined ac at a similar altitude within 0.5-1nm dead-ahead also at the base of cloud and in intermittent IMC. He took no avoiding action as the other ac – a Grob Tutor – was seen at the same altitude in a level turn and appeared to roll out on a heading of SW. Visual contact was intermittent and about 15-30sec after sighting the Grob, Brize reported the traffic, which by that time was no longer a risk. The Risk was assessed as 'medium'. An Airprox was not reported on RT, but filed through his company safety management system.

THE GROB TUTOR T MK1 PILOT, a QFI, did not provide a detailed account within his Airprox report, just a narrative. He commented that in response to this Airprox in Class G airspace in the vicinity of Wantage, he was conducting elementary flying training consisting of general handling and practice forced landings with a student, whilst in receipt of a TS from Benson. He has no recollection of the event as it was over 1 month ago and today – 20 May, the date of writing - was the first he had heard of it. He opined that if there had been any threat to his ac he would have remembered it vividly, and being under a TS with Benson APPROACH, they would have alerted him to it.

THE BRIZE NORTON ATC UNIT SUPERVISOR reports that the PA34 pilot experienced an Airprox with what he believed to be a Tutor. He was not the controller at the time and it has not been possible to obtain a report from the controller providing the TS at the time of the Airprox.

HQ 1GP BM SM reports that this Airprox occurred in Class G airspace between a Tutor operating VFR conducting GH and PFLs N of Wantage in receipt of a TS from Benson ZONE and a PA34 inbound to Oxford in receipt of a TS from Brize RADAR (RAD).

It took some time for the Radar Analysis Cell (RAC) to trace the crew of the Tutor and hence the fact that they were in receipt of an ATS from Benson; consequently, Benson ATC were unable to provide any input to the investigation. Due to an internal issue at Brize Norton, the unit did not commence

reporting action until 2 months after the event; consequently, although they could provide an RT tape transcript, the controller could recall little of the event. This situation was exacerbated by the fact that the PA34 pilot omitted to report the Airprox to RAD.

The PA34 pilot reports operating IFR in VMC, albeit intermittent IMC flying at the base of cloud and spotting the Tutor at “a similar level within 1nm dead ahead...the aircraft was seen to be turning and appeared to roll out on a heading south-west. Approximately 15-30 secs after sighting Brize reported the traffic, which by this time was no longer a risk.”

CAP774 states that:

‘Pilots should be aware that a Traffic Service might not be appropriate for flight in IMC when other services are available.’

The Brize Norton Supervisor reports that the controller and unit workload was medium to low, a fact borne out by the RT transcript. That said, RAD’s workload in the period leading up to the Airprox was constant. Furthermore, RAD recalls that:

‘for whatever reason I felt behind the drag curve and the session felt busy/complex [and that] this fact was picked up by one of the other controllers.’

At 0901:12 the PA34 was identified and placed under a TS after which followed a continuous, albeit low-level, work load for RAD involving landline liaison and transmissions to other ac. At 0901:53, (the earliest point of the radar replay), the PA34 was approximately 18nm S of Brize Norton tracking NNE, with the Tutor 9nm N of the PA34, tracking E indicating 5000ft Mode C. At 0903:28, the Tutor commenced a turn, rolling out onto a westerly track at 0904:05, at which point the PA34 is 4-5nm SW, indicating 4800ft.

At 0905:18, the Tutor is just through the PA34’s 12 o’clock with 1.2nm lateral separation existing; however, the Tutor commences a R turn onto NW thereby reducing the separation between the 2 ac, exacerbated by the greater airspeed of the PA34.

During the period 0905:07 to 0905:29, RAD was involved in the identification of and passing instructions to another unrelated ac. This unrelated ac does not appear on the replay and further investigation with BZN has suggested that this ac was an Oxford departure, placing it approximately 17nms N of the CPA. Immediately after RAD has completed this liaison with the un-connected ac and co-incident with the CPA, RAD passed TI to the PA34 at 0905:31 stating, “*traffic north 1 mile similar heading similar level.*” At this point the Tutor is 1nm NNW of the PA34.

CAP774 states that:

‘Traffic is normally considered to be relevant when, in the judgement of the controller, the conflicting aircraft’s observed flight profile indicates that it will pass within 3nm and, where level information is available, 3000ft of the aircraft in receipt of the Traffic Service. However, controllers may also use their judgement to decide on occasions when such traffic is not relevant, e.g. passing behind or within the parameters but diverging.’

The safety of operations in Class G Airspace is predicated on the ability of aircrews to ‘see and avoid’ each other’s ac, backed up with airborne equipment such as TCAS and the provision of ATSOAS where pilots opt for a level of ATS appropriate to their task and meteorological conditions. CAP 774 is clear that whilst the provision of TS to ac in IMC is possible, it may not be appropriate when other services are available. In this instance DS was available and may have been more appropriate given the prevailing meteorological conditions.

Given RAD’s lack of recall of the event it has proved impossible to state conclusively why TI was not passed earlier. One hypothesis is that RAD assessed the relative speeds of the ac, concluding that the PA34 would pass through the Tutor’s 6 o’clock and that TI might not be required: re-visiting that

assessment when the Tutor commenced their turn at 0905:21 reducing separation. An alternative hypothesis is that, although RAD did not have a high taskload, they were consistently engaged in tasks throughout the period prior to them passing TI, thereby delaying the passing of that TI. Moreover, based upon their statement, it is clear that RAD's perceived workload was high with them feeling "behind the drag curve." There are a number of potential psycho physiological explanations for this including pathological, the disruption of Circadian rhythm, fatigue and life-stresses. Although there is no clear evidence to identify a specific factor, RAD's psycho physiological state may have affected their ability to divide their attention between their tasks or to match their workrate to the task load, thereby delaying the identification of the confliction between the PA34 and the Tutor and hence the passing of TI.

This Airprox resulted from a late sighting by the PA34 crew, the late provision of TI by RAD and the meteorological conditions hampering their visual acquisition task. It has been impossible to determine conclusively why TI was not passed to the PA34 earlier than 0905:31.

HQ AIR (TRG) comments that both ac appear to have been operating close to the base of cloud cover where visual contact was reported by the PA34 crew to be affected by cloud. Despite this the PA34 sighted the Tutor before TI was given and no avoidance was required. The reporting delay was unfortunate in that it prevented the gathering of accurate data on the Tutor pilot's TI and visual status. It might reasonably be assumed that he received good TI and was visual with the PA34. Whilst the wisdom of operating close to the base of cloud cover even with a TS may be questioned, it may be the only way to complete a particular sortie profile. That said, any factor that reduces the ability to conduct an effective lookout must be given due regard by pilots and the ATC service upgraded or the profile limited accordingly if required.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, a transcript of the relevant Brize RAD RT frequency, radar video recordings, together with reports from the appropriate ATC and operating authorities.

The Board was disappointed that further detail was not available from Brize Norton and here it was evident that the PA34 pilot had not reported the Airprox on the RT to the controller providing the TS. No matter if a pilot subsequently elects to withdraw an Airprox report, which is entirely within their prerogative, reporting the Airprox on RT at the time immediately alerts the controller and the ATSU to take the necessary reporting action. In that way none of the essential detail necessary for a complete understanding of the Airprox is lost. The Board was briefed that the Airprox was received some 5 days after the event; once identified, the RAC had endeavoured to contact the Tutor pilot's unit on 12 separate occasions. All efforts proved fruitless until contact was eventually established through the Station Flight Safety Officer. Unfortunately, therefore, the Tutor pilot's report was not received until over 30 days after the Airprox had occurred. Consequently, the Benson ATC RT recordings were not available.

As the Tutor pilot was not aware of the Airprox until some weeks after the event, he could recall little detail of his sortie and his account contributed little to the understanding of this event; whether he saw the PA34 or not was unclear. Members recognised that the PA34 pilot was teaching an IFR procedure, flying towards the 'OX' beacon intermittently in IMC, just at the base of cloud in Class G airspace. Whilst the PA34 crew had availed themselves of a TS from Brize RADAR, in the GA pilot Member's view, if a DS had been available then this would have been a more suitable ATS whilst flying in IMC. The MAA Advisor suggested that if the PA34 had been flying at an IFR quadrantal level, it would have afforded some separation against other IFR transit traffic in level flight. Similarly, a DS might have assisted the Tutor pilot with his traffic avoidance responsibilities. The Tutor pilot, who was conducting general handling VFR, shared an equal responsibility to see other ac when operating in Class G airspace. Nevertheless, it remained the PA34 pilot's responsibility under the 'Rules of the Air' to 'see and avoid' the Tutor on his starboard side so that he could afford appropriate separation irrespective of whether RAD passed TI or not.

Notwithstanding the controller's relatively low but constant workload and any other higher priority traffic, the Board considered that the TI passed by RADAR at 1nm range had been issued at a relatively late stage. Nevertheless, by the time the TI was transmitted at 0905:31, the Tutor is shown on the radar recording in the PA34's 10:30 position, 1nm away. Consequently, if this TI was passed 15-30 sec after the PA34 pilot saw the Tutor dead-ahead, as he reports, then he had seen it at a range greater than his estimated 0.5-1nm, because the radar data shows the Tutor to be at a range of 2nm when in the PA34's 12 o'clock. Therefore, in the Board's view, there was enough time to avoid the Grob by a greater margin if need be when he saw it. However, avoiding action was not warranted it would seem, as the PA34 pilot reports the Grob was in a level turn and appeared to roll out on a heading of SW flying away from him – as replicated by the radar recording. Controller and pilot Members alike concluded that this had been a relatively benign event and agreed unanimously that this Airprox report had stemmed from a sighting of traffic operating in Class G airspace, where normal standards of safety had been maintained.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Sighting Report.

Degree of Risk: E.

AIRPROX REPORT No 2011037

Date/Time: 1 Mar 2011 1541Z

Position: 5251N 00010W
(15nm S CONINGSBY)

Airspace: Lincs AIAA (Class: G)

Reporting Ac Reported Ac

Type: Sentinel F15Ex2

Operator: HQ AIR (Ops) USAFE

Alt/FL: FL150 NR

Weather: VMC CAVOK NR

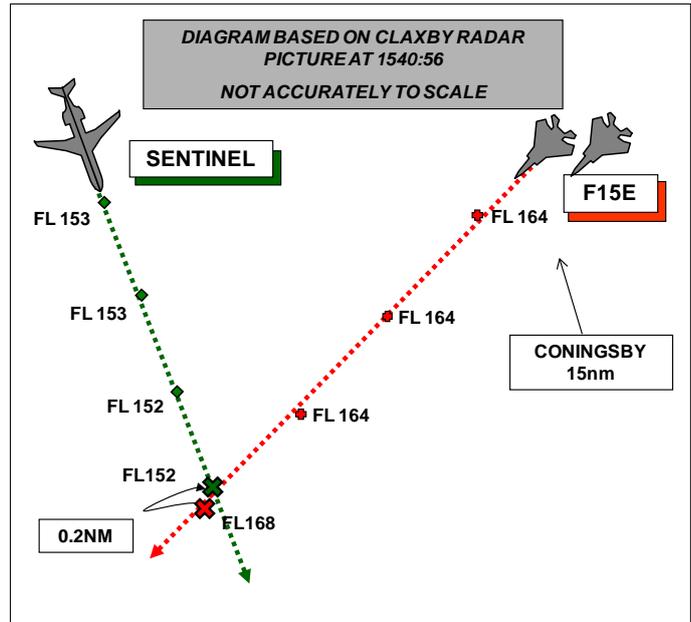
Visibility: 20km NR

Reported Separation:

500ft V/0m H NR

Recorded Separation:

1600ft V/0.2nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE SENTINEL PILOT reports flying a grey ac on a training flight under IFR, with all lights switched on, under a TS from London Mil and squawking with Modes C and S. While heading 165° at 250kt on the climb-out from RAF Waddington, a pair of F15Es was seen to the left of the ac about 6nm away, above them but they appeared not to be closing. As they passed through FL140 the HP asked the NHP to check whether London Mil had them on Radar. On passing FL150 the pair was seen to be closing on a heading of 210° and on a collision course. At that point the TCAS generated a TA immediately followed by a RA of 'adjust vertical speed' suggesting a descent [he believed] to remain clear of conflict so he initiated a descent and the ac passed between 500 and 1000ft directly overhead. Once clear, the TCAS enunciated 'clear of conflict' and the pilot continued the flight as normal. He reported the Airprox to London Mil and assessed the risk as being medium.

THE F15E PILOT reports that he was contacted over 2 months after the event (see UKAB Note 1 below); he recalls that he was leading a pair of but could not recall precisely the mission details. He thought that they were in level flight on RTB and had just entered the Wash AIAA when his wingman called a radar contact. The pilot 'boresighted' the traffic, got a radar lock and shortly afterwards saw the traffic on their RHS at about 9nm. He could not initially tell the ac aspect because of its range but thought that it was going the same way.

About 15sec later he realised that they were on a collision course and saw that the traffic was continuing to climb up towards their formation. At about 3nm he saw that the Sentinel was not stopping its climb and he directed the pair to climb to avoid it; they climbed about 500-700ft and then passed directly over it.

He considered filing an 'incident report' and instructed that their tapes be retained for a couple of weeks, but he decided against reporting it because they had full awareness of the traffic from just inside 10nm and they thought they had passed more than 1000ft above the Sentinel.

The F15Es were under a TS from London Mil who only called the traffic after they had already passed it; he thought that the call was something like, 'Traffic left 9 o'clock 3 miles, Eastbound'.

He did not assess the risk.

UKAB Note (1): The incident was reported on ASIMS by the Sentinel pilot on the day following the event. The report was not released by the Station, however, until over 7 weeks later, hence the delay in contacting the F15E HQ and London Mil; fortunately the RT and radar recordings were still available.

UKAB Note (2): The recording of the Claxby radar shows the incident as depicted above. The Sentinel levels at FL153 (at 1540:43) then descends by 100ft before continuing its climb after the ac cross. The F15Es are initially level at FL160 but climb to FL170 as the ac cross before descending again.

HQ 1GP BM SM reports that this Airprox occurred in Class G airspace between a Sentinel operating IFR in VMC in receipt of a TS from LJAO (North-East TAC) and a pair of F15Es operating VFR in VMC, in receipt of a TS from LJAO (East TAC).

All altitudes stated are based upon SSR Mode C information derived from the radar replay unless otherwise stated.

Initially this occurrence was reported by the LJAO North-East TAC as a TCAS-RA report; when the Unit was advised 6-8 weeks later that this incident had been filed as an Airprox by the Sentinel crew [see UKAB Note (1)], the LJAO East TAC had no recollection of the occurrence other than that it was busy; consequently, there is no Defence Flight Safety Occurrence Report (DFSOR) from the LJAO East TAC. However, it appears from the transcript that in the period up until around 60sec before the commencement of the incident sequence at around 1540:03, LJAO East TAC had been operating under a relatively high workload, with 5 speaking units on freq which were geographically dispersed across the LJAO East/North-East AoRs. This workload had rapidly tailed off to 2 speaking units, with 2 formations of F15Es routing from EGD323C at medium level beneath Y70 to the East Anglian (EA) MTRA for GH. Research has demonstrated that psycho-physiological alertness reduces significantly immediately following a high to low workload transition and remains so for up to 15min, regardless of the individual's motivation for the task. Further research has proved that humans consistently over-estimate their level of psycho- physiological alertness.

LJAO North-East TAC described their task complexity as medium and workload as medium to low, with the Sentinel climbing out from Waddington on a South-Easterly track and a single Typhoon on a medium-level transit 6nm SE of the Sentinel on a similar track; consequently, LJAO North-East TAC's geographical focus was tight. It has not been possible to establish LJAO North-East TAC's workload prior to the incident sequence.

Both tracks worked by LJAO North-East TAC were identified and placed under an ATS by about 1539:41 at which point, from extrapolation of the radar data, about 7.8nm separation existed between the Sentinel and F15E formation. There are no further recorded landline conversations or transmissions to or from LJAO North-East TAC until 1540:09. At approximately 1540:03 LJAO East TAC requested from the F15E formation what levels they required for GH in the EAMTRA. At that point, the F15E formation was at FL160, 5.6nm E of the Sentinel climbing through FL141.

At 1540:09 the Sentinel called LJAO North-East TAC stating *“(Sentinel C/S) has traffic in the er in our ten o'clock, similar height, approximate range 5 miles, can you confirm?”* at that point, the F15Es were 5nm E of the Sentinel at FL160 which was climbing through FL144. In his report the Sentinel pilot said that, at that point, the F15Es appeared *“not to be closing”*. LJAO North-East TAC responded at 1540:20, *“you got er Typhoon (LJAO North-East TAC's other track) left 11 o'clock five miles flight level hundred ah traffic left 9 o'clock at 3 miles flight level 160, appears to be a pair”*. From the Sentinel pilot's report it is clear that they were monitoring the F15Es and as they passed FL150 assessed them to be on a collision course (at 1540:22 coincident with LJAO North-East TAC passing TI). The Sentinel pilot reported that it was at that point that the TCAS generated a TA closely followed by a RA of adjust vertical speed. Eleven sec later the Sentinel pilot advised LJAO North-East TAC that they were manoeuvring in accordance with a TCAS RA; at that point 2.7nm lateral and 700ft vertical separation existed, with the Sentinel indicating FL153 and the F15Es FL160.

At 1540:41 LJAO East TAC asked the F15E pilot to confirm the altimeter setting that they wished to operate on in the MTRA. This question was followed immediately, without pause, by LJAO East TAC passing TI to the F15E formation on the Sentinel stating, “*traffic er 12 o'clock half a mile crossing right to left indicating flight level 150 climbing*” with the F15E formation reporting, “*Tally.*” At this point 0.9nm lateral and 1200ft vertical separation existed suggesting that the Sentinel has descended in response to the TCAS RA and that the F15E formation had climbed to avoid the Sentinel, (as stated in their report).

The F15E formation reports that both elements of the formation were visual with the Sentinel at a range of about 9nm and at that stage they considered there to be no risk of collision. Although this is before the radar replay commences, by extrapolation of the data, it has been possible to determine that this would have been about 1539:31; the F15 leader reported that he realised that they were in conflict with the Sentinel around 15sec later. At that point, again by extrapolation of the radar data, about 7nm lateral separation existed between the F15s and the Sentinel; the leader further reported that when they were about 3nm apart, he instructed the formation to climb over the Sentinel, which accords with the radar data.

As far as the Airprox element of this occurrence is concerned, the Sentinel and F15 crews acquired each other visually in good time, enabling them to monitor the situation and decide upon appropriate courses of action; initially both crews considered there to be no risk of conflict but updated that assessment as the range closed and took action to resolve the conflict. However, the timeliness of the TI provided to both ac requires further examination.

Given the question posed by LJAO East TAC to the F15E formation at 1540:41, immediately followed by the passing of TI to them, it is reasonable to suggest that the first time that LJAO East TAC perceived there to be a conflict was shortly after 1540:41, (during the transmission). Moreover, it is reasonable to suggest that, given their workload history, LJAO East TAC may have been suffering from reduced psycho-physiological alertness which served to delay their perception of the growing conflict. While LJAO East TAC passed TI to the F15E formation at 1539:17, which from reviewing the radar data may have been regarding LJAO North-East TAC's Typhoon, this TI immediately followed their period of high workload. There was then a period of about 39sec where LJAO East TAC made no transmissions and their workload appeared to be low.

Thirty eight sec elapsed between LJAO North-East TAC completing their initial RT liaison with the ac under their control at 1539:41 and the Sentinel requesting information on the F15s at 1540:09. It is inappropriate to discuss whether LJAO North-East TAC would have passed TI without the intervention of the Sentinel; however, given the gap between 1539:41 and 1540:09, best controlling practice suggests that the opportunity existed for a more timely warning to be given. It is possible that this missed opportunity may be grounded in reduced levels of psycho-physiological alertness caused by LJAO North-East TAC's workload history; however, it is not possible to substantiate this hypothesis.

Whilst LJAO East TAC and LJAO North-East TAC were obligated to provide TI earlier in accordance with CAP774, given the range at which the crews visually acquired each other's ac, this factor was neither causal nor contributory.

HQ AIR (OPS) comments that both elements could see each other and there was no risk of collision. The Sentinel had right of way and initially maintained its course; however, once the TCAS RA was generated, the crew responded. The F15Es avoided the Sentinel by a safe margin but flew close enough to generate the TCAS event. The delay of 7 weeks for the DFSOR to leave the station is unacceptable and will be investigated.

HQ 3 AF comments that both the Sentinel and the F15E pair had each other in sight from around 6nm and 9nm respectively and both subsequently took adequate avoiding action, one by following a TCAS RA and the other by climbing. However, in view of the convergence of the 2 tracks it is surprising that, according to the HQ 1Gp BM SM analysis, no coordination took place between

LJAO(North-East TAC) and LJAO(East TAC) and both flights received little, if any, meaningful traffic information; the absence of either action should be considered a contributory factor.

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 recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

Members noted that this incident took place in Class G airspace where 'see and avoid' is the primary means of collision avoidance. Despite the good weather conditions, both pilots sensibly opted for a TS in order to assist with this responsibility.

Despite that there may have been inadequacies by both Controllers most Members were of the opinion that this was a TCAS RA incident rather than an Airprox. Both crews saw/were aware of the opposing ac/flight from an early stage, even before the respective controllers could have reasonably been expected to pass information regarding the other ac. That being the case avoidance was primarily the responsibility of the pilots and both had correctly exercised that responsibility thus removing any risk of collision. Despite that TI should have been passed to both pilots as stated in the HQ 1 GP BM SM report above, it also followed that contrary to that report, the lack of such TI was not contributory to the incident.

While noting the F15 crew's decision to take vertical avoidance, Members pointed out that depending on the nature of the climb it would still (most likely) cause a TCAS RA, as was the case in this incident and the Sentinel pilot was obligated to react to that RA causing (avoidable) disruption to his planned flightpath. A small heading change by the F15 flight to pass behind the Sentinel would have avoided the TCAS RA.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in Class G airspace resolved by the crews of both flights.

Degree of Risk: C.

AIRPROX REPORT No 2011038

Date/Time: 5 May 2011 0935Z

Position: 5334N 00056W (6.5nm
NNE Doncaster/Sheffield
- elev 55ft)

Airspace: Doncaster CTR (Class: D)

Reporter: Doncaster APR

1st Ac 2nd Ac

Type: B737-800 PA28

Operator: CAT Civ Trg

Alt/FL: 2500ft↓ 800ft↑

QNH (1017mb) QFE

Weather: VMC CLOC VMC CLOC

Visibility: 10km 9km

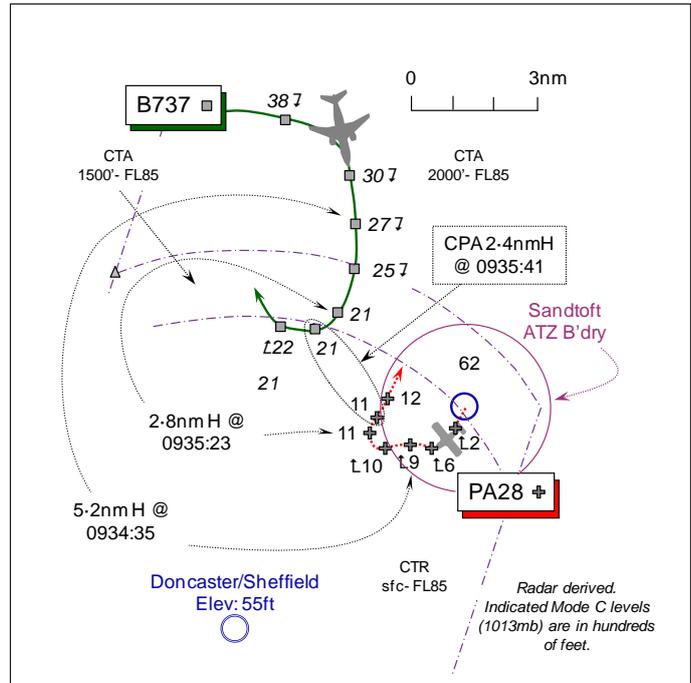
Reported Separation:

APR 1000ftV/4nm H

4nm H Not seen

Recorded Separation:

1000ft V/2.4nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE DONCASTER APR reports that he was vectoring the B737 for an ILS RW20. When it was approaching 8nm on a closing heading of 170° for the ILS an ac was observed squawking A7000 leaving Sandtoft on a SW'ly track. As the B737 reached 8nm and reported LLZ established the A7000 squawk was observed climbing, indicating 1300ft and continuing to route W. As the ac left the Sandtoft ATZ without any indication of a turn he gave avoiding action to the B737 flight of 'turn R heading 360°, climb altitude 2500ft'. Sandtoft were contacted by telephone and they stated that 1 ac was in the visual cct. The pilot of that ac, subsequently identified as the PA28, called on frequency requesting a BS for GH. As it was now identified the B737 was given a closing heading for the ILS and once 'established', was transferred to TOWER. The PA28 pilot was informed of the reporting action taken. Minimum separation was estimated to be 4nm and 1000ft.

THE B737-800 PILOT (B737) reports he was inbound to Doncaster IFR and in receipt of a RCS from Doncaster on 126.225MHz, squawking A6217 with Modes S and C. About 5nm from touchdown on the ILS to RW20 descending through 2500ft QNH (1017mb) at 170kt, avoiding action was requested by Doncaster ATC to avoid a PA28. The AP was disengaged and he thought a L turn, [but actually R], was initiated at 2500ft according to ATC instructions followed by a second approach. The PA28 was not seen but radar separation was given as 4nm as the PA28 penetrated CAS without ATC clearance. No TCAS alerts or warnings were received.

THE PIPER CHEROKEE WARRIOR II (PA28) PILOT, a flying instructor, reports flying a dual training sortie from Sandtoft, VFR and in receipt of an A/G Service from Sandtoft RADIO on 130.425MHz, squawking A7000 with Mode C. The visibility was 9km in VMC and the ac was coloured blue/white; no lighting was mentioned. After departing in crosswind conditions the ac was handled by his student, but he had to take control on initial climbout for the first cct and calm his student owing to the turbulent conditions. By the time the ac was under control in stable flight in the hands of the instructor climbing through 800ft QFE, the initial climb out had become extended leading to a wider cct than normal. The cct height at Sandtoft is 1000ft and the ATZ extends to 2000ft aal. Sandtoft

A/G had no phone call to let them know that an ac was inbound or in the Doncaster cct. He did not see the B737 or any other ac at the time.

ATSI reports that the Airprox occurred at 0935:28, at a position 6nm NNE of Doncaster Airport within the Doncaster Class D CTR. The B737 was inbound to Doncaster, IFR, from Tenerife. The PA28 was operating on a VFR flight from Sandtoft aerodrome.

Sandtoft is positioned 7.5nm to the NE of Doncaster Airport and has an ATZ of a circle 2nm radius centred on RW05/23 and extending from the surface to 2000ft above aerodrome level (elev 13ft). The southwestern part of the ATZ lies within the Doncaster Sheffield CTR (Class D). The upper limit of the ATZ lies partly within Doncaster Sheffield CTAs (bases 1500ft and 2000ft amsl).

The Letter of Agreement between Doncaster and Sandtoft, states:-

3) Pilots of transponding aircraft remaining within the Sandtoft ATZ will be expected to squawk the 'VFR Aerodrome Traffic Pattern' conspicuity code (7010) in accordance with AIC 9/2007.

8) Doncaster Radar will inform Sandtoft via the direct line of all aircraft being vectored for an approach to runway 20. This telephone call should be made at approximately 20DME. Specific mention should be made of all arrivals of 'Heavy' vortex category.

10) Pilots must ensure that they are in receipt of an ATC clearance from Doncaster Radar 126.225 MHz before entering Doncaster Controlled Airspace.'

RW20 was the notified Runway in use.

The applicable Doncaster/Sheffield METAR for 0920Z - 14011KT CAVOK 12/06 Q1020=

At 0929:18, the B737 crew, in receipt of a Radar Control Service, established contact with Doncaster RADAR, in the descent to FL070 with information 'Quebec'. RADAR responded advising that information 'Romeo' was current, QNH 1020mb, with vectoring for the ILS RW20 and No 1 in traffic. The B737 crew was given descent to an altitude of 2500ft, QNH (1020mb) and was then vectored right hand for the ILS approach RW20. At 0933:13, the radar recording shows the B737 positioned 11.8nm N of Doncaster Airport on right base.

At 0930:55, the B737 crew was advised about an aircraft that would be entering the hold at 3500ft, RADAR instructing the B737 crew, "*...in the event of a go around not above 2 thousand 5 hundred feet Q-N-H 1-0-2-0....*". This was acknowledged correctly by the B737 pilot.

At 0933:33, the B737 crew was given a closing heading for the ILS, "[B737 C/S] *turn right heading of 1-7-0 degrees closing from the right report established when established descend with the glidepath.*" The B737 pilot responded, "*Right heading 1 ???? er clear for the ILS [B737 C/S]*". At this point the radar recording shows a 7000 squawk [the PA28] appearing 0.5nm to the SSW of Sandtoft airfield tracking SW at low level.

At 0934:40, RADAR passed TI on the unknown traffic, later identified as the PA28, "[B737 C/S] *traffic er left 11 o'clock 4 miles er indicating a thousand feet believed to be remaining in the Sandtoft circuit.*" The B737 pilot replied, "*We have on TCAS and we're established...[B737 C/S]....established on the ILS.*"

At 0934:59, the radar recording shows the PA28 leaving the Sandtoft ATZ on a WSW'ly track towards the Doncaster final approach at FL010 (converts to altitude 1189ft QNH (1020mb), with 1mb equal to 27ft).

At 0935:07, RADAR gave avoiding action to the B737 crew, "[B737 C/S] *roger it's now avoiding action turn right heading 1-3 correction right heading 3-6-0 degrees that previously reported traffic still climbing and tracking towards.*" The B737 pilot responded, "*er roger which altitude then right er 2*

say again the heading,” The RADAR controller replied, “right 3-6-0 altitude 2 thousand 5 hundred feet.”

The Manual of Air Traffic Control Services (MATS), Part 1, Section 1, Chapter 5, Page13, states:-

‘15.2 The action to be taken by controllers when they observe an unknown aircraft, which they consider to be in unsafe proximity to traffic under their control, in various types of airspace is as follows:

(Class D). If radar derived, or other information, indicates that an aircraft is making an unauthorised penetration of the airspace, is lost, or has experienced radio failure – avoiding action shall be given and traffic information shall be passed.’

Although not a factor in the Airprox, ATSI noted that the radar controller did not use the correct avoiding action phraseology and did not pass the relative position, distance and heading of the PA28 [when it was issued].

MATS Part 1 App. E, Page 11, states:

‘(A/c identity) avoiding action, turn left/right immediately heading (three digits) traffic ([left/right] number) o’clock (distance) miles opposite direction/crossing left to right/right to left (level information).’

At 0935:20, the radar recording shows the PA28, 2.3nm to the SW of Sandtoft, outside the ATZ in a R turn. The distance between the two ac is 3.3nm.

At 0935:28, the B737 crew reported at 2300ft, climbing back to 2500ft QNH and turning R heading 360°. The radar recording shows the distance between the aircraft as 2.8nm, with both ac in a R turn. The B737 is indicating FL021 (ALT 2289ft QNH) and the PA28 is indicating FL011 (ALT 1289ft QNH). The CPA occurs at 0935:41 at a range of 2.4nm with a minimum vertical separation of 1000ft Mode C.

At 0936:31, the PA28 pilot called Doncaster RADAR and apologised. At 0936:35, the radar recording shows the PA28 leaving the Doncaster CTR. Thereafter, the B737 was vectored for the ILS without further incident.

The PA28 pilot’s written report indicates that a student was flying the ac, under the supervision of an instructor, in turbulent conditions with a crosswind. This resulted in a wider than normal cct. The pilot also commented that no call had been received by Sandtoft RADIO A/G Station regarding the inbound B737. Doncaster ATSU indicated that a call was made in accordance with the LoA. It was not possible to verify the phone conversations that occurred. The PA28 pilot required a clearance to enter the Doncaster Class D airspace before leaving the Sandtoft ATZ to the SW.

As the B737 turned onto the ILS for RW20, RADAR observed unknown traffic - the PA28 - in the vicinity of Sandtoft aerodrome. The controller considered it likely that the unknown traffic - the PA28 - was operating in the Sandtoft circuit and passed TI to the B737 crew. When it became clear that the unknown traffic - the PA28 - was leaving the Sandtoft ATZ on a WSW’ly track, the controller became concerned and gave avoiding action to the B737 crew in order to resolve the conflict.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequency, radar video recordings, reports from the air traffic controller involved and from the appropriate ATC authority.

In the absence of a landline transcript, it was not possible to resolve independently whether the Sandtoft A/G Operator was informed of the B737 inbound to Doncaster beforehand or, conversely, whether Sandtoft advised Doncaster about the circuiting PA28. However, it was plain that the PA28 pilot had not selected the appropriate squawk for an ac remaining within the Sandtoft A/D circuit in accordance with the LOA. Whether the PA28 pilot was intending to continue the flight outwith the ATZ, clear of CAS, had not been revealed by the PA28 pilot but the A7000 squawk might have been why the APR was perhaps paying close attention to the flight when the PA28 approached the ATZ/CTR boundary.

The PA28 instructor reports he had to take control of his aeroplane, in what were challenging wind conditions for his student. However, the radar recording clearly showed that the PA28 had entered the Doncaster CTR during his Crosswind to Downwind turn. The Board was surprised that the PA28 pilot had not seen the B737 at all. Nevertheless, it was evident that the PA28 pilot's excursion outwith the ATZ was quickly detected on radar by the alert APR who watched it carefully whilst keeping the B737 crew apprised through the transmission of TI. The crew also had the PA28 displayed on their TCAS but it was evident that the controller took positive action at an appropriate stage before TCAS was called upon to act. The Board agreed that the B737 crew had little impact on this Airprox other than that they had complied promptly with the avoiding action instructions issued by the Doncaster APR. Controller Members recognised that the APR had acted correctly and the radar recording reflects that the APR passed these instructions to the B737 crew, turning their ac off the LLZ and back into the pattern, moments after he observed the PA28 penetrating the Class D Doncaster CTR. The Members agreed unanimously that the Cause of this Airprox was that the PA28 pilot entered controlled airspace without clearance and into conflict with the B737 established on the ILS. Furthermore, the APR's prompt action ensured that separation of 1000ft and 2.4nm was preserved, thereby removing entirely any Risk of a collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The PA28 pilot entered controlled airspace without clearance and into conflict with the B737 established on the ILS.

Degree of Risk: C.

AIRPROX REPORT No 2011040

Date/Time: 11 May 2011 2128Z

Position: 5137N 00133W
(2nm SE Faringdon)

Airspace: UKNLFS (Class: G)

Reporting Ac Reported Ac

Type: Puma Puma

Operator: HQ JHC HQ JHC

Alt/FL: 250ft agl 300ft
(RPS 1017mb) (RPS 1017mb)

Weather: VMC CLBC VMC CLBC

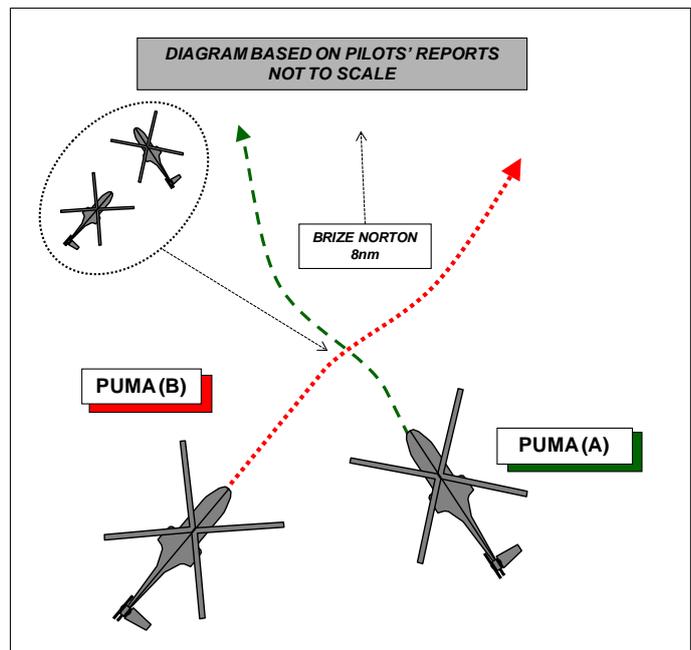
Visibility: 10km 20km

Reported Separation:

0 V/200m H 50ft V/300m H

Recorded Separation:

NR



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

PUMA (A) PILOT reports that during a night tactical training sortie, while operating on NVDs in Night LFA 1, displaying standard nav and red strobe lights, IR formation lights, and in receipt of a BS from Brize, they unexpectedly came within 200m of another Puma (Puma B) in flight.

Both sorties were due to lift at the same time, were de-conflicted during Night Brief and out-briefed at the Joint Ops Desk; however, they (Puma (A)) departed 15min late.

While in LFA 1, S of BZN CTZ, the other Puma lifted from Field 4 to Field 8 and called changing frequencies from Benson App to Brize Zone. He saw it an estimated 8km away and continued to call Brize Zone for a zone crossing while heading 330° at 120kt. The other ac was already working Brize Zone and its crew had not identified them.

They were in a medium workload situation and the Brize frequency was busy but eventually he gave a position report and requested clearance to cross the CTZ. At that point they thought the other Puma was 2km away in their 9 o'clock and he thought that it would cross behind them but on his second glance the captain realised that it was only 200m away and took avoiding action by breaking [presumably left].

After consultation on the ground, the other Puma pilot was only aware of them crossing through his 12 o'clock position, 200m away, when the position call was made and they [the reporting Puma] took avoiding action. He assessed the risk as being Medium.

Both crews then continued their flight without further incident.

PUMA (B) PILOT reports that he was flying a Night Competence to Instruct (C21) sortie in the RAF Benson local area. They were displaying red HISLs, nav lights and NVG formation lights and were in receipt of a BS from Brize Zone. They had a comprehensive deconfliction brief before takeoff and the initial part of the sortie was flown without incident. On lifting from the second training field, the crew was aware of another Puma operating at another Benson training field nearby but noted that they were still orbiting the field and not a confliction.

They then transited towards a training field close to the edge of Brize Norton CTZ and changed to the Brize Zone frequency in accordance with local procedures. Bearing in mind the previously noted location of the other Puma and that it still had to carry out an approach and landing at the field, it was assessed that it would be well ahead, although they were not visual with it at that stage. Shortly after initial contact with Brize, while heading 040° at 100kt, in a moderate workload situation, they heard the other Puma call up for a transit from the training field to a Brize VRP to the W of the CTZ earlier than expected, which caused the HP/Captain to look for the ac. Shortly after this, he saw the Puma almost directly ahead of them at a distance that was assessed to be 200-300m.

While continuing without manoeuvring would not have resulted in a collision, the HP elected to carry out a gentle level right-hand turn to increase the separation between the ac. Once both ac were well clear, contact was established on the FM radio to confirm that both crews were aware of what had just occurred and to confirm that it would be discussed further on the ground. He assessed the risk as being low and the sortie was continued without further incident.

The crew commented that both crews had been operating with poor-quality 3rd-generation NVG. The deconfliction plan was robust and both crews were aware of the rough location of the other ac. The issue arose because the crew of the other Puma assessed that the distance between ac was considerably greater than it actually was due to the difficulty of judging distance on NVG. This was compounded because the crew were operating on a different frequency and did not hear the call that the other ac was lifting from the field site, having conducted their approach considerably quicker than had been anticipated. Both crews believed that the incident had been caused by the single U/VHF radio in the Puma HC1; had the crew of Puma (B) been aware that Puma (A) had lifted from the field site earlier than expected, they would have had much better SA.

HQ 1GP BM SM reports that at the CPA both Pumas were in receipt of a BS from Brize Zone.

Due to the low alt of the ac, the Airprox was not visible on the radar recording, although both ac did paint intermittently both before and after the incident. That being the case, this report is based on the pilots' reports and the RT transcript.

Both Pumas called Zone within a short period of each other between 2126:45 and 2126:53, with Zone answering Puma (B) first, placing it on a BS. On their initial call, Puma (B) stated that they would be, "*operating to the south of the Zone into a er Benson field eight, just up against the edge of the Zone*" and Puma (A) stated on the initial call at 2127:52 that they were, "*two miles south of Faringdon, visual with the other traffic, request Faringdon Burford crossing at er low level*".

Based upon the pilot's reports, it is reasonable to assume that the Airprox occurred shortly after 2127:52 and that Puma (A) crew was visual with Puma (B). This is supported by the statement in Puma (A) pilot's report that he thought that they sighted Puma (B) at a range of 2km but quickly realised that the separation was far less. From an ATM perspective, Zone was not in a position to affect the outcome of this occurrence.

UKAB Note (1): The very intermittent radar data from the Clee Hill recording broadly supports the diagram above.

HQ JHC comments that this incident occurred when all reasonable measures for deconfliction had been taken on the ground prior to launch. A combination of events – the late launch of one ac, the misjudging of distance on NVG and the early completion of a serial, resulted in the two ac unexpectedly coming into close proximity with each other. It is recognised that the preference would be to conduct essential low flying training elsewhere in the UK in areas of lower density airspace, but the current bounds of the NRR make this difficult. This HQ has already articulated the mitigation measures in place in NRR1 in recent Airprox discussed at the UK Airprox Board.

It is clear that the fitting of TCAS, which is being actively pursued by this HQ, would have significantly helped to prevent this incident. The CO of 230 Sqn is, in addition, investigating the use of the VHF-FM radio for deconfliction between Benson based squadrons.

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 recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

Procedural deconfliction is precisely that, it is only accurate at a specific time and is dependent on there being no late changes to routes or timings, both of which are often tactically necessary and therefore commonplace; nonetheless such 'deconfliction' is helpful provided that its limitations are clearly understood; further, it can be very difficult in multi-aircraft situations. It was not clear to the Board whether this particular deconfliction plan contained contingencies for delays or rerouting but in this situation where only 2 ac were involved, Members considered that, despite the difficulty, the delay of Puma (A) should have been relayed to Puma (B) and the effect of that delay assimilated by both crews.

Notwithstanding any deconfliction plan and that it was night, the incident took place in the 'see and avoid' environment of a multi-user night low flying area. Although the crew of Puma (A) 'saw' Puma (B) they initially misinterpreted its range and therefore underestimated the threat it posed; the crew of Puma (B) on the other hand did not see Puma (A) until it was 'ahead' of them and flying away. The Board interpreted this as being an 'effective non-sighting' by Puma (B) crew. When assessing the part played by Crew (A), there was much more discussion. The Board had no information on the part played by cultural lighting or terrain but assumed that they had not been significant factors since the ac was seen by at least one crewmember; its range, however, was initially overestimated significantly. While accepting the difficulty of estimating range at night, a Member familiar with NVG operations expressed surprise, as in his experience the opposite (i.e. an underestimate) is more usual.

Although the flight paths of the two ac were such that they were not going to collide, Members considered that there had been a compromise of normally accepted safety margins.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Effectively a non-sighting by Puma (B) crew and a late appreciation of Puma (B)'s range by Puma (A) crew.

Degree of Risk: B.

AIRPROX REPORT No 2011042

Date/Time: 19 May 2011 1238Z

Position: 5403N 00100W
(6nm E Linton - elev 53ft)

Airspace: Lon FIR (Class: G)

Reporting Ac Reported Ac

Type: Tucano Untraced Glider

Operator: HQ AIR (TRG) NR

Alt/FL: 2500ft NR
(QFE 1015mb) NR

Weather: VMC CAVOK NR

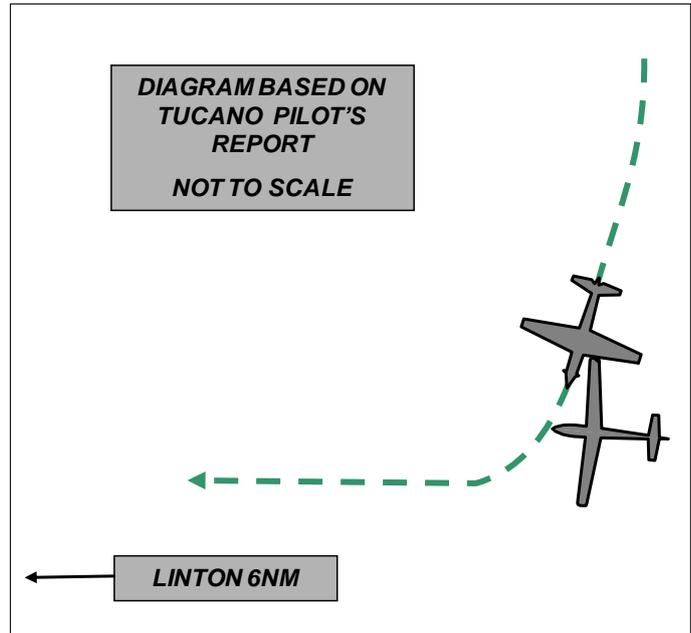
Visibility: 40km NR

Reported Separation:

100ft V/Nil H NR

Recorded Separation:

NR



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE TUCANO PILOT reports that he was flying a black ac with all lights on, on a dual local training flight from Linton-on-Ouse, squawking 4576 [he thought] with modes C and S; TCAS1 was fitted. While heading 240° at 260kt and at 2500ft (QFE) on recovery to Linton-On-Ouse in receipt of a BS, a contact with height unknown was passed by Linton APP. Despite keeping a good lookout no ac was seen and, as there was no contact on TCAS, they suspected the contact to be a glider. Just before turning R to line up on the extended C/L for RW28, the handling pilot caught sight of a white, low-wing glider flying from left to right immediately in front of them and level with their ac. He bunted hard to -0.5G to avoid a collision and flew underneath a white low-wing glider in straight and level flight, clearing it by about 100ft. He assessed the risk as being very high [and reported the incident to TWR on first contact].

UKAB Note (1): Despite extensive procedural tracing action, the glider could not be identified.

LINTON-ON-OUSE APPROACH CONTROLLER (APP) reports that at about 1240 [1237:01 from transcript] the Tucano called for a visual recovery. The aerodrome details were passed and the ac turned towards the aerodrome [and a BS was agreed]. As the ac turned he noticed a non squawking (primary) contact 1nm S of its position, tracking NW. He passed TI to the pilot, who replied that he was 'looking'; he then reported visual and changed frequency to TWR.

UKAB Note (2): The Tucano shows on the Great Dun Fell radar recording throughout, initially squawking 4577. It changed squawk to 4506 at 1238:35 then turned R onto the RW28 15sec later. The glider does not show at any time.

HQ 1GP BM SM reported that this Airprox occurred between a Tucano on a VFR recovery at 2500ft QFE, in receipt of a BS from Linton APP and an un-traced glider, 6nm E of Linton-on-Ouse

The Airprox does not appear on the radar replay, consequently this investigation has been based on the tape transcript and reports of the pilot and controller involved.

At 1237:01, the Tucano pilot free-called APP for a visual recovery and was passed the airfield details and placed under a BS in accordance with the Linton FOB.

APP reported that as the Tucano turned to position for the recovery he noticed a primary radar contact and passed TI stating, “*traffic believed to be you has traffic south, one mile, tracking north-west, no height information*”. The next transmission from the pilot was at 1238:19 stating, “*field in sight, squawking circuit, to tower*” which was acknowledged by APP.

It would appear that the CPA occurred shortly before 1238:31 with the Tucano’s first call on the TWR freq being, “*Er, Tucano C/S just gone underneath the glider*”; 21sec later at 1238:52 and without a further transmission from the Tucano, TWR broadcast joining instructions to the Tucano.

[UKAB Note (3): At 1238:28 the Tucano was descending through FL026.]

In accordance with the service principles laid down within CAP774, APP deemed that a collision risk existed for the Tucano and provided the crew with TI. The ac captain and NHP at the time of the occurrence later stated that they wished to add their thanks to APP for the TI which was, “timely and focussed our attention and lookout at a time when we were also concentrating on the recovery and ‘gaining visual’ with the airfield”.

Gliding activity within the Vale of York has been recognised at Linton as their greatest risk. The Stn has taken action to attempt to mitigate this risk and continues to engage with the local flying community to raise awareness of their operations. In terms of the Airprox itself and to paraphrase the Stn Cdr’s comments, having received TI which alerted them to the presence of the glider, the crew visually acquired it, albeit later than ideal and took action to prevent a collision.

HQ AIR (TRG) comments that Linton is taking steps to reduce the risk from local gliding activity. Non-squawking, difficult to see ac, flown in the vicinity of approach paths to military airfields however, continue to be a significant hazard.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included a report from the Tucano pilot, transcripts of the relevant RT frequencies, radar recordings, a report from the air traffic controller involved and reports from the appropriate ATC and operating authorities.

An experienced Gliding Member was concerned that glider pilots might be perceived by the Board as being non-cooperative by not filing reports and by operating close to military airfields. He opined that they were just as safety-aware as other airspace users and many of their safety initiatives go unnoticed. Most are, however, part-time pilots and the education process is necessarily continuous and unrelenting; he accepted that the Military authorities wish to raise the profile of the risk of collisions with gliders and concurred this position. He also briefed that if the Tucano pilots report that the ac involved was a ‘low-wing’ glider, was accurate, in his opinion, it would most likely have been a motor glider; if that were the case, it could have taken off from anywhere in the UK and would therefore be very difficult to trace.

The Board commended the vigilance of the APP Controller for pointing out the intermittent primary only radar contact to the Tucano crew (on a BS) while they were descending and turning into conflict with it; this, Members considered, had been a significant factor in raising their level of lookout and had possibly lead to them seeing the glider, albeit later than optimum. The crew did, however, see the glider just in time for their ‘bunt’ to take effect and thereby prevent any risk of collision; the lateness of this reaction, however, convinced Members that there had been a reduction of normally accepted safety margins.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Possibly a non-sighting by the glider pilot and a late sighting by the Tucano crew.

Degree of Risk: B.

AIRPROX REPORT No 2011054

Date/Time: 6 Jun 2011 1207Z

Position: 5406N 00105W (7.5nm
E of Linton-on-Ouse)

Airspace: Vale of York AIAA (Class: G)

Reporting Ac Reported Ac

Type: Tucano T Mk1 Microlight

Operator: HQ Air (Trg) Civ Club

Alt/FL: 2500ft NR
RPS (1002mb) NR

Weather: VMC CLBC VMC CLOC

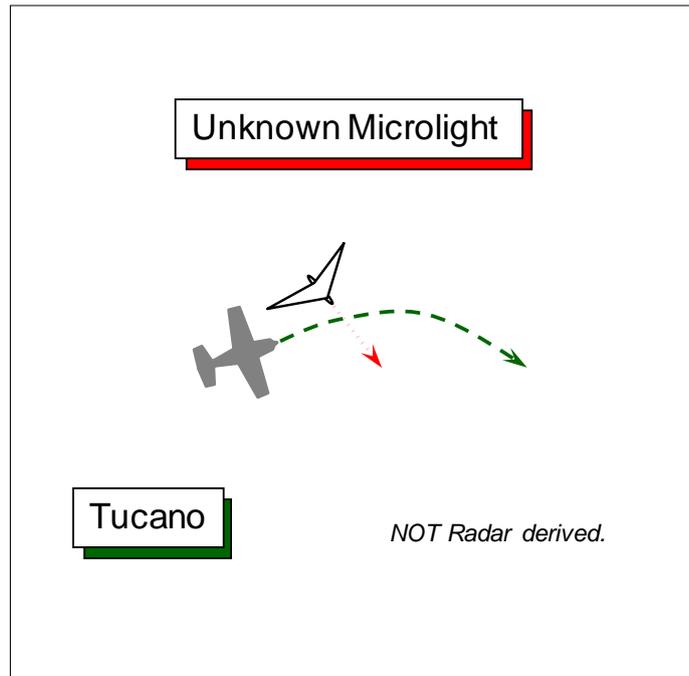
Visibility: 40km 15nm

Reported Separation:

200ft V/nil H Not seen

Recorded Separation:

Not recorded



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE SOLO STUDENT TUCANO PILOT'S AUTHORISING OFFICER reports his student was flying a solo VFR NAVEX and was in transit to his low-level entry point clear beneath SCT cloud at 3500ft. He was not in receipt of an ATS, having terminated the BS with Linton and was now listening out on the LFS frequency of 278.00MHz. The LFS conspicuity squawk of A7001 was selected with Mode C. TCAS I is fitted, Mode S is not.

Flying level at 2500ft BARNSELEY RPS (1002mb), some 6nm E of Linton-on-Ouse heading 070° at 240kt, whilst conducting his pre-low-level checks he flew into close proximity with up to 6 micro-light (ML) ac. Initial avoiding action against these ac, brought him into further conflict with an additional ac – a white high-wing ML with an 'open structure'. He gained visual contact with this ML at a late stage and it was first seen ½nm away and 50ft above his aeroplane, flying straight and level, crossing from L-R. To avoid the single ML he executed a rapid descent and it passed 200ft directly above his aeroplane with a 'high' Risk of collision.

Before the Airprox occurred – up until about 30secs before the initial avoiding action was taken - he had been under a BS, but no information about these contacts had been passed to him under this service. No TCAS TA's were indicated. No NOTAMs were in force highlighting multiple ac flying in close proximity. The Tucano is coloured black with yellow stripes; the 3 strobes, nav lights and 2 landing lights were all on.

THE LATCC (MIL) RADAR ANALYSIS CELL (RAC) reports that a total of 12 ML sites were contacted in the vicinity of Linton-on-Ouse during tracing action. Each ML site replied promptly, all in a helpful and cooperative manner before the location of the specific ML club was ascertained.

THE MICROLIGHT CLUB reports that 7 flex-wing ML ac departed from Husthwaite ML Site over a 20min period bound for Cromer in VMC. None of the 7 pilots airborne saw the Tucano flown by the solo student pilot or any traffic in the area of the reported Airprox, 6nm E of Linton-on-Ouse.

THE LINTON-ON-OUSE ATC SUPERVISOR (SUP) reports that the Tucano pilot departed Linton-on-Ouse visually under a BS and went 'en-route' once clear of the MATZ. ATC had been aware of a number of primary contacts that had crossed the approach lane to RW21RHC on a SE track. The

DEPARTURES (DEPS) controller had not called these contacts to the Tucano pilot as they were not on a 'threatening' heading when he called going enroute.

Subsequently, the Tucano pilot free-called APPROACH to request a TS and stated that a close quarters encounter with a group of ML ac had occurred. The pilot requested to speak with the Duty Aircrew Officer on Stud 10 to report the incident and then decided to carry on with the sortie and switched to his en-route frequency. The pilot did not indicate at the time that an Airprox would be filed but in a subsequent telephone call later confirmed that he would.

The Linton-on-Ouse ATC Unit Safety Management Officer (USMO) was informed, but the incident had occurred whilst the Tucano was operating autonomously.

SATCO LINTON-ON-OUSE comments that a glider vs Tucano mid-air collision is deemed their No1 Risk at Linton; everyone has been working towards mitigating this risk to as low as reasonably practicable. Every effort is being made through contact with the various gliding and light ac groups in this area. The controller correctly only gave information to the Tucano pilot that was relevant until the time of his departure from the frequency. The controller could not be expected to anticipate any changes of course by both the Tucano pilot and the MLs.

HQ 1GP BM SM reports that this Airprox occurred between a Tucano operating VFR on the low-level common frequency and one of a group of flex-wing MLs operating VFR.

Prior to the Airprox, the Tucano had been in receipt of a BS from Linton DEPS whilst departing to the E, VFR, from Linton's RW21RHC. At 1207:16, the Tucano pilot reported going en-route, which was acknowledged at 1207:19. The SUP states that the Tucano went en-route at the edge of the MATZ, which accords with the radar recording that shows the Tucano exactly 5nm E of Linton-on-Ouse.

Throughout the Airprox sequence, the MLs are not shown on the radar recording. However, the SUP reports that 'ATC were already aware of a number of primary contacts that had crossed the approach lane to RW21RHC on a south-easterly track'. Moreover, the ATSU's investigation found that APP had 'previously called the primary only contacts to another ac who they would affect before they went en-route but due to the heading [of the Tucano] they were not a risk at the time they went en-route. Subsequent to departure from the freq [the Tucano] turned towards the contacts.' DEPS has subsequently stated that he believed that as the Tucano pilot declared his intention to go en-route, he was trying to locate a phone number for Humberside APP in order to handover another flight being provided with a TS. APP has also stated subsequently that after the Tucano went en-route, he questioned DEPS as to whether he had called the primary radar contacts, to which DEPS replied that he believed that they were not a factor.

At 1207:51, the Tucano pilot called APP, which went un-answered. At this point the Tucano is shown 7.5nm E of Linton-on-Ouse and has started a slow turn to the R. At 1208:08 the Tucano student pilot called again about 8.5nm E, reporting that "*they've come across at least half a dozen paragliders on the 0-9-0, range 9 miles, level about...2 thousand feet.*" APP replied that they had "*multiple primary contacts there.*" At this point, the Tucano has manoeuvred approximately ½nm S of the track that it was following earlier at 1207:51.

The student's authorising officer reports that his student's 'initial avoiding action against visible ac brought him into further conflict with an additional ac. On gaining visual contact with this subsequent ac at a late stage, avoiding action was taken.'

It is this subsequent ac that is the subject of the Airprox report, with the student pilot reporting his first sighting at a range of 0.5nm and 50ft vertical separation. Significantly, none of the ML pilots report seeing the Tucano.

Although not shown on the radar recording, it is likely that the CPA occurred shortly before 1207:51, when the Tucano first called APP. Given the proximity of the CPA to the point where the Tucano

switched to the LFS frequency, the fact that DEPS did not pass a warning about the MLs to the Tucano requires closer examination.

The radar replay appears to show that the Tucano maintained its track after leaving DEPS' freq at 1207:16 until 1207:51, the approximate time of the CPA. Further investigation with the ATSU has found that the controllers' perception that the Tucano had 'turned towards the contacts' came about after the initial report was filed. Whilst this turn is not apparent on the radar replay, it may have been apparent on the unit's Watchman SRE display, or it may have been perceived as a result of the representation of the primary only contacts relative to the Tucano. Furthermore, how the primary only contacts were displayed to the controller on the Watchman SRE display and whether they were intermittent or continuous [which is not reflected by the LATCC (Mil) recording] will have had a bearing on DEPS decision making process. Moreover, it is clear from DEPS response to APP about them considering that the primary contacts were not a factor, that DEPS was aware of the primary contacts. It would also be reasonable to suggest that DEPS' attention was distracted while 'heads-in' looking for Humberside's phone number for what was a higher priority task: provision of a surveillance based ATS to the other ac. Notwithstanding the proximity of the CPA to the point where the Tucano switched en-route, without further evidence it would be irresponsible to create a hindsight-biased argument suggesting that it might have been appropriate for DEPS to pass TI to the Tucano.

Whether in receipt of a BS or having switched en-route, the Tucano pilot's responsibilities to 'see and avoid' other ac whilst operating VFR remained unchanged. Despite the relatively small size and low speed of the MLs, combined with the solo student Tucano pilot's workload as he conducted pre-low level checks, he maintained an effective scan allowing him to visually acquire the MLs and to take appropriate action to remain clear. Furthermore, the student pilot maintained his visual scan, which enabled him to sight the subject ML, albeit late and take further avoiding action.

HQ AIR (TRG) comments that the student pilot took prompt and positive action on sighting the MLs, which can be difficult to see at the best of times. It is not clear that the adoption of a BS would have resulted in TI as the controller did not consider the primary-only contacts to be a factor. The risk of a mid-air collision is a constant hazard in any flying operation, particularly in Class G airspace with ac that are not transponding. RAF Linton rightly consider the risk of collision with a glider, or indeed a ML, to be high and have taken all reasonable measures to reduce the risk. Ultimately, a sound lookout provides the last but also the main line of defence. It is disappointing that no report was generated by the ML pilot involved, who must certainly have been aware of this incident and so is possibly not any of those spoken to by the investigator.

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 ATC Unit involved and reports from the appropriate ATC and operating authorities.

It was evident from the SUP's report that Linton-on-Ouse ATC was aware of the presence of a number of contacts displayed on their ASR transiting through the approach to RW21 and to the E of the MATZ. These contacts might well have been the MLs seen by the student Tucano pilot and it was unfortunate that none of the ML pilot's had called to request an ATS or advise of their transit. The Board was most surprised that none of the pilots from the seven MLs saw the Tucano, and the absence of a report from the subject ML pilot had led to an incomplete account of this Airprox. Whilst the ML pilots were flying quite legitimately in Class G airspace, if they were able to communicate on VHF RT, a call to Linton ZONE would have been sound airmanship and might well have prompted a useful warning to the Tucano pilot that would have assisted his SA.

It was not surprising that the small MLs were not shown at all on the available LATCC (Mil) radar recordings and the HQ 1GP report had emphasised that it was not possible to determine what was actually displayed to the DEPS controller at the time as, in general, military terminal ATSUs do not

currently have the facility to record their radar data. The HQ 1GP report also suggests that without further evidence it would be irresponsible to create a hindsight-biased argument. However, a pilot Member disagreed with this view and advocated strongly that the Airprox process was based entirely on hindsight and that there were lessons to be learned for the benefit of the aviation community as a whole. Here, it was reported that DEPS had not considered it appropriate to pass a general warning to the Tucano pilot under the BS provided before the pilot switched 'en-route' at the MATZ boundary, but it was only moments later that the pilot encountered the group of MLs. Whereas DEPS might well have been engaged on other tasks, there was a fine balance to be struck over service priorities. It might be that passing a warning to the Tucano pilot could have been more appropriate at that stage and it was evident that APP had felt sufficiently concerned about it to query this with his colleague. Whilst there was no compunction upon the controller to pass TI under a BS, controller Members agreed that if another contact had been plainly displayed to the controller in such a position as to pose a hazard to traffic under service then 'best practice' would be to warn the pilot. This was the MAA's view and it seemed that this Airprox was a good example of where just such a warning would have provided a helpful 'heads-up' to the student pilot.

Even without the benefit of this warning from ATC, the Tucano pilot's lookout scan had later detected the group of MLs, enabling him to steer clear before he encountered the reported ML. However, his authorizing officer's account states that he had seen the subject ML at a late stage ½nm away and 50ft above his aeroplane. Nevertheless, pilot Members noted the Tucano pilot had seen it in sufficient time to assess the situation and enter a rapid descent, passing 200ft clear below it, and thereby resolve the conflict. Therefore, the Board agreed that this Airprox had resulted from a conflict in Class G airspace resolved by the Tucano pilot. Moreover, the Tucano pilot's robust avoiding action had, in the Board's view, effectively removed any Risk of a collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Conflict in Class G airspace resolved by the Tucano pilot.

Degree of Risk: C.