

AIRPROX REPORT No 2010156

Date/Time: 12 Oct 2010 1254Z

Position: 5154N 00016E (1.75nm
NE Stansted - elev 348ft)

Airspace: ATZ (Class: D)
Reporting Ac *Reported Ac*

Type: A319 C152

Operator: CAT *Civ Club*

Alt/FL: 1500ft↑ (QNH 1021mb) 1300ft (QNH 1022mb)

Weather: VMC CL BC VMC CL BC

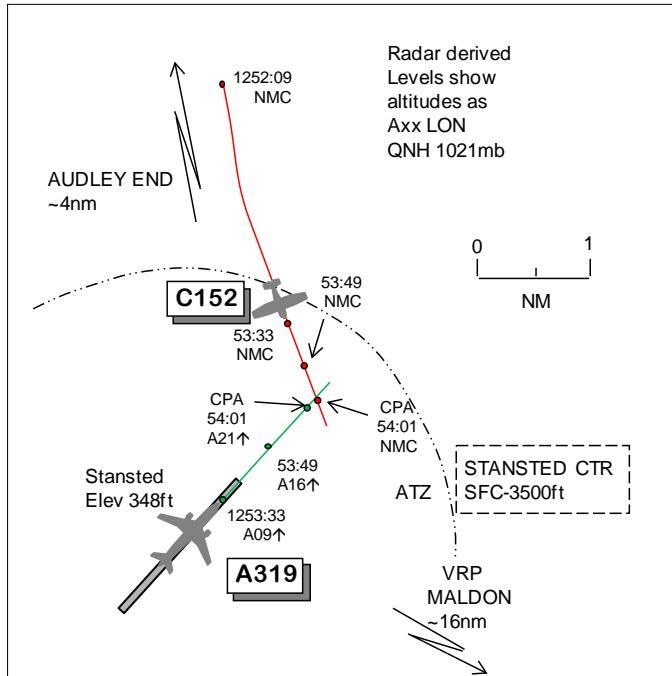
Weather: VMC CEBC VMC
Visibility: >10km 10km

Reported Separation:

700ft V/Nil H NB

Recorded Separation:

<0.1nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE A319 PILOT reports outbound from Stansted, IFR and in receipt of an Aerodrome Control Service from Stansted Tower on 123.8MHz, squawking 7707 with Modes S and C. Upon lining up on RW04 they were advised of light ac traffic (the subject C152) transiting the CTR not above 1500ft with a clearance to remain N of the RW and cross the RW04 threshold; however, it did not comply with this clearance. They had TCAS contact with the C152 whilst on the ground and were cleared for take-off. The C152 ac was Mode A transponder equipped so was not giving altitude readings. Heading 040° at 140kt they visually acquired the C152 shortly after take-off and it became apparent that the flight was not conforming to its clearance as it was tracking to cross the climb-out path at a distance of 1.5nm to the NE of RW22 threshold, level at 1500ft QNH. They received a TCAS TA which he was certain would have been an RA had the C152 been squawking Mode C. As they climbed through 1500ft he estimated lateral separation was 1nm. The C152 proceeded on its track below them and seconds later they passed O/H it with lateral separation of virtually zero and vertical separation of about 700-800ft. ATC's only intervention was to ask the C152 pilot if she preferred RW22 threshold for transit. Since he was able to maintain visual contact and considered collision unlikely they remained on the SID; no avoiding action was taken but safety was compromised. This separation was by luck, not design, so if the flight had been heavier or had used an intersection departure, separation would have been significantly less and it could have been very dangerous.

THE C152 PILOT reports en-route from Duxford to Henlow, VFR and in communication with Stansted Tower on 123.8MHz, squawking an assigned code with NMC. The visibility was 10km flying 1000ft below cloud in VMC and the ac was coloured white/purple; no lighting was mentioned. Routeing from Duxford via VRP Audley End [7nm N Stansted] and then VRP Maldon [19nm SE Stansted] she had been cleared to transit N of RW04 threshold at Stansted not above 1500ft on 1022mb. She accidentally approached the wrong end of the RW (22 threshold) at 1300ft and when she realised it was too late to change course. An A319 was on the RW as she approached and it began to take-off so she remained on heading 130° at 90kt and 1300ft and the A319 climbed well above. There was little noise and she felt no wake turbulence. She stated that she was a low-hours PPL pilot and this was her first zone transit. She apologised for this mistake and has taken action to address it with the Flying Club CFI.

THE C152 FLYING CLUB CFI reports that following this incident the pilot immediately notified him and the event was gone through to ensure she recognised and understood her mistake. Following on from this he has made several dual instructional training flights with the pilot including a VFR zone transit O/H an international airport to ensure she is fully aware of her mistake and to reinforce the correct procedures. Also included was more RT instruction for transit clearances and emphasis on understanding and querying if necessary.

THE STANSTED AIR CONTROLLER reports accepting the subject C152 VFR not above altitude 1500ft from Audley End and intending to route it via the RW04 threshold and then to the SE. The flight was transferred to the AIR frequency when the ac was 2nm S of Audley End and she instructed it to route towards the 04 threshold and to remain N of the RW. In the same transmission she gave TI on the A319 which was about to take-off, but had not yet been given take-off clearance, on a CPT 2S departure. She then passed TI on the C152 to the A319 flight, which was acknowledged, and she then issued take-off clearance. She was not visual with the C152 owing to reflections of the sun but from the ATM she could see the ac routeing towards the RW22 threshold. At this point she asked the C152 pilot if she was visual with the A319 and if she would prefer to route via the RW22 threshold. AIR became visual with the C152 just as it was routeing beneath the A319 and crossing the RW22 threshold. The A319 crew reported that it was close to confliction.

ATSI reports that the Airprox occurred at 1254:01, 1.8nm to the NE of Stansted Airport, within the Stansted Aerodrome Traffic Zone (ATZ), Class D airspace, which has a radius 2.5nm and extends from the surface to 2000ft above aerodrome level.

VFR ac inbound or intending to transit the Stansted CTR or CTA are required to contact LTC Essex Radar 5min before the CTR/CTA boundary.

The A319 was an IFR flight departing from Stansted following a CPT 2S SID to Alicante and the C152 was a VFR flight from Henlow to Duxford. The radar recording shows the C152 displaying an SSR code without Mode C reporting.

The initial part of the CPT 2S SID is promulgated as ‘Climb straight ahead. At I-SED D2 (BKY VOR R119) turn left onto BKY VOR R102 by BKY D7 to BKY VOR. Crossing BKY VOR R102 D5 at 3000 or above.’

The Stansted Air controller (Tower) reported being well rested prior to the start of shift at 1230. The controller had been on duty for 20min before the incident, reporting workload as light, in good Wx with very sunny conditions. All equipment was reported as serviceable and RW04 was the notified RW in use.

Audley End is situated 7nm N of Stansted Airport and Maldon VRP is situated 18nm to the SE of Stansted Airport and are shown on the UK AIP Stansted CTR and CTA chart, AD 2-EGSS-4-1 (22 Oct 09).

METAR EGSS 121250Z 01009KT 9999 SCT023 14/09 Q1021=

At 1247:50 the C152 flight contacted Radar, requesting a zone transit, “*(C152)c/s a Cessna one five two from Duxford to Henlow via V R P Maldon at two thousand feet over Audley End request zone transit.*” Radar issued a squawk 0201 and asked the pilot to confirm the requested routeing was via VRP Maldon. The C152 pilot confirmed this routeing and Radar then identified the C152 at Audley End, passing the QNH 1021mb. The C152 pilot requested a BS and Radar responded, “*Roger Basic Service you have report when you have Stansted Airfield in sight do you er do you wish to transit via the zero four threshold confirm.*” The pilot replied, “*Affirm (C152)c/s.*”

At 1249:55 Radar passed the C152 flight a clearance to transit the Stansted CTR, “*(C152)c/s roger you are clear to transit the Stansted Control Zone not above altitude one thousand five hundred feet V F R initially to remain one mile to the north of Stansted Airfield report visual with Stansted.*” The C152 pilot responded, “*Not above one thousand five hundred feet er at Stansted er one nautical mile*

and (C152)c/s." It was not clear if the C152 pilot fully understood the clearance to remain 1nm N of Stansted airfield and Radar did not challenge the incomplete read back.

At 1250:00 Radar advised Tower about the C152 at Audley End, squawking 0201, requesting a transit of the ATZ via the 04 threshold. Tower acknowledged the details and agreed for the transfer of control once the C152 pilot reported visual with the airport.

At 1250:42, Essex Radar advised the C152 flight, "*(C152)c/s now inside controlled airspace radar control service Q N H one zero two one.*" The pilot replied "*Affirm radar one zero two one (C152)c/s.*" Radar then passed full details of the C152 to the Tower giving c/s, not above 1500ft, VFR outbound from Duxford and routeing to the SE of Stansted. Radar did not advise the Tower controller that the C152 flight had been instructed to remain 1nm N of Stansted airfield. The C152 pilot reported visual with Stansted and was then transferred to the Tower (1251:20).

Meanwhile at 1251:00, Tower instructed the A319 flight to line up, "*(A319)c/s Stansted Tower via hotel one line up runway zero four*" and the A319 crew responded: "*Via hotel one line up and wait runway zero four (A319)c/s.*" Radar recording showed the C152 position to be 6·2nm N of the airfield.

At 1251:42, the C152 flight called Tower, "*Stansted tower good afternoon (C152)c/s is with you from Essex Radar.*" Tower replied, "*(C152)c/s Stansted Tower good afternoon you can route towards the zero four threshold remaining to the north of the runway traffic about to depart is a (A319 operator) three one nine will be routeing to the west.*" The C152 pilot replied, "*Zero four stay north of the runway er copy traffic (C152)c/s.*" No RW in use had been stated and it was not clear if the C152 pilot fully understood the TI regarding the A319 departing to the W. Immediately after this at 1252:10, the Tower controller passed TI to the A319 crew, "*(A319)c/s traffic is a Cessna one five two currently two miles to the east of climb-out it will be routeing towards the zero four threshold it's not above altitude one thousand five hundred feet V F R.*" The A319 crew replied, "*Copy the traffic (A319)c/s.*" Later, when discussed, the Tower controller accepted that the TI passed was incorrect and should have been passed as N of the climb-out. The controller had not acquired the C152 visually but the ac was displayed on the ATM. The radar recording showed the C152 was 4nm NNE of the airfield. The Tower controller had an expectation that the C152 would remain N of the airfield routeing to the 04 threshold. At 1252:25, the A319 flight was cleared for take-off RW04 with the surface wind 030/10 knots, which was read back correctly.

At 1253:01 as the A319 was rolling, a vehicle, c/s Ranger 1, requested permission to enter the RW to check on a surface repair. At 1253:15 the Tower gave the vehicle a conditional clearance: "*Ranger one roger after the departing (A319 operator) enter runway zero four at Papa Romeo.*" This was acknowledged correctly by Ranger 1. Radar recording showed the C152 was 2·5nm NNE of the airfield. At 1253:27, as the A319 became airborne, the radar recording showed the C152 tracking 170° without Mode C, 1·4nm N of the RW extended centreline and 2nm NNE of the airfield. The controller continued to believe that the C152 would turn and route N abeam the airfield. Tower asked the C152 flight, "*(C152)c/s confirm you're visual with the departing traffic.*" The pilot responded: "*Affirm visual (C152)c/s.*"

The Tower controller reported that it had been difficult to obtain an early visual sighting of the C152, which was being monitored on the ATM. The controller believed that the C152 would turn downwind N of the airfield and indicated that locally based helicopter pilots, familiar with procedures, often route downwind, quite close to the airfield. However, fixed-wing ac transiting the ATZ are less frequent and the controller felt this may have been an important factor that influenced the expectation, even at a late stage, that the C152 would remain N.

At 1253:33, the radar recording showed the A319 appear at the end of RW04, passing altitude 900ft, with the C152 in the A319's 11 o'clock position at 1·6nm, crossing L to R. The Tower controller then acquired visual contact with the C152 and considered that the C152 might be able to route behind the A319. Consequently at 1253:48 the Tower controller transmitted, "*And (C152)c/s er would you prefer to cross at the two two threshold or the zero four.*" The C152 pilot replied, "*Two two (C152)c/s.*"

At 1254:01, the A319 crew reported: “*Yeah that was a bit late he er I think he'd already chosen the two two and was er almost a confliction on our departure there actually (A319)c/s.*” This was acknowledged by the Tower controller and the A319 was transferred to Stansted Director.

[UKAB Note (1): The CPA occurs at 1254:01; the C152 is now in the A319's 1230 position range 0·1nm, the A319 now climbing through altitude 2100ft.]

The controller, asked to consider any action that could in future prevent such an incident, believed that instructing the C152 flight to carry out an orbit would have prevented the incident. It was only after the incident that it became apparent that the C152 pilot was mistakenly routeing to the wrong threshold. In addition the controller felt that the establishment of intermediate VRPs for fixed wing ac routeing N and S of the airfield, would enhance procedures, but accepted that this might be difficult to achieve, owing to the lack of geographical features.

As a result of the Airprox the ATSU have recommended that difficult VFR/IFR scenarios be introduced into the annual Training in Unusual Circumstances and Emergency (TRUCE).

The ATSU have recommended that CAA review MATS Part1 guidance with a view to ensuring that the relevant Section 3 (Approach Services), Chapter 4 (Integration of VFR/IFR flights in Class D airspace) entry is re-iterated in Sections 1 (Air Traffic Services) or Section 2 (Aerodrome Services) as required, particularly for the benefit of single-rated controllers.

As a result of the Airprox NATS Swanwick LTC, have reviewed procedures for the integration of VFR/IFR, resulting in the issue of a MATS Part 2, Supplementary Instruction SI133/10 LTC, effective from 02/12/10. This outlines the procedures that should be employed for the coordination of low-level flights into or through the London City, Stansted, Luton and Gatwick CTR/CTAs.

Both the Radar and Tower controllers had instructed the C152 pilot to remain N of the airfield and route towards RW04 threshold. The pilot was inexperienced and had accidentally routed to cross RW22 threshold. This was considered to be the primary causal factor which, in the absence of any corrective action, allowed the C152 pilot to continue into conflict with the departing A319. A number of breached safety barriers allowed the pilot's mistaken assumption and misunderstanding to continue unchecked; these are listed below.

The coordination between Radar and Tower regarding the clearance to transit was not clear. The pilot's incomplete read backs went unchallenged. AT SIN 183 (05 May 10) refers to 'effective monitoring of pilot read backs and RT discipline' and paragraph 1.1 states:

'There have been several serious incidents recently to which a major contributory factor was the controller not identifying and correcting mistakes made by pilots during read backs of an ATC clearance or instruction.'

More accurate TI would have aided the situational awareness of both the C152 and A319 pilots. MATS Pt1, Appendix E, Page 2, paragraph 1.1, states:

'...the information and instructions transmitted are of vital importance in assisting in the safe and expeditious operation of aircraft. However, the use of non-standard procedures and phraseology can cause misunderstanding.....'

The C152 reached a point when the possibility of a confliction would have been apparent to the Tower controller. CAA ATSI considered that at this point, the Tower controller did not provide appropriate instructions to assist the pilots in avoiding the conflict and this was considered to be a contributory factor; therefore the controller must bear partial responsibility for the Airprox occurring. MATS Part1, Section 2, Chapter 1, Page 1, 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;
- b) aircraft taking-off and landing."

The opportunity to issue appropriate instructions and resolve the situation was missed. Once the A319 became airborne it was too late.

CAA ATSI recommends that the CAA should consider a review of the MATS Part 1, Section 3, Chapter 4, guidance (Integration of IFR/VFR traffic in Class D airspace), with a view to re-iterating guidance within sections 1 or 2 as required, particularly for the benefit of single-rated ATCOs. MATS Part 1, Forward, Page 1, paragraph 1.1, states:

'Operational controllers are expected to have a detailed knowledge of Sections 1 and 5, together with the same degree of knowledge of those Sections appropriate to their licence....'

CAA ATSI recommends that Stansted ATSU review coordination procedures and the phraseology used for zone transit clearances, with a view to ensuring that, when required, they reflect any appropriate clearance limit imposed.

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.

Members agreed with the ATSI viewpoint that the root cause of this Airprox was that the C152 pilot did not comply with the ATC instruction to route via the RW04 threshold and flew into conflict with the A319. The initial plan instigated by Essex and subsequently transferred to Tower had been good; however, it was poorly executed. Although Essex Radar did not tell Tower that the C152 flight had been instructed to remain 1nm N of Stansted, the subsequent instruction issued by Tower to route towards the RW04 threshold remaining N of the RW, after the pilot's initial call on frequency, superseded the previous Essex clearance. Members believed that the timeline of events showed that when the A319 flight was cleared for take-off, the situation was safe. Although the TI given to the A319 flight had been erroneous with respect to the C152's position relative to the climb-out, the crew had seen the C152 on TCAS and were aware of its intended flightpath. Tower did not advise the C152 pilot which RW was in use and the information that the A319 was departing to the west could have contributed to the pilot becoming confused; however, the C152 pilot subsequently saw the A319 on the RW before it took off, thereby removing any ambiguity. There appeared to be no reason for Tower to doubt that the C152 pilot would not comply with the clearance; the controller was anticipating the ac to turn downwind when close to the aerodrome. However, Members expressed concern because Tower was attempting to provide reduced separation in the vicinity of the aerodrome, which was dependant on the controller seeing both ac visually and continuously. Although the C152 could not be seen visually from the VCR, the ac's track was there to be 'seen' from the ATM and the information displayed should have alerted the controller to the fact that the C152 was routeing to pass to the E of RW22 threshold. This was an opportunity to challenge the intentions of the C152 pilot; however, Tower only asked the C152 pilot for confirmation that she was visual with the A319 and received a reply of "affirm...". By now the C152 was entering the ATZ NNE of Stansted but still tracking SSE'ly towards the climbout. Members believed that Tower could and should have clarified the situation to ensure that the C152 pilot was going to act in accordance with her 'mental model' by asking the pilot if she was going to turn downwind and/or by issuing a positive instruction to alleviate the situation. As it was, after Tower visually acquired the C152, she believed that the C152 would be able to pass behind the A319, which was already above the C152's altitude

and climbing, and offered the C152 pilot routeing via the RW22 threshold. . Members agreed that Tower could have done better but her actions had not been a causal factor in the incident.

Turning to risk, the C152 pilot had, for whatever reason, not assimilated the ATC clearances issued and, after sighting the departing A319, elected to continue on track in the belief that it was too late to take action. Fortunately the A319 crew had good SA and had located the C152 on TCAS prior to departure. Immediately after take-off the crew visually acquired the C152 and quickly realised that it was in potential conflict, reinforced by a TCAS TA. They monitored the C152's flightpath and continued on the SID after assessing that collision was unlikely. Members agreed with the A319 crew's assessment that this had had the potential for being a much more serious incident. Nevertheless, the visual sightings by both crews and actions taken by the A319 crew combined with the geometry that pertained were enough to persuade the Board that any risk of collision had been quickly and effectively removed.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The C152 pilot did not comply with the ATC instruction to route via the RW04 threshold and flew into conflict with the A319.

Degree of Risk: C.