

## AIRPROX REPORT No 2010069

Date/Time: 11 Jun 2010 0808Z

Position: 5138N 00115W (8nm N CPT)

Airspace: Oxford AIAA (Class: G)

Reporting Ac Reported Ac

Type: CL601 EA500 Eclipse

Operator: Civ Comm Civ Pte

Alt/FL: FL50 FL50

Weather: IMC KLWD IMC KLWD

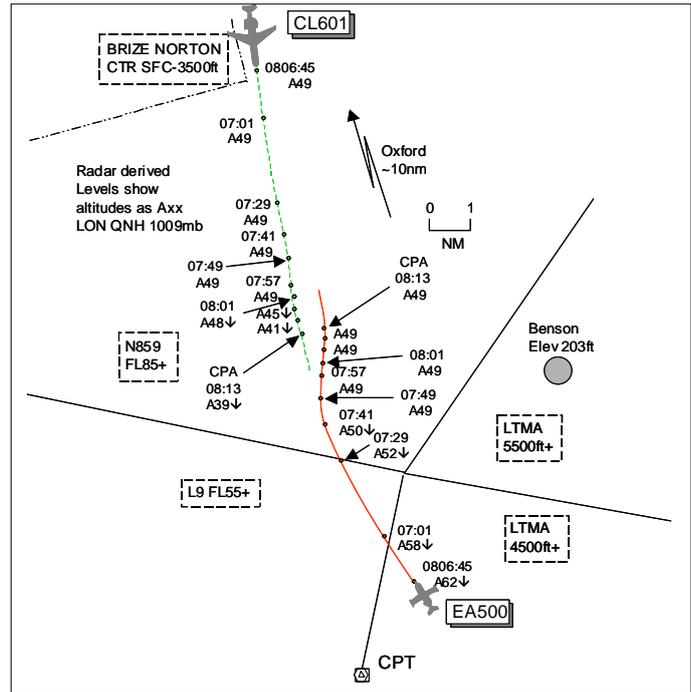
Visibility:

Reported Separation:

NR Not seen

Recorded Separation:

1000ft V/0-6nm H



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

**THE CL601 PILOT** reports outbound from Oxford on a positioning flight to Farnborough IFR. Clearance was obtained from Oxford Tower before take-off for a standard RW01 CPT departure, which involves a climb to FL50 via the Oxford O/H and then a transfer to Brize for a radar service. Wx conditions at the time were OVC 900ft with N'yly wind of 10kt. They departed RW01, made a L turn as usual to route back through the O/H and then direct CPT. Very quickly they entered cloud and became completely IMC with no visibility whatsoever. They contacted Brize and requested and received a TS squawking 3710. As usual they were displaying TCAS at a range of 25nm and they noted a few ac, which were also pointed out by Brize, none of which were deemed to be a threat and the climb was uneventful. About 15nm N of CPT level at FL50 a TCAS contact suddenly appeared ahead of their track at about 10nm; this contact did not drift into the TCAS display from the edge as expected but suddenly appeared as if a transponder had just been switched on. It was his habit to scan the TCAS display very frequently when in such conditions so he saw the exact moment when this contact appeared. He commented to his co-pilot "look at that" and immediately zoomed in the TCAS range to 10nm. He was the PF so already had his finger hovering over the Touch Control Steering (TCS) button ready for a possible RA. At the same time he saw the contact, Brize also gave them a traffic alert about the same new contact, Brize stating it was 5nm ahead and descending through their level. Both he and the co-pilot noted the contact was indicating 100ft above them and showing a down arrow so they believed it would keep descending below their level. He couldn't tell if the contact was coming towards them or flying slowly in the opposite direction but for sure they were getting closer. The other ac levelled at FL50, the same level as them, and was now getting closer, perhaps 2nm or less. He was just about to take avoiding action when they received a TCAS RA commanding a descent, which he duly did. As he initiated a rapid descent he thought he heard Brize try and give them avoiding action but he wasn't sure. They descended to FL35 and observed the other traffic on their display passing O/H before they then climbed to FL50 and continued onto Farnborough without further incident. He was satisfied that they had reacted in a timely and correct manner as per their SOPs. He had a lot of experience flying in uncontrolled airspace (especially around Oxford) and understood the risks involved. With hindsight he thought given their direction of flight they should have been at FL55 (odds +500ft) but FL50 seems to be the standard level used when transiting towards CPT. He assessed that this had been a 'close one' with a serious risk of collision which, thanks to TCAS and training, was avoided.

**THE EA500 ECLIPSE PILOT** reports that he was not aware of being involved in an Airprox inbound to Oxford IFR. He was contacted 2-5 weeks post incident and could not recall any incident during this flight or that his TCAS generated a TA. Having been told that the other ac had manoeuvred following a TCAS RA he has asked for his TCAS system to be tested without delay. He recalled that he had been in communication with London and then Oxford Approach squawking an assigned code with Modes S and C. He was kept at FL50 after CPT as Oxford Approach stated there was departing traffic. At the time he was flying in cloud and did not see any other ac. As he approached the OX Approach asked if he could make a descent for the approach so he requested a RH orbit – on the safe side of the holding pattern – to lose height. This was agreed and he was asked he could make the approach from his current position, which he did without a problem. He was fully aware of the heavy traffic situation at Oxford during weekdays and was used to having to hold so working with ATC in the way he did was not unusual. He was also aware of the handover procedures from London to Oxford Approach.

**HQ 1Gp BM SM** reports that owing to the late notice provided to the ATSU of this Airprox and the availability of unit ATC staffs, this analysis has had to be completed without reference to reports from Brize LARS and the Supervisor. Consequently, this analysis has had to rely solely on the LARS tape transcripts and the CLH radar replay.

The CL601 was pre-noted by Oxford Kidlington Approach (OXF APP) to LARS at 0756:03, outbound from Oxford Kidlington, routing towards Farnborough. OXF APP stated during the pre-note that the CL601 was, “looking for five [FL50] but actually I might stop at four for the moment.” No mention was made of any reason for the capped level. At 0803:13 OXF APP contacted LARS stating that they, “may see [traffic] coming from the south at flight level five zero on a zero-six-five-four squawk [the EA500].” There is no formal, or suggested, request made by OXF APP for coordination. At this point, the EA500 is approximately 38nms SE of BZN at FL121 and almost certainly beyond the edge of LARS’s surveillance display.

At 0804:20 the CL601 flights called LARS, “*Brize hello it’s CL601 c/s climbing flight level four zero er turning towards the overhead of Oxford and then Compton*”. LARS replied, “*CL601 c/s Brize Radar identified climbing flight level five zero what type of service do you require?*” It is unclear whether the controller forgot that the CL601 was initially climbing to FL40 mistakenly saying FL50, or whether they used the wrong word to instruct the flight to climb to FL50. Given that the CL601 crew read back an instruction to climb to FL50 and that this was not challenged by LARS, this suggests that the controller’s intention was to issue a climb to FL50. Although OXF APP had stated that Brize “may see [traffic] coming from the south,” at the point that LARS issued the climb the radar replay shows that there was no traffic to affect the climb, with the EA500 31.8nm SE of the CL601, descending through FL103. The CL601 subsequently requested and was placed under a TS.

At 0805:48 LARS commenced a pre-note on the CL601 to Farnborough APP, with LARS stating at 0806:22 that they were, “*watching that Oxford one coming off at CPT to see what he’s gonna do*.” At this point, the EA500 is approximately 17nms SSE of the CL601, descending through FL71. The conversation between Farnborough APP and LARS finished at approximately 0806:38.

At 0806:47 LARS passed TI to the CL601 on the EA500, correctly describing the EA500’s position as, “*...left eleven o’clock one-three miles crossing left right, at flight level six zero descending*.” This was acknowledged by the CL601 crew. At 0807:29 LARS contacted OXF APP requesting TI on the EA500, receiving the response that the ac was, “*He’s descending to join visually zero-one right*.” At this point, the EA500 is approximately 7nm away indicating FL52. LARS asked OXF APP to confirm that the EA500 was continuing their descent, to which OXF APP replied, “*Yes*.” OXF APP then re-affirmed at 0807:37 that the EA500 is “*He’s continuing visually*.” Not only will this conversation have enforced in the mind of LARS that the EA500 crew were continuing their descent, thereby easing the confliction, but that they were also operating VFR and would therefore be able to effect their own separation.

Immediately after this conversation at 0807:40 LARS updated the TI to the CL601, “*CL601 c/s previously called contact left eleven o’clock six miles opposite direction at flight level five zero*”

*descending*". The CL601 crew replied that they could see the conflicting traffic on TCAS (0807:47) adding that it appeared level. This prompted LARS to offer, "*CL601 c/s do you require avoiding action?*" However, no reply was received. At this point the EA500 bears approximately 170° at a range of 3.3nm. At around 0807:57 with around 2.3nm separation, the EA500 appears to increase the rate of turn in the slow R turn that they had been following. It is not known whether this was prompted by becoming visual with the CL601, but on the basis that after the CPA the ac appears to resume a more N'y direction, this appears possible. At 0808:07 (the next sweep of the radar) with around 1.1nm separation, the CL601 has commenced a descent to avoid the EA500.

CAP774 states that under the terms of a TS 'whether traffic information has been passed or not, a pilot is expected to discharge his collision avoidance responsibility without assistance from the controller' and that the responsibility for upgrading the service to a DS rests with the pilot. Despite this, in trying to provide the CL601 with the best service possible, LARS immediately asked the CL601 whether they required avoiding action. The CL601 crew does not respond immediately to this transmission, responding 24sec later that they were, "*...clear of conflict returning five zero.*" Whilst it is unclear from the tape transcript whether the CL601 received a TCAS RA, it is clear from the pilot's response that they manoeuvred vertically to avoid the conflict.

In the absence of a report from LARS the following is supposition; however, from an ATM perspective, this situation presented them with a moral dilemma as to whether to issue avoiding action having offered it, in the absence of agreement from the CL601. Shortly after LARS asked the CL601 whether they required avoiding action, the R turn started by the EA500 begins to become evident on radar, hence the risk of collision is reducing. Under the terms of a TS, LARS had clearly fulfilled their obligations and their training will have underlined the importance of allowing aircrews time to assimilate information and act accordingly. BM SM Spt contends that LARS acted correctly in not issuing further instructions in the absence of a response from the CL601. LARS complied with the terms of the TS, but used sound professional judgement to extend beyond this remit by offering avoiding action and then allowing the crew time to resolve the situation.

Given the traffic picture presented to LARS at the point that the CL601 flight first called, it would be wholly inappropriate to suggest that LARS could have limited the CL601 to FL40, as per the pre-note from OXF APP and as a result of the TI about the EA500, "coming from the south at flight level five zero." Under the terms of a TS, LARS acted appropriately throughout and extended beyond their remit in offering deconfliction advice when they perceived the seriousness of the developing situation.

**THE OXFORD APP** reports that the incident was not reported to ATC at the time and had no recollection of the incident. After looking at the fpss it appeared that the EA500 was estimating CPT at 0822 and the CL601 departed at 0803. An acceptance level of FL50 was allocated to the EA500 and the CL601 was restricted to FL40 against that ac under a radar service from Brize Radar. Subsequently the EA500 elected to make a visual approach. The APP was not aware at what time or where the incident occurred.

**ATSI** reports the Airprox occurred at 0808:14, in Class G airspace, 12.6nm SSE of Oxford Airport and 8.5nm NNW of Compton VOR (CPT). The Canadair CL601 was making an IFR positioning flight from Oxford to Farnborough via CPT. The Eclipse EA500 was inbound IFR to Oxford from Pontoise (LFPT) via CPT. Oxford Approach (APP) and Tower (ADC) were operating as separate positions, with both controllers seated at the same desk. Oxford Approach provides an Approach Procedural Control Service without the use of surveillance equipment. A radar service can be provided by RAF Brize Norton LARS, in accordance with a Letter of Agreement (LOA). ATSI had access to RT transcription, radar recordings and written reports. The area surrounding Oxford is a complex traffic environment, with a varied combination of activity in Class G airspace. The unofficial met observation for Oxford was reported as: EGTK 110810Z 36005-10KT 9999 BKN010 OVC012 13/11 1009=

At 0747:55 the CL601 flight called Oxford Tower requesting start for Farnborough in receipt of ATIS information 'C' and QNH 1009mb. The CL601 pilot confirmed that he was happy for a handover straight to Farnborough and at 0756:03 a clearance was requested from Brize LARS, "*(CL601)c/s Challenger C L sixty- two on board.....looking for five but actually I might stop at four for the moment*

*he's only going Compton to Farnborough but he wants radar to radar if he can please he'll be off zero one...".* Brize LARS asked if Oxford had a partial airways clearance and Oxford APP confirmed that the ac was not entering CAS, *"No they won't he's not entering. He's going under isn't he radar to radar."* Brize Radar asked for confirmation of the c/s and gave departure instructions, *"(CL601)c/s....is cleared for a standard Compton your stop flight level four zero request five zero with me inbound to Farnborough squawk three seven one zero".* This was read back by APP as, *"three seven one zero one two four decimal two seven five".* Brize responded with, *"that's correct"* and Oxford added, *"Flight level four zero thank you".* This incorrect read back caused APP to assume that the CL601 would maintain FL40. At 0759:55 ADC passed this clearance to the pilot of the CL601, *"Brize clears (CL601)c/s for a standard Compton departure climb flight level four zero squawk three seven one zero onward clearance with Brize Radar one two four decimal two seven five".* The pilot gave a correct read back. The standard Compton departure is not a published procedure and the pilot requested confirmation that the standard departure from RW01 is a L turn through the O/H and then direct to CPT. This was confirmed by ADC.

Simultaneously, at 0802:00, APP advised LARS that the CL601 was about to depart, ADC gave the CL601 flight take-off clearance and LTC (S Coordinator) requested a level for the inbound EA500. FL50 was allocated, with QNH 1009, frequency 125.325MHz and in response the LTC (S Coordinator) confirmed that the EA500 would be released out of FL70. At 0803:13 APP passed details of the inbound EA500 to Brize Radar, *"and just for information you may see coming from the south at flight level five zero on a zero six five four squawk.....(EA500)c/s".* This was acknowledged with, *"Okay"* and at 0804:01 the outbound CL601 was transferred to Brize LARS. The written report from the pilot of the CL601, states that a TS was requested from Brize Radar.

At 0806:12 the EA500 flight called Oxford APP passing CPT descending to FL50 and the details were passed to Benson Radar, who indicated that they had no traffic to affect. At 0807:02 Oxford APP asked the EA500 pilot if he required the NDB100 for circling or the NDB to RW01. The pilot confirmed that he would prefer circling and requested the visibility. APP passed the latest Wx, *"At the moment we have in excess of ten kilometres with cloud broken at one thousand feet overcast one thousand three hundred feet".* The pilot then requested to join base leg for RW01 and was cleared for a visual join, R base for RW01. CAP493, Manual of Air Traffic Services, Part 1, (11/03/10) – (MATS Pt1), Section 3, Chapter 1, page 12, paragraph 12.1, states: 'To expedite traffic at any time, IFR flights, either within or outside controlled airspace, may be authorised to execute visual approaches if the pilot reports that he can maintain visual reference to the surface and: a) the reported cloud ceiling is at or above the level of the beginning of the initial approach segment; or, b) the pilot reports at any time after commencing the approach procedure that the visibility will permit a visual approach and landing, and a reasonable assurance exists that this can be accomplished.'

APP incorrectly approved the visual approach when the cloud ceiling was below the beginning of the initial approach segment for the instrument procedure. This is not considered to be a factor in the Airprox. APP still assumed that the CL601 is climbing to FL40 and did not coordinate the descent with Brize Radar.

At 0807:29 Brize LARS called, *"Hello it's Brize zero six five four".* Oxford responded, *"He's descending to join visually for zero one right hand".* Brize asked *"He's he's co- continuing his descent is he"* and Oxford answered *"Yes he's going to descend ok".* Brize LARS acknowledged with *"Roger thank you.....".* At 0807:40 APP, in the belief that the CL601 was climbing to FL40, passed incorrect TI to the EA500 flight, *"(EA500)c/s traffic is a Challenger climbing FL40 working Brize he's on a 3710 squawk at this time remain outside the Brize Control Zone".* Under a PS, APP could not pass accurate TI on the CL601 as the flight was no longer in communication with Oxford and the intentions of the CL601 at this point were unknown to APP.

At 0807:57 the radar recording shows both ac maintaining altitude 4900 ft (FL50 based on QNH 1009 and 1mb equal to 27ft) and 2-3nm distance apart, on reciprocal tracks. Shortly afterwards at 0808:13, at the CPA, the radar recording shows the CL601 has descended to altitude 3900ft (FL40), passing 0.6nm W abeam the EA500, indicating altitude 4900ft (FL50).

Brize LARS had initially issued a clearance for the CL601, "...stop flight level four zero request five zero with me...". Oxford APP gave a partial read back "Flight level four zero.." and mistakenly presumed that the CL601 was climbing to maintain FL40, when in fact the ac had climbed to FL50, whilst in receipt of a service from Brize Radar. MATS P1, Section1, Chapter 10, Page 2, paragraph 4.1, states: 'Great care must be taken when co-ordinating aircraft that are climbing or descending, or are expecting further climb or descent, to ensure that accurate information is given and that any agreement takes account of the actual or proposed flight profile and/or cleared level.'

The poor read back of clearance by Oxford APP combined with the use of non-standard phraseology during the telephone conversations between the two units contributed to a misunderstanding by Oxford APP. MATS Pt1, Appendix E, Page 2, paragraph 1.1, states: 'Radiotelephony provides the means by which pilots and ground personnel communicate with each other. Used properly, 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. Incidents and accidents have occurred in which a contributing factor has been the misunderstanding caused by the use of non-standard phraseology. **The importance of using correct and precise standard phraseology cannot be over-emphasised.**'

Neither, Oxford APP or Brize LARS requested co-ordination or agreed any course of action that would have resolved the potential conflict earlier. Oxford APP was providing a PS to one flight and Brize LARS a service to the other. Both units were aware of the inbound and outbound IFR ac.

The EA500 was in receipt of a PS from Oxford Approach, who could not effectively achieve the deconfliction minima because the CL601 was no longer participating in the PS. No agreement or plan had been coordinated to ensure that separation would be assured. MATS Pt1, Section 1, Chapter 11, Page 10, paragraph 6.1.1, states: 'A Procedural Service is an ATS where, in addition to the provisions of a Basic service, the controller provides restrictions, instructions and approach clearances, which if complied with, shall achieve deconfliction minima against other aircraft participating in the Procedural Service. Neither traffic information nor deconfliction advice can be passed with respect to unknown traffic.'

TI on the inbound EA500 had been passed to Brize LARS before the CL601 was transferred to them. Oxford APP had an expectation that Brize LARS, with the benefit of surveillance equipment, would be in a position to determine if coordination was required. MATS Pt, Section1, Chapter 10, Page 1, states: 'Traffic information passed between ATS personnel is information about aircraft that is relevant to the provision of an air traffic service. The purpose of traffic information is to enable the recipient to determine whether or not any action is necessary to achieve or maintain the required separation between the subject aircraft. For example, after receiving traffic information, a controller may consider it necessary to issue avoiding action or may request co-ordination with respect to the traffic.'

It is probable that Oxford APP had planned that the outbound would climb to FL40 and offered FL50 to the inbound. An agreed course of action was not coordinated with Brize LARS who gave an initial restriction FL40 but added 'request climb five zero with me'. APP gave an incorrect read back and a misunderstanding occurred. In the complex airspace surrounding Oxford, the added benefit of the radar surveillance, provided by Brize and Benson, serves to enhance the flight safety environment. However the radar provision is subject to these radar units' own operational requirements and controller workload capacity. The procedural nature of the service provided by Oxford requires that inbounds are transferred early. ATSI considers it essential that Oxford MATS Part 2 provides tactical and coordination procedures sufficient to ensure that separation between Oxford IFR ac, inbound and outbound, is not compromised. It is therefore recommended that:

Oxford Airport review tactical and coordination procedures for inbound and outbound IFR ac. Controllers are reminded of the importance of using correct and precise standard phraseology.

## **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.

It was clear to the Board that Brize LARS and Oxford APP were providing incompatible ATC services and were working, effectively, in isolation. That said, the two controllers had exchanged information but neither elected to agree formal coordination, which led to assumptions being made and erroneous information being passed. The APP's mindset was that the CL601 was climbing to maintain FL40 and would be separated from the EA500, which had been allocated FL50. However, the CL601 was not working APP and therefore it was not participating traffic; APP would have needed to agree a course of action with LARS to ensure separation. However, there was no requirement for LARS to provide separation to the CL601 whose pilot requested and had been provided with a TS. LARS climbed the CL601 to FL50 and the crew was given TI on the EA500 from APP whilst LARS had watched it approaching CPT from the SE. There was no requirement for LARS to inform Oxford APP about the CL601's climb to FL50, and he did not do so; however, had this information been passed onto Oxford APP, it would have changed APP's SA on the developing situation. LARS passed TI to the CL601 crew when separation was 13nm with the EA500 descending through FL60. LARS then queried with APP the intentions of the EA500 and was told that it was descending to join visually for RW01 with a RH cct. This was an assumption by APP for, in the procedural environment, APP would not have been aware that it had levelled at FL50 unless the controller had asked for the EA500 pilot to report a passing level having been cleared to descend. This erroneous TI had led LARS to believe that the EA500 would be descending out of conflict and this was relayed to the CL601 crew in updated TI with 6nm separation. The CL601 crew queried this 'descent' with LARS, informing the controller that TCAS showed the EA500 had levelled-off at the same level. Pilot Members considered that flying in IMC under a TS was unwise and that a DS should have been requested, either from the outset but certainly when the potential conflict had been highlighted by LARS' TI. LARS were unaware of the CL601's in-flight conditions and had only passed TI, as required under the TS, but had quickly asked whether avoiding action was needed on receiving the updated level information on the EA500. This service 'upgrade' offer was not taken up as the CL601 crew was reacting to the TCAS RA descent.

Simultaneously with this exchange between LARS and the CL601 flight, APP, whose SA had not been updated during any of the exchanges with LARS, was passing erroneous TI to the EA500 pilot stating that the CL601 was climbing to FL40. This information may have led the EA500 pilot to maintain FL50 instead of descending for his approach to Oxford, the pilot being unaware from his TCAS equipment of the CL601's proximity. This anomaly could not be explained considering the geometry of the encounter apart from the TCAS equipment being u/s. Pilot Members wondered what type of approach the EA500 pilot was planning to carry out, having been cleared by APP for a visual join onto R base for RW01 when the cloud ceiling was below the level of the beginning of the initial approach segment for the instrument procedure, contrary to MATS Part 1, whilst the ac in flying IFR in cloud in IMC. Whether there had been some confusion between what the pilot wanted and what APP cleared the flight to do was not clear; however, the onus was on the EA500 pilot to inform APP if he could not comply with the ATC instruction issued.

Members noted the CL601 Capt's observations when he saw the EA500 suddenly appear in conflict on his TCAS display. However, the recorded radar clearly shows a continuous radar return on the EA500 squawking an ORCAM assigned code tracking NW'ly and descending within CAS towards CPT. While the Board could not explain the late appearance of the EA500 on the CL601's TCAS, the CL601 crew had seen the approaching EA500 about the same time that LARS had passed TI, had monitored the deteriorating situation and had taken robust avoiding action following the TCAS RA. Although SOPs had led to frequency/ATSU split seen in this incident, Members agreed that both Brize LARS and Oxford APP had, in isolation, discharged their responsibilities but that this been an entirely avoidable Airprox, where coordination would have nipped the incident in the bud. Removing the ATC aspects from the equation and with both flights

flying under IFR in IMC, the Board agreed that this incident had been a conflict within Class G airspace and the robust actions taken by the CL601 crew had quickly removed the risk of collision.

Members endorsed the ATSI recommendations that Oxford Airport review tactical and coordination procedures for inbound and outbound IFR ac and that controllers are reminded of the importance of using correct and precise standard phraseology.

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

Cause: A conflict between IFR traffic in IMC in Class G airspace.

Degree of Risk: C.