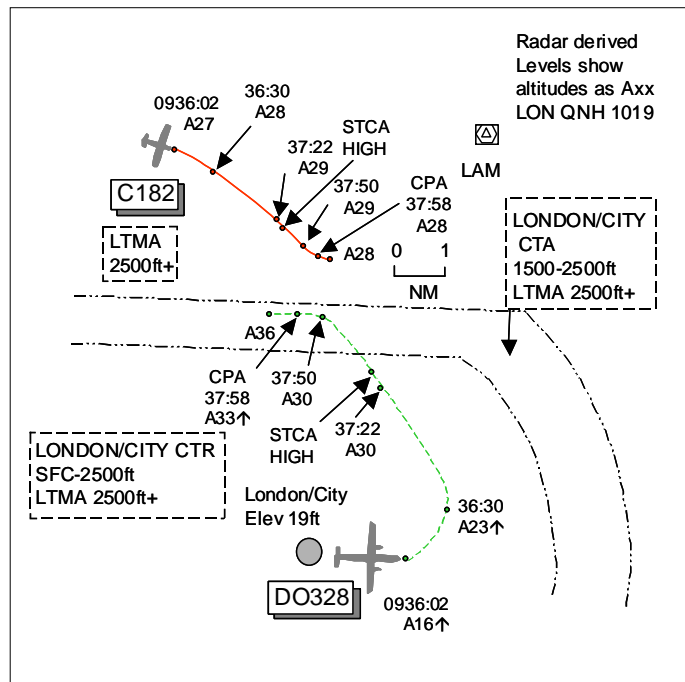


## AIRPROX REPORT No 2010064

Date/Time: 5 Jun 2010 0938Z (Saturday)  
Position: 5136N 00004E (4nm SW LAM)  
Airspace: LTMA (Class: A)  
Reporting Ac Reported Ac  
Type: DO328 C182  
Operator: CAT Civ Pte  
Alt/FL: 3000ft 2800ft  
(QNH 1019mb) (QNH)  
Weather: VMC CLOC VMC CLBC  
Visibility: >10km NR  
Reported Separation:  
Nil V/<3nm H Nil V/~1nm H  
Recorded Separation:  
500ft V/1-2nm H



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

**THE DO328 PILOT** reports outbound from London/City IFR following a BPK4U SID and in receipt of a RCS from London on 118-825Mhz, squawking 5412 with Modes S and C. Heading 330° level at 3000ft QNH 1019mb at 250kt, TCAS generated a TA on traffic range 5nm at the same altitude (Mode C unverified) closing on a S'y track. ATC gave an avoiding action L turn onto heading 275° and a TCAS RA 'climb' was received and both were actioned. The other ac was not seen visually but TCAS indicated it passed <3nm away at the same level. He assessed the risk as medium.

**THE C182 PILOT** reports en-route from a private strip to France VFR with another pilot and listening out with London Information, squawking 7000 with Modes S and C. Heading 100° at 130kt at 2800ft they both sighted a high-wing twin-engine ac about 1nm or more away at the same altitude which was climbing and heading generally W. No hazard was perceived and no avoiding action was required. They had had difficulty contacting London Information; they were extremely busy, and suffered an altimeter setting error. He assessed the risk as none. He explained that he initially attempted to contact London Info at BOV VOR to activate his FPL and make a mid-channel call but was not successful until over the channel. He remembered listening to the QNHs being passed from London Info on the frequency and setting the altimeter sub-scale but he could not recall whether these were local or regional settings. After discussing the difference between these settings post-flight with his ex-instructor he realised that it could amount to quite a bit. He admitted he might have made an error setting the altimeter sub-scale. His ex-instructor also explained that regional QNH is an extreme for the whole altimeter setting region and that it will always push ac higher which is good for terrain clearance but bad for airspace avoidance.

**THE LTC NE DEPS CONTROLLER** reports the DO328 departed London/City on a BPK departure climbing to altitude 3000ft. Shortly after the ac levelled-off, and whilst he was dealing with another ac, he noticed STCA had activated red. The DO328 was in conflict with an ac squawking 7000 indicating 3000ft. He immediately issued avoiding action and TI and shortly afterwards the crew reported they were responding to a TCAS RA. When clear of conflict he climbed the DO328 to 5000ft and the crew enquired about the other ac. He explained that it was unknown traffic and the crew stated they had not seen the other ac.

**NATS INVESTIGATIONS** reports that at 0935:27 the CAS Incursion Tool (CAIT) highlighted a 7000 squawk with Mode C indicating an altitude of 2600ft (CAS base 2500ft) at a position 7.5nm W of LAM. At 0935:42 the DO328 appeared on radar following departure from London/City on a BPK4U

SID from RW09. The CAIT-highlighted ac, later identified as the subject C182, was indicating altitude 2700ft.

The DO328 flight established contact with TC NE Deps at 0936:17 and reported passing 2000ft climbing to 3000ft on the BPK4U. The controller instructed the crew to 'squawk ident'. The C182 was in the DO328's 10 o'clock range 8-9nm. About 1min later at 0937:28 a high level STCA triggered as the C182 indicated further climb to 2900ft and the DO328 levelled at 3000ft, the C182 now in the DO328's 12 o'clock range 3-9nm. The following transmissions took place:-

ATC *"DO328 c/s avoiding action turn left immediately heading two seven five degrees".*

DO328 *"Left heading two seven five DO328 c/s".*

ATC *"There's traffic in your twelve o'clock indicating the same level as you unverified squawking seven thousand".*

DO328 *"That's copied DO328 c/s".*

ATC *"It's in your two o'clock now range of about two miles".*

DO328 *"Roger that and TCAS climb".*

ATC *"Roger report back under my control".*

DO328 *"Wilco".*

Although the DO328 promptly undertook the lateral avoiding action and responded to the TCAS climb, separation reduced to 100ft/1.4nm at 0937:50 before these actions took effect. At 0938:17 the DO328 crew reported returning to 3000ft (having climbed to 3600ft as a consequence of the TCAS RA). The controller instructed the DO328 to climb to 5000ft and fly heading 345°. During the encounter the C182 turned back onto a SE'ly heading 5nm SSE of LAM, its Mode C indicating 2700-2800ft.

[UKAB Note (1): The CPA occurs at 0937:58, the C182 having turned L about 10° and indicating altitude 2800ft QNH 1019mb unverified with the DO328 passing 1.2nm to its SW on a W'ly heading climbing through altitude 3300ft QNH.]

Although the radar replay indicates that CAIT activated at 0935:28 – 2min before STCA, the Watch Manager's report states that neither the NE Deps controller, the NW Deps controller, nor the N Coordinator observed the CAIT alert. The controllers expressed some doubt about whether the CAIT activation actually showed on the TMA N radar positions – although it was evident on the Slave radar replay during the watch investigation. The radar replay was subsequently reviewed using the slave picture (controller's screen) for the TC NE & TC NW positions as well as the Debden, H23 and MRT radars. The CAIT activation was observed on all radar pictures and sources viewed.

It is not possible to determine why the TMA N controllers believed that CAIT did not activate but previous incidents have shown that TMA controllers do not always detect or assimilate CAIT activations as promptly as their Approach unit counterparts. The likely explanation for this scenario is that the TMA controllers are often subject to numerous CAIT alerts that require no action or are outside of their area of responsibility.

The radar replay (slave mode) for TMA NE was reviewed for the period 0900-1000 (the incident occurred at 0937). During this period, 16 CAIT alerts were visible on the NE Deps controller's radar picture. Eight of these alerts triggered and remained at 2600ft (only 2 ac climbed above this altitude to 2700ft). Ac with unverified Mode C indicating 2600ft in level flight do not present evidence to suggest that the ac has entered CAS where the base of CAS is 2500ft.

Ref: MATS 1

- Unknown Aircraft (Actions to be taken by a controller) – Sec 1, Chap 5, Para 15
- Level Assessment using Mode C - Mats 1, Sec 1, Chap 5, Para 10.31

The remaining CAIT alerts were associated with aircraft flying within the confines of an airfield CTA/CTR. The CAIT alert associated with the subject C182 was the only alert that required action by the NE controller.

Although CAIT was visible to the TC NE Deps controller, it was not observed. The failure to consciously see an object, even though it is in plain sight, is termed *inattentional blindness*. This occurs when our attention mistakenly filters away important information.

Studies have identified that one of the factors that can influence inattentional blindness is expectation. With so many CAIT alerts on the TMA positions, it is likely many TMA controllers have developed an expectation that the majority of CAIT alerts are for traffic operating outside of their AOR or at altitudes that do not provide evidence of an infringement. The effectiveness of CAIT is therefore possibly diminished for TMA controllers.

Upon the activation of STCA at time 0937:28, the controller issued a prompt and effective avoiding action heading instruction to the DO328 flight. TI was also passed. The DO328 crew reported responding to a TCAS Climb at time 0937:57. A TCAS download indicates that the DO328 received a TCAS RA at time 0937:41 – 9sec after the controller commenced passing the avoiding action instruction. The controller's actions provided a resolution in the lateral plane whilst the TCAS climb provided the vertical resolution.

The Initial Watch Management Investigation concluded that STCA activated “very late” and immediately triggered as a high severity (red) alert. A Swanwick Operational Procedures representative confirmed that the STCA triggered in an area of “High Sensitivity” introduced on 6th May 2010 to improve the alerting characteristics for conflicts between London City W'ly departures and Heathrow W'ly arrivals (OPNOT 07/10 refers). This would account for the immediate high severity alert. STCA triggered when the C182 and the DO328 were separated by 100ft/3.9nm – this was in accordance with the correct STCA parameters.

Recommendation: It is recommended that the CAIT vertical parameters be changed so that an alert is not triggered until Mode C indicates a 200ft deviation from the base of CAS (currently 100ft); airspace designated CTA/CTR to remain unchanged.

Closure: CAIT parameters are to be changed wef. 13/01/11 and LTC controllers have been advised.

**ATSI** reports that it has reviewed the NATS Airprox report (APX-62270, 22 June 10), which contains details of the investigation undertaken by ATS Investigations, NATS Swanwick and concurs with the report's finding. No further investigation by CAA ATSI is deemed necessary.

NATS has confirmed to CAA ATSI that the recommendation regarding the variation of CAIT parameters is applicable for TMA airspace only. CTA/CTR parameters remain unchanged.

The CAA ATSD En Route and College Inspectorate have been made aware of this report, its content and subsequent recommendation.

Note (2): The UK AIP at ENR 1-7-2 Altimeter Setting Procedures Para 5.2.2 Outside Controlled Airspace and within Active TRAs states, 'In flight at or below 3000ft amsl, pilots may use any desired setting. However, pilots flying beneath a TMA or CTA should use the QNH of an aerodrome situated beneath that area when flying below the Transition Altitude. It may be assumed that for aerodromes beneath the same TMA or CTA, the differences in the QNH values are insignificant.'

## **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.

It appeared that the C182 pilot was not aware of the promulgated altimeter settings procedures for flights beneath TMAs or CTAs. However, Members questioned the pilot's pre-flight planning regime for, although using an RPS would exacerbate the vertical geometry and the track flown between the Luton and Heathrow CTRs required careful navigation taking due regard of ATZs en-route, that part of the route required him to remain below the LTMA. This would have been restricted to flying below

2500ft for about 40nm until clearing the LTMA base step 2500ft to 3500ft when E of the London/City CTR. The radar recording shows the C182 tracking generally SE'ly and for 2min prior to the Airprox the ac's Mode C was showing unverified 2700ft (tolerance  $\pm 200$ ft) and in a gradual slow climb reaching 2900ft approaching the CPA. The C182 pilot reported flying at 2800ft which placed the ac within the Class A airspace of the LTMA for which an ATC entry clearance is required. This had not been requested and the ac's flightpath placed it in conflict with the DO328. These two factors had caused the Airprox.

Although the NATS CAIT highlighted the ac's presence, it was not 'seen' by the LTC NE Deps and it was only when STCA activated between the subject ac that the controller's attention was gained and he had promptly issued an avoiding action L turn away. The DO328 crew were aware of the approaching Cessna from the TCAS TA alert at range 5nm and they quickly actioned the avoiding action L turn and the subsequent RA climb. The C182 pilot saw the DO328 about 1nm away, whilst it was manoeuvring to avoid him, and which was, from his perspective, not in conflict. The robust actions taken by the NE Deps and DO328 crew allowed the Board to conclude that the any risk of collision had been quickly and effectively removed.

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

Cause: The C182 pilot entered the LTMA without clearance and flew into conflict with the DO328.

Degree of Risk: C.