

AIRPROX REPORT No 2011161

Date/Time: 25 Nov 2011 1045Z

Position: 5226N 00010E (11nm
ENE of Wyton)

Airspace: London FIR (Class: G)

Reporting Ac Reported Ac

Type: Grob Tutor TMk1 PA28

Operator: HQ Air (Trg) Civ Pte

Alt/FL: 2000ft 2500ft
RPS (1017hPa) NK

Weather: VMC CLAC VMC NK

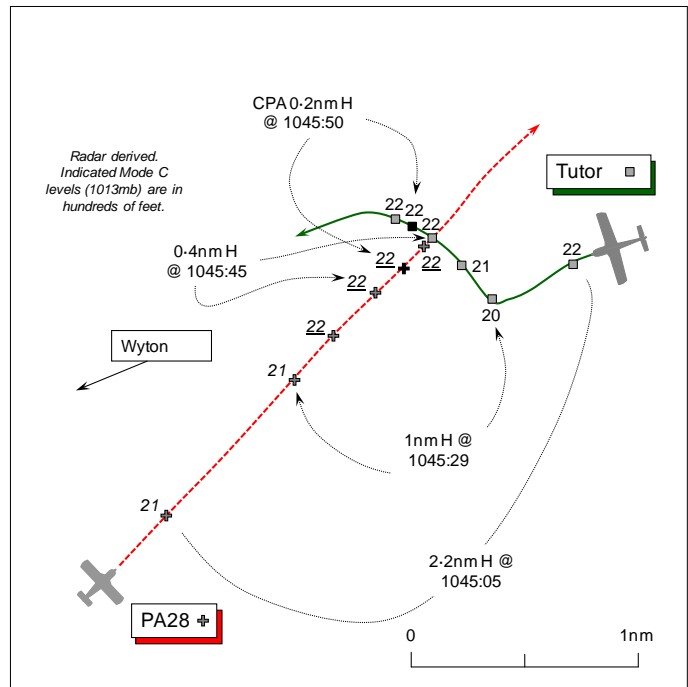
Visibility: 20km >10km

Reported Separation:

Nil V/100m H Not seen

Recorded Separation:

Nil V/0.2nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE GROB TUTOR TMK1 PILOT reports he was conducting a local VFR solo continuation training sortie from Wyton, whilst in receipt of a reduced TS from Marham ZONE on 124.15MHz. A squawk of A3662 was selected with Mode C; elementary Mode S and TAS are fitted.

During GH, flying into wind to track towards Wyton for a stalling setup, he encountered a shallow layer of FEW cumulus clouds at 2000-2400ft so he entered a climb to remain VMC. He was not able to out climb the cloud, so following a full lookout with nothing seen he commenced a climbing turn to the R. Once established in the climbing turn, ZONE transmitted a traffic call advising of traffic, close - 2-3nm away - but not on a conflicting track. He rolled out of the turn into a straight climb at 80kt. When checking the 'downgoing' port wing, another ac [the PA28] was seen 'close' in his 10 o'clock 100-200m away flying at the same level, on a conflicting course. The white PA28 appeared from within the cloud gap but had not been visible beforehand. To avoid it he initiated an evasive turn to the R at 60° AOB flown at full power. The conflicting PA28 maintained a straight and level course with no avoiding action apparent. No prior indication had been given by his Tutor's TAS about the PA28, which passed about 100m to port with a 'very high' Risk of collision. He reported the Airprox to ZONE over the RT as the PA28 passed into his 6 o'clock with no further conflict.

His Tutor is coloured white and blue; the white strobes were on.

THE PIPER PA28 PILOT reports he was flying a solo VFR NAVEX from Cambridge and return in a level cruise at 2500ft at 105kt. He was in receipt of a BS from Cambridge APP on 123.600MHz and a squawk of A7000 was selected with Mode C; Mode S is not fitted. He flew a route from Cambridge – Oakington (disused A/D) – Earith – along the Bedford Levels to the Ely/March railway line – March; thence following the railway line to Whittlesey – Grafham Water to return to Cambridge. The Grob Tutor flown by the reporting pilot was not seen.

His aeroplane is coloured white/grey/red; the HISLs and red tail beacon were on.

THE MARHAM ZONE CONTROLLER (ZONE) reports that he was instructing an ab-initio controller under training in ZONE working a single VHF frequency. He assessed his workload as Medium with 6 ac on frequency: 1 ac under a TS and 5 ac under BS over a 40nm range from Marham.

The Tutor pilot declared a PRACTICE PAN with simulated engine mechanical failure, executing a PFL. The UT controller gave the Tutor pilot a heading for Wyton and a terrain reminder, requesting that the pilot report climbing away after the PFL. After climbing away with the PFL complete, the Tutor pilot levelled at 2000ft heading W. Traffic information was given on unknown ac squawking A7000 [the PA28] 2nm SW of the Tutor tracking NE indicating 2000ft Mode C. Traffic information was called for a second time when the unknown ac was 1nm SW of the Tutor tracking NE indicating 2000ft, whereupon the Tutor pilot reported visual. Later, once well clear, the Tutor pilot reported an Airprox with the unknown ac. The Airprox position, weather and details were noted and the Tutor pilot requested to contact the Marham ATC SUPERVISOR after landing. He and his UT were relieved from the console shortly afterwards.

BM SAFETY MANAGEMENT reports that this Airprox occurred to the W of Littleport some 19.2nm SW of Marham; the Tutor pilot was in receipt of a reduced TS from Marham ZONE following the selection of radar processing filters to reduce surveillance clutter; the PA28 pilot was in receipt of a BS from Cambridge APP.

ZONE was manned by an ab-initio recently graduated from the Joint ATC Course and an experienced instructor. The incident sequence commenced at 1044:00 as the Tutor called "*climbing away*" from a PFL which had been instigated at 1038:53. At this point, the PA28 was 5.7nm SW of the Tutor, tracking NE'ly towards the Ely-March railway line, indicating 2100ft Mode C (1013hPa); the Tutor was tracking W'ly indicating 600ft Mode C (1013hPa).

At 1044:37, with 3.9nm lateral separation between the two ac, as the Tutor climbed through 1100ft it turned L onto a WSW'ly track. Between 1044:43 and 1045:00, ZONE was involved in liaison with unrelated traffic operating N of Marham.

At 1045:22, ZONE provided TI to the Tutor pilot about the PA28 stating, "*traffic south-west 2 miles* [radar replay shows 1.4nm], *opposite direction, indicating same*" which was acknowledged by the pilot. Up to this point, both ac had maintained their respective NE'ly and WSW'ly tracks which, by extrapolation, would have seen them pass with approximately 0.3nm lateral separation.

Subsequent to completing his report, the ZONE instructor has stated that during the time from 1045:00 until 1045:22, the trainee was continuing to divide his attention between other ac on frequency. They did not believe that, given the relative speeds of the ac, there was a requirement to provide TI earlier.

CAP774 states that:

'..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... Controllers shall aim to pass information on relevant traffic before the conflicting aircraft is within 5nm, in order to give the pilot sufficient time to meet his collision avoidance responsibilities and to allow for an update in traffic information if considered necessary.'

At 1045:30, the Tutor commenced a right turn to steady on a NW'ly track at 1045:42. During this turn, at 1045:38, ZONE updated the TI on the PA28 stating, "*previously called traffic, south west, 1 mile* [radar replay shows 0.7 nm], *indicating 2 thousand feet.*" The Tutor pilot replied immediately at 1045:46 that he was visual with the PA28 and later reported that the 'aircraft came from within the cloud gap but was not visible beforehand.' The PA28 passed 0.1nm SE of the Tutor. Potentially of note is the fact that the CPA was approximately 1nm S of the Ely-March rail line, the PA28 pilot's notified turning point.

[UKAB Note (1): The CPA was recorded on the Stansted 10cm single source radar as occurring at 1045:50, as per the diagram, with the PA28 tracking NE 0.2nm S of the Tutor that was heading NW, with both ac indicating 2200ft Mode C.]

Given the pilot's responsibility to 'see and avoid', this incident was caused by a late sighting on the part of the Tutor pilot, contributed to by the cloud reported in the area, and a non-sighting by the PA28 pilot. From an ATM perspective, whilst the TI provided at 1045:22 was timely enough to enable the Tutor pilot to assimilate the information, it is reasonable to argue that this was as a result of the relative speeds of the two ac, rather than deliberate decision making by ZONE that they could delay passing TI.

Although there were no RT transmissions between 1044:04 and 1044:43, it was not until the Tutor turned onto a WSW'ly track at 1044:37 that the risk of conflict was introduced between the 2 ac and, by inference, the requirement to pass TI to the Tutor. Given that ZONE was busy with unrelated traffic between 1044:43 and 1045:00, this allowed only a relatively short time window in which ZONE could have provided TI earlier; 1044:37 to 1044:43 and from 1045:00.

From conversation with the ZONE instructor it appears that, from the trainee's perspective, the delay in providing TI was caused by the interruption of their work cycle by the unrelated traffic at 1044:43, the place of the Tutor within that work cycle and the wide geographic spread of the traffic. However, whilst the instructor felt that the TI was timely and did not perceive a requirement to intervene, BM SM contends that when provided at 1.4nm separation, the TI was later than is both ideal and required. Whilst the delay in providing TI did not cause the late sighting of the PA28 by the Tutor, it was, alongside the cloud structure, a contributory factor.

ATSI reports that at 1034:10 the PA28 pilot called Cambridge APP (123.600MHz) as it left the cct. The pilot requested a BS, which was agreed and reported that the flight would be GH to the W and NW. The ATS from Cambridge ATC was provided without the assistance of surveillance radar.

The Cambridge weather was: visibility in excess of 10km and cloud FEW at 2200 feet, QNH 1022hPa.

At 1039 the PA28 reported O/H Oakington. The PA28 pilot's report indicated that the navigation exercise being followed would route Oakington – Earith – along the Bedford Levels to its intersection with the Ely/March railway. A course would then be set to March. Surveillance Replay confirmed this as the route being flown and at 1043 the PA28 was observed to turn R at Earith and route NE bound parallel to the Bedford Levels.

[UKAB Note (2): ATSI also provided a very helpful radar synopsis, broadly in accord with the diagram and that of BM SM, but omitted here in the interests of brevity.]

Both ac were in Class G airspace at the time of the Airprox, where the avoidance of collision rests with the pilots.

At 1047:40 the PA28 reported having climbed to 3100ft and being W of Ely, en-route to March.

HQ AIR (TRG) comments that there are several inconsistencies in the Tutor pilot's report, but these do not materially change the assessment of the event. The pilot reports taking evasive action based on his sighting of the PA28, which occurred after rolling out from a R turn. The reported evasive turn to the R is not apparent from the radar trace. The sighting appears to occur when the PA28 is at about 0.7nm in the Tutor's 9.30-10 o'clock. The lateness of the TI was a significant factor as it gave little time to achieve a visual acquisition, and more so because the TAS proved ineffective in this instance. Equally, it gave the pilot minimal time to consider opting for a DS, and even less time for such a service to be effective. In the event, the PA28 was sighted as early as practicable, using effective lookout techniques, and the encounter was a conflict in Class G. Following the turn, the geometry of the conflict left the Tutor pilot with few options to increase separation, other than to climb, descend, or increase speed. Albeit late due to the cloud, the sighting by the Tutor pilot, aided

by the TI passed, meant that he retained the ability to avoid an actual collision, even if the geometry had been worse. It is a concern that the PA28 pilot, who emerged from an area that the Tutor pilot had assessed to be unfit for VFR flight, did not see the Tutor despite it passing through his 12 o'clock, co-altitude, at about 0.4 - 0.6nm. This event highlights the rationale behind the VFR requirements in terms of separation from cloud, and the short acquisition time available at the limits of those requirements.

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.

The Tutor pilot had wisely obtained a TS from Marham ZONE to assist his lookout, albeit that this was a 'reduced' service as the use of primary radar filters to reduce clutter will inevitably attenuate the radar's capabilities somewhat. Whilst taking account of the 'reduced' TS, the Tutor pilot would have expected timely and accurate TI to be provided on other ac observed by ZONE in the vicinity that might present a conflict. The Board recognised that the LATCC (Mil) radar recording does not replicate the radar picture displayed to Marham ZONE, but the BM SM report nevertheless highlights that the first iteration of TI about the PA28 had been passed when the aeroplane was at a range of about 1.4nm – not the 2nm transmitted within the ZONE trainee's call. The radar recording substantiates that this TI was being transmitted as the Tutor pilot was executing his R turn NW'ly; whilst the TI was relatively complete, Members agreed that this was given later than ideal. Although the mentor suggested his trainee was busy beforehand, it seemed that he should have ensured that his ab-initio trainee was giving due priority to the TS traffic where necessary, ensuring the TI was timely and stepping-in himself if necessary. Members suggested that when the Tutor pilot reported climbing away from his PFL might have been a more appropriate juncture. While it is often difficult to judge how much latitude to give a trainee before stepping-in, the essential point here is that the instructional setting should not be allowed to adversely impact the provision of the TS to the Tutor pilot to any significant degree.

Whilst the TI had alerted the Tutor pilot to the unseen PA28 somewhat late, it was apparent that cloud had masked its presence until the Tutor pilot saw it in his 10 o'clock, whereupon he turned away robustly at 60°AOB under full power. Whereas the pilot reports this sighting range as 100-200m, the radar recording suggested that at that point the range was somewhat more than his estimate; the minimum separation was also slightly greater and in the order of 0.2nm – 400yd - as evinced by the Stansted 10cm recording. This convinced Members that the Tutor pilot had seen the PA28 as early as he could in this situation, despite the absence of an alert from the Tutor's TAS. It was not clear why the TAS had not reacted but the Board was reassured to learn from the HQ Air Trg Member that the Tutor pilot's Unit are tracking the performance of the Tutor TAS installation closely. The Board agreed that TCAS I devices such as TAS should only be considered as an adjunct to a thorough lookout regimen. The Board concluded that for his part, the Tutor pilot had done all that might be expected of him in these circumstances.

Turning to the PA28 pilot's account, it was plain that he had elected to remain with Cambridge ATC during his VFR NAVEX and the ATSI report confirms that he had been afforded a BS. Cambridge were unable to supplement that with a radar service even if he had asked for one and Members perceived that it might have been preferable in this instance to call Marham ZONE and request a TS. As it was, the PA28 pilot did not see the Tutor at all as it crossed less than ½nm ahead of his aeroplane from R – L, indicating exactly the same level the radar recording reveals. It seems that the PA28 pilot's lookout might have been impacted by the same clouds that had encouraged the Tutor pilot to climb above them to ensure that he could maintain VMC. The PA28 pilot shared a responsibility to 'see and avoid' other ac whilst operating VFR in Class G airspace. Moreover, the geometry of this encounter was such that the Tutor was always to his R and in this situation he was required by the 'Rules of the Air' to 'give way' to traffic to his R. However, he had not seen the Tutor, leading the Board to conclude that the Cause of this Airprox was a non-sighting by the PA28 pilot.

Nevertheless, the Board agreed that any Risk of a collision had been countered effectively by the Tutor pilot's sighting and robust avoiding action, resulting in the minimum separation evinced by the radar recording.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A non-sighting by the PA28 pilot.

Degree of Risk: C.