AIRPROX REPORT No 2011012

Date/Time: 14 Feb 2011 1035Z

Position: 5244N 00039W (Overhead Cottesmore A/D - elev 461ft)

Airspace: London FIR (*Class:* G)

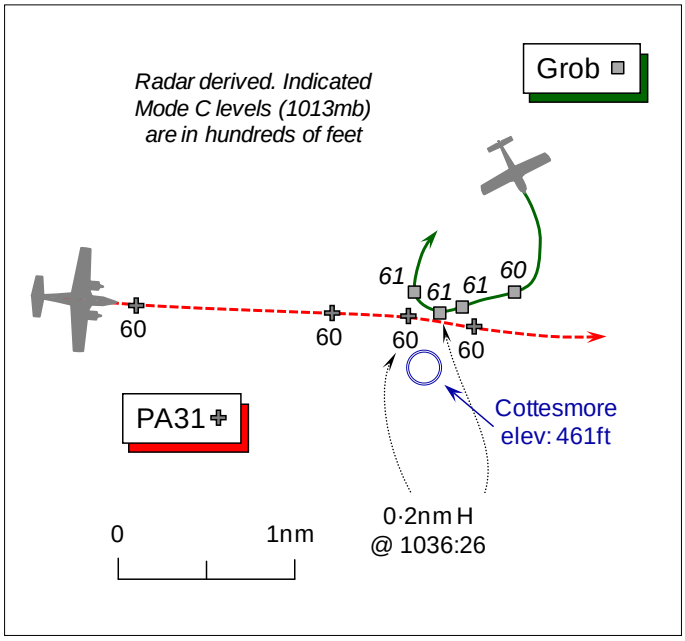
	Reporting Ac	*Reported Ac*
Type:	Grob TutorTMk1	PA31
Operator:	HQ Air (Trg)	Civ Comm
Alt/FL:	5500ft RPS (991mb)	5500ft (NK)
Weather:	VMC CLOC	VMC CLOC
Visibility:	30km	>10km

Reported Separation:

300ft V/100m H 800-1000ftV/¼-½nm H

Recorded Separation:

100ft V



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE GROB TUTOR T Mk1 PILOT, a QFI, reports he was conducting a QFI Training sortie from Cranwell with the trainee QFI as the PF. Operating VFR, they were not under an ATS but listening out on the quiet frequency - #19 – squawking the Cranwell conspicuity code of A2641 with Mode C; elementary Mode S is fitted but TCAS is not.

Directly above Cottesmore, just to the SW of the main runway, during a climb to 6000ft RPS (991mb) at 80kt for a spinning exercise, a R turn from 240° was initiated. After about 30-40° of the R turn, passing 270°, exceeding 5500ft [the recorded radar data suggests the Grob was at 6000ft (1013mb) – about 5340-5440ft RPS (991mb)] the QFI saw a low-wing twin engine ac low in their 12:30 position, head-on, at an estimated range of ½nm about 300ft below initiating a R turn. He immediately took control from the trainee and broke R to avoid a collision as the other ac also broke to the R in avoidance. The twin passed about 100m to port and 300ft below his Tutor with a 'medium' Risk of collision. Following a recovery to straight and level flight and after confirming the other ac posed no further threat, he reported an Airprox to Wittering APPROACH on the RT.

THE PA31 PILOT reports he was in receipt of a TS from Cottesmore LARS (ZONE) whilst flying a dual transit to Norwich under VFR some 2000ft+ clear below cloud at 166kt. The assigned squawk was selected with Modes C and S on; TCAS is not fitted.

Heading 120° approaching Cottesmore, they had been advised of a Grob Tutor on their L, more than 5nm away and below them but climbing. Whilst looking for the traffic they maintained their course and their altitude of 5500ft RPS; TI was updated by the controller about the ac on their L, still at a similar altitude and so they continued looking. They first saw the other ac – a white low-wing Grob Tutor - about 1-2nm away in their 10-11 o'clock slightly above them to their L and it appeared to be flying straight and level. Maintaining their course, as they had 'right of way' being on the R of the Grob, they watched it and deemed its crew was not taking action to route behind their ac or climbing to maintain a greater margin of safety. As the ac commander, he elected to take avoiding action by descending and turning R. The Grob passed more than 800ft above and slightly behind them by about ¼-½nm. He assessed the Risk of collision to be 'very low', but was very surprised to learn it was a military ac over the old Cottesmore MATZ, not talking to Cottesmore LARS nor receiving a

radar service of any kind. Moreover, he was concerned that in accordance with the Rules of the Air, having maintained his course and altitude to allow the Grob pilot to manoeuvre around his PA31, the Grob pilot then took no avoidance to remain clear.

His ac is coloured white and grey and the HISLs were on.

He would recommend all ac operating within range of a LARS unit to operate at least one radio on that frequency. Also, even in VFR conditions, it would be preferable to have a radar service to provide a higher degree of safety and give pilots and controllers better information.

THE COTTESMORE LARS CONTROLLER (ZONE) reports that the weather was good - CAVOK - and traffic had been light, mainly Tutors from Wyton and several transits under a BS. The PA31 pilot free-called after he had departed East Midlands for a transit to Norwich. The pilot called ZONE about 12nm W of Cottesmore, heading E at 5000ft (999mb). After identification, the flight was placed under a TS, with a reduced service due to poor radar performance. The pilot then asked to climb to an altitude of 5500ft BARNSLEY RPS (991mb) routeing direct to Norwich. Whilst outside the old MATZ boundaries, TI was called to the PA31 pilot about a Tutor ac displaying an 'agreed airspace' squawk, that was in the radar overhead and which appeared to be carrying out GH at a similar level. As the PA31 approached the radar overhead a further reduction to the service was issued in accordance with SOPs. The controller gave the PA31 pilot an update as the ac closed to a range of about 3nm and he monitored their profile. Additionally, he briefed the PA31 pilot that the Tutor might possibly be performing aerobatics in this area, which he knew from his own local knowledge is often the case. Both ac were now close in the radar overhead and he was unable to give further updates. However, at this stage the PA31 pilot requested an update which he was unable to provide as the Tutor was now displayed only as an SSR contact and the position would have been inaccurate. The PA31 pilot acknowledged that transmission and may have taken avoiding action on the Tutor. Later, the Tutor pilot called the unit on another frequency and declared the Airprox; the PA31 pilot was informed about the Airprox report on RT when he was about 12nm E of Cottesmore, before the ac was handed over to Marham LARS.

UKAB Note (1): Cottesmore aerodrome is open, and hence the MATZ instituted, on very limited occasions when advised by NOTAM or Supplement.

HQ 1GP BM SM reports that this Airprox occurred in the Cottesmore overhead, between a Tutor operating VFR and the PA31 routeing to Norwich, in receipt of a TS from Cottesmore ZONE.

At 1034:30 the PA31 was identified at 5000ft and placed under a TS that was reduced due to poor radar performance. This was immediately followed by ZONE providing accurate TI to the PA31 about the Tutor, which was acknowledged and a climb to 5500ft requested. At 1035:06, ZONE updated the TI on the Tutor to the PA31 pilot stating, "*traffic 12 o'clock, 3 miles* (radar replay shows 4.5nm lateral separation)*, crossing left to right, southbound, indicating 4 hundred feet below*" adding, "*that traffic Tutor possible aerobatics*." Neither of these transmissions were acknowledged by the PA31; however, the pilot states in his report that they were updated about the ac on their left. At 1035:23, ZONE updated the TI on the Tutor again to the PA31 crew stating that the Tutor was displayed *"…secondary only now 12 o'clock 3 miles manoeuvring."* This was followed shortly after by ZONE stating a further reduction in the TS from, "*ahead as you approach* (the) *radar overhead*."

The PA31 pilot's written report states that they 'saw the (Tutor) at approx 1-2nm…we maintained course and heading as we had right of way being on the right of them, watching the other aircraft I deemed it not to be taking avoiding action…so took avoiding action to descend and turn right.' At 1036:20, the PA31 pilot began to request a further update to the TI, but then reported visual with the Tutor. At this point the Tutor was E of the PA31, with both ac indicating 6000ft Mode C and 0.7nm lateral separation evident. The CPA occurred shortly after 1036:26, as the Tutor QFI executed a R turn to pass to port of the PA31, the Tutor indicating 6100ft and the PA31 6000ft.

[UKAB Note (2): The ac passed port-to-port, in between sweeps, with vertical separation of 100ft Mode C evident before and after the 'merge', the Grob Tutor passing above the PA31.]

The ZONE controller mentioned in his report the lack of primary surveillance radar (PSR) data due to the location of the ac in the Cottesmore overhead and the possibility that the position report derived from SSR would have been inaccurate. Although the update rate of the SSR is lower than that of the PSR, it is unlikely to have been an issue in this occurrence, especially given the relatively low altitude.

ZONE provided accurate and timely TI that enabled the PA31 pilot to visually acquire the Tutor in what the PA31 pilot considered enough time to monitor and assess the situation prior to taking avoiding action.

HQ AIR (TRG) comments that the Tutor pilot was operating in Class G airspace without an ATS. The sortie being flown involved intensive in-cockpit communication, in which case orders permit operation on a common quiet frequency. The crews of both ac were able to detect and avoid each other but estimates of the margin by which this was achieved vary. The Tutor pilot's assessment of height difference accords closely with the Mode C readouts, allowing for some inherent errors. The PA31 pilot's height assessment, coupled with his report that the Tutor passed behind him, suggests that he may have lost sight of the Tutor in the latter stages and may not have seen his avoiding action.

The Rules of the Air in such a scenario, where one pilot may not be visual with the other, are of limited use. Indeed, if the pilot with right of way does not see any avoidance action being taken by the other ac, or at least a wing waggle to acknowledge their presence, it would still be prudent to take action, as the PA31 pilot did in this case. Furthermore, the situation was close to being a 'head-on' in which case both pilots are obliged to avoid, to the right if possible, as both did in this case. Pilots operating under a TS should also be prepared to take pre-emptive avoiding action on identified conflicting traffic before an Airprox situation develops.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, a transcript of the relevant RT frequency, radar video recordings, a report from the air traffic controller involved and reports from the appropriate ATC and operating authorities.

It was apparent that the PA31 crew had wisely obtained a TS from ZONE to supplement their lookout, but it was not apparent why they were flying at an altitude of 5500ft RPS when it might have been preferable to transit, VFR, at the recommended quadrantal flight level. The Board recognised that the Controller had provided the PA31 crew with accurate TI, which was updated to reflect that the Grob was drawing R into their 12 o'clock. The controller also used his experience to advise that the Tutor could be manoeuvring hard and without warning – *"…possible aerobatics"*. This flow of information ensured that the PA31 crew obtained visual contact on the Grob Tutor about 1-2nm away in their 10-11 o'clock and slightly above them the PA31 pilot reports. The Board commended the controller for his good service and sound judgement that had contributed significantly to the PA31 crew's SA. A controller Member familiar with Cottesmore advised that their SSR is sourced from Cranwell and whilst the Airprox did occur close to the Cottesmore ASR 'overhead', at these altitudes the SSR should have been displayed fully to the controller, whereas primary data from their ASR would be more limited at the centre of his display and a good reason for not operating in their overhead.

When the PA31 crew first saw the Grob, the PA31 pilot had stressed that it seemed to him that the relative geometry required the pilot of the other ac to give way in accordance with the Rules of the Air. Subsequently, however, it was apparent from the radar recording that the Grob Tutor had turned onto a more nearly head-on aspect as the two ac closed on one another. Members noted the PA31 crew 'stood-on' in anticipation of the Grob crew turning away or climbing to remain clear of his ac, but when it became apparent that they were not doing so, the PA31 pilot elected to turn R and descend away from the Grob. Plainly 'the Rules' can only work if pilots have spotted the other ac in good time

to react appropriately and at that stage the PA31 was unseen by the Grob crew. The radar recording reflected a slight turn away to starboard by the PA31, but the ac's Mode C did not indicate the reported descent. Pilot Members opined that, while it is a matter of judgement at the time, it would have been better if the PA31 crew had made a more positive alteration at an earlier stage, thereby allowing a greater margin and preventing the two ac from flying into close quarters. The Board was briefed that a supplementary telephone discussion between the PA31 P-I-C and UKAB Staff had elicited that it was the co-pilot that was watching the Grob. However, this might have been difficult 'cross-cockpit' from the RH seat and he might have lost sight of the Grob at a critical moment as the recorded radar data shows it was certainly not 800ft above them when they passed port-to-port and just 100ft above.

Without the benefit of any ATS to assist their lookout, the Grob crew was not aware of the PA31 until it was spotted by the QFI during their R turn through W, prior to spinning. Some Members perceived that this was a late sighting by the Grob crew as the PA31 should have been visible to them beforehand, inside the turn, when they turned R WSW'ly. However, in a further discussion between the Grob Tutor pilot and UKAB Staff it was revealed that the PA31, which is coloured white and grey but had the strobes 'on', had been very difficult to spot against the cloudscape. As it was the Grob QFI took control and broke R at the same time as he saw the PA31 also turning to the R. Both pilots followed 'the Rules' in this respect, and the Board concluded that the Grob crew might have seen the PA31 as early as they could in the conditions that pertained, leading the Members to agree unanimously that this Airprox had been the result of a conflict in Class G airspace resolved by the pilots of both ac.

Controller Members suggested that if it did not inhibit the execution of the instructional sortie, it would have been beneficial if the Tutor crew had called Cottesmore ZONE whilst operating in their aerodrome overhead. Furthermore, in advance of the forthcoming TAS embodiment to the Grob Tutor fleet, a TS could have given them early warning of the approach the PA31. Nevertheless, both pilots saw each other's ac in time and the action taken was effective. Whilst the subsequent separation was certainly less than ideal, the crew of the faster twin had sighted the Tutor and could have taken more robust action in the vertical plane if need be to manoeuvre further away from the slower Tutor. Therefore, in the Board's view, both pilots' actions had averted any Risk of a collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in Class G airspace resolved by the pilots of both aircraft.

Degree of Risk: C.