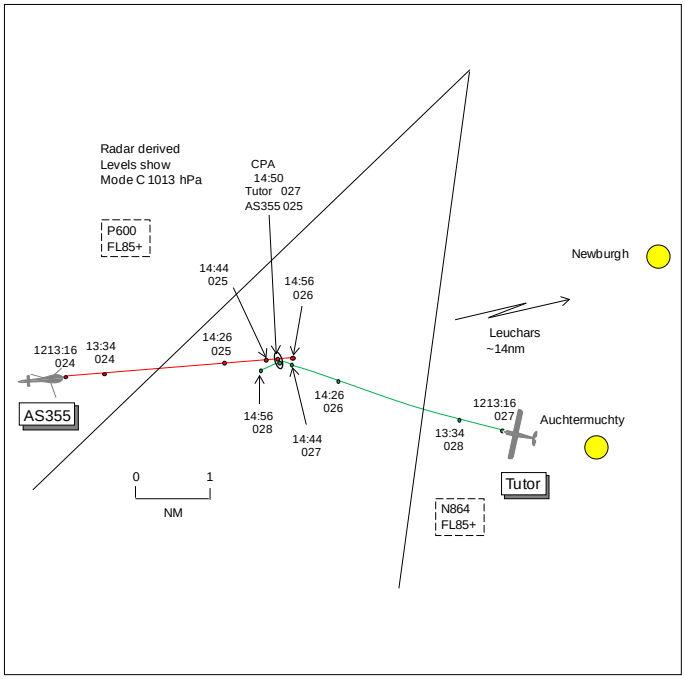
AIRPROX REPORT No 2012100

Date/Time:	12 Jul 2012 1215Z	
Position:	5618N 00322W (17nm WSW Leuchars - elev 38ft)	
Airspace:	SFIR	(*Class: G*)
	Reporting Ac	*Reported Ac*
Type:	Tutor T Mk1	AS355
Operator:	HQ Air (Trg)	Civ Comm
Alt/FL:	2500ft RPS (1004mb)	2500ft QNH
Weather:	VMC CLBC	VMC CLNC
Visibility:	10km	10km
Reported Separation:	150ft V/200m	Not seen
Recorded Separation:	200ft V/<0·1nm H	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE TUTOR T MK1 PILOT reports flying a solo student medium level Navex, VFR and in receipt of a TS from Leuchars on 255·4MHz, squawking with Modes S and C; TAS was fitted. The visibility was 10km flying 2500ft below cloud in VMC and the ac was coloured white with nav, landing and strobe lights all switched on. Near to Auchtermuchty, heading 290° level at 2500ft RPS 1004hPa and 120kt, a contact appeared on his TAS, displayed as 'other traffic' at a range of 4nm. He was visual with a light fixed-wing ac flying in the same direction. A few moments later he received a TA and while looking for the traffic he climbed 100ft. Leuchars ATC then told him about traffic tracking W to E at 2500ft which is when he saw a dark-coloured helicopter about 300m away heading in his direction at a similar level. He was forced to take avoiding action, a steep L turn, estimating it passed 150ft vertically below and 200m horizontally clear to his R. He assessed the risk as medium. Without the TA from his TAS he thought he may have had insufficient time to take avoiding action.

THE AS355 PILOT reports en-route to Gleneagles Hotel via St Andrews, VFR and in receipt of a BS from Leuchars on 126·5MHz, squawking an assigned code with Mode C. The visibility was 10km in VMC and the helicopter was coloured blue with nav and strobe lights switched on. He was unaware of being involved in an Airprox until contacted post flight. At the reported position, 14nm W of Leuchars, he was heading 085° at 110kt and level at 2500ft amsl. He contacted Leuchars when SSW abeam Perth and entered the assigned transponder code and was asked to report abeam Newburgh. As he was unfamiliar with the position requested he was checking for it on his chart and thought the Airprox occurred at this time. He did not see the reporting Tutor.

THE LEUCHARS RADAR CONTROLLER reports instructing a controller under training on the Departures/Zone position. The trainee was working hard with a number of tracks on both VHF and UHF including the Tutor, on a Navex to the SW of Leuchars heading W under a TS. At 1212 the AS355 flight called requesting a BS and the trainee correctly allocated the Leuchars conspicuity squawk 0220 and requested its position, heading and level. The AS355 pilot stated he was en-route from Auchterader to St Andrews at 2400ft. Thirty seconds later the AS355 pilot reported S abeam Perth [20nm W Leuchars] and was advised that the helicopter was not showing on radar. At this point the pilot asked for a MATZ crossing and, as it was still not showing on radar, he was asked to report S abeam Newburgh [12nm WSW Leuchars] for both the MATZ crossing and its proximity to the Tutor. Approximately 2min later a primary only contact appeared on radar 1nm W of the Tutor,

which was at 2800ft, and the Tutor pilot was given TI. The Tutor pilot acknowledged the call, reporting 'visual' with the other ac. The trainee continued to provide a service to several other flights and some 3min later the Tutor pilot requested to be given more notice of conflicting traffic. After landing the Tutor's Command advised that an incident report was likely to be raised.

BM SAFETY MANAGEMENT reports that this Airprox occurred between a Tutor in receipt of a TS from Leuchars Deps and an AS355 operating VFR, in receipt of a BS from Leuchars Zone.

All heights/altitudes quoted are based upon SSR Mode C from the radar replay unless otherwise stated.

The Leuchars Flying Order Book (FOB) states that outside 10nm from the airfield, between 230° to 280°, surveillance based ATS are automatically reduced due to poor radar performance. As a result of its inclusion within the FOB, at the time of this incident, Leuchars-based crews were not reminded of the standing reduction to ATS.

Deps and Zone were operating as a bandboxed position, manned by a trainee and a mentor; the mentor has described the trainee's workload as high to medium, with 4 ac on freq. The incident sequence commenced at 1211:43 as the AS355 pilot called Zone on VHF, "*5 miles to the east of Auchterader and er heading due East at 2400 feet 1-0-1-0*", requesting a BS. At this point, the Tutor, operating on UHF, was approximately 12nm ESE of the AS355, tracking WNW'ly, indicating 2700ft. A BS was agreed and the AS355 pilot was instructed to squawk 0220; however, the AS355 was within the area of known poor radar performance and, at 1212:44, Zone informed them that they were not, "*observed on radar*." To facilitate Zone's planning, they instructed the AS355 pilot at 1213:17 to, "*report south abeam Newburgh*" and although the pilot was initially unfamiliar with this location, the AS355 pilot confirmed at 1213:34 that they had, "*found it on the map, I'll report passing*." At this point, the area radar recording shows the Tutor 4·9nm ESE of the AS355, tracking WNW'ly indicating 2800ft; the AS355 is tracking E'ly, indicating 2400ft.

At 1214:26, Deps passed TI to the Tutor on the AS355 as, "…*traffic west, 1 mile, tracking east, at err 2500 feet*" which was acknowledged. Immediately thereafter an unrelated flight called Zone on VHF such that no warning of traffic could be passed to the AS355 pilot. At 1214:46, the Tutor pilot reported visual with the AS355; at this point approximately 0·25nm lateral separation existed between the ac. The CPA occurred at 1214:50 with <0·1nm lateral separation and 200ft vertical. At the next sweep of the radar at 1214:56, it is apparent that the Tutor has turned L which accords with the pilot's report.

From an ATM perspective the mentor's comments on their DASOR are critical and highlight that the AS355 did not paint on their surveillance display, in either primary or secondary, until immediately prior to the TI being passed. On this basis, whilst in hindsight Deps may have been able to provide an earlier generic warning of the AS355's presence to the Tutor pilot, it is unlikely that this would have affected the outcome of the incident. The known area of poor radar performance to the SW of Leuchars compromised the ATM safety barrier, leaving the Tutor's TAS and 'see and avoid' as the remaining safety barriers. In this instance, as identified by the UFSO, TAS provided essential and timely notification of traffic to the Tutor pilot, enabling them to take the necessary action to avoid confliction; albeit with reduced safety margins.

HQ AIR (TRG) comments that whilst an earlier TI call based on the position call of the AS355 might have been useful in other circumstances, the Tutor pilot was already aware of traffic from his TAS and was looking out. It appears that the TI provided did re-cue the pilot's lookout so it cannot be discounted that an earlier general call might have served the same purpose. It is not clear whether the pilot climbed deliberately or inadvertently away from the displayed traffic; in either case the effect was to reduce the risk and represents an effective use of the TAS data, the most assured element of which is the elevation readout.

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 that although both pilots were in receipt of an ATS from Leuchars, in Class G airspace they were ultimately responsible for collision avoidance through see and avoid. With the AS355 and Tutor on different frequencies, both pilots were denied SA on each other's presence from RT exchanges with Leuchars. As the incident occurred in an area of poor radar performance, Members wondered if early generic TI would have been advantageous to both pilots. Leuchars was aware of the AS355's position from its pilot's reports and that it was routeing towards the Tutor, which was displayed on radar, tracking in the opposite direction. However the AS355 was only under a BS and the controller was establishing a geographical landmark for the helicopter pilot to report passing as an 'aide memoir' to issue its pilot with a MATZ crossing clearance. The Tutor was under a TS routeing W'bound towards the AS355, which was not showing on radar, and the controller appeared to be waiting for the AS355 to appear on radar before giving the Tutor pilot TI. That said, the Tutor pilot was aware of the approaching AS355 from his TAS and was looking out as a TA was generated. This occurred as Leuchars Zone/Deps saw the AS355 appear on radar and then passed TI to the Tutor pilot at range 1nm. The Tutor pilot saw the helicopter about 300m ahead, a late sighting, and executed a steep L turn away. Members wondered why the Tutor pilot, armed with accurate relative height data from his TAS, had not taken earlier deconfliction action in the vertical plane by climbing/descending instead of continuing on track at approximately the same level as the conflicting AS355. The AS355 pilot had established the location of Newburgh well over 1min before the CPA but did not see the approaching Tutor at all. The ac had approached each other on a constant relative bearing with both ac presenting a small target aspect to both pilots, making visual acquisition more difficult. However, despite the Tutor passing unsighted to the AS355 pilot, the robust actions taken by the Tutor pilot were enough to allow the Board to conclude that any risk of collision had been removed.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A non-sighting by the AS355 pilot and a late sighting by the Tutor pilot.

Degree of Risk: C.