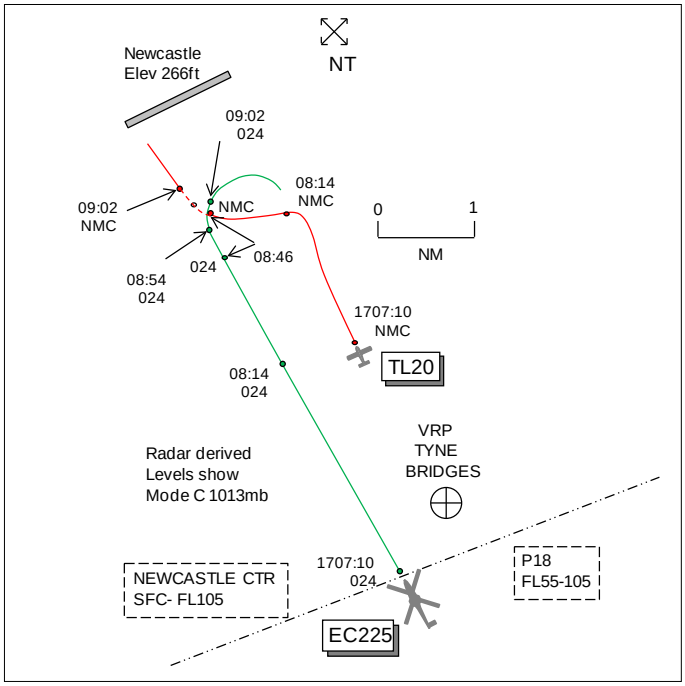
AIRPROX REPORT No 2011082

Date/Time: 14 Jul 2011 1709Z

Position: 5501N 00141W (1nm S Newcastle - elev 266ft)

Airspace: ATZ/CTR (*Class: D*)

	Reporting Ac	*Reported Ac*
Type:	EC225	TL2000
Operator:	Civ Comm	Civ Pte
Alt/FL:	2500ft QNH	2200ft QNH
Weather:	VMC CLBC	VMC CLNC
Visibility:	>10km	50km
Reported Separation:	200ft V/300m H	100ft V/ 0·5-0·75nm H
Recorded Separation:	0·3nm H	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE EC225 PILOT reports en-route to Aberdeen, VFR and in receipt of a RCS from Newcastle Approach on 124·375MHz squawking an assigned code with Modes S and C; TCAS was not fitted. The visibility was >10km flying 5000ft below cloud in VMC and the helicopter was green/yellow in colour; no lighting was mentioned. The helicopter was on a ferry flight from France with 2 pilots and 2 engineers on board. The crew had started work at 0745 UK local time and had accumulated 7hr flight time at the time of the Airprox so they were approaching fatigue. As the EC225 is certified for single pilot VFR the co-pilot had moved to the cabin for a rest and his seat was occupied by one of the engineers. Initially they were under a TS from Newcastle at 2500ft QNH before requesting transit of the Class D CTR. Initially their clearance limit was the 'Bridges' VRP but prior to arrival at this point the controller issued transit clearance via the RW07 threshold at 2500ft. On entering CAS the controller advised "RCS" which he acknowledged. He set the 07 threshold into the FMS and routed towards that point. Around this time he became aware of a light ac that had similarly requested to cross Class D and the flight was given a similar routeing i.e. cross O/H threshold 07. He couldn't remember if ATC specifically gave him TI, he thought they did, but only to the extent that there was another ac routeing to the same point. This other flight was a "not above 2500ft" clearance and he heard its pilot state he was at 2300ft. He was not aware of its inbound or outbound track but he was comfortable that with good VMC and in receipt of a RCS he was being looked after and didn't have too much to worry about. He couldn't see the other ac and it soon became apparent why, when ATC restated to the other pilot that the crossing point was the 07 threshold then shortly after informed the other pilot that his ac was heading for the wrong threshold (25). The other pilot apologised and said he would route to the correct threshold. Alarm bells started ringing and he asked ATC for climb to 3000ft but this was refused and he was instructed to remain at 2500ft. The frequency was very quiet and he was not aware of any other traffic on frequency though he didn't have the 'big picture'. Heading 340° at 155kt he then saw the other ac visually in his 2 o'clock. Being a small light ac it was probably by then only a little over 1nm away, that being realistically the maximum distance a light ac can been seen even in good conditions. Its relative bearing was changing so he was not overly worried but was keeping a continuous watch on it. He would have preferred to change heading to increase separation but since he was only about 0·5nm from the threshold to do so would mean he would not comply with his clearance. He determined the other ac's heading was roughly 90° to his and somewhere around this time ATC offered that he could make 1 orbit to the R if needed. Since

there seemed at this time no risk of getting uncomfortably close and by making an orbit he would have lost sight of the traffic he declined. What happened next, with hindsight, was predictable. On reaching his 12 o'clock about 500m ahead the other ac banked sharply to the R (probably 45°) and was suddenly in his 12 o'clock a few hundred metres ahead and 200ft below on the same heading. At his cruising speed he was going much faster that the other ac and closing rapidly. He took evasive action by banking 30° to the R and made an orbit and having done so he could not see the other ac so he continued to O/H the 07 threshold, as instructed, and then on track SAB. He spotted the other ac a minute or two later as it was diverging to the E and his helicopter was rapidly overhauling it again. He did not say anything on the radio but after landing spoke to the Watch Manager (WM) at Newcastle. The WM had been seated along the controller at the time and did not think much of the situation. The WM promised to look again at the tapes to see if anything could have been done differently. After he thought about it over the intervening weekend he elected to file an Airprox. It occurred to him that he didn't actually know what a RCS was. He scoured the ANO, AIP, CAA website but did not find an answer. He spoke to the Aberdeen WM who told him that under a RCS the pilot must follow ATC instructions. For IFR traffic the controller must ensure adequate separation from other traffic, he thought, but for VFR there is no such requirement. He believed that if the service does consist of ATC telling you what to do, whilst taking no responsibility for collision avoidance, it was a fundamentally flawed service with a deceptive name. As he normally flew IFR he was lulled into a false sense of security, feeling that he must continue 'on the tramline' under a RCS with a specified altitude and route resulting in late action when the crisis developed. If he had received a straightforward VFR clearance such as he receives at Aberdeen, perhaps 'not below' and to a region of airspace rather than routeing to a specific point at a specific altitude, he would have behaved differently. At Aberdeen he only hears 'RCS' when IFR. Although the other ac had routed initially towards the wrong threshold, had its pilot flown the route correctly from the start, they would have flown in close proximity earlier. He believed it was not best practice for a controller to instruct 2 flights to route to the same point at similar altitudes and expected arrival times, with a big speed differential whilst watching the scenario unfold on radar and declining a change of level request. The primary reason for filing this report was to question whether the RCS terminology was appropriate for something that seems only to be a constraint for pilots but is in no obvious way a service for them. It seemed to give ATC power without responsibility.

THE TL2000 PILOT reports en-route to Eshott, VFR and in receipt of a BS from Newcastle Approach on 124·375MHz, squawking an assigned code with Mode C. The visibility was 50km in VMC and the ac was coloured white/blue with strobe lights switched on. He was transiting the Newcastle CTR from S to N at 100kt and had received clearance from Approach to transit CAS VFR not above 2500ft. A further instruction was later given to cross the RW07 threshold but, in error, he headed towards the RW25 threshold. About 0·5nm S of the RW Approach reminded him the clearance was for RW07 threshold. He was aware, from a previous radio call, that a helicopter astern was also cleared to transit on the same route. He banked hard L and as he rolled out of the turn on heading 250° he saw the helicopter in his 10 o'clock range 2·5nm very slightly above. He monitored the helicopter's progress whilst he routed his ac to the RW07 threshold. As he commenced his R turn to parallel the helicopter's track at the 07 threshold, it was 0·5-0·75nm on his L about 100ft above. When level after the turn Approach asked if he had the helicopter in sight and he replied "affirm he is in my 7 o'clock". As he passed over Morpeth disused aerodrome [6nm NNW Newcastle], he noted the helicopter was in his 9 o'clock range 3nm on a slightly divergent course. He assessed the risk of collision as none.

THE NEWCASTLE APPROACH CONTROLLER reports that at 1657 the TL2000 (TL20) pilot called for a N'bound transit through Newcastle CAS and the flight was cleared to transit not above 2500ft and route via the RW07 threshold. At 1701 the EC225 flight, which was 5nm S of the TL20 on a similar track, called for transit and was given the same instruction to transit via the RW07 threshold. At 1706 the TL20 pilot was asked again to route via the 07 threshold as the ac's track appeared to be for the 25 threshold. The pilot apologised and turned L for the correct routeing. He then passed TI to the EC225 flight on the TL20 and the crew reported that they had the ac in sight. The EC225 crew then requested a climb to 3000ft but as there was traffic being vectored downwind LH descending to 3500ft this was refused and the crew was given the option of an orbit for spacing as required; the

crew refused this stating the spacing was OK. TI was passed to the TL20 flight on the EC225 and the pilot also had this helicopter in sight. The EC225 then made one orbit before continuing N'bound.

ATSI reports that the Airprox occurred at 1708:53 UTC, 1nm to the S of Newcastle Airport, within Class D CTR and just above the Newcastle ATZ, which extends to a height of 2000ft above aerodrome level and is bounded by a circle 2·5nm radius centred on the mid-point of RW07/25.

The EC225 was operating on a VFR flight from Norwich to Aberdeen.

The TL20 was operating on a VFR flight from Fishburn (18nm S of Newcastle) to Eshott (13nm N of Newcastle).

The Newcastle radar controller was operating as the approach radar controller. RW07 was notified as the RW in use.

CAA ATSI had access to RT and radar recordings together with written reports from the Newcastle radar controller and both pilots.

METAR EGNT 141650Z 06005KT 020V100 9999 FEW045 19/10 Q1017=

At 1657:01 the radar recording shows the TL20 and the EC225,to the SE of Newcastle airport at ranges 17·5nm and 29·3nm respectively.

The TL20 flight contacted Newcastle Radar at 1658 reporting routeing from Fishburn to Eshott at 2300ft requesting a BS and clearance through the area. The controller agreed a BS and allocated a squawk of 3750. The TL20 flight was identified and cleared to transit the Newcastle CAS VFR, to maintain VMC not above 2500ft and to report approaching the Bridges (Tyne Bridges VRP – 5·6nm SSE of the airfield). The TL20 was displaying an SSR code but without Mode C level reporting.

At 1701:13 the EC225 flight contacted Newcastle radar and was identified on transfer, squawking 3755 at an altitude of 2500ft. Due to the position and level of the EC225, a reduced TS was agreed. The pilot requested a routeing through the zone via the NT(NDB), maintaining 2500ft (The NT(NDB) is 1·2nm NE of the airfield). The controller cleared the EC225 flight to *...transit Newcastle controlled airspace VFR maintain victor mike charlie and report approaching the bridges QNH one zero one seven"*. The EC225 pilot replied, *"Clear transit the zone er obviously maintain VMC erm report approaching the bridges one zero one seven (EC225 c/s)."*

The controller planned to route both ac, via the Tyne Bridges (VRP) and RW07 threshold, not above 2500ft. This would keep the ac on the W side of the airfield, clear of departures and 1000ft below the planned arrival of a B737 descending to 3500ft from the NE. The Newcastle Manual of Air Traffic Services (MATS), Part 2, Chapter 1, Section 3, Page 7, states:

> 'Aircraft transiting the Newcastle CTA/CTR at 2500ft QNH or below will be co-ordinated and transferred to ADC from APC. Such traffic will remain with ADC until it is clear of traffic operating under these VFR procedures.'

The radar controller coordinated with the Tower controller and it was agreed that radar would retain control of the 2 ac as they transitted the W side of the airfield.

At 1702:14 the controller passed TI to the TL20 regarding a PA38 Tomahawk, S'bound towards the Bridges at a similar level.

At 1703:13 the controller advised, *"(TL20 c/s) you're clear to transit Newcastle controlled airspace and route via the zero seven threshold."* The TL20 pilot replied, *"Clear to transit Newcastle airspace routeing via the zero seven threshold (TL20c/s).*"

At 1703:26 the controller transmitted*, "(EC225 c/s) you're clear transit via the zero seven threshold.*" The EC225 pilot responded, *"clear transit via zero seven threshold thanks (EC225 c/s).*"

At 1705:00 the B737 (34·9nm NE of the airfield), was given descent to 5000ft on QNH 1017mb.

At 1705:14 the TL20 pilot reported, *"(TL20 c/s) er Bridges level two thousand three hundred and we've crossed well clear of the Tomahawk."* The controller replied, *"(TL20 c/s) roger and report at the zero seven threshold."* The TL20 pilot acknowledged, *"Wilco (TL20 c/s)."*

At 1707:07 the controller advised, *"(EC225 c/s) you've entered controlled airspace Radar Control Service report abeam the zero seven threshold."* The pilot replied, *"er controlled airspace Radar Control Service report at er zero seven threshold (EC225 c/s).*"

At 1707:10 the radar recording shows the TL20, 3·1nm from the airfield with the EC225 crossing the CTR boundary, 5·6nm from the airfield. Both ac are tracking NW with a spacing of 2·5nm.

At 1707:30, after the a controller request, the TL20 pilot confirmed his level as 2300ft and the controller responded, *"Roger just to confirm it's not above two thousand five hundred feet there is traffic er vectoring downwind lefthand for zero seven and just confirm you are routeing via the zero seven threshold."* The TL20 pilot replied, *"er yes traffic is copied we're holding two thousand three hundred feet and er we've got about a mile to run to the zero seven threshold (TL20 c/s)."* The controller responded, *"Just confirm that will be the zero seven threshold that's er west abeam the field not east abeam."* The TL20 pilot acknowledged, *"My apologies yes okay er just turning for zero seven threshold.*"

At 1708:08 the controller passed TI, *"(EC225 c/s) there is traffic to the north of you by one mile he's also routeing via the zero seven threshold similar level"* and the pilot replied, *"er (EC225 c/s) we have him visual.*"

At 1708:14 the radar recording shows the TL20, 1·6nm SE of the airfield with the EC225, 3nm SSE of the airfield. The TL20 had been routeing mistakenly towards RW25 threshold and radar recording shows the TL20 having turned L to reposition to the W side of the airfield. This results in the 2 ac converging with the TL20 crossing the track of the EC225 from R to L; separation is 1·6nm. The EC225 is indicating FL024 (converts to 2508ft with QNH 1017mb, 1mb equal to 27ft).

At 1708:22 the EC225 pilot requested a climb to 3000ft and the controller responded, *"Negative maintain two thousand five hundred feet er if you need er further spacing one left hand orbit in your present position."* The pilot replied, *"Yeah I think we're just about okay thanks (EC225 c/s)."* At this point radar recording shows the B737, 16·5nm NE of the airfield passing FL106.

At 1708:40 the controller passed TI, *"(TL20 c/s) there is helicopter traffic to the south of you has you in sight similar level."* The TL20 pilot reported the EC225 in sight and just about to cross the 07 threshold.

At 1708:46 the radar recording shows the TL20 commencing a R turn towards the 07 threshold in the EC225's 1230 position at a range of 0·5nm crossing from R to L, the EC225 is indicating FL024 (2508ft QNH).

[UKAB Note (1): On the next radar sweep at 1708:54, the CPA, the TL20 has temporarily faded from radar but the EC225 is seen commencing a R turn to pass behind the TL20; separation is estimated to be 0·3nm.]

At 1709:00 the EC225 pilot reported, *"(EC225 c/s) making one orbit."* The radar recording at 1709:02 shows the 2 ac diverging at a range of 0·3nm, with the EC225 starting a RH orbit. Once the EC225 completed the orbit, the 2 ac continued to transit CAS without further incident.

The written report from the EC225 pilot indicated that he was aware of a light ac that was on a similar routeing to the same point at not above 2500ft, but couldn't remember if ATC had given specific TI about the other ac's inbound or outbound track. The pilot added that, he was comfortable with the good VMC conditions and in receipt of a RCS. The pilot considered that the term RCS was misleading and indicated, *"feeling that I should continue to obey my clearance, thus taking late action only when a crisis developed rather than prevent a crisis developing in the first place".*

The 2 ac were both transiting Class D CAS, VFR and in receipt of a RCS. The Manual of Air Traffic Services (MATS) Part 1, Section 1, Chapter 2, Page 1, Paragraph 2, Classification of Airspace states the minimum services that are to be provided in Class D are:

> 'Aircraft requirements:
> ATC clearance required before entry. Comply with ATC instructions.
> Minimum service by ATC unit:
> c) Pass traffic information to VFR flights on IFR flights and other VFR flights.'

The controller planned that both ac would route via the Tyne Bridges (VRP) and then via the RW07 threshold, routeing to the W side of the airfield and clear of departures.

The spacing between the 2 ac as they approached the airport gradually reduced, due to the variation in speed, between the faster EC225 and slower TL20. The incorrect routeing by the TL20 pilot resulted in the 2 ac converging towards RW07 threshold at a similar level and at the same time.

TI was passed to the EC225 pilot when the distance between the 2 ac reduced to 1·8nm and then to the TL20 pilot once the distance reduced to 0·5nm. This TI was sufficient to enable each pilot to see and avoid. However the passing of more timely TI may have aided the situational awareness of each pilot much earlier.

The EC225 pilot requested a climb to 3000ft. It is not clear why the controller was unable to approve this request. The inbound B737 was 16·5nm NE of the airfield passing FL104. Instead the controller approved an orbit for increased spacing.

The TL20 pilot routed towards the incorrect threshold, which when corrected resulted in the TL20 turning onto a W'ly track. The 2 ac then converged and came into close proximity. The controller passed TI that enabled both pilots to become visual with each other.

Within Class D CAS, ATC has a responsibility to prevent collisions between known flights and to maintain a safe, orderly and expeditious flow of traffic. This objective is met by passing sufficient TI and instructions to assist pilots to 'see and avoid'. In Class D airspace the controller is required to pass TI to VFR flights on other VFR flights.

A contributory factor was considered to be, the late passing of TI. The controller allowed the situation to develop as the 2 ac converged towards the RW07 threshold at a similar level and into close proximity. The passing of earlier TI would have aided the situational awareness of each pilot and may have allowed a better and, more timely assessment of the traffic situation by the EC225 pilot.

The EC225 pilot expressed some concern regarding that the term 'RCS,' as misleading, as applied to VFR ac operations in CAS. This issue was addressed in CAA Safety Sense Leaflet 27, Flight In Controlled Airspace and contained the following extract with respect to VFR flight in CAS, paragraph (f) states:

> 'The VFR pilot may have the privilege of some collision protection, although that may well not be available even if your transponder is transmitting a designated code. Beware the terminology. You may hear the controller use the words "radar control" – although technically that terminology may be accurate, he is not actively controlling you. Apart from remaining on whatever track at whatever altitude for which you have been cleared, and listening attentively at

all times for any changes to these instructions, you have the further responsibility to avoid other traffic. Although the controller will pass information to you on the general position of other traffic, in Class D airspace he is not responsible for keeping you away from that other traffic.'

However, there is anecdotal concern that VFR pilots operating in Class D airspace are confused by the use of the term 'RCS' and the terms of service under which they are operating. This subject is currently under review by CAA ATC Phraseology Working Group together with the CAA Procedures Working Group.

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.

Members understood the challenges of flying VFR within CAS and sympathised with the EC225 pilot's predicament. The flight had been given transit clearance of Class D CAS under VFR at 2500ft and had been told that the service was a RCS - the only radar service that can be given in CAS - as the helicopter crossed the CTR boundary. The onus was on the pilot to comply with the ATC instruction; however, he also had an overriding responsibility to avoid other traffic flying under VFR. He was aware from the RT exchanges that the TL2000 was on a similar routeing and ATC had passed specific TI on the ac, which he saw. Although conscious that he had to maintain track and altitude, he wanted to alter heading to increase separation but he had to continue as cleared to the RW07 threshold. He requested climb to 3000ft but this was refused; however, he was offered an orbit for spacing, which he declined at the time. ATC then passed TI on the EC225 to the TL2000 pilot, albeit late, which he saw and was content to proceed on a W'ly track while watching the helicopter to his SW before turning to the NW to fly O/H the RW threshold. This flightpath had placed the TL2000 in a position ahead of the EC225 which left its pilot with few options; however, he executed a R turn, to avoid flying close to or overflying the light ac. A controller Member stated that the EC225 pilot also had the options of slowing down or overtaking the TL2000 on its R, the pilot only needing to advise ATC of his intentions/actions. One pilot Member expressed a view that the whole issue of RCS and the rules/responsibilities for flights within Class D airspace were overly complicated and there seemed to be a difference in application by different ATSUs. A controller Member said that there was an issue with the education of pilots to flights within CAS which was captured well within the Safety Sense leaflet 27. The general feeling was that VFR pilots only wanted a clearance to transit the CAS concerned but the RCS terminology clouded the situation in pilot's minds. The CAA SRG Strategy and Standards Advisor informed the Board that there was an ongoing review of RCS to VFR flights and it had been found that there was not 100% application of it by ATSUs. The Advisor concurred that a re-education was needed through the re-issue of the Safety Sense leaflet and through the Airspace Safety Initiative group. The Board also noted and endorsed the review being undertaken by the CAA ATC Phraseology and Procedures Working Groups. An experienced pilot Member said the aspects/responsibilities were very similar to flying within Class G airspace, with TI being provided by ATC to highlight the potential for conflict. In this incident, the EC225 pilot had seen the situation unfolding and resolved the conflict at the last minute which, Members agreed, had resulted from a misunderstanding of the rules for VFR traffic within the Newcastle Class D CTR.

Looking at the risk, some Members thought the incident had been benign such that it was a non-Airprox where all normal procedures, safety standards and parameters had pertained, a Category E incident. However this view was not shared by the majority who believed that the uncertainty in the EC225 pilot's mind combined with the subject acs' flightpaths had resulted in a confliction which needed resolution and this had been accomplished by the EC225 pilot whose actions had been effective in removing any risk of collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict resulting from a misunderstanding by the EC225 pilot about the rules for VFR traffic in Class D airspace.

Degree of Risk: C.