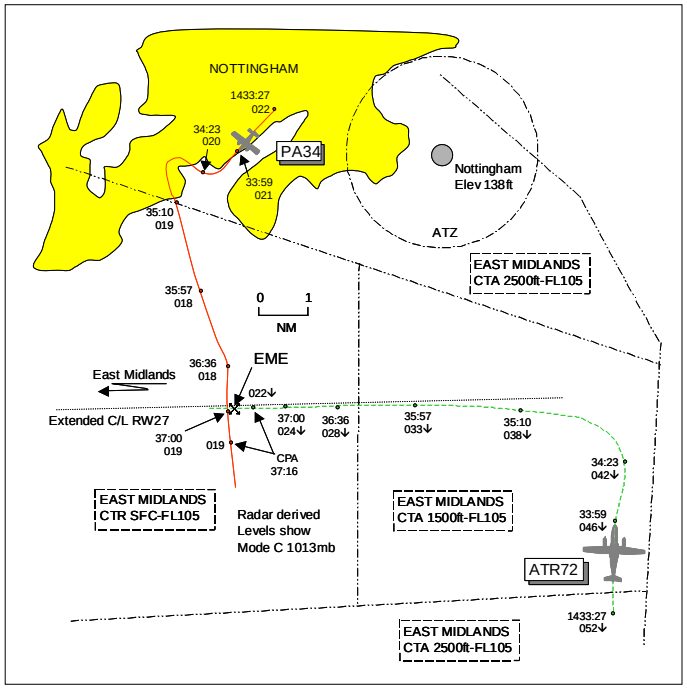
AIRPROX REPORT No 2010002

Date/Time:	30 Jan 1437 (Saturday)	
Position:	5250N 00111W (5nm FIN APP East Midlands - elev 306ft)	
Airspace:	CTR	(*Class: D*)
	Reporting Ac	*Reported Ac*
Type:	ATR72	PA34
Operator:	CAT	Civ Comm
Alt/FL:	2000ft↓ (QNH 1001mb)	1500ft (QNH)
Weather:	VMC NR	VMC CAVOK
Visibility:	>10km	>10km
Reported Separation:	800ft V/1nm H	500ft V/1·5nm H
Recorded Separation:	300ft V/0·8nm H	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE ATR72 PILOT reports inbound to East Midlands (EMA) IFR and in communication with East Midlands Approach on 134·175MHz, squawking with Modes S and C. On intercepting the LOC at 160kt for RW27 about 5 ac were identified ahead on TCAS; all were low level. In particular 1 light ac was clearly instructed by ATC not to enter CAS; however, this flight did not obey the instruction and entered EMA CAS heading N to S approaching the RW extended C/L. At about 1500ft, this ac was seen on TCAS to be 800ft below them and within 1nm, passing through their projected track from R to L. They were about to initiate a go-around when they became visual with the other ac, which passed close down their LHS. They continued their approach and advised ATC that they had visual contact and would be filing an ASR. The controller then contacted the other ac's pilot to remind him he had been instructed not to enter CAS. No TCAS alerts were received and he assessed the risk as medium.

THE PA34 PILOT reports flying a local sortie from Nottingham VFR and in communication with EMA Approach on 134·175MHz, squawking 7000 with Mode C. From O/H Nottingham City centre and on the N boundary of the EMA CTR he requested a zone transit on track to Birmingham. The controller replied *'...remain clear and standby'* which he acknowledged. He began tracking W'bound along the top of the CTR and shortly afterwards he was told by EMA Radar *'PA34 c/s head S'*. He replied *'please confirm heading 180° PA34 c/s'* to which the controller replied *'heading 180°'*. He took up heading 180° at 140kt and 1500ft QNH, expecting a clearance and confirmation of 'radar control' on entering the CTR. Although he became concerned crossing the Zone boundary that this had not been confirmed properly, the frequency was very busy. Shortly after this he became aware of a high-wing twin-engine ac [ATR72], on what appeared to be an approach path, high in his 10 o'clock about 2nm away. He was then able to contact EMA Approach and request confirmation of his routeing and position; the controller replied with an instruction to squawk 4553. Meanwhile he passed about 1·5nm ahead of, and 500ft below, the ATR72 whilst maintaining visual separation. Once his squawk had appeared on radar the controller asked him what was the instruction that had been passed to him. He replied that it had been, initially, to remain clear, which he had acknowledged, and subsequently to route S, which he had also asked to be confirmed and was told 180°. The controller replied *'...but you are not where I thought you were'*. He was then instructed to continue S to exit the zone whereupon he resumed his own navigation to Birmingham. He assessed the risk of collision as low.

In hindsight he felt the lessons learnt were: - The EMA controller should have positively identified his ac before routeing his flight S into the zone and he should have obtained unequivocal confirmation from ATC that he was cleared into the zone before entering.

THE EAST MIDLANDS RADAR CONTROLLER reports the ATR72 was being vectored for the ILS RW27. The PA34 flight called him on a photo-survey looking to transit from Nottingham to the Birmingham area and was told to remain outside CAS. The ATR72 established and was transferred to Tower frequency. The PA34 flight was requested to track S'bound not above altitude 1500ft but still with no clearance issued. On issuing a squawk code (4553) the PA34 was seen to have assumed a transit clearance and had proceeded through the CTR directly S to the EME NDB and then S'bound, passing close to, although visual with, the ATR72.

ATSI reports that the East Midlands Radar Controller had been in position for approximately 55min before the Airprox occurred. The Radar positions were bandboxed, although another controller was available in the Approach Room if it had been considered necessary to open the Radar 2 position. The workload was described as steady and manageable at the time of the Airprox.

The ATR72, inbound to East Midlands on an IFR flight, established communication with Approach Control at 1425. The ac was 41nm SSE of the airport, routeing to VELAG and descending to FL80. It was instructed to leave VELAG heading 005°, for radar vectors to the ILS RW27. Further descent was issued as the ATR72 approached the airport i.e. to FL70 at 1429, with a range check of 28nm, altitude 4000ft at 1431, on base leg 24nm from touchdown and 3000ft at 1432. By now it was 14nm SE of the airport.

Just after 1433:30, the PA34 flight contacted East Midlands Approach. The controller was aware of its details as ATC had been pre-warned i.e. a photographic detail over Pride Park at Derby and Keyworth (just south of Nottingham Tollerton airfield). An fps had been prepared for the flight, showing it departing from Blackpool and landing at Nottingham Tollerton. The pilot reported *"PA34 c/s is a P A Thirty Four out of Nottingham we're on a photographic flight routeing to the Aston Villa and Birmingham city sites currently overhead Notting- er Nottingham City itself One Thousand Eight Hundred feet on the QNH of One Zero Zero [sic] millibars request zone transit on track"*. The QNH was not stated fully or, subsequently, read back when issued by the controller. At the time, the ac was 8·2nm NE of the airport tracking SW'ly indicating FL022 (altitude 1840ft QNH 1001mb), below the East Midlands CTA, where the base is 2500ft. The controller replied *"PA34 c/s remain outside for the moment just standby come back to you shortly"*. The pilot responded, *"Remaining clear"*. The boundary of the CTR was approximately 2·7nm ahead of the aircraft.

At 1434, straight after the PA34 pilot had replied, the ATR72 flight, still on L base, was instructed to turn L heading 270° *"...direct onto the Localiser report Localiser established"*. The controller then asked the pilot of the PA34 if he was still going to carry out his detail, as expected, at Derby. He confirmed that it had been cancelled and he was proceeding to Aston Villa, and then returning to Nottingham. The controller responded, at 1434:25, *"PA34 c/s roger erm track southbound initially not above altitude One Thousand Five Hundred feet remaining VFR QNH One Zero Zero One do have traffic just joined the ILS"*. The pilot read back *"Er tracking southbound er initially er please say again the height restriction PA34 c/s".* This was confirmed as not above 1500ft and the pilot acknowledged it correctly. The radar recording, timed at the moment the PA34 is told to track S'bound, shows the ac approximately 6nm NE of the airport, still squawking 7000, in a R turn away from the boundary of the CTR, in accordance with its instruction to remain outside (CAS). Thereafter, it commences a L turn and enters the CTR, 5·4nm NE of the airport, at 1435:10 indicating FL019 (1540ft QNH).

Prior to transferring the ATR72 to the Tower frequency, the Radar Controller passed details about a helicopter at 1500ft followed by a light ac at not above 2000ft, which were routeing N'bound through final approach. The pilot reported established for RW27 and confirmed he was looking for the traffic on the L. He was instructed to continue the approach and contact the Tower frequency. Over the next minute, the Radar Controller dealt with transmissions from 4 light ac. During this time the radar recordings show the PA34 tracking SSE through the CTR, its projected track indicating it would cross the RW 27 approach at 5nm. At 1436:36, the pilot of the PA34 asked *"And PA34 c/s please confirm*

you do want us to route south I can see the er traffic on ILS". The controller, still believing that the PA34 was routeing E of the CTR, looked in that vicinity on the radar display. Not observing a likely return, he instructed the flight to squawk an East Midlands code 4553. At the time the PA34 was approaching the RW27 approach path at FL018 (1440ft QNH), 4·6nm E of the airport. The ATR72 was on final approach at 6·7nm at FL028, 1000ft above, and 2·4nm distant from, the PA34. By the time the Radar Controller established the position of the PA34, the subject ac had passed each other. The radar timed at 1437:00 shows the PA34 now squawking 4553 just S of the approach path at FL019, 1·1nm ahead of the ATR72 at FL024, and 500ft lower. Whilst the Radar Controller was, subsequently, querying with the pilot of the PA34 the clearance issued, the ADC reported on the intercom he was still not in contact with the ATR72. When the ATR72 was then instructed to contact the Tower frequency, the pilot commented that he might have to file an ASR on that. He later reported that he had not transferred to the Tower frequency earlier, as he had become aware of traffic approaching from the R on his TCAS display and was looking for visual contact. The discussions with the pilot of the PA34 then continued, with him explaining his belief that the instruction to route S was a clearance to enter the CTR.

[UKAB Note (1): The CPA occurs at 1437:16 as the PA34, at FL019 on a S'ly track, diverges from the ATR72, which is 0·8nm to its NE tracking on the extended C/L RW27, descending through FL022.]

The controller believed that the PA34 was in the vicinity of Nottingham Tollerton airfield and not near the City, when it was instructed to track S'bound (albeit that the pilot had reported over the City). There were a number of 7000 squawks in the vicinity of the airfield, at the time. A S'ly track from Nottingham Tollerton would have resulted in the ac tracking E of the CTR, at the base level of the CTA, clear of the ATR72. Consequently, it would have been prudent to identify the PA34 before the instruction was issued. It is understandable why the pilot of the PA34 believed he had received permission to enter the CTR, despite not receiving a standard joining clearance. The Radar Controller did not register the progress of the PA34 within the CTR, as he was busy dealing with other traffic. It is possible that if the radar positions had been split, resulting in the ATR72 being transferred to the Radar 2 position, then the Radar 1 Controller might have had more time to monitor the course of the PA34, or the Radar 2 Controller might have observed the confliction and taken appropriate action.

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 could understand the APR's mindset in endeavouring to route the PA34 S'bound to the E of the CTR and under the CTA. However, he apparently did not assimilate the pilot's position report of being over the City centre and not where he thought it was i.e. E of the City close to Nottingham Tollerton airfield. Although he had issued the instruction to remain clear of CAS he subsequently issued a control instruction for the pilot to head S, which the pilot queried, and this was confirmed. The PA34 pilot was aware that he had not been issued with a positive clearance to enter CAS but Members could understand why he believed that the APR's instruction to vector S constituted permission. The CAA Flt Ops Advisor emphasised that, notwithstanding any other instructions or communications, pilots should always remain clear of CAS unless and until the terminology "cleared to enter" is used. Controller Members agreed that the PA34 should have been identified before issuing the heading instruction; in not doing so the APR had issued a heading to an ac that was unidentified, which had placed the ac into conflict with the ATR72 and this had caused the Airprox.

The Board also noted that the frequency was busy when the PA34 was tracking through the CTR, which probably denied the PA34 pilot an earlier opportunity to query the entry clearance. However, the pilot alerted the APR to the situation after he saw the ATR72 in his 10 o'clock high but by the time the APR had issued a squawk code and then realised where the PA34 was the ac were passing each

other. Meanwhile the PA34 pilot maintained visual separation against the airliner, he estimated passing 1·5nm ahead and 500ft below it. The ATR72 crew had seen the PA34 closing from the R and had monitored its progress on TCAS (without any TA/RA) before seeing it pass 1nm ahead and below. The radar recording shows the PA34 crossing just over 1nm ahead and 500ft below, the CPA occurring as the ac diverge. These visual sightings allowed the Board to conclude that any risk of collision had been effectively removed.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The APR vectored the unidentified PA34 into conflict with the ATR72.

Degree of Risk: C.