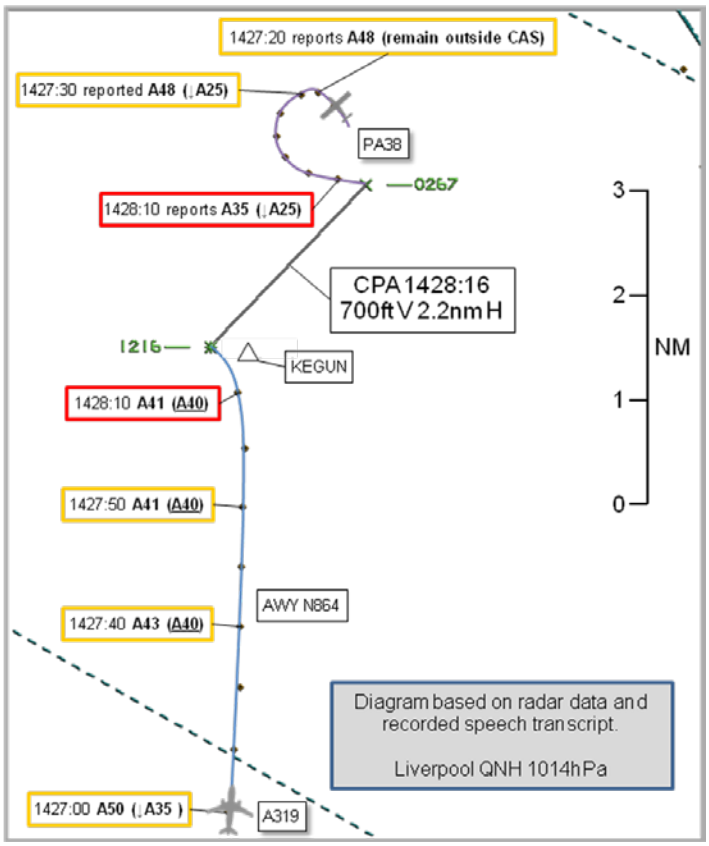
AIRPROX REPORT No 2012061

Date/Time:	6 May 2012 1428Z (Sunday)	
Position:	5312N 00309W (ivo KEGUN)	
Airspace:	AWY N864	(*Class: A*)
	Reporting Ac	*Reporting Ac*
Type:	A319	PA38
Operator:	CAT	Civ Pte
Alt/FL:	4000ft QNH (1014hPa)	4800ft QNH (1013hPa)
Weather:	IMC In Cloud	VMC CLBC
Visibility:	NA	10km
Reported Separation:	600ft V/2nm H	NK
Recorded Separation:	NK V/2.2nm H	



BOTH PILOTS FILED

[UKAB Note(1): A319 altitudes are Mode C derived, in the format '<time> **<altitude> (<current clearance>)**'. PA38 altitudes are as reported by the PA38 pilot, in the format '<time> reports/reported **<altitude> (<current clearance>)**'.]

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE A319 PILOT reports descending in AWY N864 inbound to Liverpool John Lennon Airport approaching RP KEGUN (12nm S WALLASEY) whilst IMC in cloud in receipt of a RCS from Liverpool APP (119.850MHz). All external lights and IFF modes 3A/C and S were selected 'on', with SSR code 1216 selected.

When passing altitude 6000ft (with clearance to altitude 3500ft on Liverpool QNH 1014hPa) he '... encountered proximate traffic on radar 12 o'clock position at 7.5nm closing'. Liverpool APP informed him that the traffic was a light ac [the subject PA38] maintaining altitude 1800ft. ATC then requested the PA38 pilot confirm his altitude, which was reported as 4800ft. As the intruder ac approached 2nm on TCAS he instructed the FO [PF] to take avoiding action by turning immediately L. He informed Liverpool APP that they were turning L and was instructed to keep turning L for avoiding action. Liverpool APP instructed the PA38 pilot to descend immediately to 2000ft [pilot report states 2500ft] and leave CAS. Shortly thereafter, normal vectors were resumed.

THE PA38 PILOT reports holding [in a L turn] passing through 186° at 85kt, level at 4800ft on QNH 1013hPa whilst operating VFR in VMC and under a BS from Liverpool APP. External strobe and navigation lights and SSR Mode 3A/C were selected 'on'. The ac is not fitted with Mode S. After inadvertently entering Class A airspace to '... avoid high ground of Welsh hills ...' he conflicted with an incoming airliner and immediately descended to altitude 2500ft as instructed by ATC. The transponder was '... set in Alt mode ...', he thought, but seemed to be inoperative.

[UKAB Note(2): The PA38 operator stated that the transponder in this aircraft is Mode A capable only and is labelled as such in the cockpit]

ATSI reports that an Airprox was declared in the vicinity of RP KEGUN, at 4000ft in AWY N864, when an Airbus A319 and a Piper PA38 came into conflict. The A319 was operating IFR on a flight

from Jersey to Liverpool and was in receipt of a RCS from Liverpool Radar on 119.850MHz. The PA38 was operating VFR on a local flight from Liverpool and was in receipt of a BS from Liverpool Radar on 119.850MHz.

[UKAB Note(3): UK AIP, page AD 2-EGGP-1-5 dated 16 Dec 10, para 2.18 – ATS COMMUNICATION FACILITIES states that Liverpool Approach and Liverpool Radar have the common frequency 119.850MHz. Throughout the course of the incident the A319 pilot used the C/S "*Liverpool Approach*" and the PA38 pilot used the C/S "*Liverpool Radar*".]

The Liverpool METAR was reported as follows:
METAR EGGP 061420Z 15004KT 110V230 9999 FEW040 11/M03 Q1014=

[UKAB Note(4): The Hawarden METAR was reported as follows:
METAR EGNR 061420Z 18006KT 9999 SCT048 10/00 Q1014=]

The PA38 pilot departed Liverpool at 1323 on a local flight and was given a clearance to leave the Liverpool CTR [Class D airspace] not above altitude 1500ft VFR, via Oulton Park VRP. Once airborne, he was transferred to Liverpool Radar. At 1326 the PA38 pilot contacted Liverpool Radar and was instructed to report leaving Oulton Park. At 1331 he reported at Oulton Park and the service was changed to a BS.

At 1408:10 the PA38 pilot called Liverpool Radar, stated that he was at Wrexham, and requested a SRA. He was instructed to route towards Flint, remaining clear of Hawarden ATZ, to squawk 0267 and to hold '... at the Flint area ...'. The base of AWY N864 above Wrexham is altitude 4500ft. The PA38 was not displaying Mode C level information.

At 1415:00 the Liverpool Radar controller asked the PA38 pilot to report his altitude. The pilot replied, with an accent that made the transmission somewhat unclear, that he was at, "... *four thousand nine hundred feet on your QNH*". The Liverpool Radar controller replied "... *Roger if you just remain outside controlled airspace at Flint*", which was acknowledged by the pilot. The base of controlled airspace above Flint is altitude 3000ft. One minute later the Liverpool Radar controller advised other traffic returning to Hawarden that, "*... there will be a PA38 operating in the Flint area last reported not above one thousand, er correction, nine hundred feet*". At 1418:50 the PA38 reported overhead Flint.

At 1424:30 the pilot of the A319 contacted Liverpool Radar descending to FL60 inbound KEGUN. He was advised to expect radar vectors to the ILS, to continue on his present heading and to descend to altitude 5000ft QNH [1014hPa].

At 1426:10 there was a change of controller and the incoming Liverpool Radar controller asked the PA38 pilot to report his altitude. He replied that he was at 4800ft Liverpool QNH. The Liverpool Radar controller asked the pilot of the PA38 to say again and the PA38 pilot replied, "*four thousand eight hundred feet*". The Liverpool Radar controller responded in a surprised tone, "*four thousand eight hundred feet did you say*" to which the pilot replied at 1426:30, "*Affirm, four thousand eight hundred feet*". The controller then replied, "*One thousand eight hundred feet that's copied thank you*".

The incoming controller's written report stated that the PA38 had been handed over at a reported level of 1900ft. It also stated that both the incoming controller and the outgoing controller, who was still at the desk, heard the reply from the PA38 as, "*one thousand eight hundred feet*". When the controller readback the PA38's level as 1800ft the pilot did not correct it so the controller assumed it was correct.

At 1427:00 the Liverpool Radar controller cleared the A319 to descend to altitude 3500ft and passed TI on the PA38 as being in the A319's 12 o'clock at a range of 7nm and an altitude of 1800ft. The A319 pilot reported that he had the traffic on TCAS in his descent clearance readback. At 1427:20 the PA38 pilot transmitted, "... *our altitude is four thousand eight hundred four one two three four thousand*". The Liverpool Radar controller informed the PA38 pilot that he was inside CAS (at 1427:30), instructed him to descend immediately to altitude 2500ft and recleared the A319 pilot (at 1427:40) to stop descent at altitude 4000ft. At 1427:50 the Liverpool controller passed updated traffic on the PA38 now descending from altitude 4800ft and the pilot of the A319 requested a L turn and concurrently reported that he was turning L onto a hdg of 320°. The controller acknowledged the call from the A319 pilot and passed avoiding action [at 1428:00] of a L turn onto a hdg of 290°. At 1428:10 the Liverpool controller requested the PA38 pilot report his altitude to which he replied, "*Three thousand five hundred and descending*". The Liverpool controller requested that the PA38 pilot expedite his descent, which was acknowledged.

Separation was lost; the CPA was 2.5nm and 600ft (vertical separation based on the PA38 pilot's report at the time avoiding action was taken). Minimum separation required was 3nm/1000ft.

[UKAB Note(5): The CPA of 700ft V and 2.2nm H was calculated from the radar recording and a conservative estimate of the PA38 altitude at 1428:16]

When the pilot of the PA38 first reported to Liverpool Radar that the ac was at 4900ft [at 1415:00] the transmission was fairly weak and, together with the pilot's accent, ATSI considered that the distinction between 4900ft and 1900ft was somewhat unclear.

The PA38 was inside CAS without a clearance. The base of CAS was 3000ft and having instructed the pilot to remain outside CAS, the controller had an expectation that the PA38 was at a level below CAS.

After the controller handover had taken place and the oncoming controller requested the PA38 pilot to state his level, it is very likely that there was a high degree of expectation bias that the PA38 was level at 1800ft rather than 4800ft. The incoming controller expected the PA38 to be outside CAS and had just been told at handover that the PA38 was at 1900ft.

Even after the Liverpool controller had queried the PA38's level as being 4800ft, both the incoming and outgoing controllers misheard the pilot's reiteration of his level as 1800ft. When this was readback to the pilot it was not immediately corrected so the controller assumed it was correct.

The controller was alerted to the situation by the pilot of the PA38 reiterating his level as being 4800ft. When the controller realised the level of the PA38 was conflicting with the A319, instructions and TI were issued to resolve the situation.

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 photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

The Members discussed the issue of the controllers' confirmation bias at length and were of the opinion that the poor R/T readability and controller expectation of the PA38 pilot's flight profile

contributed to the breakdown in separation. Additionally, controller Members opined that a check of the PA38 pilot's altitude in the 11½ minutes between the misheard responses at 1415:00 and 1426:30 would have been prudent. Members also opined that assumptions were made by all parties: for example the PA38 pilot's assumption that he had a functioning SSR transponder Mode C and hence that the controller was aware of his altitude; also the reasonable expectation that the PA38 pilot would continue to operate iaw his VFR clearance by remaining clear of CAS.

Notwithstanding earlier miscommunication, the situation was eventually resolved by the PA38 pilot reiterating his altitude in a clear and unmistakeable manner and the controller taking positive control of the situation with deconfliction instructions to both ac. The A319 pilot was also able to use his situational awareness from both the RT and TCAS display to pre-empt the controller's avoidance action, thereby increasing the range at CPA. Whilst the PA38 pilot continued to erode CPA range by continuing his L turn, his rate of descent, estimated at 2000fpm from the radar replay, resulted in a minimum range separation of 2.2nm and an estimated height separation of at least 700ft. As such, the Board considered that no risk of collision existed.

[UKAB Post-meeting Note: The PA38 pilot did not agree with UKAB Note(2) and stated that the SSR transponder was not labelled as being Mode A capable only at the time of the incident. Although the Board has photographic evidence that the transponder is now labelled it has not been possible to resolve these differences].

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The PA38 pilot entered CAS without clearance and flew into conflict with the A319.

Degree of Risk: C.