



that the HS25 had already been transferred to Hawarden. The APR then asked Scottish to put the A319 on a heading of 350° to widen it out a little bit as it was still high and told Scottish that Hawarden would be informed. Hawarden were called and they advised that they were going to turn the HS25 L all the way around onto 090° and descend to 3500ft. The APR initially asked Hawarden to turn the ac R, as this would have vectored it away from the RH base leg for Liverpool RW09, but as the A319 was still high anyway and the HS25 had not yet reached its release point, the original plan to turn it L was acknowledged. Whilst waiting for the A319 to come over from Scottish it was noticed that the HS25 was commencing its L turn before its release point but it was assumed it was descending to 3500ft. The APR immediately called Scottish to advise them to stop the descent of the A319 and to inform them of what Hawarden were believed to be doing with the HS25. Scottish issued avoiding action to the A319 and then Hawarden called stating they were climbing the HS25 against the A319.

**THE SCACC W/IOM RADAR CONTROLLER** reports that 2 ac were routeing to KEGUN. The first was an HS25 for Hawarden released to FL70 out of FL80, which was transferred to Hawarden through about FL140. The HS25 flight was instructed to expedite descent but in his opinion did not. The second ac was an A319 flight inbound to Liverpool which was constantly asking for descent and it was initially descending on top of the HS25. He turned the A319 L and descended it to FL80 believing that his Planner had told him to, following further coordination with Liverpool Radar. The HS25 turned L passing FL100 so he turned the A319 a further 20° L. As the HS25 kept turning L and the A319 was already just through the level of the HS25 he instructed the A319 flight to descend to FL60 and expedite. He then saw that avoiding action was necessary and gave the A319 an avoiding action L turn onto 270°. Separation was regained and he continued until he was relieved shortly afterwards.

**THE SCACC W/IOM PLANNER CONTROLLER** reports she released the HS25 to FL70 to KEGUN out of FL80 and the A319 to FL80 out of FL90 to Liverpool. Liverpool advised that the HS25 could be transferred straight to Hawarden and she wrote this on the fps. From the radar display she could see both ac were running high so she called Liverpool to inform them and they said that they were happy and to transfer both flights to them. She told Liverpool that the HS25 had already been transferred to Hawarden and so to prevent the A319 having to enter the hold could they accept the A319 on a heading. Liverpool agreed and asked them to put the flight on heading 350°. She conveyed this to the Tactical controller who said, "that was good as that was the heading he had just put the ac onto". At this point she saw that the A319's Mode S SFL indicated FL80; although the A319 flight had been requesting further descent from Tactical, she was surprised to see that it had been given. At 1105 Liverpool called and said, "watch the descent on the 'A319 company' as Hawarden were turning the 'HS25 company' left onto 090° (both before reaching KEGUN and contrary to the RH holding pattern) and descending to altitude 3500". The HS25 was passing through approximately FL98 and the A319 FL96 at this point. She told Tactical to stop the A319's descent and informed him what Hawarden were doing with the HS25. She told Tactical that he should give avoiding action to the A319. Tactical gave avoiding action but said that as the A319 was below the HS25 he gave further descent; STCA was activating red. She telephoned Hawarden and, at the same time saw that the HS25 was climbing, told Hawarden that they were avoiding and that the A319 was also descending to FL60. She next called Liverpool and re-released the A319 when it was clear of the HS25 before informing the LAS that a loss of separation had occurred. She believed that Liverpool and Hawarden agreed an amendment to the original releases issued without her authority.

**THE HS25 PILOT** reports inbound to Hawarden IFR, routeing EXMOR OKTEM for a KEGUN 2D arrival, squawking an assigned code with Modes S and C. He was unsure of the frequency he was on at the time; the last frequency noted was Scottish on 119.025MHz [actually Hawarden 123.35MHz] but he thought he was under a TS. On initial descent towards Hawarden at 230kt they were cleared to 6000ft QNH inbound KEGUN before they were told to start a L turn to a S'y heading; they were under control and IMC at the time. On passing 8000ft they received a call to, "stop descent FL90". The AP was disconnected and the ac was transitioned from a 1500fpm descent to a steep climb – pitch 10° nose up. With QNH 999mb they were approximately FL84 at the transition to climb. A couple of seconds after transitioning to the climb they received a TCAS TA which lasted a couple of seconds before clearing, the other ac appearing in their 10 o'clock range 4nm and about 300ft low.

They notified ATC of their level and ATC responded apologising for a 'mix up with Liverpool ATC'. At no point did they visually acquire the other ac owing to IMC in cloud, assessing the risk of collision, based on TCAS, as low. He did not report an Airprox as they did not feel an Airprox occurred. It was clear to them that a communication issue between ATSU's had led to a clearance that was not intended but which was aggressively rectified by them at the time.

**THE A319 PILOT** reports inbound to Liverpool IFR and in communication with Scottish, squawking an assigned code with Modes S and C. In the EXMOR area another flight – the HS25 – was ahead of them on the same route. They were receiving delayed descent clearances owing to the HS25 ahead apparently not complying with ATC requests. On at least 3 occasions they heard the HS25 flight being asked to expedite descents but to no avail. Consequently they were receiving limited descents and level-offs, going high on profile. Finally they were asked to reduce speed to an unusually slow 220kt (FL200ish) to help the situation. He made comment to the FO that this was unusual and that he was beginning to feel uncomfortable. To make a point they told ATC they were getting close to minimum 'clean' speed and didn't want further speed reductions at height. They couldn't understand why the HS25 was reluctant to lose height, as they were high for Liverpool so the HS25 must have been very high for Hawarden. Eventually the HS25 changed to another frequency and they were put on a heading L of their track to KEGUN. They continued their descent and shortly after received a further 30° L turn owing to conflicting traffic. They complied with ATC instructions with AP 'in' and, of note, did not receive a TCAS RA but neither he nor the FO can remember if a TA was generated. He assessed the risk as low.

**ATSI** reports that at the time of the Airprox, the HS25 was under the control of the Hawarden APR. The A319 had not yet been transferred to Liverpool but had remained with the Prestwick Control (PC) Wallasey/IOM Sector. In accordance with local procedures, the Liverpool APR had received the inbound releases for both ac from PC and had advised Hawarden accordingly.

Both the Liverpool and Hawarden Controllers described their respective workload as light and the Wallasey/IOM Tactical Controller reported his as light to moderate.

The procedures for Airways flights into Hawarden and Liverpool from the S via Airway N864 are stated in the UK AIP (i.e. KEGUN 1D STAR: 'Arrival via N864 to **MONTY** continue on **WAL VOR** R186 to **KEGUN** then turn left to **TORGO**, then turn left to intercept **WAL VOR** R186 to **KEGUN**'). The only level restriction is FL200 before **OKTEM**. Additionally, a separate box within the arrival chart, which is titled 'DESCENT PLANNING – ATC REQUIREMENTS,' states: "When determining top of descent point, pilots should anticipate possible descent clearance to the level shown in the table above (i.e. FL200) and possible clearance to FL70 by the SLPs (Speed Limit Points). Pilots unable to comply must notify ATC as soon as possible.' The KEGUN 1D SLP is WAL D24.

The subject ac were routing N'bound on Airway N864, in communication with the Wallasey/IOM Sector. The Sector Planner telephoned Liverpool Approach at 1100, in accordance with agreed procedures, to pass inbound releases for the 2 ac (i.e. HS25 "At KEGUN we'll do Seven Zero erm out of Eight Zero followed by"). Liverpool acknowledged only with, "Yeah", then, "A319 c/s Eight out of Nine". The Liverpool APR read back, "eight out of nine," and continued, "the er HS25 operator can go straight to Hawarden", which was acknowledged by the Planner. Flights inbound to Hawarden from the S via N864 (as described previously in paragraph above) follow the same routing as Liverpool inbounds. The Liverpool APR later commented that there was no requirement to work the HS25, as it was ahead and below the A319 and there were no other ac likely to conflict with it. The intention was to provide separation between the 2 ac by descending the A319, when in contact, on top of the HS25, ensuring that the required 1000ft vertical separation was maintained. When the releases were passed by PC, the HS25 was approximately 26nm S of KEGUN, passing FL179 for FL90 and the A319 was 9.6nm behind, passing FL206 for FL160. The Wallasey/IOM Planner stated in her report that she could see that the 2 ac were "running high", which reportedly is not an unusual occurrence for ac being transferred on that route from Swanwick Centre.

The Liverpool APR informed Hawarden, by telephone, of the HS25's release, "Seven released out of eight", which the Hawarden Controller read back correctly. Additionally, Liverpool passed information

about the A319, stating it would, *“descend on top”*. The RW in use at Hawarden was RW22. Instrument approaches to RW22 require entry into the Liverpool CTR. A section of the CTR is delegated to Hawarden for instrument approaches, (when coordinated with Liverpool). This is the Hawarden Radar Manoeuvring Area (HRMA), which stretches from the surface to 2500ft. Hawarden inbound traffic vectored for RW22, should be descended to 2000ft and must be at or below 2500ft upon entering the HRMA. In order to avoid conflicting with Manchester SID traffic, Hawarden shall not vector inbound traffic E of a line drawn N/S through Liverpool Airport, at levels above 3500ft. At 1101:35, Hawarden requested permission to enter the HRMA but were asked to check again later.

At 1102:37, in accordance with its release, the Wallasey/IOM Tactical Controller instructed the HS25 flight to, *“descend Flight Level Seven Zero expedite your descent all the way down please”*. The pilot replied, *“Okay we’ll expedite down to Seven Zero”*. The HS25 was passing FL149; the A319 was 8-9nm behind, passing FL166, having been cleared to FL140 after requesting further descent. The HS25 was then transferred to Hawarden Approach as had been agreed; no “level by” restriction was issued to the flight before transfer. On first contact with Hawarden, the HS25 flight was instructed to descend to altitude 3500ft and at the pilot’s request, the Hawarden weather was passed, *“surface wind One Six Zero degrees at One Two knots visibility in excess of ten kilometres the cloud is few at One Thousand feet scattered One Thousand Five Hundred feet...”*. At about the same time, the A319 again requested further descent with PC. The controller explained to the pilot that there was slow descending Hawarden traffic ahead. The pilot responded, *“Yeah we can see that erm we’re just er got a bit of a tail wind as well about six thousand feet high at the minute”*. The controller replied, *“in that case then turn left ten degrees and descend Flight Level Eight Zero”*. The Wallasey/IOM Tactical explained later that he believed that the Planner had agreed FL80 for the A319 with Liverpool, although, with hindsight, he realised that no coordination had taken place between him and the Planner. It is possible he overheard the discussion between the Planner and Liverpool and noted FL80 on the A319’s fps, which had been annotated at the time of its release. His assumption was that Hawarden would route the HS25 to the E after it had passed its release level (FL80). Depending on its descent profile, this would be either before, or after, it had passed KEGUN. Consequently, by positioning the A319 to the W of the traffic, he assessed that it was not necessary to maintain vertical separation of 1000ft between the 2 ac. He confirmed that he was aware of the Hawarden vectoring restrictions and the direction of the KEGUN holding procedure.

[UKAB Note (1): In the 2min prior to the Wallasey/IOM Tactical clearing the HS25 flight to expedite descent to FL70, the ac’s ROD averaged 1750fpm which increased to 2200fpm over the period of the next 3min.]

Whilst the Tactical Controller was instructing the A319 to descend and turn (1103:35), the Planner was in discussion with Liverpool about the traffic situation with the subject ac, especially the slow descent of the HS25. Liverpool offered to work both flights but was informed that the HS25 had already been transferred to Hawarden. The Planner asked if the A319 should be placed on a heading to avoid entering the hold at KEGUN. Liverpool suggested heading 350°, which was accepted. Liverpool said they would talk to Hawarden. Incidentally, this was the heading already issued by the Tactical Controller, which reinforced his belief that the HS25 would be routing to the E of KEGUN, away from the A319’s track.

Liverpool telephoned Hawarden, saying that Scottish had apologised for the ac being high. Hawarden were asked, *“What are you intending to do with your HS25 c/s”*. The call continued, Hawarden: *“er well if you’re happy I’ll turn him now left long way round and turn him on to a heading of about Zero Nine Zero”*.

Liverpool: *“Can you turn him right”*.

Hawarden: *“Right”*.

Liverpool: *“Awe well you want to turn him le- no that’s fine you know Manch-er Scot-he’s have you given him further descent”*.

Hawarden: *“Er down to three and a half yeah”*.

Liverpool: *“Yeah that’ll be great thanks left on Zero Nine Zero’s fine and the R M A’s yours”*.

Hawarden: *“Thanks very much”*.

Shortly afterwards, at 1104:29, Hawarden instructed the HS25 flight to, *“turn left long way round heading Zero Nine Zero degrees”*. The radar shows the HS25 passing FL110, approximately 5nm from KEGUN. The A319 is passing FL122 descending to FL80, on heading 350°, 7.6nm to its SSW. The turn issued to the HS25 would result in it turning back towards the A319, with no provision of vertical separation.

Later the Hawarden APR admitted that he had turned the HS25 before it was released (i.e. before it passed FL80). He explained that, when he was discussing his plan for the HS25's arrival routing with Liverpool, he believed that they were controlling the A319. Consequently, he believed that they were agreeing with his plan, allowing him to turn the HS25 early, especially as he had stated his intention to turn the ac *“now”* (see paragraph above). However, the Wallasey/IOM Sector had still not transferred the A319 to Liverpool. The Hawarden APR's decision to turn the HS25 L was to allow him to comply with the altitude restrictions as the ac was vectored downwind. Additionally, it also followed the direction of turn of the KEGUN hold, although any hold at KEGUN would need to be coordinated with PC, as well as Liverpool. The Liverpool APR did not believe that Hawarden were intending to turn the HS25 straight away, expecting the controller to comply with its release and probably turn it at KEGUN. The Liverpool APR commented that if a change of its release with PC had been coordinated, the APR would have informed Hawarden accordingly. The Liverpool APR did suggest a R turn initially, as that would result in it turning away from the A319, which was positioning to the NW for Liverpool's RW09. Initially, both controllers believed that the Wallasey/IOM Sector was descending the A319 on top of the HS25, maintaining a vertical separation of 1000ft. If this had been the case, the direction of turn would not have affected the separation between the 2 ac.

At 1105:09, the Hawarden APR realised that vertical separation was not being maintained between the 2 ac; his initial reaction was to instruct the HS25 flight to expedite descent. The radar shows the HS25 descending through FL97, 7.2nm N of the A319, which is also passing FL97. After trying, unsuccessfully, to contact Liverpool to establish the cleared level of the A319 (he still believed it was under Liverpool's control), he changed his plan. Observing that the A319 was descending quicker than the HS25, he instructed the pilot of the HS25 (1105:20) to stop its descent at FL90; he recollected that the Mode C SSR return of the ac showed it was passing FL92 at the time. The radar recordings at 1105:37 reveal that the pilot was unable to stop the ac's descent until it reached FL85. The pilot did comment that he was climbing back to FL90. By this time, the HS25 was 5nm N of the A319, which was passing FL81. At 1105:47, the Hawarden APR telephoned Liverpool to inform them that he had climbed the HS25 back to FL90. The call was taken by the Liverpool Radar Assistant, who was asked to pass the message to the controller.

At 1105:17, the Liverpool APR, also realising the potential confliction between the 2 ac, telephoned the Wallasey/IOM Sector to request them to stop the A319's descent. The Tactical Controller had just instructed the A319 flight to turn L heading 330°. The radar shows the HS25 in its L turn passing through a NW'ly heading, 6.8nm N of the A319. The HS25 is passing FL94 and the A319 FL92. Liverpool advised the Wallasey/IOM Planner that Hawarden were turning the HS25 L heading 090° and descending to 3500ft. The background of the RTF recording reveals that the Planner advised the Tactical Controller, *“You'll have to stop the descent on the (A319 company)”*. The Planner then realised that Hawarden were climbing the HS25 and made a comment off telephone to the Tactical Controller, *“They they're going to Three and a Half Three Thousand feet with that HS25 company you'll have to do avoiding action and go”*. *“Stop descent stop descent”*. The Planner then telephoned Hawarden to inform the controller of the action taken by the Wallasey/IOM Sector.

As soon as the Tactical Controller had received a read back from the pilot of the A319 of the instruction to turn L heading 330°, he instructed the flight to, *“expedite through FL60”* (NB: At the time it had been cleared to descend to FL80). The pilot replied, *“Descend Flight Level Six Zero and expediting all the way”*. Immediately afterwards avoiding action was issued (1105:35), *“A319 c/s in fact avoiding action turn left now heading Two Seven Zero degrees the traffic's in your one o'clock range five miles”*. The pilot read back the revised heading. Shortly afterwards the pilot was informed that he was clear of the traffic and was instructed to turn R heading 030°. Having resolved the confliction, the Planner coordinated with Hawarden and Liverpool the further course of action for the 2 ac. During the discussion with Hawarden, the latter controller realised (for the first time) that Scottish

were working the A319 and not Liverpool. In the event, as a result of the avoiding action issued, the A319 left CAS, although the pilot was not informed, there was no observed traffic in its vicinity at the time.

[UKAB Note (2): After the HS25 arrests its descent at FL85 it commences a climb whilst the A319 continues its descent. Although lateral separation continues to decrease, vertical separation increases, the sweep at 1105:53 showing 3-4nm and 1300ft. The CPA occurs at 1106:09 as the HS25 turns through S at FL91 with the A319 1.8nm to its SW turning L through heading 310° and passing FL69 in descent.]

Discussion took place with all of the controllers concerned, about the action that should have been taken to prevent an Airprox and/or a loss of separation occurring. There is no requirement for Liverpool to control traffic to Hawarden when there are no other conflicting ac. Accordingly, there is no criticism of the Liverpool Controller for deciding not to work the HS25; however, if this had occurred, then the incident would probably not have happened. Having stated this factor, the situation could still have been resolved if coordination with the Wallasey/IOM Sector had taken place. The inbound release for the HS25 could have been agreed to allow an early turn or use of the hold at KEGUN in order to lose the height. The operational requirements for Hawarden traffic approaching KEGUN includes informing Liverpool APP and the Wallasey Sector whenever they are required to hold ac at KEGUN. Additionally, Hawarden will not vector traffic N of KEGUN, unless specifically coordinated. Notwithstanding any of the comments above, if the Wallasey/IOM Tactical had maintained 1000ft vertical separation above the HS25 as originally intended, separation would not have been lost.

Albeit, that if the current procedures had been followed, the incident would probably not have occurred, the ATC Units involved are reviewing their procedures to ascertain whether they need to be improved.

The initial factor, which led to the Airprox, was the higher than optimum level of the subject ac inbound to KEGUN. Thereafter, a number of erroneous beliefs and assumptions were made by the controllers involved. The Hawarden APR believed throughout that the Liverpool APR was controlling the A319; accordingly, when he was discussing his routing plan for the HS25 with the Liverpool APR, he believed that coordination had been agreed to turn it L early (i.e. before its release level). He had been informed by Liverpool that the A319 would be descended 1000ft vertically above his traffic, so assumed that vertical separation would be maintained as the HS25 turned towards the A319. With hindsight, it is possible to understand why he may have made the assumption that the early L turn had been approved, especially when the Liverpool APR said, *“yeah that’ll be great thanks left on Zero Nine Zero’s fine”*. However, Hawarden should have realised that the Liverpool Controller was not able to change the release issued by the Wallasey/IOM Sector, without coordination with the sector. The Wallasey/IOM Tactical did not maintain vertical separation of 1000ft between the 2 ac as originally intended and descended the A319 to a level not vacated by the HS25. Consequently, it is assessed that the Hawarden APR and the Wallasey/IOM Tactical share the responsibility for this Airprox occurring. Additionally, the poor phraseology used by the Liverpool controller was considered a contributory factor. If the Liverpool APR had been more careful in the phraseology used during the coordination communication with Hawarden (i.e. when saying the L turn for the HS25 was *“fine”*), the incident may not have occurred.

## **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.

The comprehensive ATSI report was commended by Members, noting that the whole incident had occurred over a relatively short period of 6min. Pilot Members wondered why the HS25 crew had not expedited their descent. The A319 was 6000ft high for Liverpool so the HS25 was very high owing to

the fewer track miles for Hawarden. For whatever reason, the HS25 had ended up higher than the preferred descent profile which had led to the A319 been held up following behind. The releases from ScACC had been given to Liverpool who passed the HS25 release to Hawarden as well as TI on the A319, stating that it would be descending on top. The Wallasey/IOM Tactical had then descended the HS25 to FL70 but had not given the flight any 'level by' restriction; such a restriction, stating the level was to be achieved by a designated fix (SLP), would have put an onus on the crew to inform the controller if they could not comply with the clearance. Notwithstanding, the clearance did include the phrase "...expedite your descent all the way down" which had elicited a slight increase in the ac's ROD, up to 2200fpm. After the HS25 flight had been transferred to Hawarden, the A319 crew had asked for further descent. The Wallasey/IOM Tactical had assimilated the A319 crew's "...6000ft high..." message and elected to turn the flight L 10° to create more track distance for a RW09 approach and descend it to FL80, the previously accepted level agreed with Liverpool. Members noted that the Wallasey/IOM Tactical had dispensed with vertical separation, which he was entitled to do as both the HS25 and A319 were still within his airspace and subject to releases, as he would have expected the HS25 to continue on its track until it passed FL80. However, it was clear to controller Members that the crux of the Airprox was the coordination carried out between Liverpool and Hawarden. Although there had been numerous assumptions made by all parties, the Liverpool APR had led the Hawarden APR to believe that the L turn onto 090° by the HS25 was approved when, clearly from the ATSI investigation report, it was inappropriate and beyond the remit of the Liverpool controller. This had led the Hawarden APR to turn the HS25 early and into conflict with the A319 which had caused the Airprox. Liverpool APR knew that the ScACC releases could only be amended following further coordination with the Wallasey/IOM Sector, and should have negotiated with ScACC before agreeing the turn before FL80 with Hawarden.

Fortunately, all controlling parties quickly took action when the HS25's L turn and A319's descent resulted in a confliction. The Hawarden APR stopped the HS25's descent whilst the Wallasey/IOM Tactical expedited the A319's descent to FL60. The Board agreed these two actions had quickly and effectively removed any risk of collision.

### **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: The Liverpool APR inappropriately agreed coordination with Hawarden APR, who turned the HS25 into conflict with the A319.

Degree of Risk: C.