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RAHAL LETTERMAN RACING FINDS SUCCESS WITH ASTON MARTIN WORLD CHALLENGE PROJECT

During the early months of 2008, the Rahal Letterman Racing Aston Martin DBRS9 that would eventually sit on the podium at Road Atlanta not only took on a life of its own – it appeared to go through about three different lives as the car that was once too heavy, too unresponsive and too slow became a world-class race car.

Coming into RLR's Hilliard, Ohio shop as a car that had been on track just 18 months before, the Aston went through a number of massive transformations at the hands of Rahal Letterman Racing engineers and mechanics. The car was reduced to its basic components, moved, twisted, reconfigured and finally reassembled to turn what had been an uncompetitive machine into a snarling racing beast.

Nearly everyone in the Rahal Letterman Racing organization participated in the transformation of the DBRS9, which was key to the success of the project as there were multiple aspects of the car that needed addressing – and most of them at the same time.

“The biggest challenge was moving the engine back 10 inches, which we needed to do to achieve the fifty percent weight distribution we needed for balance,” said RLR Technical Director Jay O’Connell. “More specifically, shortening the torque tube, which attaches the engine to the transaxle, and the carbon driveshaft were the most challenging modifications. We cut the cast aluminum torque tube into three large sections, then shortened all of them a few inches and welded them back together. Keeping the tube straight and then ends parallel was tricky but the RLR fabrication shop did an excellent job. Meanwhile the carbon shop dissected the lay-up of the carbon driveshaft and together we came up with a good approach to shorten it the same amount. After we glued it back together we torque tested the new carbon shaft to over 800 ft-lbs to make sure it would survive on track.”

Moving the engine was more challenging than simply addressing where it sat in the car. Manifolds needed to be modified as did engine mounts and external parts such as the water pump. In addition, suspension modifications went hand-in-hand with the engine move as the new balance had to be accommodated. New tubes were added to the frame to increase stiffness and aid cornering and the overall ride height was lowered.

The work took place over a seven-month period, but it all paid off in just 15 minutes on a sunny day at the Mid-Ohio Sports Car Course. The DBRS9 qualified fourth with Tom Milner at the wheel in its first outing, and went on to score a top-five finish in its 2008 SPEED World Challenge GT class debut.

The success at Mid-Ohio emboldened the RLR team to campaign the Aston in four more events to close out the 2008 campaign. The big payoff came at the last of those five races as Milner both qualified and finished second on a very challenging Road Atlanta layout as part of the Petit Le Mans weekend. Milner qualified second, but started on pole when the leading competitor failed post-session technical inspection.

“Our goal was to make the car fully competitive, i.e. within 0.5percent of the lap time of the fastest World Challenge GT car, so to be quickest in the first practice session and in qualifying at Road Atlanta was outstanding,” O’Connell remarked. “Compared to the 2006 season, the Aston was 3-4 seconds quicker per lap in qualifying and the race at Mid-Ohio, Mosport, and Road Atlanta. Even more impressive is the fact that the car is now 150 lbs heavier than in 2006 due to the rule changes mandating a higher minimum weight for all cars.”



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Milner, who co-drove the RLR Porsche to five podiums in ALMS GT2 series competition a year ago, did strong work over his five-race stint behind the wheel of the DBRS9. Milner ended up 17th in the GT series point standings despite making just five starts, with his 337 points being the highest total among all drivers with five or fewer starts this year.

“After driving the car for five races and getting a good comparison as to where its strengths and weaknesses compared to other cars, I know the car is already very competitive,” reported Milner. “The Aston's biggest strengths I think lie in its braking performance, medium and high speed corner balance and stability, and in being a car that is easy to set up. I was routinely better on the brakes than most other cars in the series, better getting into some higher speed corners, and was always able to have a good race car.”

The RLR Aston Martin qualified in the top 10 in four of its five starts, including the pole to end the year at Road Atlanta. The car was a fan favorite at every stop this year and was competitive enough after the rebuild to spark thoughts of entering the car full time in 2009, and has the engineers and drivers thinking about what they would do differently for next season.

“I think any shortcomings can be patched up pretty easily by installing a traction control system/launch control system which will allow for consistent starts and improving consistency putting power down out of corners, which is now legal in the series,” Milner explained. “In addition, the gearbox, being a syncromesh gearbox, is slower than the other cars to shift and can cause some inconsistency when shifting. The car makes very good power compared to the majority of the field.”