

2004 LMP Regulations & the 2 year transition period explained

Sportscar rules have always been slightly complicated in order to allow the broad range of GT, GTS and Prototypes to compete alongside each other in the way they do, imagine the same situation with single seaters - a grid of F3, F3000 and F1 cars, it probably wouldn't work! So it is clear that the regulating bodies do a good job to make Sportscar Racing work as well as it does. In addition the ACO & FIA encourages interesting concepts of technological development to race with equivalence and this can introduce further confusion. But, the rule makers do get it right allowing competitive, fair racing with plenty of freedom for engineers, manufacturers and teams.

In conversation with Malcolm Cracknell during the Le Mans 24 hours this year it was suggested that I might be able to help explain the transition period we are currently going through with the introduction of the new for 2004 technical regulations.

Contrary to what might be imagined the regulations are not written internally at the ACO or FIA, they are created by a Technical Working Group committee (TWG) made up of the ACO & FIA and the manufacturers and engineers who are directly involved in Sportscar Racing. In the case of the 2004 regulations the committee worked on defining the complete regulations over a period of 2 years, and since the regulations were focused on some key aerodynamic safety issues the committee commissioned a 40% scale model windtunnel programme in order to evaluate and report on the Technical Working Groups technical proposals. The TWG also worked on the transition period of how to introduce the new rules without upsetting the fragile stability of Sportscar Racing. The point is that people like myself who are part of the TWG have lived with the new rules now for over 2 years and, as such the new rules are not really that new! However for our spectators, fans and the media the introduction of new rules appears as a sudden change and takes time to be fully understood.

So what are the new regulations and the classes? In 2003 we had LMGTP (900Kg), LMP900 (900Kg) & LMP675 (675Kg), the categories technical regulations were designed in order to allow the possibility of either GTP, 900 or 675 being an overall winner, although rarely seen these classes were equal. Only perhaps the MG and DBA/Zytek have ever demonstrated this possibility. Actually that's because most LMP675 cars were derivatives of a very different type of car, the aluminium chassis FIA SR2 cars (e.g. Lola & Pilbeam), these were able to run in the 675 class with updates but were originally designed to a completely different set of technical regulations, they are smaller and generally aerodynamically restricted compared to a clean sheet LMP675, they also were not allowed carbon tubs. The LMP675 and LMP900 technical regulations for overall dimensions and aerodynamics are identical, the only differences being tyres, brakes, weight and engine power. GTP was for a car with closed cockpit.

The new regulations should not be compared with the old, and that is generally why it can be confusing. The new classes are LMP1 (900Kg) and LMP2 (750Kg), unlike LMP900/675 the two classes are not intended to be equal, with the performance of LMP2 set just below that of LMP1. LMP2 is intended to be slightly lower cost and is aimed more at private entries; LMP1 is the new premier class. The regulations for the two classes in terms of dimensions and aerodynamics are again similar, however in addition to the differences in brakes and tyres the LMP2 cars performance is restricted

further by engine power. Where LMP900 and LMP675 were intended to have similar power to weight ratio LMP1 and LMP2 do not. The other difference is no more separate closed car class, LMP1 and LMP2 rules allow any car to be either open or closed cockpit.

Cars designed to the 2004 LMP1 and LMP2 rules are expected to be slower than 2003 spec cars because the aerodynamic changes mandate less overall downforce and more drag. The 2004 cars revert back to more traditional symmetrical rollover structure (2 seater) cockpits in the interest of roll over safety and the distinctive flat floor between front and rear axle is replaced with a steeped and chamfered floor giving the impression of much higher ride height. The rear overhang is smaller as is the rear wing. These changes have been shown to keep more consistent levels of downforce during an incident or spin, and allow the driver more control in these conditions, previously it had been found that an incident can cause sudden changes in downforce that make a car further unstable accelerating the incident beyond the drivers control.

For simplicity the new rules could have been introduced to take effect on every competitor at the start of a new season, i.e. every car on the grid must comply and all previous designed cars then instantly become obsolete, would we have had such healthy grids at Le Mans and LMES this year in this scenario? Sportscar Racing is not financially stable enough to sustain that kind of abrupt change, therefore a fair and simple means of phasing in the new rules alongside the old rules was necessary.

So LMP1 and LMP2 as regulations for the future are quite easy to understand, so what is so confusing? It seems the confusion is created by the transition period that allows two completely different rule concepts for similar type cars to run along side each other. Initially you might imagine that an LMP900 car translates to LMP1 and LMP675 would become LMP2, to understand why they don't we need to refer to the explanation above, and why do some LMP675 cars translate to LMP2? Again the explanation is in the understanding that not all LMP675 cars were the same. The transition rule works like this, an LMP675 car designed specifically to the ACO's LMP675 regulations (and therefore would not have been eligible for the FIA SR2 category) should have equivalency with any LMP900 and are allowed to continue in the overall win category LMP1 along with all new cars and Hybrid cars designed to LMP1 regulations. LMP2 is an all-new category and technically there are no cars able to translate to it, however to allow transition of the inherently less competitive SR2 derived (aluminium tub) LMP675 cars, the LMP2 category is opened up to all aluminium tub LMP675 cars along with all new cars and Hybrid cars (carbon tub included) designed to LMP2 regulations.

The TWG's investigation into the aerodynamic instability of Sportscars was triggered by a couple of specific accidents that had demonstrated a particular problem with current cars, allowing these cars to continue to race forever was therefore impossible in fact perhaps they shouldn't be racing at all? the problem for a smooth transition to new cars was that fundamentally new cars would be slower than the old cars as a function of the new aerodynamic regulations therefore there would be nothing to encourage any team to enter a new car during the transition period because old cars would always be quicker, therefore a process of gradually slowing the old cars down should allow old cars to grow old gracefully and eventually mandate the need for replacement cars to the new rules. This is a bit of an unknown territory, until new cars are built it is difficult to predict how much the old cars need to be slowed down in order to maintain equivalence, hence the ACO need the ability to introduce changes of this type at their discretion during the transition period in order to ensure competitiveness for all. The TWG also helped the transition from old to new by introducing another possibility - the Hybrid ñ the Hybrid regulation allows a 2004 car to be built from a 2003 spec monocoque and safety cell. As

long as the car meets every other aspect of the 2004 regulations including aerodynamics then it is classed as a full 2004 car and is allowed the bigger restrictor, it is a Hybrid that we have designed with Nasamax, this years Nasamax DM139.

2003 spec cars are allowed to continue to run with measures implemented to reduce performance until the end of 2005, Hybrid cars until the end of 2006. In order to gradually reduce 2003 spec cars performance in order to make 2004 spec cars competitive the measures so far have included a reduced width rear wing and reduced fuel capacity from 90L to 80L. In 2005, the final year of the transition, weight penalty of 50Kg and a 5% engine intake restrictor is proposed. This may not be enough to make the 2004 spec cars a race winning option, but it may bring the racing between the current cars and new cars slightly closer during the last year. Certainly at KWM where we are focused on the new rules not the old ones and for the teams such as Nasamax who have made the brave move to develop cars to the new regulations these measures are not enough to close the gap next year and perhaps the introduction of a plank similar to the mandatory plank in the 2004 regulations would have closed the performance gap a little further, however we hope that running cars to the new rules already will have an advantage come the end of 2005 when all cars must at least comply with 2004 Hybrid regulations and the beyond 2006 all cars must comply fully with the 2004 technical regulations.

Ends/170804

© KW Motorsport Ltd