Lola LMP Design Team Q&A

• What have Lola been concentrating on with regards to the B12/60 LMP1 car?
The Lola design and engineering team have been looking at overall efficiency improvements to the aerodynamic surfaces of both the LMP1 and LMP2 Lola designs. The initial CFD and wind tunnel studies took place last autumn in Lolas on-site 50% scale facility in Huntingdon, UK. Visually the cars will look very different, particularly the front bodywork which is 100% new. The front splitter, diffuser and light cluster have benefitted from an intensive CFD and wind tunnel development and Lola have implemented additional aerodynamic elements to the front section to improve the downforce levels of the design. Different composite solutions have been used by Lola in order to reduce the weight on some aspects of the bodywork of the car. Lola composites and FEA engineers have been working hard on new solutions to optimise these new concepts and to ensure that we have more scope in terms of transferring weight in the overall package. Lola have also developed changes to the front suspension geometry in an effort to compliment the new aero updates to the front bodywork section.

• What impact have the new regulations had on the developments?
The main changes for both LMP1 and LMP2 classes was the implementation of larger fins on the rear bodywork and holes in the wheel arches. These were both safety orientated changes to further reduce the likelihood of the cars overturning when they spin. The fins height and length are set so the main challenge for the designers was to see what the best solution is for incorporating the airbox at the top of the chassis. Lola found an efficient and unique solution to minimise drag at the top of the chassis using its advanced CFD capability.

• What new technology will be on the Lola LMP car?
For the last few years Lola have had a permanent ‘cell’ of engineers working on new technologies including advanced composites, alternative fuelled/powered cars and new aerodynamic solutions. Lola have partnered with the likes of Multimatic, BAE Systems and Cosworth on the recently unveiled all-electric LMP car, which is scheduled to run very shortly. The Lola design team will continue to evaluate most of these innovations with an eye on incorporating them in to future LMP models, should the regulation allow. Lola have also completed work on a ‘flywheel KERS’ installation. This option is available to customers.

• When will the Lola LMP1 customer teams run the new look car?
Dyson Racing ran one car at the Sebring 12 Hours in March and scored a debut ALMS win after a faultless performance at the world’s toughest endurance race. Rebellion Racing will run the 2012 aero package from the FIA World Endurance Championship from Spa onwards. Both Dyson and Rebellion will run two cars at the Le Mans 24 Hours in June.
B12/60 Specification

**Track Support**
- Key spares also available trackside at selected ILMC and LMS events plus Le Mans 24 Hours
- Performance updates offered to all customers on impartial basis as and when available
- Lola manufacturing capacity ensures reliable supply of spares and updates

**Customer Support**
- Comprehensive manual and regular technical bulletins supplied to customers
- One or more Lola support engineers in attendance at every ALMS and LMS race
- Additional support staff and spares supply present at Le Mans 24 Hours
- Lola engineer can attend customer’s first test and first race (excluding Le Mans) free of charge.
B12/60 Specification

Chassis
- Carbon fibre composite monocoque
- Carbon fibre crash box
- Carbon fibre floor
- Crash tested to LMP1 standards and homologated up to 2014.

Driver fitting
- Adjustable pedal assembly
- Adjustable steering column

Safety equipment
- Six-point seat belt harness
- HANS device-compatible
- Electrical fire extinguisher system with multi nozzles

Suspension and steering
- Front and rear adjustable anti-roll bars (sway-bars)
- Wheels: 18" diameter front and rear wheels, equal width
- Lightweight steel fabricated uprights
- Wheel nut retention system incorporated into the hub.
- Central wheel nut with safety pin
- Double adjustable Dynamics Dampers (TBC) operated via pushrod and rocker
- Lightweight rack-and-pinion steering

Brake System
- Hitco carbon discs and pads with AP Racing six-piston aluminium calipers all round
- 380 mm diameter ventilated carbon discs front and rear
B12/60 Specification

**Bodywork**
- Aerodynamics developed from Lola LMP1 programme in Lola wind tunnel
- Rear diffuser
- Carbon seat
- Fully upgradeable aerodynamics configuration

**Brakes**
- 4 pistons aluminium AP Racing calipers
- Carbon brake vented rotors
- Adjustable brake balance

**Fuel system**
- FIA FT3-standard fuel cell
- Lift pumps
- High pressure fuel pumps

**Gearbox**
- X-track (Top speed, engine max rev to be specified at the time of order)
B12/60 Specification

Various
- Full aero manual
- Full car manual with part numbers
- Exploded views
- Basic set up sheets
- Gearbox manual
- Certificate of conformity
- Air conditioning system

Please note that you will need to provide the electrical/electronics system or we could source one for you at additional cost.
Price: £675.00,00

The current engine fitting kits include Judd V8, Mazda Turbo and Toyota V8. We would gladly fit, free of charge, any homologated engine in the car. This is subject to engine characteristics and supply of CAD data and other engine parameters.
Optional Items

Chassis
- Springs and dampers to be selected by customer
- Wheels and tyres to be supplied by customer
- Extra capacity 120-litre fuel cell available for E85 or bio-ethanol fuel

Powertrain
- Non-standard engine fitting option available
- Kinetic energy recovery system (KERS) can be installed subject to forthcoming ACO rules

Paddle Shift
- Lola fitted pneumatic/automated paddle-shift system. Alternative systems can be fitted.
- All commercially available paddle-shift systems have run reliably with Lola HT gearbox
- Customers advised to consult engine supplier on choice of paddle-shift system

Electronics
- Customer to select and supply engine wiring loom and all related sensors
- Data acquisition/telemetry/cockpit display system
- Lola to oversee integration of data system with chassis wiring loom and engine ECU

Optional Items
- Endurance racing package includes back-up starter and battery plus night headlamps
- Painting of chassis and bodywork at Lola during build process available
Development services and facilities

Aerodynamics
- 50%-scale rolling road wind tunnel with outstanding correlation to on-track performance
- Existing Lola LMP wind tunnel model available for customer programmes
- Confidentiality ensured by private control room access and secure model making area
- CFD cluster recently upgraded to full F1 standard in partnership with AMD
- CFD software suite includes latest versions of FLUENT, ANSA, Sculptor, and FIELDVIEW
- Wind tunnel facility, model, model maker hire, and CFD analysis prices on application

Vehicle Dynamics
- Baseline chassis set-ups developed on Lola’s in-house 7-post test rig
- Circuit simulation software employed to optimise suspension and aerodynamic settings
- Test rig also used for damper, spring, suspension geometry, and tyre analysis
- Flexible data and report formats including integration with wind tunnel results
- Sessions on test rig available at special discount rate to B10/60 customers

Raptor
RAPTOR (Race And Performance Track Optimiser) was developed at Lola as a complete vehicle dynamic simulation tool giving superior strategy to car set-up, telemetry and lap time simulation
Future technologies and alternative Motorsport development

Lola have long held a reputation as a forward thinking company that works hand in glove with leading engineering bodies and key universities capturing new technical thinking and expertise.

Groups within Lola have undertaken significant studies in Hybrid technologies, as well as Hydrogen fuel cell and other alternative fuels. The Dyson Racing Lola LMP Coupe was the first of its kind to run on Iso Butanol fuel in 2009, paving the way for other teams to look at the revolutionary power source.

Lola has also engaged in innovative solutions to enhance more sustainable manufacturing methods. This is at a time when the motor industry has to become more environmentally friendly and sustainable while avoiding any compromises in performance.

Working with Warwick University, Lola conceived a project intended to prove that it is possible to build a competitive racing car using environmentally sustainable components through the use of recycled composites. The result was the World First F3 car (see right).
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