



News release

## Lotus to develop OMNIVORE Research Engine

Lotus conduct research study into engine efficiency when utilising sustainable second and third generation bio fuels

Lotus Engineering, the world renowned automotive consultancy division of Lotus announces a collaboration with Queen's University Belfast and Jaguar Cars Ltd to develop an engine which maximises fuel efficiency when running on renewable fuels. The OMNIVORE concept will employ novel engine architecture to achieve a high thermal efficiency when fuelled on any alcohols or gasoline.

The project is sponsored by Defra (Department for the Environment and Rural Affairs) and the DOE NI (Department of the Environment Northern Ireland) through the Renewable Materials LINK Programme. Lotus Engineering is currently undertaking a design study and the build of a single cylinder research engine for completion in January 2009. Vehicle modelling will validate the reduction in vehicle CO<sub>2</sub> emissions. Queen's University of Belfast's School of Mechanical and Aerospace Engineering will be adding its world leading expertise in engine simulation, with Jaguar Cars Ltd a consultative partner at all stages of development.

This engine design is expected to significantly increase fuel efficiency for sustainable bio alcohol fuels. The architecture features an innovative variable compression ratio system and uses a two-stroke operating cycle with direct fuel injection. The OMNIVORE engine will be ideally suited to flex-fuel operation with a higher degree of optimisation than is possible with existing architectures.

Mike Kimberley, Chief Executive Officer of Group Lotus Plc said: "The automotive industry is now focusing on its environmental obligations to reduce CO<sub>2</sub> emissions and improve efficiencies and we are seeing the high technology capabilities of Lotus Engineering being in strong demand. Not only does our brand value of 'performance through light weight' fit perfectly with the necessary direction of the industry to produce lighter, more efficient vehicles, we are also working on all aspects of future fuels, investigating alternative powertrains to accommodate alcohol fuels as they enter the market."

Kimberley continues: "Alcohols possess superior combustion characteristics to gasoline which allow greater optimisation. Taking full advantage of the benefits of sustainable bio alcohols will ensure a greater percentage of vehicle miles will be travelled using renewable fuels. We are delighted with the investment from DEFRA which will assist this partnership in taking forward research development and the demonstration of this environmentally conscious transport solution."



# News release

The OMNIVORE programme complements the recently unveiled Lotus Exige 270E Tri-fuel as part of Lotus' research to understand the complex combustion process involved in running on mixtures of alcohol fuels and gasoline, which will be important for a successful transition from today's fuels to the sustainable, synthetic fuels of the future.

Geraint Castleton-White, Head of Powertrain at Lotus Engineering said: "The requirement to operate on gasoline in today's flex-fuel engines limits their thermal efficiency when operating on alcohol fuels. However, the physical and chemical properties of alcohols, when compared to gasoline, provide the potential for higher thermal efficiency operation to be achieved. This single-cylinder research engine will investigate a highly thermal efficient combustion system that optimises engine performance to fully exploit the properties of both gasoline and alcohol fuels and maximise efficiency."

## NOTES

### **About Group Lotus plc:**

The main operating subsidiary of Group Lotus plc is Lotus Cars Ltd, which has two operating divisions - Lotus Engineering and Lotus Cars. Lotus Engineering is an internationally recognised automotive engineering consultancy based in Norfolk, UK. Global facilities include those in Michigan (USA), Kuala Lumpur (Malaysia), China and offices in Germany and Japan, with rapid expansion in new territories such as South East Asia and the Gulf States.

Lotus Engineering provides comprehensive and versatile consultancy services to many of the world's OEMs and Tier 1 suppliers, offering a full engineering service from initial concept and project design through development and integration of the complete vehicle to meet all worldwide markets and customers to full production. This includes third party 'niche vehicle' engineering and manufacture worldwide.

Lotus Cars builds world class, prestige, high performance sports cars for sale in 37 countries. These include the iconic Lotus Elise, and the Exige and Europa. Lotus is a global high-tech company, expanding rapidly and committed to driving forward technology for both Lotus Cars and its Engineering clients, spearheading research into such areas as hybrids, electric vehicles and renewable fuels.

### **For further details please contact:**

**PR Department; Group Lotus plc,  
Potash Lane, Hethel, Norfolk, UK, NR14 8EZ**

**Tel: +44(0)1953 608264**

**Fax: +44(0)1953 608111**

**Email: [pr@lotuscars.co.uk](mailto:pr@lotuscars.co.uk)**