

Communications Motorsport

Jürgen Pippig

Tel: +49 841 89-34200

E-mail: juergen.pippig@audi.de

www.audi-motorsport.info

Audi as trendsetter at Le Mans

- **Countdown to 82nd running of Le Mans 24 Hours is underway**
- **Prof. Dr. Hackenberg: “Le Mans is a unique test laboratory for new technologies”**

Ingolstadt, January 13, 2014 – For 15 years, Audi has been demonstrating ‘Vorsprung durch Technik’ in the world’s toughest endurance race. With the latest generation of the R18 e-tron quattro hybrid race car Audi continues its string of technical innovations at the Le Mans 24 Hours.

In 152 days from now, on June 14, the 82nd running of the French endurance classic will start at 3 p.m. Interest in the event is already exceptionally high. For the first time, Audi and Porsche, the race’s two most successful brands, will be pitted against each other. Toyota, after suffering two defeats against Audi, is aiming to break the four rings’ string of victory at Le Mans. Plus, for the first time, new regulations with a main focus on energy efficiency will be in effect – for Audi, the inventor of the TDI, this will provide an opportunity to again prove its great technical expertise not only on the road but on the race track.

Be it with the engine, hybrid drive, lightweight design, or by setting standards in active and passive safety: Audi’s Le Mans prototypes are front runners in terms of sporting performance as well as technology. “Le Mans is a unique test laboratory for our technologies,” says Prof. Dr. Ulrich Hackenberg, who is responsible for Technical Development on the Board of Management of AUDI AG. “The comprehensive range of new technical developments of our current Le Mans race car includes the headlights with laser light. They illuminate the track for a distance of up to 800 meters. In a planned derivation for production vehicles, they achieve up to 500 meters, which is twice the range of LED headlights. With that, Audi is making an important contribution to safety on the track and in road traffic.”

Advanced engine technologies for maximum efficiency

In 2001, an innovative V8 engine powered the Audi R8. TFSI gasoline direct

injection metered the fuel in a way that reduced the consumption of the V8 turbo power-plant, improved responsiveness and, due to the engine's ability to immediately start again, shortened the stopping times in the pits while making more power output available. Just shortly following the first Le Mans success, Audi's customers were able to order the first production models featuring gasoline direct injection. This fuel induction principle soon evolved into the standard in large-volume production series. Today, TFSI engines contribute to the reduction of CO₂ emissions in millions of cars.

Five years after this debut, Audi showed another pioneering achievement. In the 2006 season, the Audi R10 TDI powered by a direct-injection diesel engine won the endurance classic at La Sarthe right on its first run. Winning Le Mans with a diesel-powered race car had been considered wishful thinking until then – today, it is regular reality. To date, Audi has won the race seven times on TDI power, with learning effects continually being fed into the design of crankcases, pistons, fuel injectors and other assemblies in production development.

e-tron quattro hybrid drive takes Le Mans victory

Audi was the first Le Mans participant to win with a hybrid drive system and therefore again made motorsport history. 2012 saw the first victory of the Audi R18 e-tron quattro, a sports prototype with a rear axle being powered by a TDI internal combustion engine and a front axle driven by electric power. A fully electronic control strategy was the only connection between the two drive systems. In parallel, Audi also expanded its product range by hybrid models.

The next generation is now ready for launch. In 2014, Audi starts delivering the A3 Sportback e-tron, a latest-generation plug-in hybrid. In racing, the new 2014-specification R18 e-tron quattro is pointing the way to the future. The Audi engineers have fundamentally redesigned it, as the race car has to manage both, running on a limited amount of energy and achieving the best lap times.

Highly sophisticated detailed solutions for higher safety and lower weight

In addition to the pioneering powertrain solutions, Audi has been setting standards in other areas as well. Perfect lightweight design combined with maximum passive safety is manifested in the safety cell of the sports cars. The monocoque made of carbon fiber reinforced plastics (CFRP) in 2013 weighed only half as much as the one used in Audi's first LMP race car in 1999 – despite greater restrictions specified by the regulations. This material has long made its way into production vehicles, for instance in body components of the R8, the R8 Spyder and the RS 3. Active safety has been significantly improved by Audi with ever new lighting technologies. The

LED daytime running light in the Audi R10 TDI (2006–2008) was followed by full LED headlights in the R18 TDI (2011), matrix LED technology in the R18 e-tron quattro (2012–2013) and the innovative laser light in the next R18 e-tron quattro (from 2014). The digital rear-view mirror with a camera projecting the action at the rear on an innovative AMOLED display in the cockpit, which has been used since the 2012 season, reflects another future trend.

“The general public and the motorsport audience have come to expect Audi to play this part of a trendsetter,” says Head of Audi Motorsport Dr. Wolfgang Ullrich. “We are proud to be at the very front with these innovations in our motorsport commitment, while benefiting from Audi Sport being a part of the Technical Development of AUDI AG on a daily basis. We aim to continue to prove the Audi-typical ‘Vorsprung durch Technik’ in tough racing conditions with our Le Mans prototypes in the future – even though in 2014 we’re no doubt facing the greatest challenge ever at Le Mans.”

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Note to editors: Starting immediately, until the Le Mans race in June, we will be providing you with new background information on the R18 project and Audi’s commitment in the world’s most famous endurance race every Monday. Next week’s topic: the innovative laser light of the new Audi R18 e-tron quattro.

The Audi Group delivered around 1,575,500 cars of the Audi brand to customers in 2013. From January through the end of September 2013 the Company posted revenue of €37 billion and an operating profit of €3.74 billion. The Audi Group is globally present in more than 100 markets and produces vehicles in Ingolstadt and Neckarsulm (Germany), Győr (Hungary), Brussels (Belgium), Bratislava (Slovakia), Martorell (Spain), Kaluga (Russia), Aurangabad (India), Changchun (China) and Jakarta (Indonesia). The brand with four rings produces cars also in Foshan (China) since December 2013, in 2015 in São José dos Pinhais (Brazil) and 2016 in San José Chiapa (Mexico). AUDI AG’s wholly owned subsidiaries include quattro GmbH (Neckarsulm), Automobili Lamborghini S.p.A. (Sant’Agata Bolognese, Italy) and the sports motorcycle manufacturer Ducati Motor Holding S.p.A. (Bologna, Italy). The Group currently employs almost 73,000 people worldwide, including around 50,000 in Germany. Total investment of around €22 billion is planned from 2014 to 2018 – mainly in new products and sustainable technologies. Audi lives up to its corporate responsibility and has strategically established the principle of sustainability for its products and processes. The long-term goal is CO₂-neutral mobility.