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World Debut of the Yaris HSD concept – Preparing for the Future of Toyota in Europe

- HSD brings the uniquely smooth, sophisticated driving experience of Toyota's full hybrid powertrain to the B-segment
- Forward-looking design direction for the next Yaris model range combining dynamism and efficient packaging
- HSD delivers class-leading fuel consumption and CO₂ emissions, and low cost of ownership
- Environmental performance enhanced by all-electric driving with zero CO₂, NO_x and particulate emissions
- First downsizing of HSD technology
- The production model, following on from the Yaris HSD concept, on sale in Europe in second half of 2012
- Production at the Valenciennes plant of Toyota Motor Manufacturing France

Making its world debut at the 2011 Geneva motor show, the Yaris HSD concept embodies what will be an important step in Toyota's full hybrid roll-out strategy in Europe.

Toyota aims to complete the application of full hybrid technology across its main models in Europe as early as possible in the 2020s. Following the successful introduction of the Auris HSD to the C-segment in 2010, the Yaris HSD concept anticipates Toyota's intention to bring Hybrid Synergy Drive® to the B-segment, the biggest volume segment in Europe.

The current growth of the B-segment is just one facet of a perceptible shift in the public's requirements of the car industry. Customers are becoming less brand loyal. They are becoming less inclined towards a mainstream purchase, and more attracted to entry level, niche or premium models. They demonstrate receptiveness to new technology, increasingly in the context of the driving experience.

There is also a significant increase in the number of customers who quote engine type as their primary purchase consideration. Hybrid technology has achieved sufficient powertrain parity in the public perception that it is now a clear alternative to diesel or petrol engines.

The number of customers choosing hybrid drive for their next vehicle is increasing steadily, and has doubled in the last two years. This creates a gateway into the Toyota brand: hybrid intenders being three times more likely to consider a Toyota than conventional petrol and diesel customers.

Toyota's proven, Hybrid Synergy Drive® technology targets demanding urban customers who expect a new driving and ownership experience from their car. Combining low fuel consumption, emissions and cost of ownership with uniquely relaxed and quiet driving, HSD proves that driving pleasure need not be compromised by environmental responsibility and low running costs.

Amongst early Auris HSD customers, the majority quote relaxation, an engaging driving experience and the learning of new driving habits as the three most rewarding characteristics of their new cars.

Exterior Design – A New Design Direction for the Next Yaris Model Range

The Yaris HSD concept inherits all the clever DNA of the Yaris, offering B-segment customers an ingenious combination of small, compact packaging and a spacious, practical interior, while introducing a new, more advanced and sophisticated style to the exterior design.

Flanked by highly contoured headlamps, the upper grille opening is shallow, helping the air flow smoothly over the upper half of the body. And the Toyota logo is fully integrated within the front lip of the bonnet, adding stylish articulation to its leading edge.

In profile, the Yaris HSD concept's sleek, monofrom shape is emphasised by the long, sweeping roofline and a single, crisp character line which runs smoothly through the length of the vehicle. Short front and rear overhangs and a long wheelbase maximise passenger accommodation and loadspace on board.

Several hybrid-specific styling cues identify the Yaris HSD concept as a Toyota full hybrid model derivative.

Air turbulence has been minimised by flat, vertical 'aero' corners housing front foglamps and matching rear reflectors, a large, integral rear spoiler, comprehensive underbody covers and 18" aero wheels featuring enlarged air gaps for improved cooling air flow. Even the door handles and rear side view cameras have been carefully designed to the most aero-efficient shape.

The show car's striking, white pearl paintwork is unique to the Yaris HSD concept. It showcases a further development of this remarkable finish, with highlighting provided by sparkling, blue metallic accents. Requiring specialised, multi-layering application techniques, this hybrid-specific application brings an extraordinary depth and quality feel to the finished paintwork.

The presence of Hybrid Synergy Drive[®] is further emphasised through hybrid Blue Toyota badging, LED daytime running lights and 'synergy' blue illuminated highlight surrounds to both the outer mirrors and door handles.

HSD – Introducing the Benefits of Full Hybrid Technology to the B-segment

Fuel efficiency and low CO₂ emissions are already key to the success of B-segment models. And further improvements to the efficiency of Hybrid Synergy Drive[®] will continue to deliver highly competitive fuel consumption and emissions.

With its unique capacity to offer fully electric driving, HSD is particularly effective in the urban environment. In all-electric mode, the system not only generates zero CO₂ emissions, but also zero NO_x and particulate (PM) emissions.

Every Toyota full hybrid offers customers the lowest possible cost of ownership. Superior fuel efficiency and low CO₂ emissions bring tax incentives in some countries, inner city congestion charge exemption and exceptionally low running costs.

Moreover, Hybrid Synergy Drive[®] has been designed for low maintenance and outstanding durability. The full hybrid powertrain does not need a conventional starter motor or alternator. The engine uses a maintenance-free timing chain and has no drive belts, improving reliability and bringing further cost savings.

Reflecting Toyota engineers' ongoing analysis of improved hybrid system performance through the use of solar power, solar panels have been applied to the entire roof surface of the Yaris HSD concept. This engineering solution targets the independent powering of the air-conditioning unit for improved full hybrid powertrain fuel economy.

HSD Powertrain Downsizing – The Engineering Challenge

Introducing full hybrid technology into the B-segment has presented Toyota with several unique engineering challenges. The new powertrain design must be optimised for installation within the vehicle's compact, extremely efficient packaging design, without detriment to either system quality and performance, or passenger accommodation and loadspace.

This comprehensive repackaging of HSD technology is essential to meeting the growing market demand for urban-based family vehicles, without compromising either interior space or hybrid performance.

European Production – The Introduction of Full Hybrid Technology at Toyota Motor Manufacturing France (TMMF)

The production model, following on from the Yaris HSD concept, will be launched throughout Europe in the second half of 2012. Committed to the highest standards in build quality, Toyota has determined that the new full hybrid will be produced at the Valenciennes plant of Toyota Motor Manufacturing France.

Full hybrid technology will become an increasingly significant part of the company's mainstream vehicle production in Europe. With the Auris HSD already in production at the Burnaston plant in the UK, Toyota will be the only car manufacturer producing hybrid vehicles from more than one European plant.

The Prius Family – The World's First Full Hybrid Model Range

- Global sales of multiple award-winning Prius passing 2.1 million units
- Prius Plug-in Hybrid – 20 km EV mode range and CO₂ emissions of only 59 g/km
- Lease project feedback reports Prius Plug-in Hybrid surpasses customer expectations
- Prius+, the first full hybrid seven-seater in Europe
- Prius+ features the first lithium-ion battery to be incorporated within a non-plug-in Toyota full hybrid

Prius – The Original Full Hybrid, Ahead of its Time

The world's first mass-produced full hybrid vehicle, the Prius was launched in Japan in 1997, and in Europe in 2000. While rival manufacturers are only now introducing a first hybrid variant to their existing model ranges, the stand-alone Prius has already entered its third generation.

With global sales now passing 2.1 million units, the Prius maintains a peerless reputation for reliability, durability and low cost of ownership.

The Prius has been Japan's top selling car for 20 consecutive months¹, and has beaten the country's all-time sales record for any model. The previous record was held by the Toyota Corolla which, in 1990, sold 300,008 units. Exceeding this figure by some margin, Prius 2010 sales totalled 315,669 units.

Prius has been consistently ahead of its time in addressing not only CO₂ emissions, but also air quality. Even operating in normal drive mode, it generates significantly lower NO_x emissions than any comparable diesel or petrol vehicle. In EV mode, it generates zero CO₂, NO_x and PM emissions.

Internal Toyota studies performed with the third generation Prius show that during a typical city trip, when the average speed is below 30 km/h, more than 25% of the journey takes place with the engine off, resulting in considerable reductions in average fuel consumption and emissions.

¹May 2009 to Dec 2010

Customer perceptions of full hybrid technology have evolved significantly over the last decade. And Prius, initially appealing through its unique concept, environmentally-friendly credentials and advanced technology, is now widely recognised as a true mainstream vehicle.

With interest in hybrid technology growing fast, a recent Toyota survey shows that hybrid drive is now a clear third choice after conventional petrol and diesel engines. It is no longer seen merely as an 'alternative' power source, but is recognised as an entirely mainstream powertrain option.

Nonetheless, the Prius remains a front-runner in the field of technological innovation. Each generation has introduced new, high technology features to the segment ahead of their time.

Amongst numerous new technologies showcased in the third generation Prius are a world-first combination of a solar ventilation system and remote controlled air conditioning, a head-up display, Touch Tracer switchgear and a pre-crash safety system.

Since being named 2005 Car of the Year by European motoring journalists, the Prius – and its Hybrid Synergy Drive® powertrain - has gone on to win numerous awards. Most recently, it proved the most reliable car in the 2-3 year age category and was awarded Goldene TÜV-Plakette, in the 2011 German Auto Bild TÜV Report.

Moreover, in a detailed examination of a new car's winter driving capabilities, it was the winner of the Finnish magazine Tekniikan Maailma's 2010 Cold Weather test. This award is a clear testament to improvements in the cold weather efficiency of its full hybrid powertrain.

Prius will continue to lead Toyota's European full hybrid deployment strategy. With other Toyota HSD models introducing the benefits of full hybrid drive to a broadening customer base, the Prius will remain a showcase for new technologies and further advances in HSD powertrain design.

Prius Plug-in Hybrid – The Best of Both Worlds

The further development of electric cars as urban commuters is currently handicapped by a number of factors. On the technical side, inappropriately large, heavy and costly batteries are required to offer a satisfactory range. From the customer perspective, no adequate recharging infrastructure yet exists, and range anxiety remains a concern.

The Prius Plug-in Hybrid addresses each of these issues, making it the most feasible short-to mid-term solution to the electrification of powertrains.

It offers customers a seamless transition from the Toyota full hybrid driving experience. Thanks to its alternative, on-board power source, it can be used as a conventional full hybrid beyond the electric driving range, and recharged from a domestic source when convenient.

The Prius Plug-in Hybrid represents a significant expansion of the Hybrid Synergy Drive® system's capabilities. It fulfils the specific needs of urban-based customers with a significantly extended, fully-electric EV driving range for shorter journeys, while the hybrid powertrain's petrol engine awards the vehicle true long range capability, as in the standard Prius.

Its compact, high energy density lithium-ion battery pack gives the Prius Plug-in Hybrid a range of approximately 20 km at speeds up to 100 km/h when driven in EV mode. Rapid charging is a further lithium-ion asset; the battery pack can be fully recharged from a standard, 230V household outlet in just 1.5 hours.

The vehicle's fuel efficiency is significantly enhanced by its extended EV range. The Prius Plug-in Hybrid returns a remarkably low fuel consumption figure of only 2.6 l/100 km – a reduction of 30% over that of the Prius. Furthermore, CO₂ emissions have also fallen to an unprecedented low of just 59 g/km.

With the goal of bringing the Prius Plug-in Hybrid to the market globally in 2012, some 600 vehicles are already involved in limited lease projects worldwide –one third of them in 18 European countries. The lease projects are designed to assess every aspect of real-world use, and verify the new Prius Plug-in Hybrid's overall environmental and technological performance before it goes on sale in the second half of 2012.

European lease project customer feedback is very encouraging. A majority of surveyed users have reported that the Prius Plug-in Hybrid exceeds their expectations, in many cases significantly. With the most frequent journeys of 50% of customers being less than 20 km in length, and 82% of them achieving a real life EV range of over 15 km, two thirds of daily users are fully satisfied with the vehicle's EV driving range.

Customers find the car easy to use, regardless of whether or not they have previous experience of full electric drive. 84% of them recharge the Prius Plug-in Hybrid at least once a day, and over 80% of them find the charging process simple, and are happy with the 1.5 hour charging time. Wherever possible, users prefer to charge the vehicle in a private location.

Since the Prius Plug-in Hybrid may be driven as a full hybrid once its maximum EV range has been reached, users report no feelings of range anxiety whatsoever. 75% of them find that they naturally drive in a more eco-friendly manner, 80% comment on the high comfort levels of PHV driving, and every user enjoys the silence and relaxation of driving in EV mode.

Prius+, the First Full Hybrid Seven-seater in Europe

Making its World debut at the 2011 Geneva motor show, the Prius+ represents a further expansion of the Prius family, broadening the appeal of the Toyota full hybrid's environmental credentials and advanced technology to the widest customer base yet. Meeting the needs of growing, environmentally conscientious European families, the Prius+ is the first car to offer European customers the versatility of seven seats combined with a full hybrid powertrain.

As its name suggests, the Prius+ provides a significant increase in space and passenger accommodation, with three, independent, split/folding second row seats and a 50:50 split/folding third tier. Yet it sacrifices none of the traditional attributes found in the Prius DNA, such as the lowest fuel consumption of any seven-seater on the market.

On sale in the first half of 2012, the Prius+ is a new vehicle, designed from the ground up. Its exterior design hallmarks it as an evolution, rather than merely an elongated version, of the standard Prius.

The sleek, bold styling features an extended roofline with an integral, panoramic sunroof, retaining the iconic Prius triangle silhouette and awarding the Prius+ a low C_d 0.29 drag coefficient. The trapezoidal front incorporates sharp-edged headlamps, turbulence-minimising aero-corners and an enlarged lower grille for improved aerodynamics and engine cooling. Distinctive rear styling is highlighted by a practical, top hinged tailgate, intricate combination lamp clusters and a roof spoiler to further improve air flow.

The Prius+ showcases the latest generation of Toyota's Hybrid Synergy Drive® powertrain. It features the first lithium-ion battery pack to be incorporated within a non-plug-in Toyota full hybrid.

First appearing in the Prius Plug-in Hybrid, the lithium-ion battery pack's compact dimensions make it ideal for installation underneath the centre console between the driver and the front passenger, offering no compromise to the seven-seat passenger accommodation or loadspace of the MPV-style interior.

As in the standard Prius, the Prius+ features three 'on-demand' drive modes to increase the capabilities of the full hybrid powertrain: An EV mode allows for ultra-quiet running on electric motor power alone, resulting in zero fuel consumption and emissions. An ECO mode maximises hybrid system efficiency and fuel economy. And a POWER mode boosts system performance.

The Prius Family – Expanding to Meet the Needs of a Broader Customer Base

Maintaining its environmental and technological leadership for over a decade now, the Prius remains the most advanced mass produced full hybrid vehicle on the market.

Having introduced the world to the benefits of Toyota's remarkable Hybrid Synergy Drive® technology, Prius will now become the first full hybrid vehicle available as a complete, stand-alone model range.

The three models will significantly expand the Prius customer base and subsequent sales; the Prius Plug-in Hybrid appealing to a new group of urban-based customers, the Prius+ targeting growing, environmentally conscientious European families who require the space and flexibility of a larger, seven-seat vehicle.

European Premiere – Toyota EV Prototype For Urban Mobility

- Almost 40 years of experience in electric vehicle development
- Toyota's vision for short range sustainable mobility
- First trials in Europe in 2011

Toyota's Electric Vehicle Development and Testing History

Toyota's engineers have been involved in Electric Vehicle (EV) research and development since 1971. In parallel with the company's pioneering full Hybrid (HV), Plug-in Hybrid (PHV) and Fuel Cell Hybrid (FCHV) vehicles, the EV represents Toyota's long-term vision for short range sustainable mobility.

Key to EV development are the battery and motor control systems that Toyota has created and fine-tuned through its hybrid vehicle programme. And the company uses its readily adaptable Hybrid Synergy Drive® technology as the platform on which to build its EV powertrain.

To date, Toyota has developed several types of EVs, including a two-passenger concept – the e-com and a SUV – the RAV4 EV.

The Toyota e-com is a concept car that was first unveiled at the 1997 Tokyo Motor Show. It is a compact, two-passenger vehicle that shares much of its EV technology and powertrain components with the larger RAV4 EV.

The e-com produces no emissions, and can run at speeds of up to 100km/h for approximately 100km on a single charge. It could be recharged using a standard, 100V household current, making it ideal for urban use.

By 2000, Toyota had a fleet of around 30 e-coms in use in Japan. More recently, the transportation and distribution company TNT (Thomas Nationwide Transport) has been running trials with an e-com EV for its mail distribution in Brussels.

By 1995, Toyota was highly focused on the possibility of bringing a viable electric vehicle to the market. Its first generation RAV4 EV represented the successful culmination of all the company had learned over the past 40 years. Indeed, the first prototype won the Scandinavian Electric Car Rally in August of that year.

The RAV4 EV addressed some of the most common challenges faced by EVs. To increase range, for example, Toyota created a light and compact powertrain designed to boost battery efficiency while minimising power loss. In addition, a regenerative braking system allowed the RAV4 EV to recover kinetic energy during deceleration, converting it into electricity to recharge the battery.

These advances equipped the RAV4 EV with one of the best cruising ranges of any electric vehicle in the world – more than 120 miles (200km) on a single charge. Since it was released in 1997, 1500 have been sold in the United States – half of them are still on the road.

Second Generation RAV4 EV Partnership with Tesla – EV on Sale in the United States in 2012

In May 2010, Toyota Motor Corporation and Tesla Motors Inc announced their cooperation in the development of electric vehicles and parts. In July, the two companies initiated the development of an electric vehicle combining Toyota's RAV4 EV with a Tesla electric powertrain.

With the aim of marketing a new EV in the United States in 2012, a total of 35 vehicles will be built for a demonstration and evaluation programme in 2011. The electric car will have a target range of 100 miles under real world driving conditions, irrespective of climate conditions.

Toyota Motor Engineering and Manufacturing North America's (TEMA) Technical Centre in Michigan led the second generation RAV4 EV production model programme, designed to reduce development time without compromising product quality.

Tesla is in charge of building and supplying the battery and other related components, meeting specific Toyota engineering specifications in performance, quality and durability. Toyota is responsible for all other aspects of development and manufacturing, including the integration of the powertrain within the new EV.

Electric Vehicles – Paving the Way for Emission-free Urban Mobility

The demand for short range vehicles is expected to increase in the coming years. However, major challenges still remain in the fields of driving range and performance, battery technology, product price, the means of electricity generation in the context of an EV's well-to-wheel CO₂ emissions, and the development and availability of a recharging infrastructure.

As a primary mode of transportation, EVs do not yet have the range to offer what most customers see as true mobility. Moreover, impacting strongly on vehicle price, the cost of lithium-ion batteries needs to be reduced significantly, or a more affordable alternative found.

Though battery technology has progressed significantly in the last 10 years, EV performance and range remains significantly behind that of comparable gasoline-powered vehicles.

Electricity has high potential as an alternative energy source to oil. However, though it can be supplied easily, its production from renewable sources such as solar, wind and hydro-electric power is fundamental in minimising an EV's well-to-wheel CO₂ emissions.

Most significantly, the development and availability of a recharging infrastructure is fundamental to the immediate and widespread introduction of EVs. To date, its absence continues to hinder market acceptance of the battery electric concept.

To that end, Toyota Motor Corporation, Nissan Motor Company, Mitsubishi Motors Corporation, Fuji Heavy Industries and Tokyo Electric Power Company (TEPCO) have formally established the 'CHAdeMO Association'.

With these five companies as its executive members, the CHAdeMO Association is committed to the rapid development of a standardised, quick-charge infrastructure for worldwide installation.

As of today, more than 300 businesses and government bodies – including over 50 international companies – are members of the Association. They include car manufacturers, electricity utilities, charger manufacturers, charging service providers and other supporting groups.

This breadth of technical expertise will enable the Association to focus on every aspect of charging infrastructure development, from technical improvements in quick charger design and the standardisation of charging methods, to the international dissemination of knowledge related to quick charger installation.

Toyota's Electric Vehicle Prototype

Toyota's latest EV Prototype makes its European debut at the 2011 Geneva Motor Show. It represents the installation of an all-electric powertrain within a Toyota iQ package, combining compact city car agility with zero emissions and the easy, silent driving of a fully electric vehicle for four passengers.

Front wheel drive is provided by a 47kW permanent magnet synchronous electric motor powered by an 11kWh capacity and a 270V lithium-ion battery located beneath the seats. The intelligent use of a new, flat battery design offers no compromise on passenger accommodation or loadspace.

The EV Prototype will accelerate from 0-100km/h in 14 seconds, has a maximum speed of 125km/h and has a driving range of up to 105km². Two charging sockets catering for 100/200V AC and quick charge DC power are located at the very front of the vehicle. They allow the vehicle to be fully charged from a 200V supply in four hours, and 80% charged from a DC quick charge station in about 15 minutes. Additionally, a regenerative braking system will recover power during deceleration or under braking.

The new Toyota EV will undergo trials in Europe, Japan and the United States during 2011.

² Kilometres per charge in the JC08 test cycle.

FT-86 II concept – Embodies Toyota's Reborn Passion for Sports Car Driving

- Toyota has been creating exciting sports cars for over 50 years
- 2000 GT established Toyota's global reputation for sports car manufacturing
- Corolla Coupe, Celica, Supra and MR2 consistently popular on the global market
- FT-86 II concept previews the next generation of Toyota sports car
- Entirely driver-focused concept designed to capture the intrinsic joy of driving
- Boxer engine for light weight, low centre of gravity and optimum power-to-weight ratio

Heritage – Half a Century of Passion for Sporting Performance

'When the Toyota 2000 GT was built, I was eleven years old – and I loved it. I said: "I want to drive something like this when I grow up". My dream came true when I drove a 2000 GT in a vintage car rally. That was a really great experience.

I want young people to feel those same desires when they see a new Toyota sports car. I want to transfer the thrill of the race track to our vehicles, and make driving fun and exciting for our customers.'

Akio Toyoda – President, Toyota Motor Corporation

Since Toyota began the development of its 2-cylinder boxer engined Sports 800 in 1962, the company has maintained a long history of creating exciting, driver-focused sports cars that have proved as popular with the public as they have been successful in competition.

The beautiful 2000 GT, first displayed at the 1965 Tokyo Motor Show, helped establish the company's global reputation as a sports car manufacturer. This 2.0 litre straight-six-powered coupe finished third in the 1966 Japanese GP and went on to establish three world endurance records, including the fastest average speed continuously over 16,000 kilometres – 207km/h.

A convertible 2000 GT appeared in the 1967 James Bond film *You Only Live Twice*. Sadly – created as a movie one-off merely because the film's star, Sean Connery, could not fit comfortably in the standard coupe – it was never made commercially available.

In the US, former Le Mans winner Carroll Shelby entered the 2000 GT in the 1968 Sports Car Club of America's C-Production category. Despite little development, the lead car notched up four wins against the hitherto dominant Porsche 911.

In response to the focus of the annual Japanese Grand Prix on sports racing cars with larger engines, Toyota launched its first purpose-built racer in 1968, the Toyota 7, which featured a mid-mounted, 3.0 litre V8 subsequently upgraded to 5.0 litres. The 1970 Toyota 7 Turbo was the world's first turbo-engined racing car.

Before its launch in 1984, Toyota appointed legendary US racing driver Dan Gurney for the testing and development of the MR2. Toyota has always understood the value of motorsport and a racing driver's analytical skills for improving its road-going models. And the MR2 gained a well-deserved reputation as one of the best handling sports cars of all time.

Seven generations of the Celica were sold throughout the world for 36 years between 1970 and 2006. The first Celicas incorporated rear-wheel drive powertrains, and were praised by sports car enthusiasts for their agility. The Celica GT, introduced in Europe in 1974, featured a five-speed transmission and wider tyres.

Appealing strongly to the European market, the redesigned Celica of 1985 featured front-wheel drive and the powerful, 2.0 litre 3S-GE engine.

The Celica also achieved considerable success in competition. The Celica Twin-Cam Turbo achieved three consecutive Safari Rally wins between 1984 and 1986. Taking its first World Rally Championship win in Australia in 1989, the all-wheel drive Celica GT-Four went on to record back-to-back WRC driver's and manufacturer's titles in 1993 and 1994. The GT-Four was the first Japanese car to win both driver's and manufacturer's WRC titles.

Toyota's Supra was launched in 1979. The first two generations of the car were based on the Celica, the Supra only becoming a model in its own right with the third generation car of 1986. Its roots may be traced back to the 2000 GT, all four generations boasting straight-six engines and rear-wheel drive.

Engine cubic capacity rose with each generation from 2.5 litres to 2.7 and then 3.0 litres, culminating in the 1993 model year. VI Supra's 320 hp engine with sequential turbocharging, which gave the car a 0-100 km/h acceleration time of just 5.2 seconds, and a governed maximum speed of 250km/h.

With its reputation for delivering pure excitement and embodying the fundamental joy of driving, the Corolla Levin AE86 is the inspiration behind Toyota's latest sports car concept, the Future Toyota-86 II.

The Corolla Levin AE86's front engine, rear-wheel drive powertrain, compact dimensions, light weight, impeccable balance and superior power-to-weight ratio made it the must-have choice for rallying and circuit driving throughout its 1983-1987 production life. Even today, the AE86 is still a popular choice with private rallying teams.

Sharing its predecessor's front engine, rear-wheel drive credentials, the FT-86 II concept introduces a new generation of sports car which perfectly recaptures the exhilarating spirit of the last Corolla Levin AE 86.

Passion is Back: FT-86 II concept Gives Form to the Intrinsic Joy of Driving

With the proportions of its long, low bonnet, high wings and rear-set cabin paying homage to Toyota's illustrious sports car history, the dynamic power of the FT-86 II concept gives the clearest indication yet as to the final design of Toyota's next sports car.

The FT-86 II is an entirely driver-oriented concept, designed to give form to the intrinsic joy of driving through precise, instantaneous responses to even the smallest throttle or steering input, for those who regard driving as a passion rather than a necessity.

Under a design concept that Toyota's European Design Development centre, ED², has dubbed 'Functional Beauty', its bold, sweeping form has been generated entirely through the constraints of function, and aerodynamics developed from F1 technology.

Its low, highly aerodynamic bodysell stretched tight over the engineering hard points, the FT-86 II concept's muscular body work has been made as compact as possible. Featuring a long, 2,570mm wheelbase, the concept is 4,235mm long, 1,795mm wide and just 1,270mm high.

Rather than relying on a heavy, large displacement powertrain for its performance, the FT-86 II returns to Toyota's sporting roots by combining a free-revving boxer petrol engine and a 6-speed manual transmission with compact dimensions, light weight and a low centre of gravity for the best possible power-to-weight ratio.

Both powertrain and driving position have been set as low and as far back as possible to optimise balance for maximum poise, high speed stability and dynamic agility. Allied to a front engine, rear-wheel drive format, this awards the FT-86 II lively, accessible performance, highly engaging, readily-exploitable dynamic abilities and maximum driving pleasure.

The FT-86 II concept is the result of an August 2009 announcement that Toyota and Fuji Heavy Industries will launch a jointly developed compact rear-wheel drive sports car. European sales of Toyota's new sports car will begin in 2012.