



TOYOTA TO SHOWCASE FUTURE MOBILITY AT TOKYO MOTOR SHOW

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Display to include latest Fuel Cell Vehicle among five world concept world debuts

Five new Toyota vehicle concepts will make their world debut at the Tokyo motor show on 20 November, including the latest development of the Fuel Cell Vehicle (FCV) concept, under the banner Fun to Drive Again. The line-up embodies the work being done by Toyota to make a positive contribution to society by designing and building ever-better cars that go beyond what people expect from a vehicle.

The FCV, which previews a production model scheduled for launch as early as next year, will be shown alongside concepts that look to the future for taxis and compact MPVs, and the FV2 (Fun Vehicle 2) concept, a car engineered to capture Toyota's fun-to-drive philosophy.

Toyota FCV Concept

The Toyota FCV Concept, revealed for the first time at Tokyo, previews the fuel cell vehicle Toyota plans to launch around 2015 as a pioneer in the development of hydrogen-powered vehicles.

Toyota's progressive refinement of hydrogen fuel cell technology has given the car a range of at least 300 miles (500km) on a full tank and a refuelling time of around three minutes - roughly the same as for a petrol or diesel vehicle.

The FCV Concept's exterior design expresses the key characteristics of a fuel cell vehicle: the transformation of air into water as the system produces electricity; and the powerful acceleration delivered by the electric drive motor. The front end features pronounced air intakes, while an air-to-water theme is captured in the flowing liquid profile of the doors, a wave motif on the filler cap and a rear-end treatment inspired by the stern of a catamaran.

The powertrain features Toyota's proprietary compact and lightweight fuel cell stack and a pair of high-pressure (70mPa) hydrogen tanks, located beneath the specially designed body. This compact packaging means the FCV can carry up to four occupants.

The Toyota FC stack has a 3kW/l power output density, which is more than twice that of the system previously used in the FCHV-adv concept, and a maximum power output of at least 100kW. It is also equipped with a high-efficiency boost converter. By increasing the voltage, Toyota has been able to make the motor smaller and reduce the number of fuel cells, leading

to a system that is more compact overall, yet delivers better performance at reduced cost.

Driving aside, a fully fuelled vehicle can provide enough electricity – 10kW/h – to power an average Japanese family home for a week.

The FCV measures 4,870mm long, 1,810mm wide and 1,535mm high. The wheelbase is 2,780mm.

Toyota FV2

The FV2 is a concept designed to capture the spirit of Toyota's fun-to-drive philosophy, while harnessing advanced future vehicle technologies to form stronger physical and emotional connections with the driver.

Physical connection: the FV2 doesn't have a steering wheel; instead, it is operated by the driver shifting his or her body intuitively to move the vehicle forwards or back, left or right. It also uses intelligent transport system technology to connect with other vehicles nearby and highway infrastructure to capture safety information, for example giving advance warning of vehicles in blind spots or at junctions.

Emotional connection: Toyota believes the relationships between drivers and their vehicles will continue to develop aspects of trust and understanding, similar to those a rider will have with a horse. It has taken technology from the Toyota Heart Project (see notes to editors below) to allow the driver and FV2 to develop a relationship. The vehicle uses voice and image recognition to determine the driver's mood; it can use accumulated driving history to suggest destinations; and can present driving skills information to assist the driver. An augmented reality (AR) display can be presented on the windscreen and the body colour and exterior display can be changed at will.

To give a sense of how this works, Toyota has created a dedicated smartphone application that lets users enjoy something of the FV2 driving experience. The application, released today, can be downloaded free through the Apple AppStore¹ and Google Play² platforms.

¹ A trademark of Apple Inc. ² A trademark of Google Inc.

JPN Taxi Concept

The Tokyo motor show will mark the public debut of Toyota's new JPN Taxi Concept, a next-generation model that focuses on Japanese-style hospitality and livening up the city streets. It's designed for easy passenger access with large, electric doors and a low, flat floor. The open cabin can seat five.

Power is from a new LPG hybrid system, with excellent environmental performance that is tailored to suit typical taxi driving patterns. The concept has been designed in line with Japanese government guidelines for accessible buses and taxis that meet regional needs.

Voxy and Noah concepts

Toyota is using the opportunity of the Tokyo motor show to unveil new concepts for Voxy and Noah, two established seven-seat compact MPV models for the Japanese market. Production versions based on these concepts are due for launch early in 2014. It will also show the Aqua G Sports, a sports conversion of the Aqua hybrid supermini (not available in Europe) that has

been tuned by GAZOO Racing, and the i-Road personal mobility vehicle.

ENDS

Note to editors - Toyota Heart Project: The Toyota Heart Project is a communication research project on the theme of *Inspiring the Heart, Inspiring You*. Toyota's Kirobo and Mirata humanoid robots form part of the programme, using technologies for communication and artificial intelligence.

As well as simply talking and listening, humans and artificial intelligence will be able to engage in emotional communication, including expressions, gestures and recollection of past events, thanks to research using an open innovation method, making use of diverse knowledge and technology obtained outside organisational frameworks.

The Toyota Heart Project is also conducting research to develop artificial intelligence that grows together with people, and which can display feelings and evoke fondness and trust. The aim is to inspire people and achieve a rapport between humans and machines that can make life more enjoyable and rewarding.