Toyota FCHV Fact Sheet

What is the Toyota FCHV?

The Toyota Fuel Cell Hybrid Vehicle (FCHV) is based on the popular Toyota Highlander mid-size sport utility vehicle. It utilizes the same hybrid technology used in the Toyota Prius.

How Does it Work?

The FCHV's fuel cell system features four hydrogen fuel tanks, an electric motor, a nickel-metal hydride battery, and a power control unit. The hydrogen gas is fed into the fuel cell stack where it is combined with oxygen. The electricity produced by this chemical reaction is used to power the electric motor and to charge the battery. The power control unit decides when to use the battery and when to use the fuel cell stack to power the vehicle, the same mechanism that manages the gasoline engine and battery in the Prius.

Why is the FCHV better for the environment?

The FCHV is smog-free. The only by-product is water vapor. It has been certified as a zero emissions vehicle by the California Air Resources Board.

Where are the Toyota FCHVs?

In December 2002, Toyota began limited marketing of the FCHV in the United States and Japan. A total of 18 are now in service. Customers include California universities, private companies and Japanese government agencies.

Who is Driving the FCHVs?

Toyota has enlisted the University of California, Irvine and the University of California, Davis to test different aspects of consumer acceptance and market dynamics of fuel cell vehicles. The National Fuel Cell Research Center at UC Irvine researches product performance, reliability and usability. UCI in turn leases the vehicles to Irvine based technology companies like Orthodyne Electronics and the City of Irvine.

The Institute of Transportation Studies at UC Davis uses its fuel cell Toyotas to study consumer awareness of and attitudes toward hydrogen fuel cell vehicles and the use of hydrogen fueling infrastructure.

Is the FCHV Safe?
After many months and 100,000 miles of road and test track evaluation and rigorous crash testing, Toyota's hydrogen fuel system has proven to be reliable, durable and user-friendly.

How Much Does the FCHV Cost?
It's nearly impossible to put a price tag on it. The FCHV represents the culmination of more than a decade of intense research and development. It is one of the most technologically-advanced vehicles on the planet.

TOYOTA FCHV: Vehicle Specifications and Previous Model Comparison

		TOYOTA FCHV	Previous TOYOTA FCHV
Vehicle	Overall length/width/height (mm)	4,735/1,815/1,685	4,735/1,815/1,685
	Weight (kg)	1,880	1,880
	Seating capacity (persons)	5	5
Performance	Maximum cruising range (km)*	780	330
	Maximum speed (km/h)	155	155
Fuel cell	Name	Toyota FC Stack	Toyota FC Stack
	Type	Polymer electrolyte	Polymer electrolyte
	Output (kW)	90	90
Motor	Type	Permanent magnet	Permanent magnet
	Maximum output in kW (ps)	90 (122)	90 (122)
	Maximum torque in N-m (kg-m)	260 (26.5)	260 (26.5)
Fuel	Type	Hydrogen	Hydrogen
	Storage system	High-pressure hydrogen storage tanks	High-pressure hydrogen storage tanks
	Maximum storage pressure (MPa)	70	35
Battery	Type	Nickel-metal hydride	Nickel-metal hydride
Lease price	30-month lease (yen/month)	1,050,000	1,260,000

* In the 10-15 Japanese test cycle; as based on TMC calculations

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