



FUEL CELL TODAY

Opening doors to fuel cell commercialisation

Honda FCX fuel cell vehicle

Stefan Geiger, Fuel Cell Today – 11 August 2003

Honda introduced its first prototype fuel cell vehicle, the FCX V1, in September 1999. The first FCX ran on pure hydrogen, could carry two passengers, used a hydrogen-absorbing alloy to store fuel, and used a fuel cell developed by Ballard Mfg. The electric drive motor generated 49kW of output power. Later, the FCX V2 operated on methanol and an onboard hydrogen fuel processor developed by Honda reformed the methanol into hydrogen for the fuel cell. As Honda's fuel cell vehicle technology evolved, the FCX V3 was fueled on pure hydrogen stored in a high-pressure hydrogen tank.



The new FCX V4 further reduced the size of the fuel cell power plant and related components, which provided room under the floor of the car for two hydrogen tanks with greater total capacity, and used a 78 kW Ballard fuel cell stack. It also employed Honda's Ultra Capacitor for quick response and greater efficiency and range. The range of the FCX V4 with its 5,000-psi hydrogen tanks was 186 miles, the highest of

fuel cell vehicles being demonstrated. It also increased trunk cargo space for users with the relocation of the hydrogen storage equipment. Honda plans to lease approximately 30 fuel-cell cars in California and Japan during the next several years.

The FCX illustrates the Honda philosophy to independently develop new technology and identify the benefits and opportunities for new vehicle propulsion systems such as fuel cells. This approach allows engineers to better understand all of the fundamentals required to design a system for optimum vehicle performance. And Honda's focus on the customer leads to vehicle designs that emphasise safety, performance, and user-friendly operation. It also provides an opportunity to gain early experience about potential markets, hydrogen infrastructure and key factors for success.

Specifications

Platform	
Weight	1684kg
Fuel	CH ₂
Fuel Storage	3.75 kg @ 5000 psi *
Driving range	355km
Maximum Speed	150km/h
Engine power	78kW, PEM fuel cell from Ballard
Fuel Economy	