

Premacy Hydrogen RE Hybrid [reference exhibit]

New possibilities in a front-engine, front-wheel-drive (FF) minivan package



The Premacy Hydrogen RE Hybrid is a concept car in which a hydrogen rotary engine with dual-fuel (hydrogen and gasoline) capability is combined with a hybrid system. The hydrogen rotary engine and the motor are incorporated into a power unit that is transversely mounted at the front of the car in an FF layout. The high-voltage battery is located under the second-row seats, and a high-capacity hydrogen tank is located in the space that would otherwise be occupied by a third-row seat. Efficient packaging permits ample interior space together with the superior environmental performance of the hydrogen rotary engine and hybrid system.

The Premacy Hydrogen RE Hybrid's key technologies

- Transverse-mounted hydrogen rotary engine in FF layout

By redesigning an existing hydrogen rotary engine to suit an FF layout, Mazda greatly expanded the range of models in which hydrogen rotary engines can potentially be used.

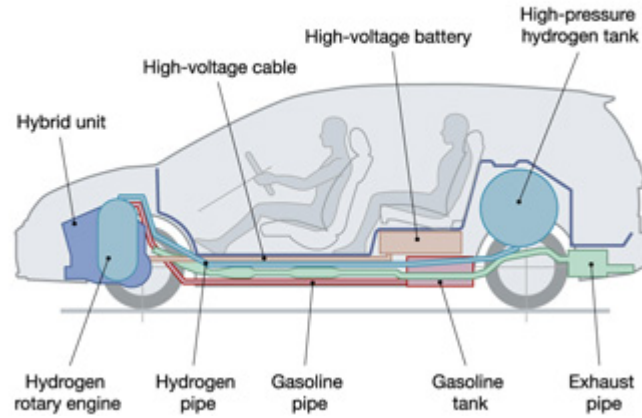
- Dual-fuel system

For the driver's convenience, the hydrogen rotary engine has the dual-fuel system that is also used in the RX-8 Hydrogen RE.

- Hybrid system

The hybrid system normally stops the engine to save fuel when the vehicle is stationary (at traffic lights, for example) then automatically restarts the engine using the motor when the driver is ready to pull away. During acceleration, the motor supplements the engine's torque for superior response. During deceleration, the motor operates as a generator, recovering braking energy and using it to charge the battery.

Vehicle layout



- Minivan packaging

The FF layout of the Premacy Hydrogen RE Hybrid allows efficient packaging that maximizes the benefits of the roomy, user-friendly minivan interior environment. Seating for five people is combined with ample luggage capacity, and a tray for small items of luggage is located on top of the hydrogen tank.



Premacy Hydrogen RE Hybrid major specifications

Model	Mazda Premacy Hydrogen RE Hybrid	
Body and chassis	Overall length	4,505mm
	Overall width	1,745mm
	Overall height	1,615mm
	Wheelbase	2,750mm
	Seating capacity	5 persons
Engine	Type	RENESIS hydrogen rotary engine with dual-fuel system
	Fuels	Hydrogen and gasoline
Motor	Type	AC synchronous
	Maximum output	30kW (40PS)
Battery	Type	Nickel hydride
Tires	Front/rear	195/65R15