A Challenge to 24-hour Travel Distance Record of EV

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An electric vehicle (EV), a MMC's FTO-EV, covered a distance of 2142 km in a 24 hour continuous run on December 19 through 20, 1999. The distance was officially recognized and accepted as a new world record by the editors and compilers of the Guinness Book of Records. The venture was carried out to demonstrate how far the EV can run in 24 hours by employing a rapid charging system and repetition of run and charging. An original target exceeding 2000 km was set in commemoration of the coming new millenium.

Certificate of World Records

Principal factors which supported the achievement of this world record were a manganese-lithium ion battery, a new product quickly rechargeable by using a large charging current and a reduction of running resistance of the vehicle. The lithium ion battery used in the run was developed through joint collaboration between Japan Storage Battery Co. and MMC and produced in December 1999. Special features of the battery is its smaller internal resistance and ability to accept a quite large charging current of 240 A.

A reduction in the vehicle's running resistance was mostly achieved by reducing the air resistance. Cd value was ultimately improved to 0.22 and the running distance was extended by about 200 km by this reduction.

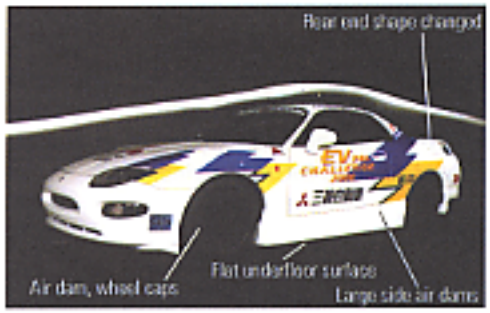
Newly developed lithium ion battery

Performance of batteries installed on FTO-EV (at quick charge)

		Lithium ion battery	Nickel-metal hydride battery*	Lead acid battery*
Capacity	(kWh)	27	26	17
Max. charging current	(A)	240	100	240
Standard voltage	(V)	14.8 x 23	12 x 24	
Charging time	(hs)	1.2	3.3	1.5
Mass	(kN)	3.5	4.3	4.8

*Ref. data

After repeating a number of test runs by employing various different times and intervals of recharging and cruising speeds, an optimum condition was set at "cruise at 130 km/hr for 50 min. and charge for 20 min".



Improvement of aerodynamic performance

The final run of FTO-EV was commenced on December 19, 1999 on the oval test course at MMC's Car Research and Development Center in Okazaki city. This run finished early in the morning of the 20th after registering 2142 km by circling the course for 899 turns. The distance easily exceeded the existing world record of 1700 km, recorded in 1996.

The motor vehicle industry is required to introduce measures to protect the environment such as improved fuel economy, reduced exhaust gas emissions and others. At the same time the industry has to meet demands for the development of a new next generation power-train independent from the conventional internal combustion engine. One such power-train is the electric vehicle. We are convinced that development of a high performance electric vehicle will itself present an effective contribution to environmental protection. As such we are firmly determined to continue our research and study for enhancing and promoting the performance of electric motor vehicle.

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