## TRANSLATION

For Immediate Release

# Isuzu Exhibits Advanced Technologies at General Motors Technology Tour

Tokyo, October 6, 2003 - Isuzu Motors Limited, the world leading manufacturer of commercial vehicles and diesel engines, presents advanced technology at the General Motors Technology Tour being held at the Tokyo Fashion Town in Ariaka from October 6th through 10th.

Under the theme "Environmental Performance, Economic Advantage and Safety Performance", Isuzu's advanced diesel engine technologies are exhibited at the Tour, including direct-injection, compressed natural gas (CNG) vehicle and a presentation on Isuzu diesel-hybrid system, along with the exhibits of continuously regenerating Diesel Particulate Filter, or DPF, and NOx catalytic converter. Evolving from current state of driving control system, the next generation "Mimamorikun", a comprehensive driving information system aimed at enhanced economy of vehicle operation, is also presented at the Tour. Current ELF truck with the "Smoother Transmission", a fully automatic mechanical transmission system, is also exhibited as a test-drive model.

## **Environmental Performance**

Based on longstanding, proven technology that earned Isuzu trust and confidence of our customer, Isuzu exhibits how it is embracing environmental performance by displaying environmentally positive vehicle and technologies, including;

- ELF CNG-DI, realizing clean emission and excellent fuel efficiency
- Isuzu Hybrid System, opening up new potential through synergy with new transmission
- Continuously regenerating DPF and NOx Catalytic Converter, the engine tailpipe after-treatment for the near-term future

## Economic Advantage/Safety Performance

Isuzu presents innovative technologies that realize vehicle life-cycle cost reduction by displaying various vehicles, including;

- The Smoother-Autoshift, Isuzu's original transmission system that contributes to relieving operator' fatigue from driving and reducing maintenance cost.
- The next generation "Mimamori-kun", an innovative evolution of current diagnostic system that analyzes specific driving information and provide useful information such as for the improved fuel economy.

| No.1 | Clean diesel technologies<br>(incl; Continuously regenerative DPF, and Urea NOx Catalyst) | Parts            | + Display Panel |
|------|---|------------------|-----------------|
| 2    | Isuzu Diesel-Hybrid System  | Display<br>Panel |                 |
| 3    | Direct-injection CNG-powered ELF, Light-duty truck  | Video            | + Display Panel |
| 4    | The Smoother-Autoshift for light-duty commercial vehicle                                  | Vehicle          | + Display Panel |
| 5    | Next Generation "Mimamori-kun"  | Video            | + Display Panel |

### Overview of Isuzu Exhibits

### **Environmental Performance**

- 1. Clean Diesel Technology (Continuously regenerating DPF and Urea NOx Catalytic Converter)
- Next generation emissions after-treatment system with an integral use of continuously regenerating DPF and Urea NOx catalytic converter. Adopting continuously regenerating DPF realizes PM emission reduction, and Urea NOx catalyst reduces NOx emissions.
- 2. Isuzu Hybrid System
- Highly versatile, low-cost HEV with simple structure that combines motor and transmission in combination with the Smoother.
- Automatic clutch disengagement from transmission at deceleration realizes maximum energy regeneration (resulting in significant fuel economy)
- Functionality of hybrid complements superb performance of base vehicle, Isuzu ELF, succeeding its excellent quality and virtue of commercial truck.
- 3. ELF CNG-DI
- High-efficiency (fuel economy), low-pollution light-duty commercial vehicle with the industry-first, diesel-cycle, direct-injection, single-fuel CNG-powered engine.
- Achieving more than 25% reduction\* in CO2 emissions as compared to current CNG-powered light-duty truck (\*G13 mode)

#### Economic Advantage/Safety Performance

- 1. The Smoother-Autoshift
- Adopts electromagnetic solenoid shift-actuator \*1 to the conventional manual transmission, and fluid-coupling, wet-type clutch. Clutch control automatically activates by receiving signals from transmission shift and acceleration. Thus, driver can be freed from bothersome clutch operation. With fluid coupling \*2 and wet-type clutch mechanism, gear-shift and clutch control is automatically activated.

- Unlike conventional manual transmission, the Smoother Autoshift prevents erratic pattern in fuel consumption and degradation of fuel economy, while contributing to alleviation of driver fatigue.
- The Smoother-Autoshift comes with a lock-up clutch, a mechanism that allows lock-up even at standing start position. This function minimizes power transmission loss, and realizes equal level of fuel efficiency as manual transmission.
- Wet-type clutch eliminates the parts replacement need, and help reduce maintenance cost.
- \*1: Through electromagnetic solenoid, electric power activates the transmission shift. Unlike a motor, the shiftactuator has no brush and has a lifetime durability. Simple structure, and highly reliable device.
- \*2: Coupling that transmits engine power through fluid. Fluid coupling makes partial clutching or slip clutch operation as required with manual transmission not necessary. Thus, simple, smooth standing start can be realized.
- 2. The next generation "Mimamori-kun"
- Since its first debut in January 2001, more than 500 transportation companies adopted the vehicle operation diagnostic system, Mimamori-kun, that earned Isuzu high reputation of customers. The next generation "Mimamori-kun" gathers various operating data/driving information in real time through wireless communication. Expert analysis and diagnosis are carried out instantaneously by Isuzu and the results are fed back to the operator for improved operating/driving safety, transportation quality and operational efficiency.

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