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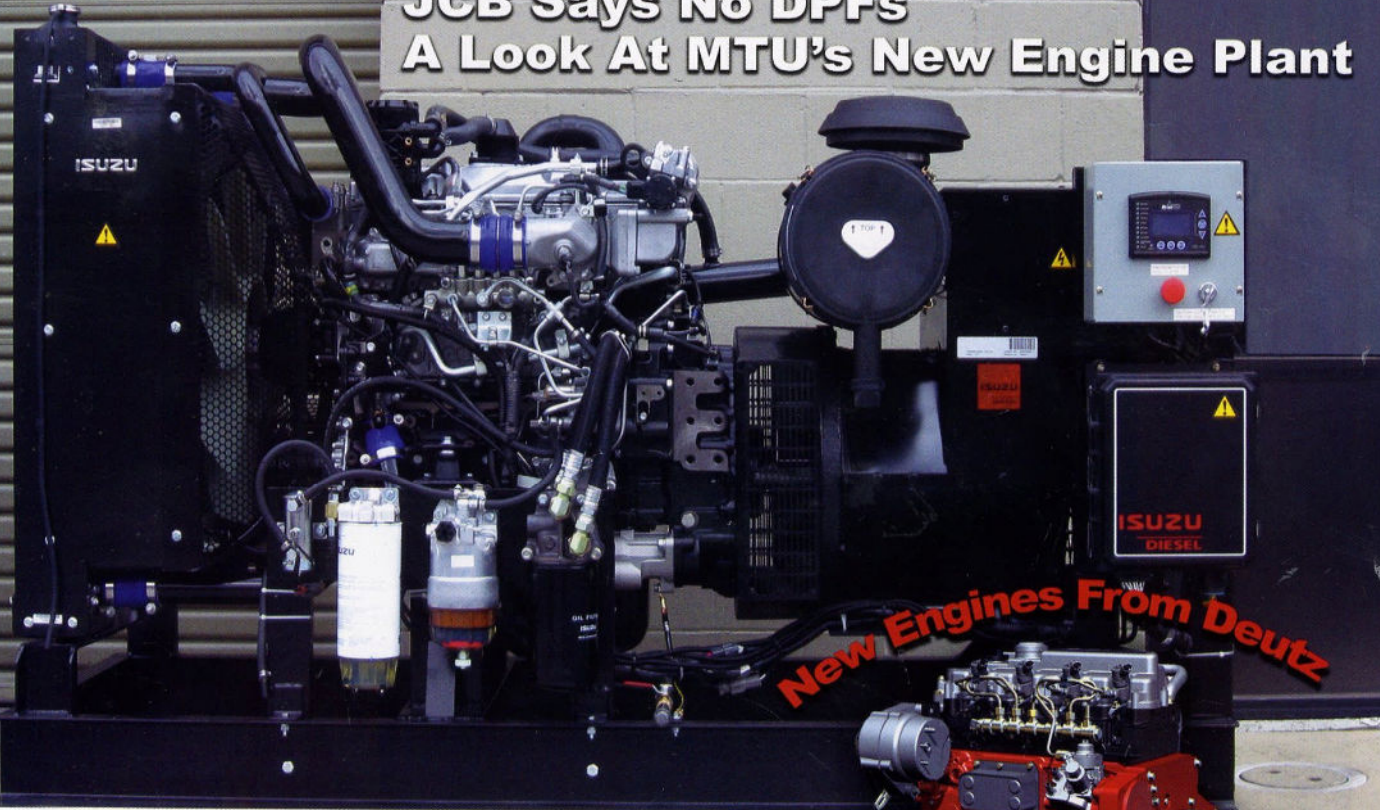
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TECHNOLOGY OF CLEAN AIR

TESTING HYBRID BATTERIES

Sakor develops test and simulation system for batteries in hybrid drivetrains

Sakor Technologies Inc., a manufacturer of drivetrain testing and development systems, has introduced the Hybrid Vehicle Battery Test System to test batteries used in hybrid vehicles.

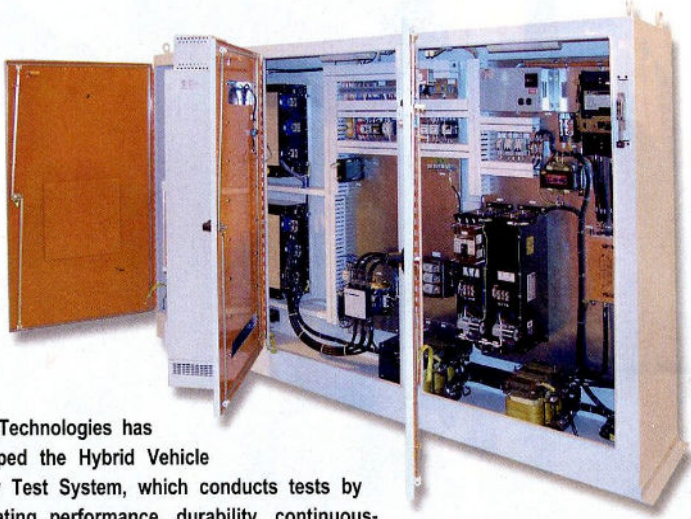
The system is available in voltages up to 1000 Vdc and sizes from ± 200 to ± 2400 Amps (continuous). Larger or smaller units can be designed as customer requirements dictate, said the company. Most units, said Sakor, offer overload currents of up to 200% of the rated current. The units are sized based on customer needs and are typically used by hybrid system manufacturers for R&D purposes, the company said.

The test system centers around a line-regenerative dc power source, so energy discharged from the battery being tested can be sent back to the main ac utility line, instead of dissipated as heat, Sakor said.

"To properly test batteries, you not only have to be able to push power at them, which is what you're doing when you charge them, but you also need to be able to absorb power and cause them to discharge," said Randy Beattie, Sakor's president.

"As with standard power supplies — if you want to be charging the battery, you can simply adjust the output so it's actually pushing the current into the battery and causing that battery to charge, and the battery is absorbing the current that our unit is generating.

"When it's time to simulate the discharge part of the cycle, we change the voltage level as would happen in



Sakor Technologies has developed the Hybrid Vehicle Battery Test System, which conducts tests by automating performance, durability, continuous-cycling operations and road load simulations. Additionally, the test system returns discharged power back to the ac main line.

a vehicle, so that the current is actually flowing out of the battery and into our power source."

Beattie added that "the beauty of the regenerative supply is that the absorbed power is placed back to your ac mains, where it can be used to power something else. This makes the system really energy efficient."

The test system is driven by a DynoLab EM controller, which enables the system to automate all types of performance, durability and continuous-cycling operations, as well as road load simulations.

"It can simulate what the battery sees in the vehicle," said Beattie. "You can actually run a drive cycle and cause the battery to get charged and discharged just like it would be if

its in the vehicle running a particular road course. The battery sees exactly what it would see in a real vehicle running over a real road course."

The Hybrid Vehicle Battery Test System can also be integrated with a HybriDyne Hybrid Driveline dynamometer to work as a complete test system for hybrid drivelines and subsystems — with or without actual batteries in circuit. With a simulator, output is repeatable from cycle to cycle, regardless of charge state, resulting in more consistent and accurate test data, said Sakor. **dp**

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