

Contact:

Chrysler Group, U.S. Army Adapt Environmentally Friendly Dodge Ram HEV for Military Applications

Chrysler Group demonstrated a military version of the environmentally friendly Dodge Ram HEV (Hybrid Electric Vehicle), developed jointly with the U.S. Army Tank Automotive & Armaments Command (TACOM) - National Automotive Center (NAC).

The vehicle was developed in conjunction with the Army's Commercially Based Tactical Truck (COMBATT) program.

The COMBATT HEV achieves about 15 percent improvement in fuel efficiency and reduced tailpipe emissions compared with a comparable conventional Ram. When the vehicle is parked, the hybrid powertrain converts to an electric generator to provide 12.5 kW continuous electric power or up to 30 kW peak electric power, eliminating the need for portable generators at remote sites.

The COMBATT Ram HEV is based on the all-new 2002 Dodge Ram 2500 Heavy Duty Quad Cab 4 X 4 pickup equipped with a diesel-electric hybrid powertrain. The vehicle can be operated in either diesel-electric hybrid or electric-only ("stealth") modes.

The COMBATT Ram HEV is equipped with a 5.9 L Cummins 24-valve diesel engine and 47 RE 4-speed automatic transmission. The vehicle is also equipped with run-flat tires, a central tire inflation system that enables operators to run more efficiently in different terrains and surfaces, and a unique hydro-pneumatic suspension system that significantly enhances operation in severe off-road conditions.

The vehicle developed for the Army will capitalize on several of the Ram HEV's capabilities:

- On-board battery capacity enabling a "Stealth" operating mode and "Silent Watch" capability
- 110, 220 VAC and 208 VA 3-phase power availability
- Elimination of the need for off-board generators that currently must be towed to sites to power mobile Command & Control Centers, Surveillance Posts, off-board generators will result in:
- Decreased vehicle weight, noise, heat and exhaust emissions
- Increased space available for equipment and personnel
- Reduced installation complexity and maintenance
- Always-available power wherever the vehicle is located

"This effort is a part of the Army's 21st Century Truck Initiative that has goals of building more fuel efficient, smarter and safer trucks for our future force," said Dennis Wend, Director of the NAC in Warren, Michigan. NAC is the Tank Automotive Research, Development, and Engineering Center's (TARDEC) principal conduit for technology transfer from the automotive industry into the Army's ground vehicles research/development projects.

Chrysler Group has also developed a non-hybrid version of the COMBATT truck, also based on the Dodge Ram 2500 Heavy Duty Quad Cab 4 x 4 and also equipped with the 5.9 L Cummins 24-valve diesel engine. That vehicle provides equivalent capabilities in off-road and other challenging terrains.

Chrysler Group is also developing a Dodge Ram HEV for commercial applications, such as the construction and utility industries. The vehicle, based on the all-new Ram pickup, will be available in 1500 and 2500 models with either two-wheel or four-wheel drive and equipped with various gasoline engines. The electric motor provides power assist of 35 kW, or about 47 horsepower. The motor is located between the engine and transmission to create the electric-generating capacity.

The exhaust emissions from the generator on the Ram HEV will be much cleaner than conventional portable generators, because it will be powered by the vehicle's clean hybrid powertrain.

The additional components in the hybrid powertrain add 250-300 pounds to the vehicle's weight, compared with 2,500 pounds or more for a portable generator with similar capacity.

"The Dodge Ram HEV's clean hybrid technology is an ideal way to meet the off-site electrical generating capacity needs of construction contractors, farmers, campers and even homeowners," said Bernard I. Robertson, Senior Vice President, Engineering Technologies & Regulatory Affairs at DaimlerChrysler.

"The special capabilities of the Dodge Ram HEV should increase consumers' interest in the hybrid version of our Ram pickup and thus help us build the market for this clean, fuel-efficient technology. And this new military application will take us another step further in capitalizing on the capabilities of hybrid technology."

Dodge Ram 2500 COMBATT Truck Specifications:

- Model: Dodge Ram 2500 Heavy Duty Quad Car 4 X 4
- Powertrain: Diesel-electric hybrid
Engine: 5.9 L Cummins 24-valve diesel
Motor: 35 kW/47 hp
- Transmission: 47 RE 4-speed automatic
- Electric Generation: 12.5 kW continuous, 30 kW peak
110 and 220 VAC, 208 VA 3-phase
- Suspension: Hydro-pneumatic suspension for severe off-road terrain and load leveling
- Tires: Run-flat all-terrain tires, with central tire inflation controls
- Fuel efficiency: 15 percent improvement over conventional Ram
- Emissions: SULEV

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