MillenWorksÂ Active Damper Suspension System Demonstrates Dramatic Mobility Improvements for the U.S. Army Stryker Armored Combat Vehicle

MillenWorksÂ third-generation Magneto-Rheological Active Damper Suspension (MROADS) system was recently tested head-to-head against a stock suspension system for the Stryker at the U.S. ArmyÂs Yuma Proving Grounds (YPG) in Arizona. The MROADS Stryker showed dramatic increases in off-road mobility and on-road handling.

Tustin, CA (PRWEB) February 5, 2005 -- MillenWorksÂ third-generation Magneto-Rheological Active Damper Suspension (MROADS) system was recently tested head-to-head against a stock suspension system for the Stryker at the U.S. ArmyÂs Yuma Proving Grounds (YPG) in Arizona. The Mroads Stryker showed dramatic increases in off-road mobility and on-road handling.

The test represents the culmination of 4 years of SBIR-funded development which showed similar mobility improvements on the HMMWV two years ago. As part of a Phase 2+ continuation of this TARDEC SBIR, MillenWorks scaled the system to a 20-ton Stryker Infantry Carrier Vehicle while incorporating third generation component technologies.

The core of the system tested is 8 dampers & controllers using proprietary algorithms to modulate individual wheel forces within 4 milliseconds in response to terrain inputs and body motion. MillenWorks engineers retained full functionality of the stock Stryker vehicleÂs pressurized gas spring & ride height management system while integrating the electrically controllable MR technology into the physical envelope of the original damper. ÂThe stock vehicle utilizes a very capable suspension load-leveling system, and it was a good challenge to ensure we didnÂt lose that important functionality in the process of incorporating our controllable damper,Â noted Project Manager Peter LeNoach. ÂThe net result is a high-performance suspension system that is bolt-on retofittable, simple, with operation that is completely transparent to the vehicle and its operator.Â

Mobility gains measured during comparison testing showed great promise for Strykers that could be retrofitted with this system in the future. Over a range of off-road bump courses, the MillenWorks MROADS Stryker was 40-60% faster than the stock vehicle at the same level of driver absorbed power; a measure of transmitted vibration. The MROADS StrykerÂs best performance was a 72% increase in the vehicleÂs 6-watt absorbed power speed, from 22 mph (stock) to 38 mph. Increases in vehicle platform stability were immediately obvious to drivers and bystanders. The system also showed marked improvements during aggressive on-road maneuvers like lane changes. The maximum lane change speed increased from 38 mph (stock) to over 50 mph with the MillenWorks Mroads system.

The MROADS system has proven to provide many of the benefits of a fully active suspension system while offering greatly reduced complexity, cost, and power consumption. MillenWorks has shown the system to be scalable and adaptable to a number of different ground vehicles, both wheeled and tracked.

MillenWorks, formerly the Rod Millen Group, designs and develops vehicles and advanced mobility solutions for the U.S. armed forces and commercial customers. Headquartered in Tustin, California, MillenWorks is principally engaged in the research, design, development, manufacture and integration of advanced technology solutions for manned and unmanned military vehicles, high performance concept cars, race vehicles, and rides for major theme parks.

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