

## Rod Millen Special Vehicles Supports Successful Demonstration of Unmanned Ground Combat Vehicle at Yuma

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HUNTINGTON BEACH, CA ([PRWEB](#)) July 23, 2004 -- Rod Millen Special Vehicles (RMSV), in partnership with Lockheed Martin, has successfully demonstrated the advanced mobility characteristics of the Team Retiarius Unmanned Ground Combat Vehicle (UGCV) on a series of treacherous courses at the US Army's Yuma Proving Ground (YPG) in Arizona.

The in-depth evaluation, performed with the concept demonstrator UGCV Reconnaissance, Surveillance and Targeting (RST) vehicle, took place over a 10-day period at the end of March and was supported by the Lockheed Martin-led team that conceived and built the vehicle. This team, known as Retiarius, consists of four major partners, Lockheed Martin, BAE Systems, Sandia National Labs and Rod Millen Special Vehicles. Lockheed Martin manages the team. BAE Systems and Sandia National Labs have been tasked with power and control systems. RMSV is responsible for vehicle design integration, the vast majority of mechanical components and systems, suspension control electronics, and overall vehicle assembly.

The vehicle concept was designed and built in response to a year 2000 solicitation from the Defense Advanced Research Projects Agency (DARPA) prompting development of innovative approaches to vehicle design unique to unmanned ground vehicles. At the core of its design, the team Retiarius UGCV consists of a lightweight carbon/Kevlar composite monocoque chassis that provides support and rugged protection for the electronics contained within. A key enabling technology for UGCV is an articulating suspension design capable of independent 360 deg arm rotation. Combined with the team's patent-pending Magnetorheological (MR) rotary dampers, UGCV can be dropped from a helicopter and hit the ground running, passing over one meter (1 m) high obstacles along the way. RMSV's suspension control algorithms adapt to the terrain and vehicle conditions at a rate of over 100 times per second providing maximum mobility and superior shock isolation.

The basic configuration of the UGCV RST vehicle, featuring six independently actuated rotating suspension arms that enable the vehicle to climb over obstacles greater than 150% of the tire diameter, has been selected for the Army's Future Combat Systems (FCS) Multipurpose Utility Logistics and Equipment (MULE) vehicle.

One of many unique features of the UGCV RST vehicle is its ability to continue its mission inverted after a rollover event. This feature was successfully demonstrated at YPG after an intentional rollover. The Team Retiarius UGCV's robust construction combined with the 360 deg rotating suspension enables this capability.

Extreme obstacle negotiating ability was the highlight of the demonstration at YPG. Using its unique suspension articulation capability the Retiarius UGCV negotiated a 36-inch tall vertical step, crossed a 1-meter wide horizontal gap and maneuvered over many natural obstacles considered impassible by even the much larger HMMWV (High Mobility Multi-purpose Wheeled Vehicle or Humvee).



The vehicle's rugged construction and advanced electronically controlled suspension allowed it the ability to move at considerable speed over rough terrain during the test protocol. At the Muggins Mesa test area, the Team Retiarius UGCV demonstrated comparable or better off-road mobility speed to a HMMWV that was present. When compared to a Polaris Ranger 6x6, a vehicle of similar size and weight that was also at the test, the difference in capabilities was dramatic- the Team Retiarius UGCV could without slowing down negotiate obstacles that would require the Polaris Ranger driver to come to a complete stop before attempting.

Rod Millen Special Vehicles designs and develops vehicles and advanced mobility solutions for the U.S. armed forces and commercial customers. Headquartered in Huntington Beach, California the Rod Millen Group 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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