

MillenWorks helps Mitsubishi develop 400HP AWD Ralliart Eclipse

TUSTIN, Calif. – Mitsubishi Motors North America, Inc. (MMNA) unveiled the Ralliart Eclipse concept at the 2005 Specialty Equipment Market Association (SEMA) show in Las Vegas last week. Mitsubishi contacted MILLENWORKS of Tustin, California to develop the drivetrain that would provide this vehicle with outstanding driving performance. Working with Mitsubishi and notable aftermarket suppliers like HKS, Brembo, and Road Race Engineering, MillenWorks was able to deliver acceleration, braking, and handling that matched the vehicle's sporty looks.



MillenWorks started by grafting a turbocharged 4G63 from a donor EVO into the brand new 2006 Eclipse coupe platform. This included integrating the HKS turbocharger kit, an EVO intercooler, a custom 2.75 inch stainless exhaust system with catalytic converter and dual outlets, and miscellaneous engine ancillaries. Custom electronics were developed to allow the engine to work with the new Eclipse chassis harness and MillenWorks' racing gauge clusters. This system was later dyno tuned by HKS producing an estimated 400 HP.

The next step in the process was developing the drivetrain components that would deliver power to all four wheels. MillenWorks mated the EVO VIII MR 6-speed manual transmission to the engine through a triple plate carbon-fiber clutch. A modified driveshaft was then routed beneath the passenger compartment to connect drive from the front axle to the rear. The standard Eclipse rear axle assembly was replaced with a beefier rear assembly from the AWD Endeavor SUV. Into this, MillenWorks mounted an EVO VIII rear differential to handle the torque from the turbocharged engine and provide the appropriate gearing to match the front axle. Custom half-shafts at each corner connected the differentials to the hubs. Road Race Engineering coil-overs and massive Brembo brakes completed the package.

MillenWorks then turned its attention to the cockpit of the vehicle, making it more appropriate for hard driving on the race track. The stock seats were replaced with custom trimmed Sparco seats from the Evo to hold the driver and passenger in place during hard cornering. Four-point racing harnesses were attached to the floor and to a cross car beam behind the front seats to secure the occupants in the event of a crash. The stock gauges in the driver's console were replaced with backlit carbon fiber racing gauges from AutoMeter for better visibility at a glance. MillenWorks also replaced the central digital display with similar gauges to monitor engine oil temperature and turbo boost.



The Ralliart Eclipse project follows on the heels of the Concept-E AWD hybrid electric concept vehicle that MillenWorks developed for Mitsubishi. This vehicle debuted at the 2004 Detroit Auto Show to introduce the next generation Eclipse. In addition to engine performance enhancements, MillenWorks produced a 200 HP custom electric drive system that drove through an EVO VII rear axle. The front and rear axles were linked through the ground only. This system was tuned to match the thrust from the front axle during acceleration and the braking effort from all four corners during deceleration to maintain a safe, neutral balance. Two years later this vehicle is still in use by Mitsubishi.

MillenWorks 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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Contact MillenWorks:

R. Brian Miller
(714) 426-5516
(714) 426-5550 Fax

1361 Valencia Ave.
Tustin, CA 92780
www.millenworks.com