

WHAT'S NEW @MB



S&R TEST

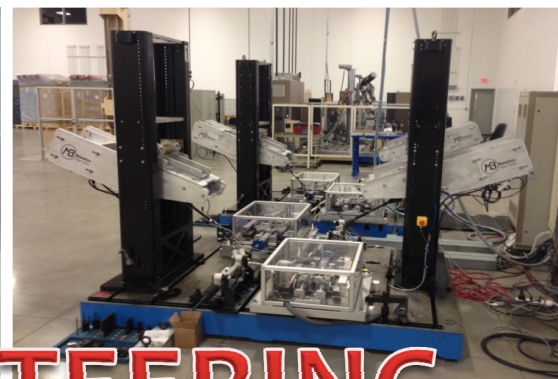
- VPR Shaker Table: Quiet Simultaneous Multi-Axis Excitation & Independent Control of Vertical and Roll DOFs with Multi-axis Response in Vertical, Roll, Longitudinal and Pitch Directions for S&R and S&R Aging
- VPR Shaker Table for JIT Plant S&R Process
- VPR+4D: Quiet Simultaneous Multi-Axis OR 4-Axis Sequential Combined in One S&R Test System
- VPR+4D with DBE: One Test System for Module/Component and Full Vehicle S&R Test
- Quiet 4/5 DOF Simultaneous S&R and Aging Test
- Quiet 6 DOF Simultaneous S&R and Aging Test
- Full Vehicle S&R Detection Using Electrodynamic (DBE) and Pneumatic (DVT) Excitation & Control
- BSR SUITE: Road Load Data Acquisition, S&R Measurements, Sound Quality, & In-line Acoustic Quality
- Suspension Component S&R Test: Quiet, Long-Stroke (200mm) Excitation under Static / Dynamic Force, Acceleration & Displacement Control
- Material Compatibility Test: Measuring Acoustic & Friction Characteristics Under Vehicle Conditions/Motions

Engineering SERVICES

- Engineering Services to Implement Ford S&R Processes at Supplier JIT Plants Using VPR Shaker Tables
- Engineering Services for Test Process Development and Road Load Data Acquisition



STEERING



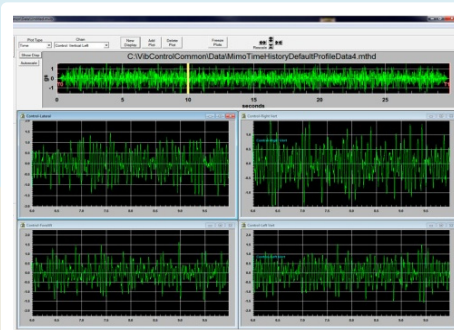
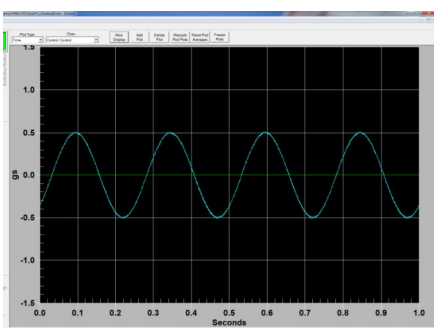
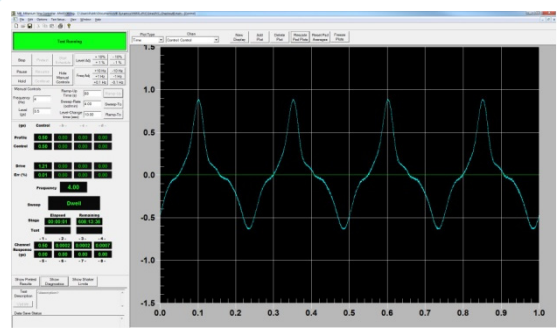
- EPS Rattle Test Bench: Quietly Identify Rattle Noises & Causes in R-EPS and C-EPS Steering Systems
- EPS Functional Noise Test Bench: Evaluate Causes of Zipper, Growl, Reversal Clunk, End-of-Travel & NVH Noises
- Steering Conditioning Bench: Not-hydraulically Cycle Steering Gears to Evaluate Noises, Wear & Turning Torque
- EPS Driving Maneuver & Smooth Road Shake Test Bench
- Driver Simulator: Quiet Rotary Motion Using Position, Velocity, Acceleration & Torque Control for NVH Apps
- In-Car Driver Simulator: Repeatable High-Velocity Motion and Zipper Noise Characterization Measurements
- Linear Motor Rack Load Simulator: Quiet Long-Stroke Linear Motor Motion and Actuation
- Pneumatic Rack Load Simulator: High Force, Low Velocity, Low Cost, Pneumatic Force Generation
- Steering I-Shaft Characterization: Stick-Slip, Lash, Torsional Stiffness, and Hysteresis Performance Metrics
- Upper Steering Column Position, Torsional Stiffness, Wrap-up & Hysteresis Measurement Instrumentation



CONTROL systems

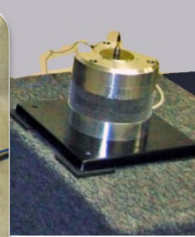
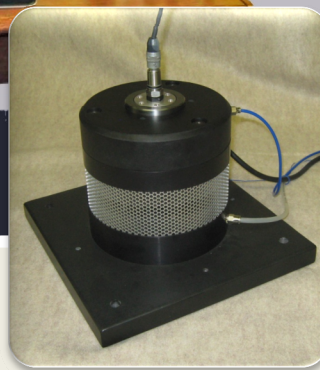


- Millenium™ MIMO for 2-6 Actuator Multi-Axis Displacement, Force and Vibration Control – Linear and Rotary
- Millenium™ MISO Force & Vibration Control System
- Waveform Distortion Control During Sine Tests
- 40kHz Sine Vibration Control System



- Multi-DUT Accelerometers: Performance Verification & Calibration of 8 Accelerometers Simultaneously
- Air Bearing Shakers: Low Cross-Axis Motion, Low Distortion, 40kHz, Beryllium and Magnesium Moving Elements
- CAL2-300H for Low-Frequency Sensor Calibration and Motion Control: 300mm Stroke to <0.1Hz and 1.25g's
- 10,000 g Shock Testing and Calibration of MEMS Devices and Accelerometers
- "Extreme Temperature" Sensor Performance Characterization and Calibration from -185°C to +800°C

CALIBRATION



MODAL

- MODAL 1000 Inertial Exciter: Modal Excitation & Low-Frequency Inertial Excitation of Structures
- Ethernet Amplifier: ≤16 Amplifiers Set-up and Monitored via Ethernet – Wireless and Wired

Other INNOVATIONS

- Motion Dynamics: Synergistic Integration of Motion Control and Electrodynamics Excitation & Vibration Control Technologies
- Navi Control: Autonomous Driving with a GPS Controlled Driving Robot – Driverless Test
- Rollover ECU Test Bench: Simulate ECU Rollover Events with Rotary and 2-Axis Linear Motions > 1 Meter
- Durability Test Bench: Durability and Strength Tests on Pedals, Levers & Brakes With 8 Simultaneous Actuators



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