



# S&R Turnkey Solutions

## GMW14011 and GMW 7293TP

	<b>WORLDWIDE ENGINEERING STANDARDS</b>	Test Procedure Noise and Vibration	GMW14011
Objective Subsystem/Component Squeak and Rattle Test			

GM has worldwide test procedures GMW14011 and GMW 7293TP for performing Objective Subsystem/Component Squeak and Rattle Tests. The purpose of these procedures is to provide instructions for subjecting the subsystem or component to vibration profiles comparable to in-vehicle vibration and objectively measuring the Squeak and Rattle performance.

GM explicitly recommends MB Dynamics' Energizer Series Shakers, Multi-directional Universal Test Fixtures and horizontal moving tables in these worldwide Test Procedures. MB delivered more than 100 turnkey squeak and rattle (S&R) solutions that meet GM's Background N10 Loudness level of 1.5 sones and that fully conform to GM Standards. MB provides engineering services, test process development, and training to fulfill such demanding S&R requirements.

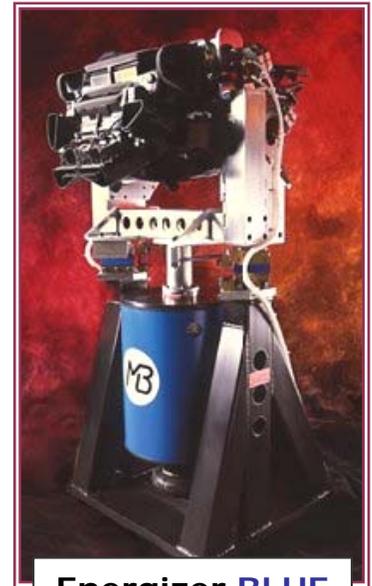
### 3.2.1 Shaker A quiet shaker . . . Recommended: MB Dynamics Energizer Series . . ."



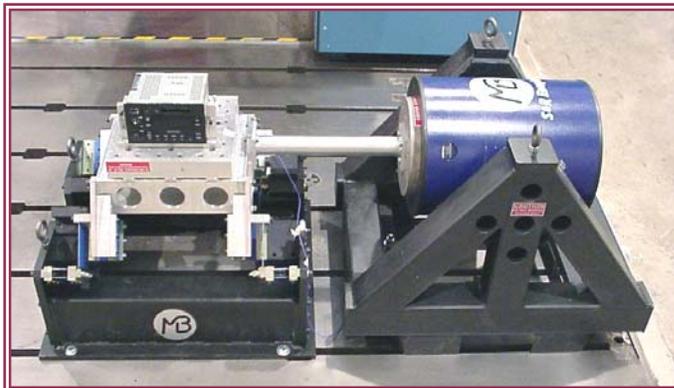
**Energizer BLACK**



**Energizer SILVER**



**Energizer BLUE**



**"Fore-aft or Lateral measurements . . .  
MB horizontal moving table . . ."**



**Energizer RED**

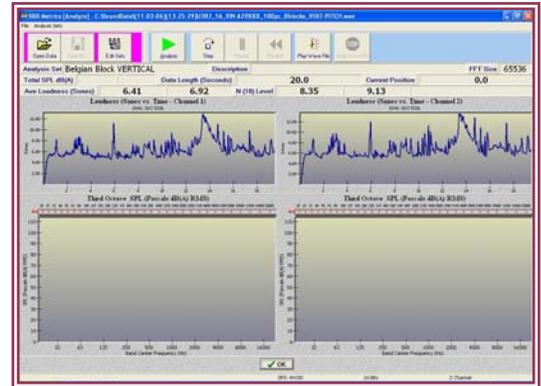
**“3.2.2 Fixture  
Recommended: MB Dynamics Universal Test Fixture”**



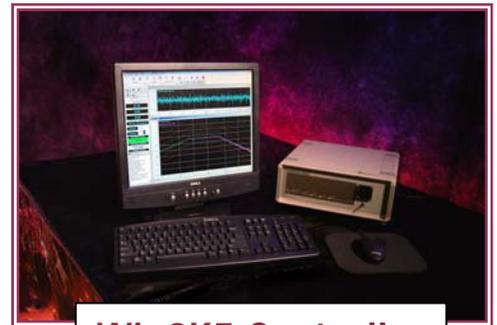
**“3.2.5 Sound Recorder and Analyzer  
... demonstrate correlation ...”**



**S&R Metrics – Measurement System Dedicated to S&Rs**



**“3.2.3 Random Controller  
swept sine ... Time Replication ...  
shock ... Sine-on-Random”**



**Win2K5 Controller**