

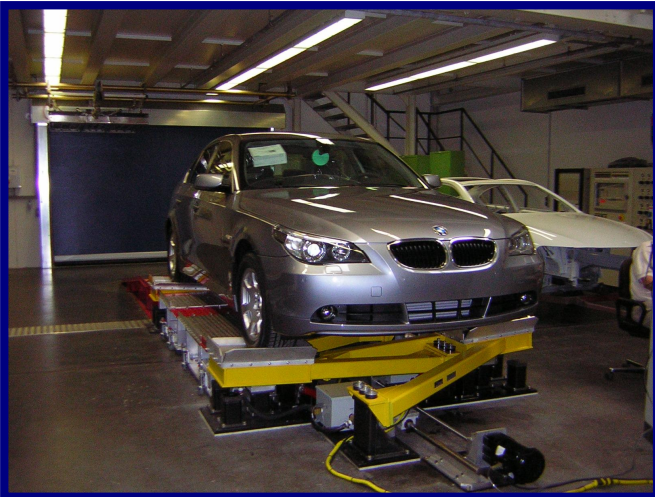


Dynamic Vehicle Body Twist or Torsion Simulation System for S&R

Effective, Lower-Cost & Quieter Excitation of Squeaks & Itches

Squeaks & rattles (S&Rs) are annoying noises that cause customer dissatisfaction, produce high warranty costs, and expose poor quality. The J.D. Power Initial Quality StudySM (IQS) surveys owner-reported problems in the first 90 days of new-vehicle ownership. **Body & Interior Quality - Mechanical** scores issues including poor interior fit & finish and squeaks & rattles. IQS findings command worldwide attention. Media inform consumers when OEMs fall short: "We get downgraded because of little things like a squeak or a loose part." OEMs and suppliers welcome technology to help them design & build S&R-free vehicles.

MB Dynamics delivers effective, low-cost, and quiet excitation technology to root source S&Rs in vehicles, trimmed bodies, subsystems and components. MB's patented Direct Body Excitation (DBE) Road Simulator with Dynamic Vehicle Twist (DVT) technologies help detect vehicle S&Rs during development, launch, and production. Pneumatic and electrodynamic excitations under PC control replace hydraulics.



- ❖ ***Dynamic vehicle body twist or torsion (DVT), simulates twist ditch road and low-speed curb ditch road impacts and train rail road track***
- ❖ ***Excites suspension & mount noises, rubber & seal itches, and body creaks***
- ❖ ***Air spring actuators provide up to 150mm peak of up-stroke under each wheel***
- ❖ ***MIMO control of each of 4 wheels, controls displacement amplitude, shape and phase***
- ❖ ***Programmable speeds up to (4 Hz)***
- ❖ ***Wheel pans support vehicle during DBE***
- ❖ ***Front wheel pans move for various wheelbases***

CUSTOMER TESTIMONIAL: "Your team has done an excellent job in putting together a viable S&R assessment/root cause determination tool. We have the potential to significantly reduce the root cause/source determination of squeaks and rattles. This will result in a better quality product and higher levels of customer satisfaction. I can see significant improvements concerning (1) redundant S&R road testing, (2) time required for rapid and accurate S&R assessments and corrective action determination and validation, and (3) enhanced end-of-the-line throughput to name but a few."

Features & Benefits

- ❖ ***S&R detection effectiveness: comparable to S&Rs produced and heard during road tests & with 4-poster***
- ❖ ***Requires no seismic mass; no special foundation; minimal disruption to facility; minimal facility cost***
- ❖ ***Safe: no 215 bar oil pressure; no disposal of used oil***
- ❖ ***Safe: get in & out during test or even get under vehicle***
- ❖ ***Low maintenance; simple to operate by plants or labs***
- ❖ ***Quiet compared to 4-poster: no wheel pan slap; no servo-valve hiss; minimal equipment noise to mask S&Rs***
- ❖ ***Quiet compared to rolling road: no tire clunk on bumps***
- ❖ ***Used for in-line end-of-line systems, quality audits on sampled production, S&R aging simulation tests, and technical center design / development tests***
- ❖ ***Used in factory, quiet room, or chamber: -40°C to 50°C***
- ❖ ***One system for vehicles, trimmed bodies & subsystems***
- ❖ ***Usable for fatigue or block cycle testing of bodies and frames***
- ❖ ***Used with pit or no pit – user preference***
- ❖ ***Used on body-on-frame vehicles weighing 3,800 kg***
- ❖ ***Facility: 220 VAC, 10 Amp; 7 - 8 bar filtered not lubricated air at 1,000 liters/min***

