

## 4/7 Post Vehicle Dynamics Test Rig

### 4-Post Testing & Vehicle Development

- Zeta Performance provides our customers with proven methods of data collection and rig operation. For Road Cars and Low Downforce race cars, the 4-post shaker is an excellent way to begin the process of chassis development and damper tuning.
- Shaker rig testing allows customers to test more efficiently and more cost effectively than track rentals.
- Fully adjustable Track and Wheel Base accommodates a wide array of vehicles.
- Sine sweeps as well as custom waveforms provide data to tune suspension and dampers to optimize grip.
- Customers may provide their own test data or choose from a set of tests provided by Zeta Performance. Our engineering staff will provide guidance in the testing procedure and analysis of results during testing.
- Full Post-Test analysis and reports are available to our customers for an additional fee.
- Manufacturers can also benefit from 4- post testing by conducting Durability and Fatigue testing, Squeak and Rattle elimination tests, and Ride Quality Analysis tests among many others.

### 7-Post Testing & Vehicle Development

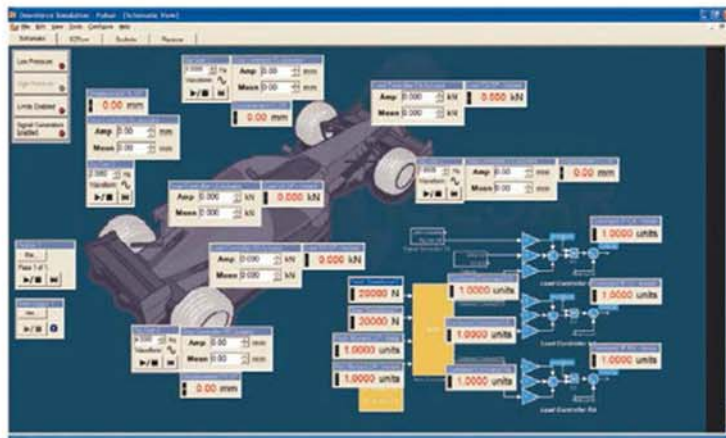
As technology increases in the racing world, aerodynamics has become a driving factor. For testing high-downforce racecars, the 7-Post shaker uses three additional aerodynamic loaders to add vertical aerodynamic loads to the chassis, providing realistic vertical loading on the tires.

Starting from actual on-track test data, Zeta Performance will create a track map specific to your vehicle. Vehicle and track specific mapping provides highly specific, real-world results for setup development.

Through mathematical modeling, lateral and longitudinal forces can also be accounted for based off of their couple to vertical load. Also, using an aerodynamic map can allow the rig to be used for analyzing aerodynamic grip and sensitivities of different setups. This makes the 7-post shaker rig a highly accurate method to perform real world tests in the convenience of a controlled environment.



Vehicle Diagnostics Shown



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## 7-Post Additional features:

- Provides a way for race teams to obtain quality testing results when sanctioning body rules limit or prevent on-track testing
- Setups and changes can be tested and optimized before arriving at the track, allowing teams to unload closer to the mark and better understand at-track adjustments.
- By testing in a controlled environment, repeatability and precision of results are increased
- Load variations from Aero and Inertial forces are accounted for.
- Weight tuning under load is analyzed for proper balance.
- Grip and Aero Platform are evaluated to maximize speed.
- Damper Tuning is analyzed to provide a stable Aero Platform while maximizing grip levels.
- Rig test data can be used for correlation and validation testing of simulation software.
- Set-up time is increased when using the 7-post due to the mounting of the aero actuators to the vehicle and creation of track maps. First-time customers should take this into account for their tests.
- Zeta Performance is available to work with teams on data acquisition for track mapping.



Testing Rig Shown



## Advantages of Testing with Zeta Performance:

- Our staff of engineers and technicians have many years of experience across the premier forms of professional motorsports around the world.
- Our in-house data acquisition department is available for everything from consultation to at track support, including system rental and support for track mapping.
- On site shock room complete with dyno, shock tools, and a selection of Penske shims, pistons, inertial masses and parts to tune and rebuild dampers.
- Arrangements can be made to have a technician from Penske Racing Shocks on hand to provide additional damper development support.
- Our partnership with Penske Racing Shocks allows customers to take advantage of some unique products like their Active Damper which allows teams to make damping sweeps without building multiple shocks. (Contact us for applications.)
- Demo Penske Racing Shocks will also be available for customers looking to upgrade or try something different. (Contact us for applications.)

### Get that Winning Edge

As the world leader in suspension technology, we have won numerous races and championships in F1, ALMS, Indy Car, GARRS, and NASCAR.

Our shocks are hand-built, tailored to your driving preferences or car setup, and dyno tested to ensure the highest attention is paid to detail, consistency, and performance.



Made in the  
U.S.A.