First Road™ Interact Production Test Software

Precise, repeatable and efficient production and laboratory testing using MTS Tire-coupled Road Simulators

Benefits

- Enhance squeak-and-rattle and vehicle quality test capabilities
- Conduct vehicle "shakedowns" on the production line
- Improve lab productivity
- Reduce dependence on road testing
- Accurately simulate a full range of road surface profiles in real time
- Easily share data files across your facility and beyond

Enhance vehicle development and end-of-line and production quality testing with MTS First Road Interact Production Test Software. Designed to fully leverage the capabilities of MTS Model 320 Tire-coupled Road Simulators and the MTS FlexTest® control platform, this intuitive software can help you validate vehicles on the production line, as well as study Buzz, Squeak & Rattle (BSR) and Noise, Vibration & Harshness (NVH) - with speed, accuracy and efficiency.

MTS First Road Interact Software supports both inline and offline quality test applications, and makes it possible to replace more of your expensive, non-repeatable track tests with highly realistic simulations in the controlled and cost-effective test lab. You can save time, save money, and feel absolutely confident in the quality of your testing and the integrity of your test data.

System setup is equally simple through a highly intuitive Windows®-based user interface. All critical functionality is available when and where you need it, for everything from assigning test profiles to system tuning and calibration. Technicians of all skill levels will find it fast and easy to efficiently create and run tests, including those with sine sweeps, block cycles and time history reproductions, and can easily switch between test inputs.

Advanced MTS networking capabilities also simplify data file sharing, so that you can work closely with your product development team from inception through final production.

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The Ideal Software for Both Inline Production Quality and Offline Quality Audit Applications

MTS First Road Interact Software can be configured as an inline production testing tool, or as an offline quality audit machine for conducting more detailed investigations.

Inline Testing

Inline production testing typically involves driving the vehicle onto the wheel pans and running tests using a simple touch-screen tablet, or a push-button pedestal that is easily accessible by the operator through the vehicle's driver-side window. Appropriate test waveforms and actuator positions are scheduled for each different vehicle or group of vehicles. If the system is mounted in an acoustic chamber, you can further improve efficiency by using the software to manage door closing, door opening and traffic lights.

For inline applications, MTS First Road Interact Software can also be used to simulate the road-induced vibrations that cause vehicle components to settle in place, a process referred to as a shakedown. Vehicle shakedowns allow potential problems to be identified earlier, and they eliminate the need for dealers to perform expensive, inconvenient adjustments after vehicles are in service.

Offline Audit Testing

Although offline systems typically require more sophisticated tools, the convenient MTS First Road Interact Software and tablet interface makes system activation easy. The user interacts with one of three displays on a compact touch-screen tablet, arranged so that you can precisely control sine wave tests, random waveform tests or exact road surface simulations. Simply drive the vehicle onto the wheel pans and select a button on the touch-screen interface to subject the vehicle to your choice of simulation profiles.

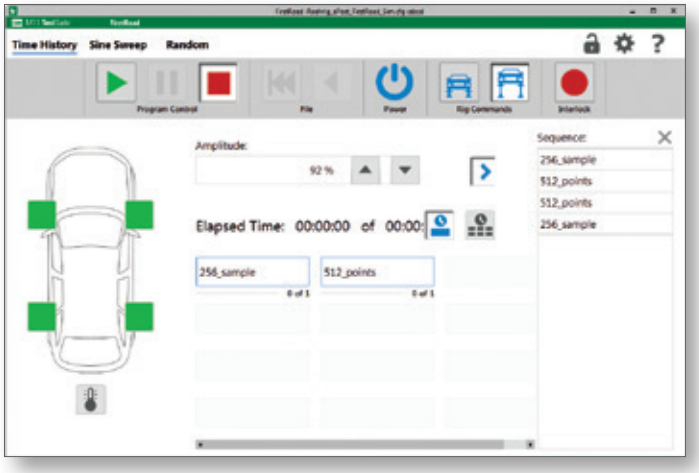
First Road Interact Software can be deployed with both servohydraulic (facing page) and electric (right) versions of MTS Model 320 tire-coupled road simulators.

Identifying squeak and rattle sources can be extremely difficult during road tests. Any single ride may not excite all of the defects, and even subtle variations in weather conditions and driver behavior can expose squeaks or rattles in one pass that are not present in another. Wind, engine and road noise also pose challenges for a driver trying to isolate noises on the test track.

MTS First Road Interact Software equips you with several key advantages by moving your squeak-and-rattle evaluations into the test lab. While using the touch-screen tablet to apply a wide range of road surfaces, sine sweeps or arbitrary profiles, the operator can freely move inside and outside of the vehicle and replay the same test inputs until the source of a squeak or rattle is identified.

A single press of a button on the tablet also allows you to provide or remove power from any set of actuators and automatically bring the actuators to ride height. This is only the beginning of the functionality you can control from this compact, handheld tablet.

Compact Touch-screen Tablet



Time History Playout

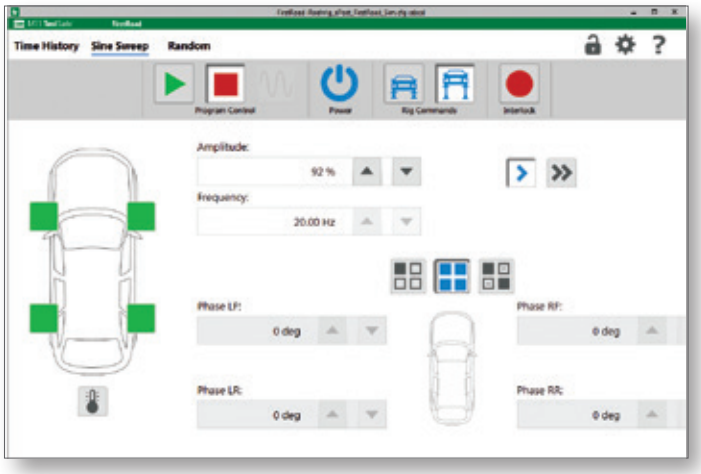
From the Time History and Setup display panels, the operator can use the remote to:

» Choose from up to 12 preselected time histories

» Sequence the time histories together as desired

» Interactively vary overall amplitude

» Continuously rewind and replay blocks of time



Sine Sweep

From Sine Sweep and Setup panel, the operator can:

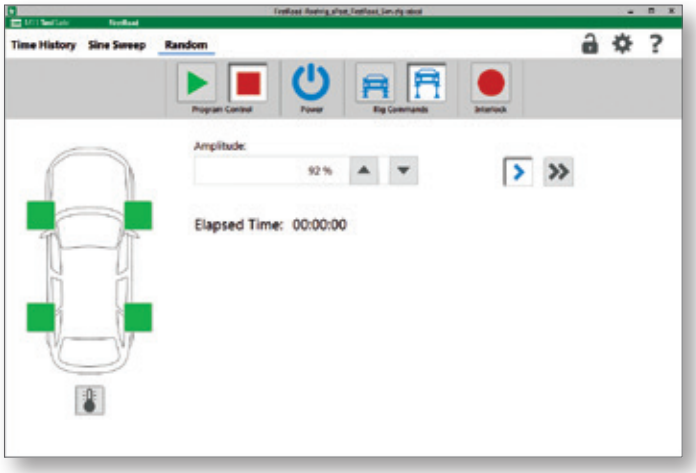
» Define the minimum/maximum frequency and sweep rate

» Specify peak amplitude

» Interactively sweep or dwell

» Interactively vary amplitude and frequency

» Interactively vary actuator phase relationships



Random

From the Random and Setup panels, the operator can:

» Choose frequency bandwidth

» Specify the test duration and RMS amplitude

» Interactively vary amplitude

Use Real Road Profiles in Real Time

With MTS First Road Interact Software, test engineers create road profiles in the test lab, by collecting and digitizing input data from the various proving ground routes that are known to expose certain issues. For more difficult to reproduce road profiles and for superior reproduction, MTS offers an optional advanced Adaptive Inverse Control (AIC) compensation tool. This AIC compensator enables the Model 320 Test System to accurately reproduce – in real time – specific road surface profiles for each vehicle being developed.

Using a model of the test system, the MTS AIC compensator continuously adjusts the command signal to minimize error. This capability is especially beneficial for reproducing variable amplitude signals such as block cycles or time history profiles. Startling accuracy can be achieved with the simple touch of a button. The MTS AIC compensator also includes AdapTrac™, a unique algorithm that ensures fast, continuous and accurate reproduction of the desired road surface without operator interaction.

For constant-amplitude sine sweep tests, an amplitude phase control (APC) compensator monitors feedback from sinusoidal and tapered sinusoidal commands, automatically adjusting the command to simultaneously correct for amplitude and phase errors.

Unparalleled Expertise, Service and Support

MTS tire coupled road simulation systems are currently hard at work in almost every automotive manufacturer worldwide, and we work closely alongside these industry leaders to understand and deliver upon the capabilities you need most to enhance your testing.

This unmatched MTS knowledge and experience is available to you through one of the world's most accessible and knowledgeable support, service, and consulting network in the industry. We ensure fast, local, efficient service and support through locally managed offices around the world.

Composed of highly experienced test engineers and field service technicians, the MTS service network offers a complete range of services, including test assessment and diagnostics, routine maintenance, lifecycle management, process optimization and consultation. All of these services are designed to increase your testing productivity and time-to-market performance.

Learn More Today

Contact your MTS representative to learn more about how MTS First Road Software can help you improve the speed, accuracy and efficiency of your end-of-line vehicle development and production quality testing.

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ISO 9001 Certified QMS

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