Steering Knuckle TestStand – Three-Axes Fatigue

THE MTS TESTSTAND APPROACH

The MTS TestStand approach enables OEMs, suppliers and contract test labs to adapt to evolving vehicle subsystem and component testing requirements with speed, efficiency and confidence.

The MTS TestStand approach is designed to offer the cost advantages of an in-house system, but with faster deployment and less risk. Essentially, it is a collaborative effort between the test lab and MTS to define specific test objectives and then determine how best to achieve them within the available budget and timeframe.

TestStand solutions leverage more than four decades of MTS ground vehicle testing expertise, as well as high-quality MTS TestLine components. To keep costs in check, MTS works closely with customers to determine which elements of the test system they can machine in-house or manufacture locally, with our guidance.

STEERING KNUCKLE TESTSTAND SYSTEM

The 3-Axes Fatigue Steering Knuckle TestStand is designed to test and validate the durability of automotive suspension knuckles. The system can use simple sine-waves or complex loading profiles to accurately replicate a component’s dynamic loading history, simultaneously applying vertical, lateral and longitudinal forces to simulate real-world loading conditions or accelerate testing.

The physical rig comprises three Series 244 hydraulic actuator assemblies, two strut assemblies, one set of system fixtures, a reaction frame with T-slot baseplate, a FlexTest Servocontroller, a Series 293 Hydraulic Service Manifold, a SilentFlo Hydraulic Power Unit and hydraulic hoses.

In addition to installation support services, MTS can also provide optional consultation and guidance on data acquisition and analysis, and integrating physical tests with analytical virtual testing to achieve efficient validation of models.

System Performance

- System Displacements
  - Max. Disp.: +/- 125 mm (X, Y, Z)
  - Max. Load: +/- 50 KN (Z)
  - Max. Load: +/- 25 KN (X, Y)
  - Frequency Range: 0-50 Hz

System Options

- cRPC Pro Software
- MTS Engineering Consulting Service

System Content

- One portal frame for vertical actuator with T-Slot base plate
- One specimen platen for suspension sample
- Two side mounting Fixtures for actuators
- Three Series 244 actuators
- Two TestLine strut assemblies
- One MTS FlexTest® Controller and software
- One Series 293 Hydraulic Service Manifold
- Hydraulic hoses
- One SilentFlo™ Hydraulic Power Supply
- MTS installation & support services
COMPONENT RPC® PRO SOFTWARE FOR ROAD SIMULATION AND TEST

MTS’ cRPC Pro Software is the latest evolution of the world’s leading software for data validation, analysis, laboratory simulation, and test monitoring. Benefits of this software package include:

* Affordable testing solution for low channel count and component testing
* Optimize Laboratory Simulation Testing
  - Maximize Laboratory Productivity
  - Maximize Laboratory Effectiveness and Accuracy
* Minimize Required Operator Expertise
* Minimize Test Development Time
* Minimize Product Development Time

EXPERT SUPPORT, WHEN AND WHERE YOU NEED IT

Test professionals throughout the world rely on MTS’ innovative technologies, high-quality test systems and applications expertise to optimize their testing programs. We complement this industry-leading portfolio with an unmatched suite of global service and support, all designed to increase your uptime and reduce your total cost of ownership.

By supporting your test program from facilities planning and system integration through final equipment de-commission, MTS offers a single, reliable resource for helping you optimize your system performance, manage your budget, protect your data integrity and maintain your schedule predictability.