



SUSPENSION PARAMETER IDENTIFICATION EVALUATION RIG (SPIDER)

Combat Capabilities Development Command (CCDC) Ground Vehicle Systems Center's (GVSC) Physical Simulation Team (PST) operates a Kinematics and Compliance Rig (SPIDER) that is capable of evaluating the ride and handling performance of wheeled vehicles with up to three axles that weigh up to 100,000 lbs. The data generated allows for rapid analysis of engineering changes to suspension components as well as overall vehicle mobility modeling.

Parameters Measured

- Suspension Force versus Deflection
- Spring Force/Deflection (Jounce/Rebound)
- Shock Force/Velocity Deflection (Jounce/Rebound)
- Tire Force versus Deflection
- Jounce Damping Characteristics
- Rebound Damping Characteristics
- Roll Center
- Roll Steer
- Suspension Roll Moment versus Roll Angle
- Suspension Roll Damping versus Roll Velocity
- Suspension Rebound Direction Spring Force versus Deflection Curve Measured at the Wheel
- Suspension Jounce Direction Spring Force versus Deflection Curve Measured at the Wheel
- Frame Twist Deflection/Rigidity Evaluation
- Auxiliary Roll Stiffness



2 Axle / 48,000 Lb Wheeled Vehicle



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3 Axle / 25,000 Lb Wheeled Vehicle

Capacity

- Vehicle Weight (up to 100,000 lbs.)
- Vehicle Width (up to 150 in.)
- Vehicle Length (up to 600 in.)

FOR FURTHER INFORMATION:

U.S. ARMY COMBAT CAPABILITIES
DEVELOPMENT COMMAND — GROUND
VEHICLE SYSTEMS CENTER:

<https://tardec.army.mil/>

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