SUSPENSION & BLAST CHARACTERIZATION

Combat Capabilities Development Command (CCDC) Ground Vehicle Systems Center's (GVSC) Physical Simulation Team (PST) operates two Suspension and Blast test rigs that are capable of simulating vehicle loads for component & subsystem durability, up to 400G blast events, as well as gathering characterization data for vehicle modeling.

Shock Test Evaluation Machine (STEM)

Actuator

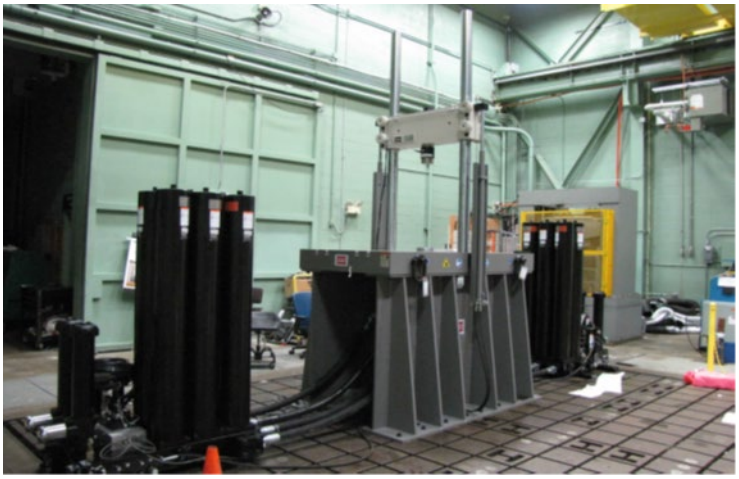
- Force Rating: 192 KN (43,000 lbs)
- Dynamic Displacement: ± 7 in
- Velocity: 8 m/s

Analysis Applications

- Force versus Displacement
- Force versus Velocity
- Peak Force versus Peak Velocity
- Temperature Effects
- Rebound and Compression Force / Velocity / Spring Rate
- Gas Force
- Elastomer Material Calculations:
  - Dynamic Stiffness
  - Storage Stiffness / Tan Delta
  - Loss Stiffness
  - Phase / Dampening

Components Tested

- Blast Mats
- Shocks / Springs
- Equipment Mounts
- Armor Panels

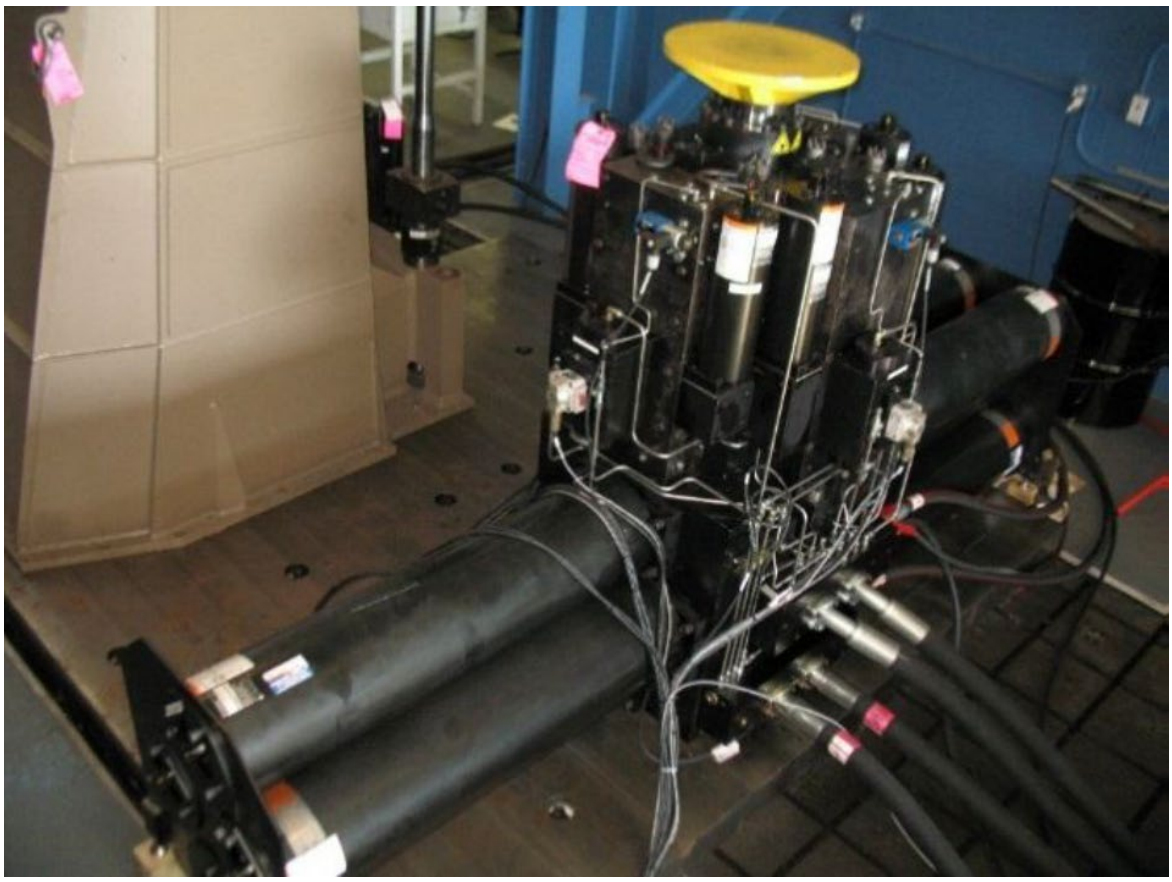


Shock Test Evaluation Machine

Blast Mat

SUSPENSION & BLAST CHARACTERIZATION

Blast Analytical Test System (BATS)



Actuator

- Force Rating: 307 KN (69,000 lbs)
- Dynamic Displacement: ± 8 in
- Velocity: 11 m/s

Benefits

- Accepts all forms of dampener systems used in the Army's ground vehicle fleet today.
- Conducts extreme velocity and force tests and evaluations on a fully integrated vehicle corner suspension system.

Applications

- Blast Analysis
- Reactional Mass
- Sub Component Suspension
- Quarter Car Testing
- Seat Blast Characterization
- Armor Blast Characterization
- Floor Blast Mat Characterization

FOR FURTHER INFORMATION:

U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT COMMAND — GROUND VEHICLE SYSTEMS CENTER:
https://tardec.army.mil/

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