DESIGNED TO CHARACTERIZE NOISES, SUCH AS:

- Strut Pop
- “Loose Lumber”
- Rebound Noise
- Sway Bar & Bushing Noise
- Leaf Spring Noise
- Noises in Active Dampers/Mounts
- Stick-slip Noises
- Squeaks & Rattles

SPECIFICATIONS

- Background Noise: ≤2.0 Sones, 13Hz 1.0g pk 3mm p-p sine motion, no test item mounted
- Displacement: 200 mm p-p between stops
- Force, Dynamic: 10.0kN pk instantaneous (2,250 lbf); 2kN pk continuous (450 lbf)
- Force, Compressive, into test item: 13kN pk applied via air actuator (3,000 lbf pk)
- Acceleration, bare table: 22 g’s pk instantaneous; 4.25 g’s pk sine; 3.0gRMS
- Acceleration, 9kg payload: 18 g’s pk instantaneous; 3.6 g’s pk sine; 2.5gRMS
- Velocity, ≥200 VAC input voltage: >2.0 m/s instantaneous
- Frequency Response: DC to 100 Hz
- Acceleration control: PSD random, time history, sine – 1.0Hz to 100Hz
- Displacement control: sine, time history – DC to 50Hz
- Force control, dynamic: 1Hz to 100 Hz (with optional force transducer)
- Maximum test item height: 660 mm (26”)
- Test space width, between columns: 450mm (18”)
- Dimensions, Footprint: 965mm x 616mm (38” x 24.25”) and Height: 2.6m (8.7’)
- Instrumentation; analog signals available to user: acceleration, velocity, displacement, motor current proportional to excitation force (and load cell force with an optional force transducer and signal conditioner) -- available via BNC for monitoring/acquisition
- Bearings: Air bearings; non-contacting; frictionless; no wear; no stiction; no balls or rollers
- Encoder: Resolution, 1 x 10^6 pulses/mm; 1V p-p Sine/ Cosine analog: incremental
- Height-adjustable crosshead in load frame: Yes, manually adjusted
- Side load applied: Fixture in crosshead allows displacement offsets to top of test item
- Operates with spring & strut: Air actuator compresses spring to curb or design height
- Rig orientation can be vertical or horizontal: Yes

Specifications subject to change without notice
**OTHER TEST SYSTEM FEATURES**

- Quiet – test equipment does not mask test item noises
- No Hydraulics – safe; no high pressure oil; no environmental issues
- Low Maintenance – no seals, servovalves, hoses to replace
- Low Operating Costs – uses power only during excitation
- Control Modes – acceleration, displacement, force; road load time history, PSD random, sine
- Linear Motor Actuator – acoustically quiet, high-fidelity dynamic waveforms
- Air Spring Actuator – high compressive force, durable
- Air Bearings – frictionless motion, low noise
- Operate with environmental chamber

**TEST & CONTROL MODES**

<table>
<thead>
<tr>
<th></th>
<th>ACCELERATION 1 Hz - 100 Hz</th>
<th>DISPLACEMENT DC - 50 Hz</th>
<th>DYNAMIC FORCE 1 Hz - 100 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TIME HISTORY</strong></td>
<td>22 g’s pk (bare table)</td>
<td>200mm p-p (between stops)</td>
<td>10kN pk</td>
</tr>
<tr>
<td></td>
<td>18 g’s pk (9.1kg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PSD RANDOM</strong></td>
<td>2.0g RMS (bare table)</td>
<td></td>
<td>1.5kN RMS</td>
</tr>
<tr>
<td></td>
<td>2.5g’s RMS (9.1kg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SINE</strong></td>
<td>4.25g’s pk (bare table)</td>
<td>200mm p-p (between stops)</td>
<td>2.0kN pk</td>
</tr>
<tr>
<td></td>
<td>3.6g’s pk (9.1kg)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Compressive Force and Starting Position controlled with separate Air Spring control loop*

**TYPICAL TEST ITEMS**

*DEPENDS ON FIXTURING*

**ACTUATOR ASSEMBLY AND LOAD FRAME**

- Crosshead & Side Load Application
- Drive Shaft
- Crosshead Manual Height Adjustment
- Linear Motors for Dynamic Actuation
- Anti-Rotation Device
- Air Bearings
- Air Actuator for Compressive Load & Positioning
EXPLODED VIEW OF ACTUATOR ASSEMBLY

- Actuator Table
- Drive Shaft
- Fixed Frame
- Magnet Tracks
- Linear Motors for Dynamic Actuation
- Anti-rotation Device
- Air Bearings
- Air Actuator for Compressive Load & Positioning

DIMENSIONS AND FACILITIES REQUIREMENTS

Electrical:
- 200 -- 240 VAC, 3 phase,
- 50 Amps, 21kVA

Electrical:
- 110 -- 220 VAC, 1 phase, 1.7kVA

Air:
- 90 psi (6bar),
- 1 CFM
- (30 liters/min)
TEST AND CONTROL MODES

MILLENIUM CONTROL AND TEST MODES

PSD RANDOM ACCELERATION ROAD PROFILE

TIME HISTORY ACCELERATION ROAD PROFILE

TIME HISTORY & SINE DISPLACEMENT/POSITION CONTROL

TIME HISTORY & SINE DISPLACEMENT/POSITION CONTROL

SINE FORCE CONTROL, STATIC & DYNAMIC