National Advanced Driving Simulator

Status Briefing
Government-Industry Meeting
July 26, 2001

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Office of Human Centered Research
NHTSA
NADS DEVELOPMENT PROGRAM

- PHASE I - DESIGN COMPETITION
- PHASE II - SYSTEM DEVELOPMENT
- PHASE III - OPERATIONAL SUPPORT
NADS CONTRACTOR TEAM

- TRW - SYSTEMS INTEGRATION, CALIFORNIA
- MTS - MOTION SYSTEM, MINNESOTA
- EVANS & SUTHERLAND - VISUAL SYSTEM, UTAH
- DYNAMIC RESEARCH INC. - CABS, CALIFORNIA
- I*SIM - AUDIO SYSTEM, UTAH
- THE UNIVERSITY OF IOWA - SCENARIO CONTROL
NADS/SC facility
## NADS Motion System Specifications

<table>
<thead>
<tr>
<th>Motion Subsystem Component</th>
<th>Axis</th>
<th>Displacement</th>
<th>Velocity</th>
<th>Acceleration</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-Y</td>
<td>X</td>
<td>± ft</td>
<td>± ft/sec</td>
<td>± ft/sec² (± g)</td>
</tr>
<tr>
<td>X-Y</td>
<td>Y</td>
<td>32</td>
<td>20</td>
<td>20 (0.6)</td>
</tr>
<tr>
<td>Hexapod</td>
<td>Z</td>
<td>2</td>
<td>5</td>
<td>32 (1.0)</td>
</tr>
<tr>
<td>Hexapod</td>
<td>Pitch</td>
<td>25</td>
<td>45</td>
<td>120</td>
</tr>
<tr>
<td>Hexapod</td>
<td>Roll</td>
<td>25</td>
<td>45</td>
<td>120</td>
</tr>
<tr>
<td>Turntable</td>
<td>Yaw</td>
<td>330</td>
<td>60</td>
<td>120</td>
</tr>
<tr>
<td>Vibration</td>
<td>z</td>
<td>0.2</td>
<td>8</td>
<td>1000</td>
</tr>
</tbody>
</table>
NADS - DOCKING POSITION
VEHICLE LOADING POSITION
Road-feel high frequency actuator
Freightliner interior
EATON TRUCK TRANSMISSION SIMULATOR FOR NADS

- 140 TRANSMISSIONS
- 280 ENGINES
- 33 DRIVE AXLE RATIOS
- 300 TIRE SIZES
Simulator development module
Electrical room
TILE MOSAIC TOOL FOR DRIVING SCENE DATABASES
Interactive Scenario Authoring Tools
FY 2001 RESEARCH PROGRAM

- DRIVER REACTION TO SUDDEN TIRE FAILURE
- DRIVER DISTRACTION FROM WIRELESS PHONES AND OTHER IN-VEHICLE DEVICES
- EFFECTS OF ALCOHOL DOSAGE ON DRIVER PERFORMANCE IN DEMANDING SITUATIONS
- TOTAL RESEARCH BUDGET FOR FY 01- $3.5 M
Tire Failure Driving Course
DISTRACTION RESEARCH

• Planning Underway for Series of Projects on Driver Inattention and Distraction
  ➢ Due to Wireless Communications Devices
  ➢ Due to In-Vehicle Information Systems

• Development of Research Tools
  ➢ Standard NADS Driver Distraction Test Methods, Procedures, & Test Courses
  ➢ Assessment Techniques for Evaluating Cognitive Driver Distraction
NADS ALCOHOL RESEARCH PROGRAM

• NADS Alcohol Research Program - Examine The Effect Various Levels Of (BAC) Under Conditions That Cannot Be Safely Studied On The Open Road

• A Baseline and Three Focused Alcohol Studies Have Been Planned for the NADS