NHTSA/Honda Meeting on Small Overlap/Oblique

1/8/2013
Presentation Outline

- Definition of Test Procedures
- Previous results
- Repeatability Analysis
- Research Plan
- High Sales Volume Videos
Definition of Test Procedures

SOI

7°

56 mph

20% Overlap

Oblique

15°

56 mph

35% Overlap

Performed 3 tests in each condition with Chevrolet Cruze

Note: 56mph RMDB yields 35 mph delta-V for average passenger car
## Test Results: Occupant Response

### Table: # Tests Exceeding Provisional IARV

<table>
<thead>
<tr>
<th></th>
<th>HIC15</th>
<th>BRIC</th>
<th>Chest</th>
<th>Acetab.</th>
<th>Femur</th>
<th>Tibia</th>
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</thead>
<tbody>
<tr>
<td>Provisional IARV</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

### Diagram: Mean IAV/ Provisional IARV

- **SOI (n=7)**
  - Head
  - Chest
  - KTH
  - Max Tibia Index

- **Oblique (n=7)**
  - BRIC
  - Chest Defl
  - Max Acetab. Force
  - Max Femur FZ

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SOI and Oblique showed similar repeatability
  - Even with SOI having no rail engagement

Some differences observed in THOR response due to differences in:
  - Occupant compartment intrusions
  - Side air bag deployment times

Both test procedures are at least repeatable as the existing Full Frontal and Offset Deformable Barrier crash tests

Study limited to three tests in each condition on a single vehicle model

To be documented in 2013 SAE paper
Research Plan

• Test different classes of high volume vehicles
  ▪ 9 vehicle tests
    • Driver and right front passenger Mod Kit THOR ATDs
  ▪ Include two (2) right side impacts for comparison
    • Different injury mechanisms, countermeasures expected
    • Provide larger real-world benefit
  ▪ Results to be published at ESV

• Evaluate restraint countermeasures
  ▪ Adaptive Advanced Restraints Program
    • Develop restraint system that adapts to occupant size and position for both a soft and hard pulse (February 2015)
Small SUV (Side View)
Small SUV (Occupant Kinematics)
Minivan (Side View)
Minivan (Feet Kinematics)
Minivan (Passenger Kinematics)