ELECTRONIC STABILITY CONTROL

NHTSA’s Notice of Proposed Rulemaking

Briefing for WP.29

November, 2006
ESC Briefing Outline

**TECHNICAL:**
- What is it and how does it work?
- What vehicles have it now?
- What has been industry involvement?

**NPRM:**
- What are the requirements?
- What is the scope - vehicles covered?
- What are the cost and benefits?
- What is the proposed Phase-In?
What is ESC?

- System of sensors, actuators, and computers to enhance vehicle directional stability – prevent loss of control due to oversteer (spin-out) or understeer (plow-out)
How Does ESC Work

- Under-steer Correction
- Under-steer Path
- Obstacle
- Desired Path
- Over-steer Path
- Over-steer Correction
Current State of ESC Implementation

- Available as standard equipment on many SUVs, luxury vehicles, and a limited number of small size sedans.
- Optional on a small number of other make/models.
- In 2006 we estimate the ESC penetration at about 29 percent.
Eight studies of ESC effectiveness have been conducted since 2003 - Japan, Germany, Sweden, and US.

Studies show consistently that ESC is highly effective in reducing all single vehicle crashes.

Typical reductions in fatal crashes for passenger vehicles are 30-40% and 50-63% for SUVs.
ESC Effectiveness

NHTSA Evaluation of Effectiveness---
NHTSA estimates that ESC will reduce single-vehicle crashes by 34 percent for passenger cars and by 59 percent for SUVs.

Insurance Institute for Highway Safety---
“If all vehicles were equipped with ESC, as many as 10,000 Fatal crashes could be avoided each year.” IIHS News Release June 13, 2006.

General Motors---
“It looks like Electronic Stability Control is the most significant safety advancement since safety belts”, Robert Lange, Executive Director of GM Safety Center, June 12, 2006
Industry Cooperation In Pre-Regulatory Test Program

- Global auto industry contributed vehicle test data to NHTSA’s ESC testing program – data is available in the public docket

- Of the 50 vehicles NHTSA desired to obtain test data on, 26 were provided by auto industry members
ESC Rule Scope

- All Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses with a GVWR of 4,536 Kilograms (10,000 pounds) or less.
What are the Requirements?

- Vehicle with ESC must execute a specified collision avoidance maneuver.

- Vehicles with ESC must also meet an equipment definition.
Baseline Data for Estimating Costs and Benefits

- 29 Percent of 2006 MY passenger vehicles will be equipped with ESC compared to 10 percent in MY 2003.

- Manufacturer’s product plans provided to NHTSA indicate that at least 59 percent of MY 2011 light vehicles will have ESC.

- MY 2011 ESC will meet NHTSA proposed requirements.

- Projected MY 2011 installation rates serve as baseline for voluntary compliance.

- Our cost-benefit analysis estimates the incremental benefits and costs required to increase compliance from 59 to 100 percent.
Projected Gross Benefits

We project that 100 percent ESC installation on all light vehicles would…

- Prevent 5,300 to 10,300 fatalities annually.
- Prevent 168,000 to 252,000 injuries (AIS 1-5).
Projected Net Benefits

- We estimate the incremental benefits that can be attributed to this rulemaking to be...
  - 1,536 to 2,211 lives saved annually.
  - The prevention of 50,594 to 69,630 injuries per year (AIS 1-5).
### NHTSA Cost Tear Down Study

- Consumer Cost of ABS - $368/Unit
- Consumer Cost of ESC - $111/Unit
- Based on 8 Vehicles

#### Vehicle Costs for ESC Proposal (2005 $)

<table>
<thead>
<tr>
<th></th>
<th>Ave. Vehicle Costs</th>
<th>Total Costs</th>
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<tbody>
<tr>
<td>Passenger Cars</td>
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<tr>
<td>Light Trucks/Vans</td>
<td>$29.2</td>
<td>$257 M</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$58</strong></td>
<td><strong>$985 M</strong></td>
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ESC Systems Are Cost Effective

- $0.19 to $0.32 million per equivalent life saved (at a 3 percent discount rate).
What Is the Phase-In?

- Sept. 1, 2008  30% of fleet - with carryover credit
  Sept. 1, 2009  60% of fleet - with carryover credit
  Sept. 1, 2010  90% of fleet - with carryover credit
  Sept. 1, 2011  All light vehicles

- Exemption from Phase-in
  - Multi-stage vehicle manufacturers and alterers are allowed to fully comply with the standard on September 1, 2012.
  - Small Volume (< 5,000/Year) are allowed to fully comply with the standard on September 1, 2011.
Thank You

For more information please see http://dms.dot.gov
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