Anti-Lock Braking Systems

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Pop Quiz

- Does Anti-Lock Brake System (ABS) usage follow conventional driver training?
- Is ABS usage on cars and trucks the same?
- Do you address ABS in Defensive Driving Courses?
Quiz Answers

- Does Anti-Lock Brake System (ABS) usage follow conventional driver training? • NO

- Is ABS usage on cars and trucks the same? • NO

- Do you address ABS in Defensive Driving Courses? • ??
Mini Train-the-Trainer

- Basic Functions of ABS Systems
- Driver Instructions for Cars and Light Trucks
- Driver Instructions for Heavy Trucks
- Resources for Defensive Driving Program Integration
Basic Functions of ABS

• Physics 101: Static Friction is Greater than Moving Friction
• ABS IS Computer Controlled Brake Pedal “Pumping”
• ABS Allows the Driver To Maintain Control During Hard Braking
Vehicle ABS System

- Speed Sensors on Wheels are Monitored by On Board Computer
- Radical Speed Differences Trigger ABS Action
- ABS “Pumps” the Brakes 18 Times per Second
Vehicle ABS System

- ABS Systems “Counter-Intuitive” Operations
  - Grinding Sounds from All Wheels
  - Pulsating or Soft Brake Pedal
  - Driver Can Still Steer (with Reduced Effect)
Video Clip

- “America Brakes for Safety”
  - ABS Education Alliance
Driver Education (Cars)

• **STOMP** on the Brake Pedal
• **STAY** on the Brake Pedal with Steady Pressure
• **STEER** to Avoid Collision

• “Pumping” the Brake Pedal **STOPS** ABS Systems from Operating Properly (**ON-OFF-ON-OFF-ON-OFF**)
Video Clip

• “America Brakes for Safety”
  – ABS Education Alliance
Driver Education (Trucks)

- Single Vehicle Configuration
  - All Wheels
    - STOMP, STAY, STEER
- Tractor - Trailer Configuration
  - Any Combination
    - Brake Steadily and Evenly
      - Back-off Brakes to Maintain Control
Video Clip

• “ABS Driver Training”
  – US DOT
ABS Maintenance Issues

- Most Common Issues
  - Loose Wiring
  - Wheel Speed Sensor Pickup and Calibration

- Other Possibilities
  - Modulator Valve Failure
  - Electronic Control Unit Failure
Video Clip

• ABS Maintenance
  – US DOT
Driver Training Integration

- ABS Systems Differ from Traditional Braking Training
- Items to Incorporate
  - Basic Function of ABS Systems
  - How to Drive and Brake with ABS
  - What Happens when ABS Engages
  - Emphasize Steering!
Educational Resources

- Educational Resources
  - *Super Cheap!!!*
- ABS Education Alliance
  - Videos, Trainer Packages, Brochures, etc.
- Federal Motor Carrier Safety Administration
  - Videos, Curriculum
Questions?

Thanks!