NHTSA Heavy Vehicle Research

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Large Truck Statistics

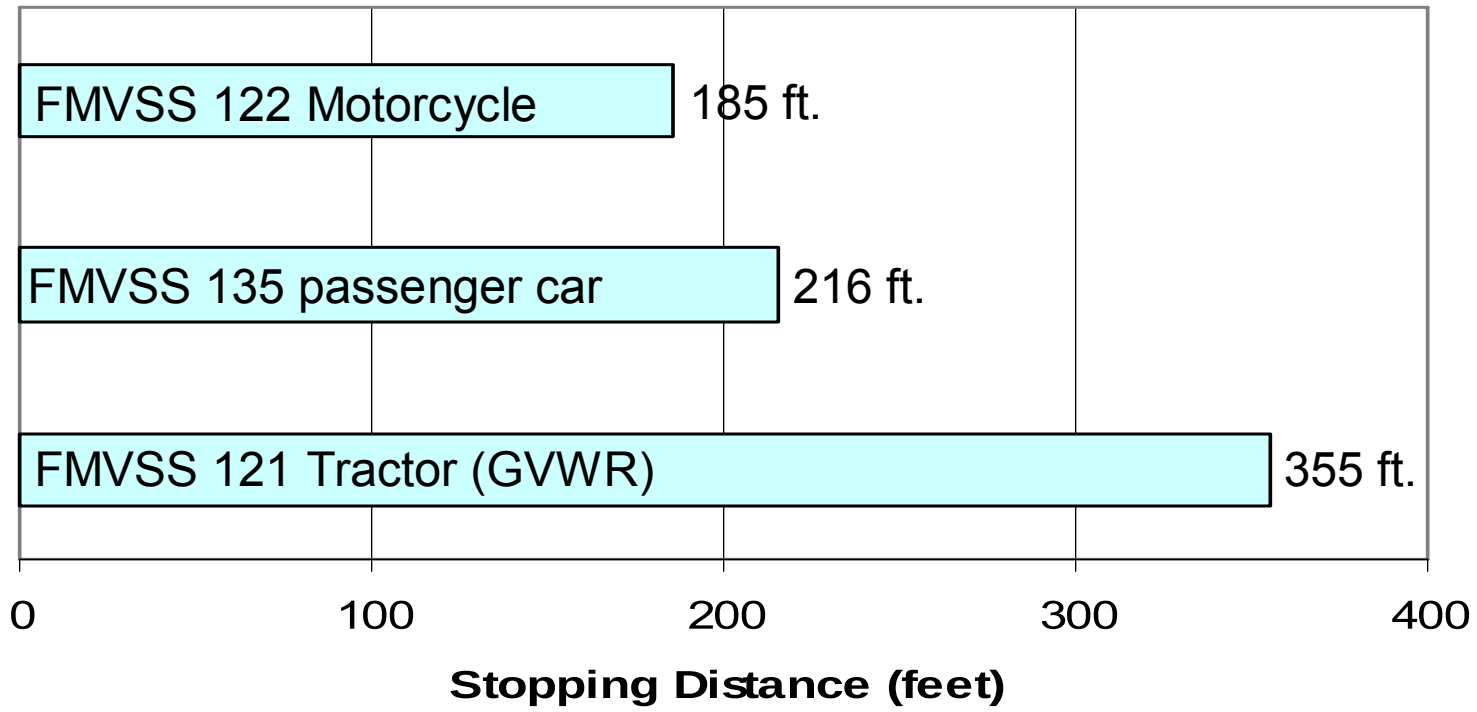
- In 2005:
  - 5,301 fatalities from crashes involving a large truck (vehicles > 10,000 lbs GVWR)
  - 12% of all fatalities
  - 74% of large truck fatalities (3920) result from crashes involving a combination vehicle (e.g. tractor semi-trailer)
  - Higher fatal crash rate than cars: 2.21 fatal crashes/100 million VMT verses 1.55 fatal crashes/100 million VMT for passenger cars
  - Nearly 90% of trucks involved in fatal crashes are ≥ 26,000 lbs GVWR (Class 7 & 8 vehicles)
- Commercial truck traffic will increase by about 50% in the next 12 years.
  - Currently about 8 million large trucks on US roadways
    - 30% Combination Vehicles, 70% single unit trucks
  - Current annual VMT is about 220 million miles
    - 65% Combination Vehicles, 35% single unit trucks

Heavy Vehicle Research

- Budget:
  - Heavy Truck Research: About $2M/year (about 6% of NHTSA vehicle safety research budget)
- Main Research Areas:
  - Brakes: Reduce stopping distance
  - Vehicle Stability: Prevent rollovers and loss of control crashes
  - Vision enhancement: Reduce lane change/merge crashes, eliminate blind spots.
  - Advanced Technologies (ITS): Facilitate development and deployment of crash avoidance systems
  - Tire Safety

Brake Research: NHTSA Stopping Distance Program

- Better truck brake performance translates to crash prevention and mitigation benefits
- Given improved disc brake technology, NHTSA performed research to quantify vehicle braking improvement



Brake Research:
Stopping Distance Program

Program Benefits:

- Truck Tractors:
  - Estimate 257 lives saved from 30% reduction in truck tractor stopping distance
  - Research complete, NPRM issued 12/05
  - Final rule planned

- Single Unit Trucks and Buses
  - Potential for additional lives saved from a reduction in single unit truck and bus stopping distance
  - Research to be completed in 2008.

Stability Control Research

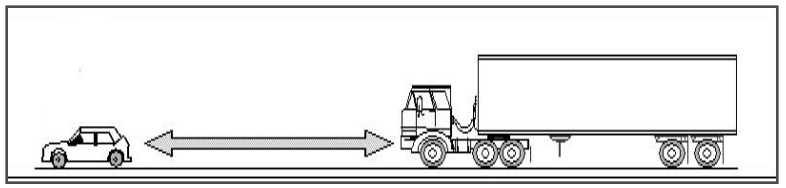
- Significant NHTSA research currently underway
  - Combination vehicles (tractor semi-trailer)
    - Determine the performance of currently available RSC (roll stability) and ESC (roll & yaw) systems
    - Estimate Safety Benefits
    - Develop Performance Requirements
  - Straight Trucks
    - Preliminary benefits assessment of single unit truck & Bus ESC

Visibility

- Video mirrors to eliminate truck blind spots
  - Lane change/merge: Most frequently occurring crash problem for trucks
  - Potential for camera/video imaging technology to enhance current rear-view mirror systems (FMVSS 111)
  - Program phases:
    - Performance specification development
      - Completed
    - Development and assessment of a 360 vision system/all weather capability
      - 2008 completion
    - Planned next step – Field Operational Test

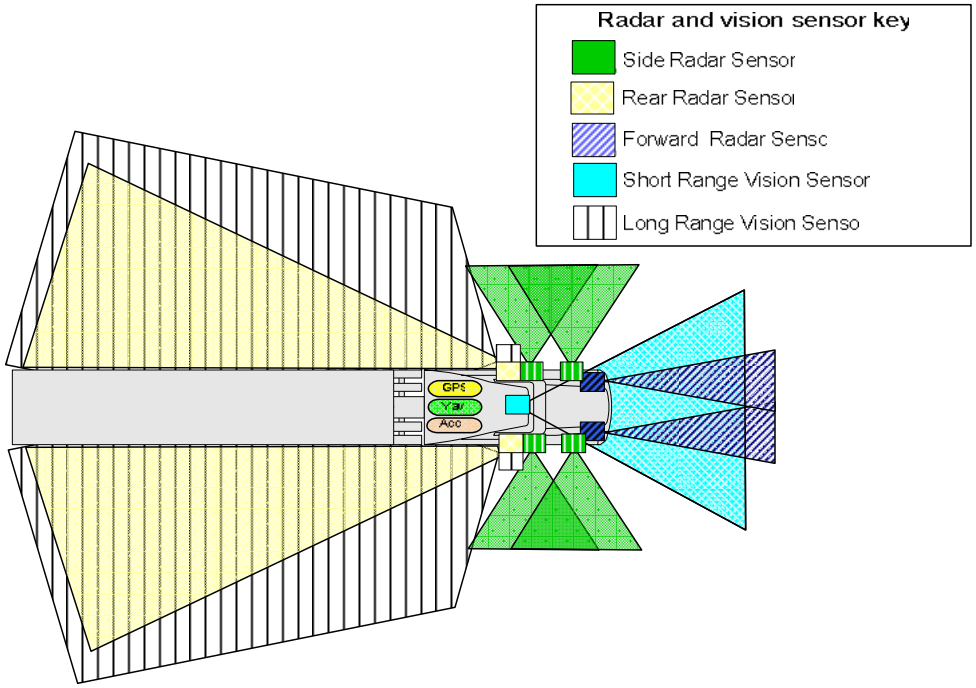
Advanced Technology Research - ITS

- Collision Warning/ACC Operational Test (FOT)
  - Program completed
  - Crash reduction estimated
- ECBS FOT (brake-by-wire)
  - Test completed
  - Data analysis ongoing
- Drowsy Driver Warning System FOT
  - Test completed
  - Data analysis ongoing
- Lane Departure Warning
  - Program completed
  - Crash reduction estimated

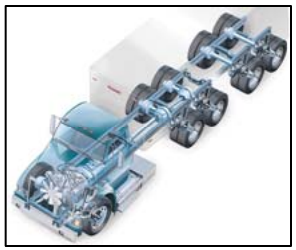


Advanced Technologies – Systems Integration

- Integrated Vehicle-Based Safety Systems (IVBSS)
  - Rear-end, road departure, lane change/merge
  - Light Vehicle and Heavy Truck systems being developed and tested
  - Status – on schedule (system design, build prototype vehicles, conduct FOT)
    - Late 2009 completion



HV Tire Safety



- Research improvements to FMVSS 119
  - Endurance and high speed test upgrades
- Additional research:
  - Analyze HV tire failures to identify the frequency of new and retread failures and determine failure mode.
  - 2006 start, 2007 completion

Contact Information

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