

TRB EMS Subcommittee ANB10(5)

EMS Safety Summit 2012

Safety Systems, Strategies and Solutions

Types of Testing for Ambulance Safety

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Types of Testing for Ambulance Safety

- **A Comparison of Standards and Testing**
 - Automotive
 - Medium Truck
 - Ambulance

AUTOMOTIVE TESTING

Multitude of INDEPENDENT Testing and
Standard Setting Organizations

Act to keep each other on-track for safety

- Internal Corporate Standards



Mercedes-Benz

- SAE Specs (Society of Automotive Engineers)

SAE *International*[™]

- ISO and CEN Specs (International and European)



Side Impact Test



Offset Frontal Impact Test



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DARD



Roof Crush



Seatbelt Integrity



Rollover

INDEPENDENT ADVOCATES



INDEPENDENT ADVOCATES



BAD PUBLICITY

THE FEDERAL GOVERNMENT

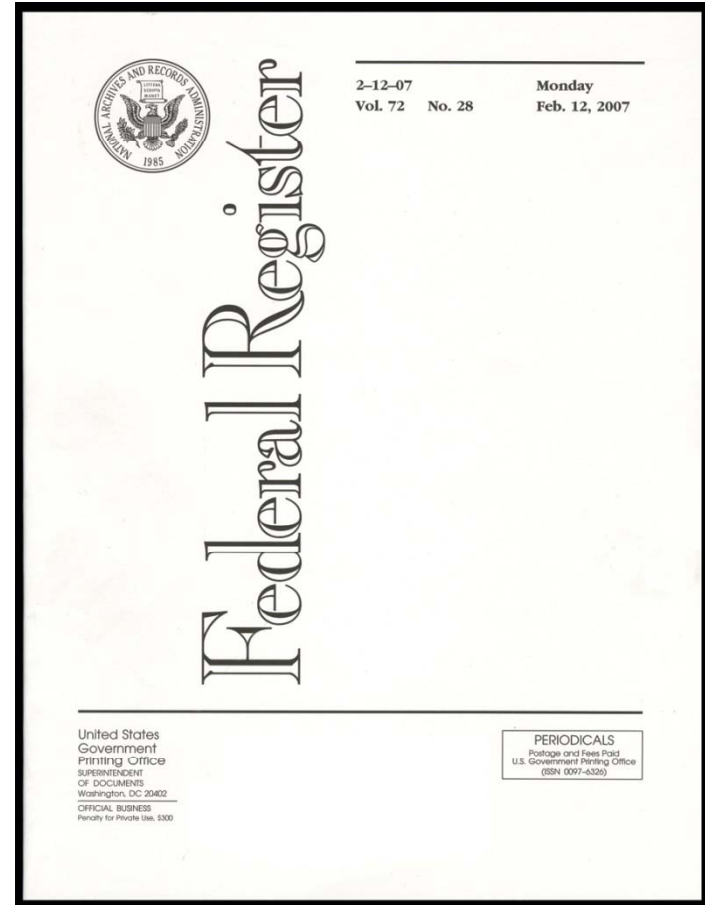
**FEDERAL
MOTOR VEHICLE
SAFETY STANDARDS
AND REGULATIONS**

U.S. DEPARTMENT OF
TRANSPORTATION

NATIONAL HIGHWAY TRAFFIC SAFETY
ADMINISTRATION

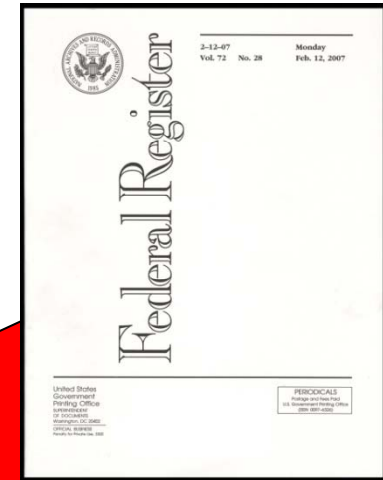


www.nhtsa.gov



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THE FEDERAL GOVERNMENT



**PERFORMANCE to
STANDARDS and REGULATIONS are
REQUIREMENTS
AUDITED by the FEDERAL
GOVERNMENT**

Don't PASS - Can't SELL / RECALL

FEDERAL SAFETY STANDARDS

Extensive Passenger Car and Light Truck Vehicle Safety Standards apply to vehicles below 10,000 pound Gross Vehicle Weight (GVW)

Type II is included

VEHICLES over 10,000 GVW (Medium Trucks) have a reduced set of Federal Safety Standards

Type I and Type III are included

VEHICLE SELECTION impacts SAFETY

FEDERAL SAFETY STANDARDS

THESE DO NOT APPLY to MEDIUM TRUCKS

- Standard No. 126: Electronic Stability Control
- Standard No. 201: Occupant Protection In Interior Impact
- Standard No. 202: Head Restraints
- Standard No. 203: Impact Protection for the Driver from the Steering Control System
- Standard No. 204: Steering Control Rearward Displacement
- Standard No. 208: Occupant Crash Protection
- Standard No. 212: Windshield Mounting
- Standard No. 214: Side Impact Protection
- Standard No. 216: Roof Crush Resistance
- Standard No. 219: Windshield Zone Intrusion
- Standard No. 225: Child Restraint Anchorage Systems

THESE DO APPLY to MEDIUM TRUCKS (and other vehicles)

- Standard No. 205: Glazing Materials
- Standard No. 206: Door Locks and Door Retention Components
- Standard No. 207: Seating Systems
- Standard No. 209: Seat Belt Assemblies
- Standard No. 210: Seat Belt Assembly Anchorages
- Standard No. 213: Child Restraint Systems



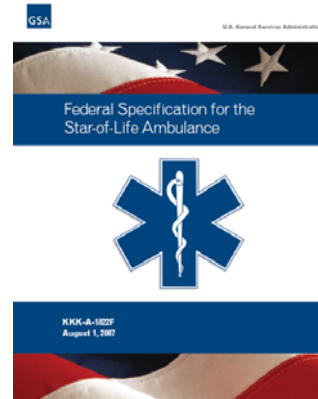
AMBULANCE STANDARDS and TESTING

Ambulance Standards and Testing

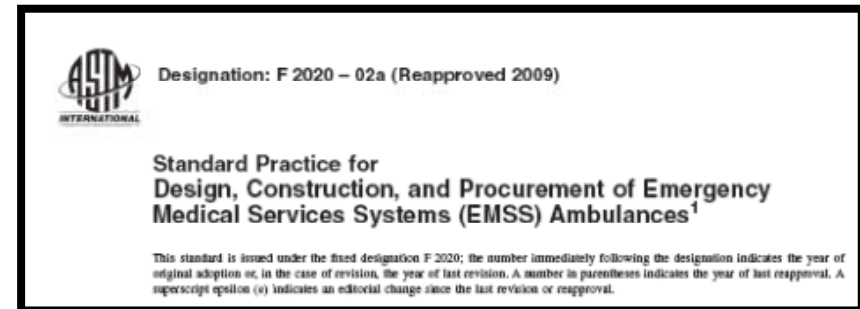
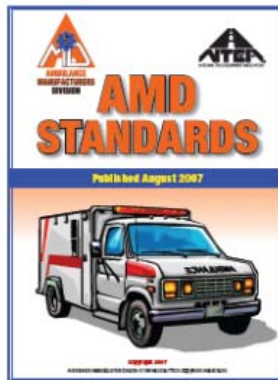
- KKK A 1822F: Purchasing Guideline
 - “Minimum Specification and performance parameters”
- AMD-001-025: Manufacturing Guideline
- ASTM F2020-02a: Standard Practice
- **NFPA 1917 Standard for Automotive Ambulances: 2013 Edition**
 - Soon to be released

Ambulance Standards and Testing

- Interrelated – mostly paraphrasing each other's requirements
- Self certified



NFPA 1917
Standard for Automotive Ambulances: 2013 Edition



Ambulance Standards and Testing

What is not Referenced

- DYNAMIC Crash Protection Considerations
 - Occupant Protection from Interior Impacts
 - Side Impact Protection
 - Seat Integrity
 - Seat Attachment Integrity
 - Seat Belt Attachment Integrity
 - Cabinet / Attachment Integrity
 - Cab Dynamic Structural Integrity
 - Cab Attachment Integrity
- Electronic Stability Control:
 - Not Required for Type I and III (over 10,000 GVWR)



SUMMARY

- The Automobile Industry has made great strides in Accident Avoidance and Crash Safety
- Ambulance Safety could utilize much of this knowledge but also poses unique challenges
- Ambulance Rear Compartment Integrity is a key opportunity

ESC – A LIFE SAVER

- ESC: ELECTRONIC STABILITY CONTROL



- **Electronic stability control** systems are second only to seat belts in terms of the potential for saving lives and reducing injuries... is a major step forward for global auto safety.

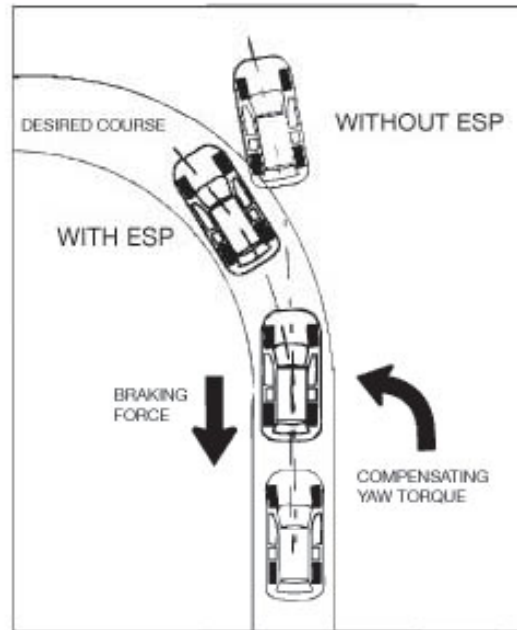
Statement by Nicole Nason, Administrator, National Highway Traffic Safety Administration, On the Adoption of Electronic Stability Control as a Global Technical Regulation

ESC – A MAJOR LIFE SAVER

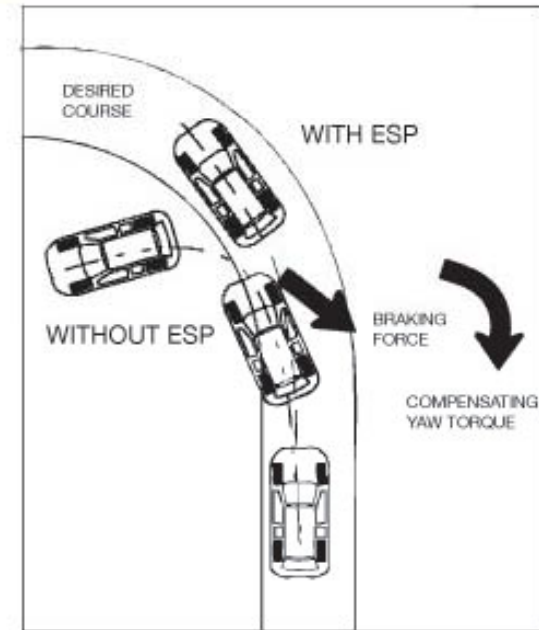
Works to keep you on the road and slow you down



ESC Interventions



Understeering ("plowing out")



Oversteering ("spinning out")



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