

TRB EMS Subcommittee ANB10(5)

# EMS Safety Summit 2012 Safety Systems, Strategies and Solutions

## Vehicle and Fleet Standards

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## Outline

- Fleet
  - FMCSA/Exemptions
  - ANSI/ASSE Z.15
  - ISO 39001 – December 2012
- Vehicle
  - AMD
  - KKK
  - NFPA
  - ASTM
  - FMVSS
  - SAE
  - International - CEN/ASA



## In the USA there are more safety standards for moving cattle than for moving patients



## Federal Motor Carrier Safety Administration - FMCSA

- <http://www.fmcsa.dot.gov/>



## FMCSA - Exceptions

- Unless otherwise specifically provided, the rules do not apply to
  - (f)(1) All school bus operations as defined in §390.5;
  - (f)(2) Transportation performed by the Federal government, a State, or any political subdivision of a State, or an agency established under a compact between States
  - (f)(3) The occasional transportation of personal property by individuals not for compensation nor in the furtherance of a commercial enterprise;
  - (f)(4) The transportation of human corpses or sick and injured persons;
  - (f)(5) The operation of fire trucks and rescue vehicles while involved in emergency and related operations;



## Dec 2011, New FMCSA Hours of Service

<http://www.fmcsa.dot.gov/rules-regulations/topics/hos/index.htm>



Providers (EP)  
New Entrant Safety Assurance  
Medical Program  
Medical Expert Panels  
NAFTA Rules  
Drug & Alcohol Testing

**HOS Reference Materials**

- Interstate Truck Driver's Guide to HOS
- Logbook Examples [PDF]
- Interstate Passenger-Carrying Driver's Guide To Hours of Service
- HOS Final Rule [Federal Register Notice PDF]
- Frequently Asked Questions
- Federal Register Notice PDF

**Summary of the Hours-of-Service Regulations**  
The following table summarizes the HOS regulations for property-carrying and passenger-carrying CMV drivers.

HOURS OF SERVICE RULES	
Property-Carrying CMV Drivers	Passenger-Carrying CMV Drivers
<b>11-Hour Driving Limit</b> May drive a maximum of 11 hours after 10 consecutive hours off duty.	<b>10-Hour Driving Limit</b> May drive a maximum of 10 hours after 8 consecutive hours off duty.
<b>14-Hour Limit</b> May not drive beyond the 14th consecutive hour after coming on duty, following 10 consecutive hours off duty. Off-duty time does not extend the 14-hour period.	<b>15-Hour On Duty Limit</b> May not drive after having been on duty for 15 hours. Following 8 consecutive hours off duty, Off-duty time is not included in the 15-hour period.
<b>60/70 Hour On Duty Limit</b> May not drive after 60/70 hours on duty in 7/8 consecutive days. A driver may restart a 7/8 consecutive day period after taking 34 or more consecutive hours off duty.	<b>60/70 Hour On Duty Limit</b> May not drive after 60/70 hours on duty in 7/8 consecutive days.
<b>Sleeper Berth Provision</b> Drivers using the sleeper berth provision must take at least 8 consecutive hours in the sleeper berth, plus a separate 2 consecutive hours either in the sleeper berth, off duty, or any combination of the two.	<b>Sleeper Berth Provision</b> Drivers using a sleeper berth must take at least 8 hours in the sleeper berth, and may split the sleeper-berth time into two periods provided neither is less than 2 hours.

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Federal Motor Carrier Safety Administration  
1200 New Jersey Avenue SE, Washington, DC 20020 • 1-800-433-3881 • TTY: 1-800-677-8338 • Fax: 202-366-7000

## Nov 2011, Hand Held Cell Phone Ban

<http://www.fmcsa.dot.gov/about/news/news-releases/2011/Secretary-LaHood-Announces-Step-towards-Safer-Highways.aspx>

**U.S. Transportation Secretary LaHood Announces Final Rule That Bans Hand-Held Cell Phone Use by Drivers of Buses and Large Trucks**  
Today's Action is Led by the Department to End Distracted Driving

WASHINGTON, November 23, 2011  
Contact: Carolea Talbot Burns  
Tel: 202-366-7000

**Public Affairs**  
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## A "Fleet" to many in Emergency Medical care means....

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## New Standards Update

- Fleet Standards
  - ANSI/ASSE Z.15, an EMS version?
  - ISO 39001 – International Dec 2012
- Ambulance Vehicle Standards
  - NFPA – for June 2013
- Ambulance Equipment Mounting Standards
  - SAE – 2917, 2956

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## American National Standard ANSI/ASSE Z15.1-2006 Safe Practices for Fleet Motor Vehicle Operations

**Z15 COMMITTEE**  
SAFETY PRACTICES FOR MOTOR VEHICLE OPERATIONS  
1000 B. GASTON STREET, SUITE 1000, WASHINGTON, DC 20004  
PHONE: 202-462-1000 FAX: 202-462-1001

May 11, 2006

**ANSI/ASSE Z15.1-2006**  
Safe Practices for Fleet Motor Vehicle Operations

**AMERICAN SOCIETY OF SAFETY ENGINEERS**

**CH BOARD**

## What Z15 encompasses

- Safety Program
- Safety Policy
- Responsibilities and Accountabilities
- Driver Recruitment, Selection and Assessment
- Organizational Safety Rules
- Orientation and Training
- Reporting Rates and Major Incidents to Executives
- Oversight

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## ISO 39001

- Road traffic safety management systems standard



- Based on the new common MSS template/framework
- Integrate with the organization's management system
- Unique content
- Is a requirement standard - for certification
- For all organizations; public and private sector



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## ISO 39001 - Principles of RTS management systems

- a) Focus on loss of life and health
- b) Holistic view
- c) Focus on results
- d) Leadership
- e) Process approach
- f) Continual improvement
- g) Best available information
- h) Transparent and inclusive process
- i) Tailored implementation
- j) Systematic and structured
- k) Part of decision making

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## NTSB 1979... and 30 years later and still the same problem

NATIONAL TRANSPORTATION SAFETY BOARD WASHINGTON, D.C.

ISSUED: May 27, 1979

The interior of the ambulance body was severely damaged. The flooring, oxygen bottles, litter, cabinets, and bench were either destroyed or ejected from the ambulance. Because the plywood flooring was not secured to the floor or chassis, everything attached to or resting on it came loose when the ambulance rolled over. All body structures were deformed downward and to the right.

A review of the Federal Motor Vehicle Safety Standards (FMVSS) revealed that there are no standards or specifications which assure that the total design and construction of ambulances as modified by the after-market installers are of sufficient structural strength and stability to withstand impact forces similar to requirements imposed on the original vehicle manufacturer. FMVSS 206, "Occupant Crash Protection in Passenger Cars, Multipurpose Passenger Vehicles, Trucks and Buses," applied to the 1974 Chevrolet Suburban Custom 10 Van as manufactured. However, this protection was not extended to the patient(s) or medical personnel occupying the body of the ambulance since it did not apply to the modifications made after the vehicle was sold by the manufacturer.

There are no performance requirements for the after-market modifications to vehicle structural integrity, crashworthiness, interior occupant protection, and the anchorage of items such as litters, benches, cabinets, oxygen bottles, or flooring. The only guidance concerning these safety

## USA Ambulances: FMVSS Exempt

DEPARTMENT OF TRANSPORTATION National Highway Traffic Safety Administration

48 CFR Parts 571, 572, and 589 [Docket No. 92-28; Notice 7] [RIN No. 2127-AB85]

Federal Motor Vehicle Safety Standards; Head Impact Protection

56.1 Vehicles manufactured on or after September 1, 1996 and before September 1, 2002. Except as provided in 56.3, for vehicles manufactured on or after September 1, 1996 and before September 1, 2002, a percentage of the manufacturer's production, as specified in 56.1.1, 56.1.2, 56.1.3, or 56.1.4 shall, when tested under the conditions of 56, comply with the requirements specified in 57 at the target locations specified in 510 when impacted by the free motion headform specified in 58.9 at any speed up to and including 24 kilometers per hour. The requirements do not apply to any target that cannot be located using the procedures of 510. The phrase in schedule the manufacturer chooses to use during this period shall be reported to the National Highway Traffic Safety Administration pursuant to 40 CFR 509.9.

56.2 Vehicles manufactured on or after September 1, 2002. Except as provided in 56.3, vehicles manufactured on or after September 1, 2002 shall, when tested under the conditions of 56, comply with the requirements specified in 57 at the target locations specified in 510 when impacted by the free motion headform specified in 58.9 at any speed up to and including 24 kilometers per hour. The requirements do not apply to any target that cannot be located using the procedures of 510.

56.3 A vehicle need not meet the requirements of 56.1 through 56.2 if:

- (a) Any target located on a convertible roof frame or a convertible roof linkage mechanism.
- (b) Any target located rearward of a vertical plane 600 mm behind the seating reference point of the rear-most designated seating position.
- (c) Any target located rearward of a vertical plane 600 mm behind the seating reference point of the driver's seating position in an ambulance or a motor home.
- (d) Any target in a walk-in van-type vehicles.

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## ASTM 2009

### Standard Details

ASTM F2020-02a (2009) Standard Practice for Design, Construction, and Procurement of Emergency Medical Services Systems (EMSS) Ambulances (2009)

Standard Title: Standard Practice for Design, Construction, and Procurement of Emergency Medical Services Systems (EMSS) Ambulances

Standard Number: ASTM F2020-02a (2009)

Edition: 2009

Effective Date: Not provided

Description: 1- Scope



1.1 This practice covers covered, heated, commercial type, EMSS ambulances that are chassis that are suitable for the intended application and meet the requirements herein. The ambulances are front or rear wheel driven (4x2) or four wheel driven (4x4) and warranted as specified in Section 9.

1.1.1 Definition of ambulance—An ambulance is a vehicle for emergency medical care which provides a driver's compartment, a patient compartment to accommodate an emergency medical technician (EMT/paramedic and two other patients (one patient located on the primary cot and a secondary patient on a folding litter located on the travel bench) so positioned that the primary patient can be given intensive life-support during transit, equipment and supplies for emergency care at the scene as well as being transport low- or no-traffic communication; and when necessary, equipment for light rescue/evacuation procedures. The ambulance shall be designed and constructed to afford safety, comfort, and avoid aggravation of the patient's injury or illness.

1.1.2 This practice may be used to procure an ambulance and the applicable additional systems and equipment.

1.1.3 Purchasers should follow the ordering data in 9.2 to aid them with the preparation of their procurement specification, requisition, and contract. The purpose of this practice is to describe minimum requirements for design, construction, performance, equipment, testing, and appearance of EMSS ambulances that are authorized to display the "Star of Life" symbol so as to provide a practical degree of standardization. The reasons for such standardization are to provide ambulances that are easily detected, nationally recognizable, properly constructed, easily maintained, and when appropriately equipped, will enable Emergency Medical Technicians (EMTs) to safely and reliably perform their functions as basic and advanced prehospital life support providers as set forth in national EMSS standard training guidelines. These functions include:

## NFPA 1917



National Fire Protection Association The authority on fire, electrical, and building safety

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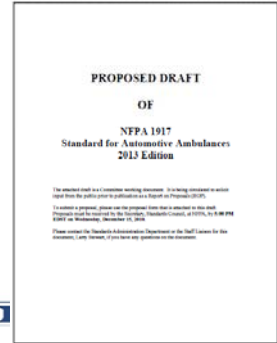
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## NFPA 1917

- Integrates KKK and AMD approaches
- Brings increased focus on operational safety
- Seat belt and speed monitoring
- Increased safety warning devices
- To be implemented in 2013

## What will this mean to the EMS Industry?



## SAE Ambulance Equipment mounting testing standards

Frontal Impact SAE 2917, published May 2010  
Side Impact SAE 2956, published June 2011



## Vehicle Safety Dynamic Testing Types

- Deceleration Sled Tests (not usually a full vehicle) – no intrusion
- Barrier impact tests – intrusion
- Full vehicle to vehicle tests – intrusion
- Computer predictive modeling - must be based on real world injury and vehicle crashworthiness data

## International Ambulance Design Safety and Occupant Protection Standards

In existence since 1999

- Australia – ASA
- Europe - CEN

## Australia & New Zealand Ambulance restraint standard AS/NZS 4535:1999

- “Restraint systems shall apply to all equipment and people carried in an ambulance...”
- Dynamic Testing - 50th & 95th percentile manikins
  - 24G in Forward and Rearward
  - 10G in Transverse



## Common European Community (CEN) EN 1789:1999/A1:2007

### European Committee for Standardization

Medical vehicles and their equipment - Road Ambulances

- “Without exception, all persons, medical devices, equipment, and objects normally carried on the road ambulance shall be maintained to prevent them from becoming a projectile when subject to a force...”



- 50th percentile manikins - 10 G in Forward, Rearward, Transverse, & Vertical directions
- Certified by Notified Body and Ambulance Mfg.

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