Emergency Vehicle Driver Training Program

EMERGENCY VEHICLE

DRIVER TRAINING

AFRICA FIRE MISSION

Public Safety is our Duty
Firefighter Safety is our Responsibility

EVERYONE GOES HOME!

Drive with care – everyone wears a seatbelt….*EVERYONE!*

- Safe Speed --- Always Under Control
- Stop at Red Lights…***STOP!***
- Remain Seated and Belted While in Motion
- Protect the Roadway/Scene

VFIS
A Division of Guilfelter Insurance Group

Emergency Vehicle Driver Training Program

Instructed by: Brian Burkhardt and Mike Kull

Program Overview

I.	Introduction	10 min.
II.	The Problem	45 min.
III.	The Driver	45 min.
IV.	SOPs/SOGs	20 min.
V.	Legal Aspects	45 min.
VI.	The Vehicle	45 min.

Program Overview

VII.	Emergency Vehicle Operations/Safety	60 min.
VIII.	Inspections/Maintenance	60 min.
IX.	Competency Course	30 min.
X.	Appendices	

Module I - Introduction

Goal

A large number of emergency service personnel and civilians are being injured and killed each year as a direct result of inappropriate driving of emergency vehicles.

Participants in this course will have the opportunity to gain and/or verify a broad range of competencies associated with emergency vehicle driving. These competencies include basic understanding of emergency vehicle operations as well as the skills necessary for practical application.

Module I - Introduction

Objectives

- Summarize the goal of this emergency vehicle driver training program.
- Describe the importance of an emergency vehicle driver training program.
- Identify the critical elements of a comprehensive emergency vehicle driver training program.

Course Goal

Present the necessary classroom, competency course training, and testing for new and existing emergency vehicle drivers. The program will verify proficiency in both the knowledge and understanding of, as well as, the practical application to emergency vehicle driving.

Importance of Driver Training

- All emergencies involve vehicle response.
- 25% of firefighters killed are responding to or returning from incidents.
- Drivers being criminally charged.
- Driver training program demonstrates the organization's commitment to safety.

Comprehensive Emergency Vehicle Driver Training

1. Classroom Instruction
2. Competency Course Completion
3. Street and Highway Driving
4. Testing

"Best Practices in Emergency Vehicle Safe Operation"

Best Practices are defined as certain themes that have emerged in recent years which help characterize a situation

Refresher Training

- Annual Classroom Education
- Annual Over the Road Evaluation

Module II - The Problem

Goal

To identify the increasing seriousness of emergency vehicle collisions and the resulting impact upon all concerned. Emphasis is placed on the fact that emergency vehicle drivers are being criminally charged when a collision occurs which results from negligent driving on the part of the emergency vehicle driver and serious injury or death occurs to others involved in the collision.

Module II - The Problem

Objectives

1. Explain the common-sense approach of driving under all conditions within the context of laws governing emergency vehicle operations.
2. Describe the high incidence of collisions involving emergency vehicles and the associated deaths and injuries to emergency service personnel and members of the public.

Module II - The Problem

3. Describe the types, conditions, and causes of collisions involving emergency vehicles and their impact upon all concerned.
4. Identify and explain the factors that contribute to the incidence of collisions involving emergency vehicles.

Perspective

Serious Misconception

…to rely solely on laws governing emergency vehicle response will guarantee safe passage during emergency responses.

Firefighter Fatalities While Responding/Returning

Year	Fatalities	Total Fatalities for year
2002	13	100
2003	36	111
2004	23	117
2005	23	115
2006	21	106
Total	**116**	**549**

Emergency Vehicles Crash Summary

Auto Collisions:

- *Ambulances: Intersection Accidents*
- *Fire Trucks: Rollovers*

Auto Liability:

- *Ambulances: Intersection Accidents*
- *Fire Trucks: Intersection Accidents*

Source: VFIS

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Impacts of Vehicle Accidents

1. Personnel Injury or Death to Emergency Responders
2. Peripheral Injury or Death to Others
3. Vehicle and Equipment Loss
4. Long Term Impact

Adverse Effect

- Loss of Experienced Personnel
- Stress of Criminal or Civil Litigation
- Financial Impacts
- Failure to Deliver Emergency Services
- Poor Public Image

Emergency Vehicle Incidents

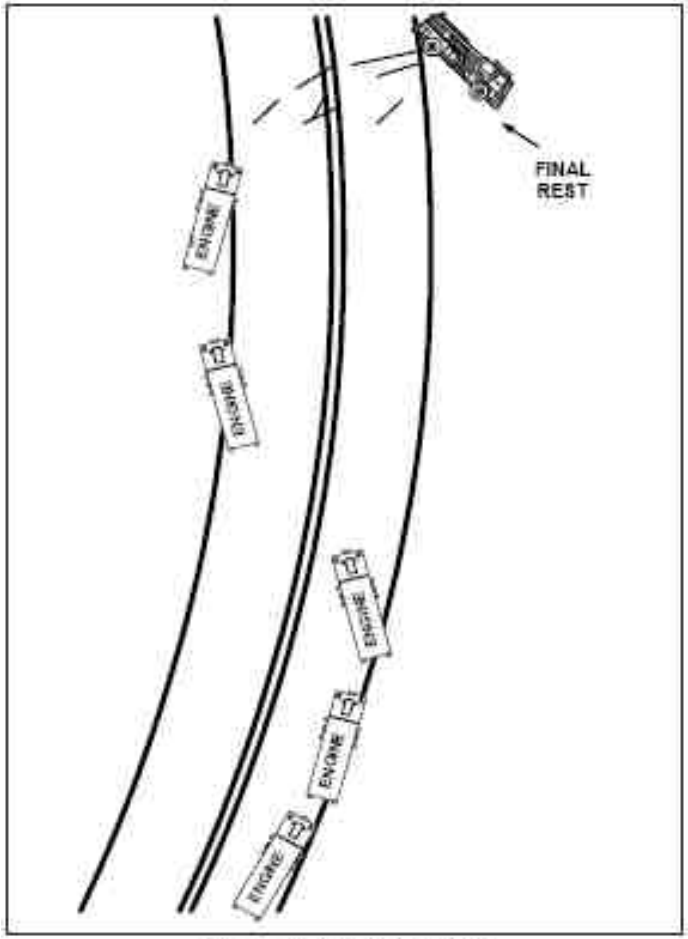
Rock Springs Teen Dies in Collision

Intersection and privately owned vehicle procedures could address this issue.

Volunteer Fire Fighter Dies and Two are Injured in Engine Rollover - Alabama

Engine involved in accident

Motor-Vehicle Incident Claims Life of Volunteer Fire Fighter - Alabama



Diagram, Aerial View of Engine Path

Volunteer Fire Fighter Dies and Two are Injured in Engine Rollover - Alabama

- Develop and enforce standard operating procedures (SOPs) for the safe and prudent operation of emergency vehicles.
- Ensure that drivers of fire department vehicles receive driver training at least twice a year.

Motor-Vehicle Incident Claims Life of Volunteer Fire Fighter - Ohio

Motor-Vehicle Incident Claims Life of Volunteer Fire Fighter - Ohio

Vehicle Involved in Incident.

Motor-Vehicle Incident Claims Life of Volunteer Fire Fighter - Ohio

Develop, implement, and enforce standard operating procedures (SOPs) regarding the safe operation of all vehicles responding to a fire alarm.

Volunteer Fire Fighter Dies in Tanker Rollover - Ohio

Volunteer Fire Fighter Dies in Tanker Rollover - Ohio

Volunteer Fire Fighter Dies in Tanker Rollover - Ohio

- Provide training to driver/operators as often as necessary to meet the requirements of NFPA 1451, and incorporate specifics on rollover prevention in standard operating procedures (SOPs).
- Develop and enforce SOPs on the mandatory use of seat belts in all emergency vehicles.

Career Fire Fighter/Emergency Medical Technician Dies In Ambulance Crash - Texas

Incident vehicle

Career Fire Fighter/Emergency Medical Technician Dies In Ambulance Crash - Texas

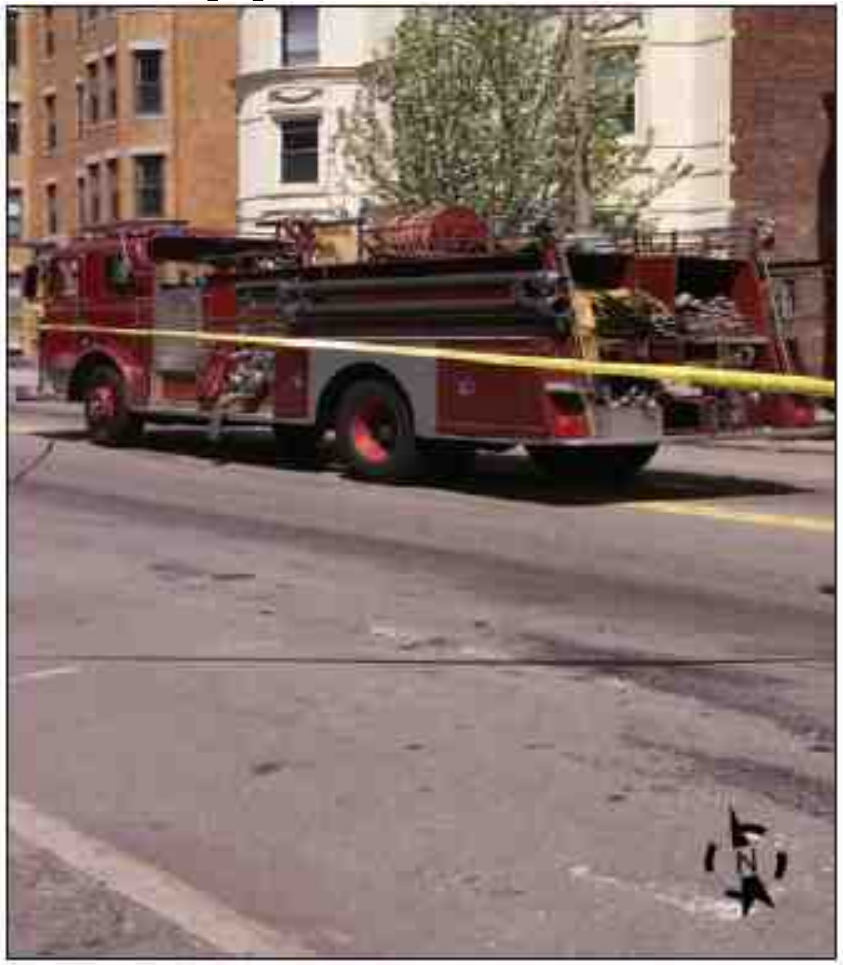
- Provide defensive driver training to all emergency vehicle operators.
- Ensure that all drivers are trained and certified in emergency vehicle operations.
- Develop standard operating procedures for responding to or returning from an emergency call and monitor to ensure their use.
- Ensure that the load carrying capacity of all apparatus is equal to or less than the Gross Vehicle Weight Rating (GVWR).

One Part-time Fire Fighter Dies and Another Is Seriously Injured When Two Fire Engines Collide at an Intersection While Responding to a Fire - Illinois

One Part-time Fire Fighter Dies and Another Is Seriously Injured When Two Fire Engines Collide at an Intersection While Responding to a Fire - Illinois

- Provide training to driver/operators as often as necessary to meet the requirements of NFPA 1451, 1500, and 1002. This training should incorporate specifics on intersection practices.
- Develop and enforce standard operating procedures (SOPs) for seat belt usage, intersection practices, and response to mutual/automatic aid incidents.

Career Fire Fighter Dies From Injuries Sustained In Fall From Apparatus - Massachusetts



Incident scene

Career Fire Fighter Dies From Injuries Sustained In Fall From Apparatus - Massachusetts

- Ensure that all persons responding in emergency apparatus are secured by seat belts, or safety restraints, at all times the vehicle is in motion.
- Ensure that routine apparatus maintenance includes documented inspections of all seating areas.
- Ensure, when feasible, that each crew riding position is within a fully enclosed personnel area.
- Ensure that all interior crew and driving compartment door handles are designed and installed to protect against inadvertent opening.
- Ensure that the donning or doffing of equipment and personal protective clothing that requires removal of any restraining device is prohibited while the vehicle is in motion.

This same fire department suffered a firefighter fatality as a result of a fall from a similar piece of apparatus in 1984.

Criminalization of Emergency Service Personnel

Ohio

Texas

Georgia

Ambulance Driver Charged

Chester Family's relatives say police are being too lenient

BY MARK LOWES
Times Dispatch Staff Writer

The driver of an ambulance in North Carolina that slammed into a Chester family's car killing Bruce and Lorri Ferguson and severely injuring two of their children, was charged yesterday with two counts of misdemeanor death by motor vehicle.

The ambulance, driven by Terry Turner, 39, of Kinston, N.C., went through a red light and struck the Ferguson's 1990 Nissan Maxima broadside as the family attempted to drive through an intersection in Kinston, N.C., on Sunday. Police estimate the Lenoir County Emergency Medical Services ambulance was going between 45 and 60 mph on impact.

Family members yesterday expressed outrage at the misdemeanor charges, each of which carries a fine up to $500 and a maximum two-year jail term.

"I'm certainly appalled," said Marvin Averett, Lorri Ferguson's father, who was following the Ferguson's in a pickup truck and witnessed the wreck." "It seems like it's the most minor charge that could be brought against someone in this case."

"It kind of sounds to me like it's a slap on the wrist," said Doug Ferguson, Bruce Ferguson's brother.

Kinston police Capt. Fred Darden said authorities charged Turner under a North Carolina law that makes it a misdemeanor to unintentionally cause someone's death while operating a vehicle in violation of state or local ordinance.

Emergency vehicles are allowed to cross intersections at a red light, but they must proceed with due care and caution, Darden said.

Averett believes the law is inadequate. Some Virginia localities, such as Chesterfield County, require ambulances to stop at all intersections before proceeding if they don't have the green light.

The wreck occurred about 2:30 p.m. ad the Ferguson's, who were en route to a week's vacation at indian Beach on North Carolina's Crystal Coast, entered the intersection of U.S. 258 and U.S. 70 on a green light.

The ambulance, heading west on U.S. 70 with its lights and siren activated, slammed into the Fergusons; car as they attempted to turn east on 70.

Bruce Ferguson, who was driving, never saw the ambulance coming.

"To his left was a Cadillac. With my truck I had a higher profile and I could see over the Cadillac," said Averett, who was accompanied by his wife and one of Mrs. Ferguson's sons, Ben, 10.

"I saw [the ambulance] coming from probably a quarter mile away because visibility was perfect that day," he continued. "The driver was weaving in and out of traffic."

Joshua and Meghan Reekes, Mrs. Ferguson's children from a previous marriage, were seriously injured in the crash. But Doug Ferguson said they appear to be improving.

"Joshua is starting physical therapy and ... there's a slight chance that he may be released in a few days," he said. "Meghan is still in critical condition. She [regains consciousness] for a few second off and on ... and is able to recognize her injured brother."

Joshua, 7, and Meghan, 6, are the son and daughter of Capt. Donald Reekes, a Chesterfield County fire captain. He is with them at Pitt Memorial Hospital in Greenville, N.C.

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Module III - The Driver

Goal

Understand that the first, and possibly the most important, step in emergency vehicle driver training is the effective selection of drivers. The various components of driver physical and mental well being are recognized. Recognize the necessity of certification, and recertification of driving skills.

Module III - The Driver

Objectives

1. Explain why personnel selection is critical in developing an effective emergency vehicle driver program.
2. Identify the numerous human aspects of the emergency vehicle driver selection process and explain their significance.
3. List the abilities necessary for driving emergency vehicles which must be acquired.

Module III - The Driver

4. Explain the importance of maintaining accurate and complete personnel records both for the protection of the emergency service organization and the individual emergency vehicle driver.
5. Identify the importance of maintaining emergency vehicle driving proficiency through an on-going re-certification program.

Importance of Driver Selection

- Human Aspects
- Acquired Abilities
- Personnel Files
- Driver Recertification

Domain	Phase	Name	Value	Description
Feelings	Safety Issues	ATTITUDE	negative	disregard for rules
			positive	respect for authority
Thoughts	Safety Issues	KNOWLEDGE	negative	unaware of safety principles
			positive	safety literate
Actions	Safety Issues	ALERTNESS	negative	faulty actions
			positive	correct actions

Feelings	Self Control Issues	EMOTIONAL CONTROL	negative	rude and opportunistic
			positive	prudent and fair
Thoughts	Self Control Issues	JUDGEMENT	negative	subjective, untrained thinking
			positive	trained reasoning and objectivity
Actions	Self Control Issues	CALMNESS	negative	tense, nervous, unpredictable
			positive	relaxed and steady

Other Aspects

- Aggressive Driving
- Age, Maturity and Health
- Habits

Acquired Abilities

- Driver's License
- State and Local Laws
- Driving Skills / Characteristics
- Defensive Driving Techniques

Defensive Driving Techniques

- Space Management
- Following Distance and Rate of Closure
- Hazard Identification
- Correct Braking Techniques
- Speed Management
- Rollover Prevention

Personnel Files

- Training Records
- Physical Capability
- Driving Record
- Driver Training
- Driving Log
- Suspected Substance Abuse

Driver Re-certification

- Actual Emergency Vehicle Driving Experience
- Observed Proficiency
- Time Since Last Re-certification
- Introduction of New Vehicles
- Introduction of New Technology

Module IV - SOPs/SOGs

Goal

Realize the need for guidelines and policies addressing emergency vehicle issues. Review the content of local policies & guidelines.

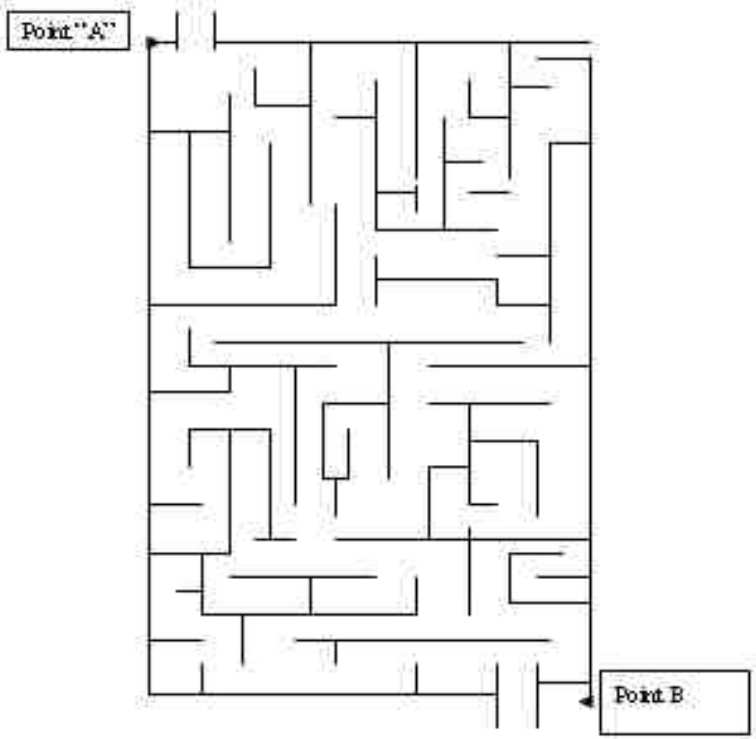
Module IV - SOPs/SOGs

Objectives

1. Explain why the development and implementation of Standard Operating Guidelines (SOGs) and Standard Operating Procedures (SOPs) are important to operating an effective emergency vehicle driver training program.
2. Describe the subject areas necessary for SOPs/SOGs that impact the certification, operation, and recertification of emergency vehicle drivers.

SOPs/SOGs Example

- **Policy** – Go from Point “A” to Point ”B”.
- **Procedure** – Begin at Point “A” go to Point “B” by following the prescribed directions.
- **Guideline** – Begin at Point “A” go to Point “B” but does not give explicit directions as a procedure.
- **Rules and Regulations** – Do not cross any line, do not backtrack.



Significance of SOPs/SOGs

1. All Personnel Understand What is Expected or Required
2. Intended Compliance with All Necessary Requirements is Identified
3. Pre-planned and Agreed Upon Actions
4. Resource Documents Upon Which to Base Training
5. Required Anticipated Actions

SOPs/SOGs Subject Areas

1. Eligibility Requirements for Drivers
2. Training and Proficiency Testing Requirements for Drivers
3. Emergency Response Procedures and Requirements
4. Customary and Ordinary Operational Procedures
5. Special Situation Procedures

Module V - Legal Aspects

Goal

To provide the participant with an understanding of the legal ramifications of emergency vehicle operations. Review state specific laws pertaining to emergency vehicles and specific NFPA standards.

Module V - Legal Aspects

Objectives

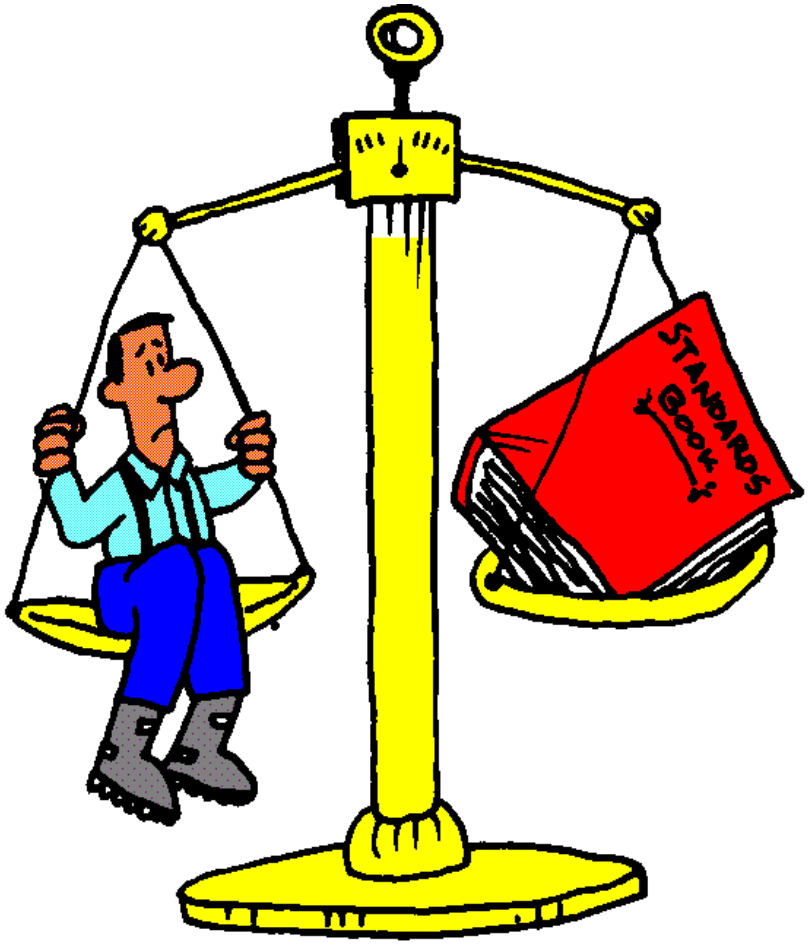
1. Explain the legal climate which exists and its impact upon emergency vehicle drivers and the associated emergency service organizations.
2. Identify the primary legal principles which affect emergency vehicle drivers and recognize the implications for emergency vehicle operation.

Module V - Legal Aspects

3. Identify specific state driving laws.

3. Discuss the impact of individual state or local laws, standards, and requirements on emergency vehicle driver training and operations.

Privileges *VS* Limitation & Qualification



Example of Privileges

- Proceed through a red traffic signal or stop sign - but only with due regard for the welfare of others.
- Exceed the posted speed limit-but only with due regard for the welfare of others.
- Travel against the normal flow of traffic - but only with due regard for the welfare of others.

Five Categories of Requirements

- State Motor Vehicle and Traffic Laws
- Nationally Recognized Standards
- State and Federal Occupational and Safety Regulations
- Local Ordinances
- Organizational Policies, Procedures, and Guidelines

Changing Legal Climate

- Concept of Public Kindness
- “King Can Do No Wrong”

“The King Shall Do No Wrong”!

(PA) Penn ambulance involved in collision, Driver will be cited for failing to yield, police said.

A Wednesday afternoon collision involving a Penn Township ambulance and a car sent a York man to the hospital. Robert A. Lehr, 76, of West Market Street, was taken to Hanover Hospital where he was treated for his injuries and released, said Penn Township Police Chief.

The ambulance was going through the intersection with its lights and siren activated, the chief said.

Witnesses told police the ambulance stopped, then proceeded through

the intersection before being struck by Lehr's vehicle, he said.

But, according to state law, ambulances are required to both stop

and yield to oncoming traffic, the Police Chief said. Because he did not do so, the operator of the ambulance will be cited, he said.

Legal Principles and Terms

- Subject to laws unless specific exemption is provided.
- Exemptions apply only when the emergency vehicle is involved in an emergency operation.
- Emergency vehicle drivers can be found criminally guilty of a crime and/or civilly liable.

Legal Principles and Terms

- Liability
- Due Regard
- Negligence
- Gross Negligence
- Vicarious Liability

Legal Principles and Terms

Judicial review based on ….

Concepts like due regard, and reckless disregard for the safety of others

Emergency Vehicle Driving Laws

1. CDL Requirements
2. Exemptions Granted to Emergency Vehicle Drivers
3. Rules for Members of the Public
4. Rules for Emergency Responders in POVs

Other Requirements and Standards

- State Laws and/or Administrative Regulations
- Local Ordinances or Statues
- Organizational Rules and Regulations and Standard Operating Guidelines

The Mission of NFPA

- NFPA “standards” for safe driving are NOT the law in most states.
- Relevant NFPA “standards” are actually guidelines which go beyond legal requirements of most state law.

Limitations of NFPA Standards

NFPA codes, standards, recommended practices, and guides are developed through a consensus standards development process approved by the American National Standards Institutes.

Limitations of NFPA Standards

In issuing and making this document available, the NFPA is not undertaking to render professional or other services for or on behalf of any person or entity. Anyone using this document should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstances.

Relevant NFPA Standards

- NFPA 1451-Fire Service Vehicle Operations Training Program
- NFPA 1500-Fire Department Occupational Safety and Health Program

NFPA 1451 Chapter 7.1.3

- Any “Stop” Signal (i.e., sign, light or traffic officer)
- Blind Intersections
- Intersections Where All Lanes of Traffic Cannot Be Seen by Operator
- A Stopped Bus

NFPA 1500 Chapter 6.2.8

- When Directed by a Law Enforcement Officer
- Red Traffic Lights
- Stop Signs
- Negative Right-of-Way Intersection
- Blind Intersections
- Cannot Account For All Lanes of Traffic
- Other Intersection Hazards
- Stopped School Bus With Lights Flashing

Adopting Sections of NFPA Standards

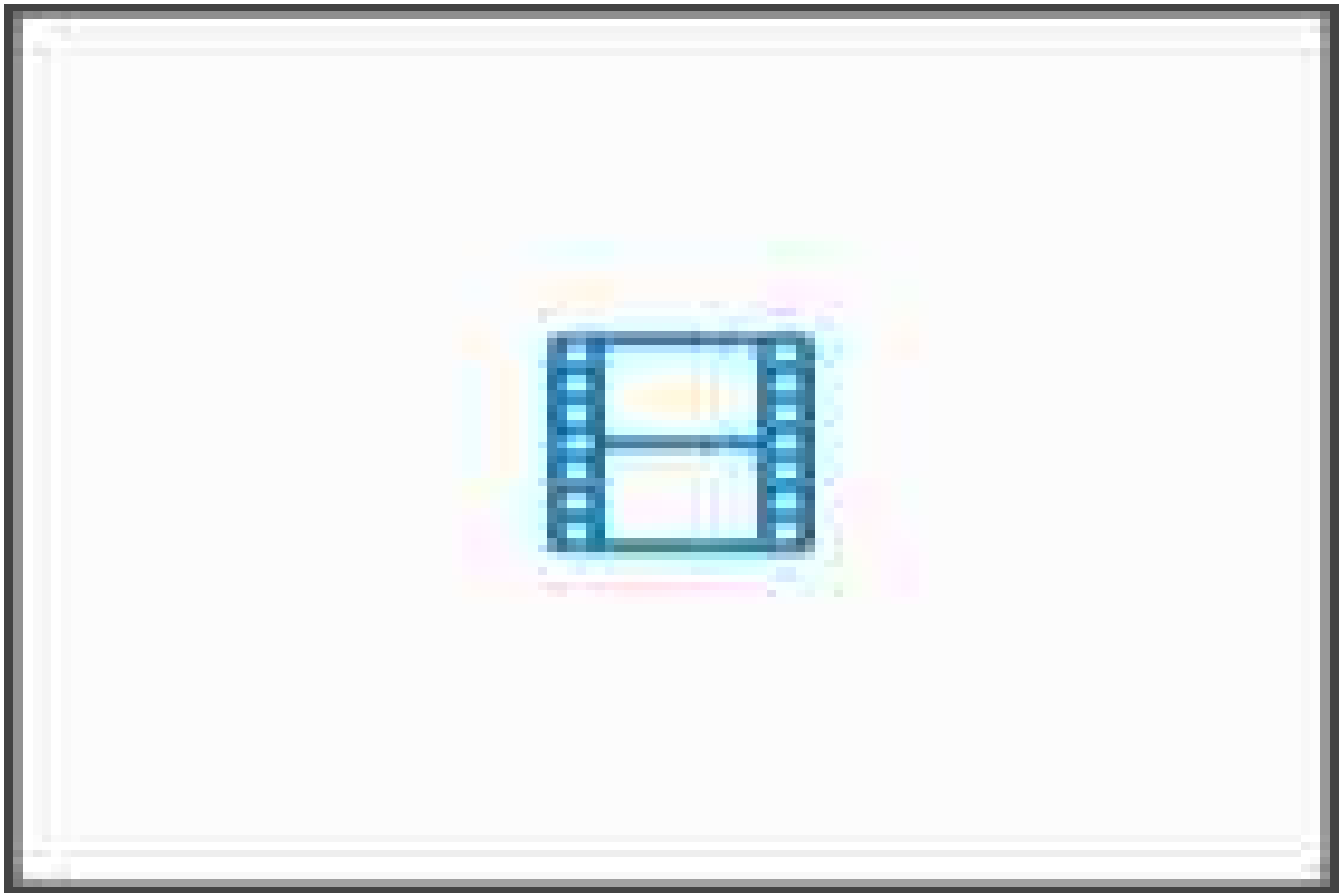
- Consult with your legal advisor to ensure that your SOGs do not reduce or eliminate any immunity or other available defense.
- Qualify the standard by stating that drivers will comply with these standards unless due regard dictates or state law permits otherwise.
- In any event, establish a peer review process to review every incident and to identify any situation which deviates from any SOG.

Ohio Paramedic Jailed In Deaths From Ambulance Crash

On Oct. 16, an Ohio court convicted Michael Montecalvo, EMT-P, of involuntary manslaughter and sentenced him to two to ten years in prison in the deaths of a pregnant woman and her unborn fetus. An ambulance driven by Montecalvo killed Angela Robinson and seriously injured a 6-year-old passenger in a collision at an Elmyra, Ohio, intersection on April 26.

According to a spokesman, "failure to exercise due regard for the safety of others while operating an emergency vehicle" was an overwhelming factor in the case.

Montecalvo Video Clip



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Module VI - The Vehicle

Goal

To have the participant understand physical forces which act upon vehicles and impact their handling. Study the various vehicle characteristics and how they impact both the physical forces acting on the vehicle and the manner in which the vehicle handles.

Module VI - The Vehicle

Objectives

1. Understand the physical forces that affect vehicle handling.

1. Recognize that vehicle characteristics influence the effect of physical forces on emergency vehicles

Type of Emergency Vehicle

Vehicle Components & Features

- All-wheel Braking
- Independent Front Suspension
- Four-wheel Steering
- Electronic Braking
- Stability Controls

Special Vehicles

Vehicle Dynamics Overview

- Driving Too Fast
- Accelerating Too Quickly
- Traction Control
- Braking Too Hard
- Brake Fade
- Changing Direction
- Traveling Through a Curve

Physical Forces

- Friction
- Velocity
- Momentum and Inertia
- Centrifugal Force

Physical Forces

Friction – resistance to motion between two moving objects that touch.

- Tire/Road Friction
- Brake Friction
- Steering Friction

Physical Forces

Velocity – speed

- Acceleration (velocity increase)
- Deceleration (velocity decrease)
- Braking (velocity decrease)

Physical Forces

Momentum – is measured as the product of the object's mass or weight times its velocity.

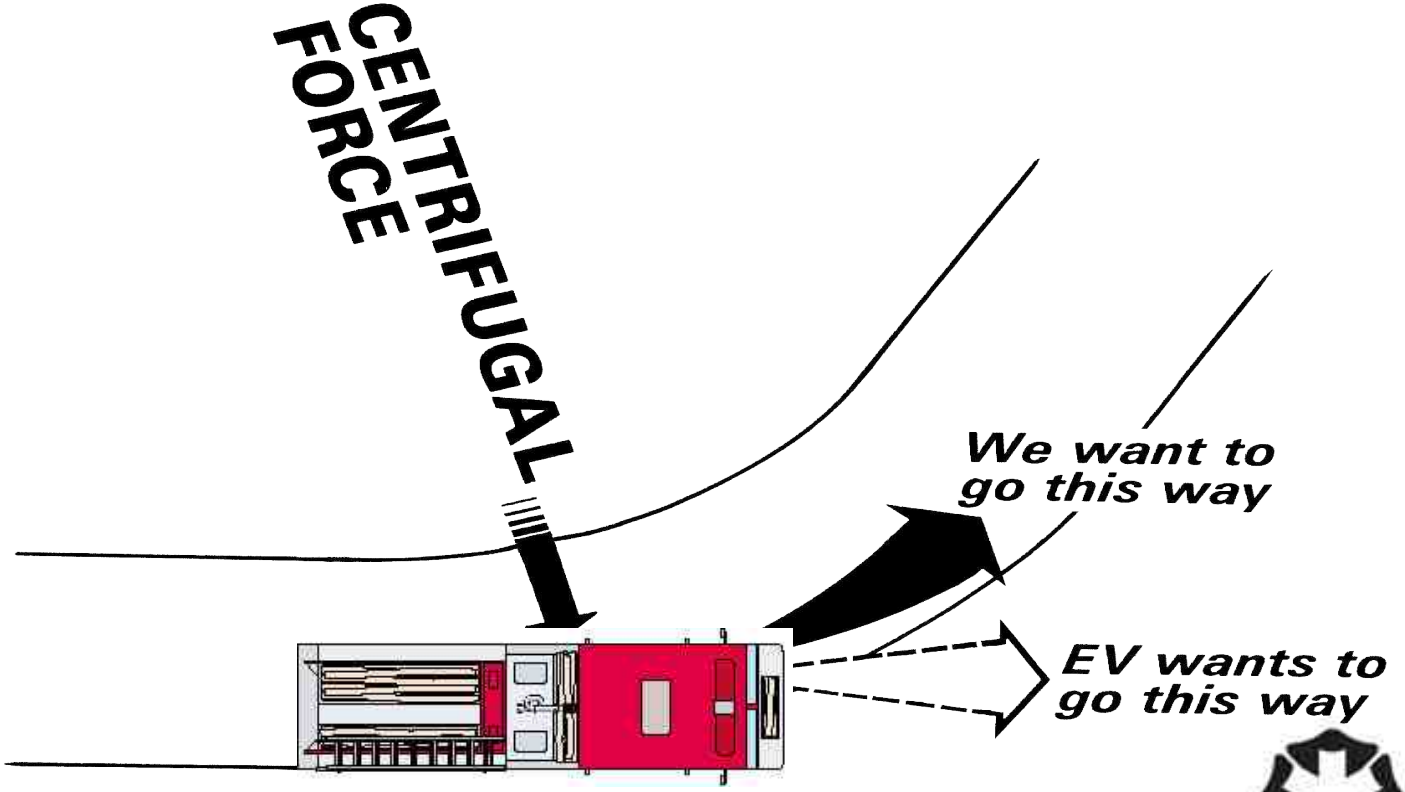
Inertia – the force it takes for a moving object to stay in motion in the same direction.

Physical Forces

Centrifugal Force – the force caused by inertia, which tends to make a rotating body move away from the center of rotation.

Physical Forces

Centrifugal Force

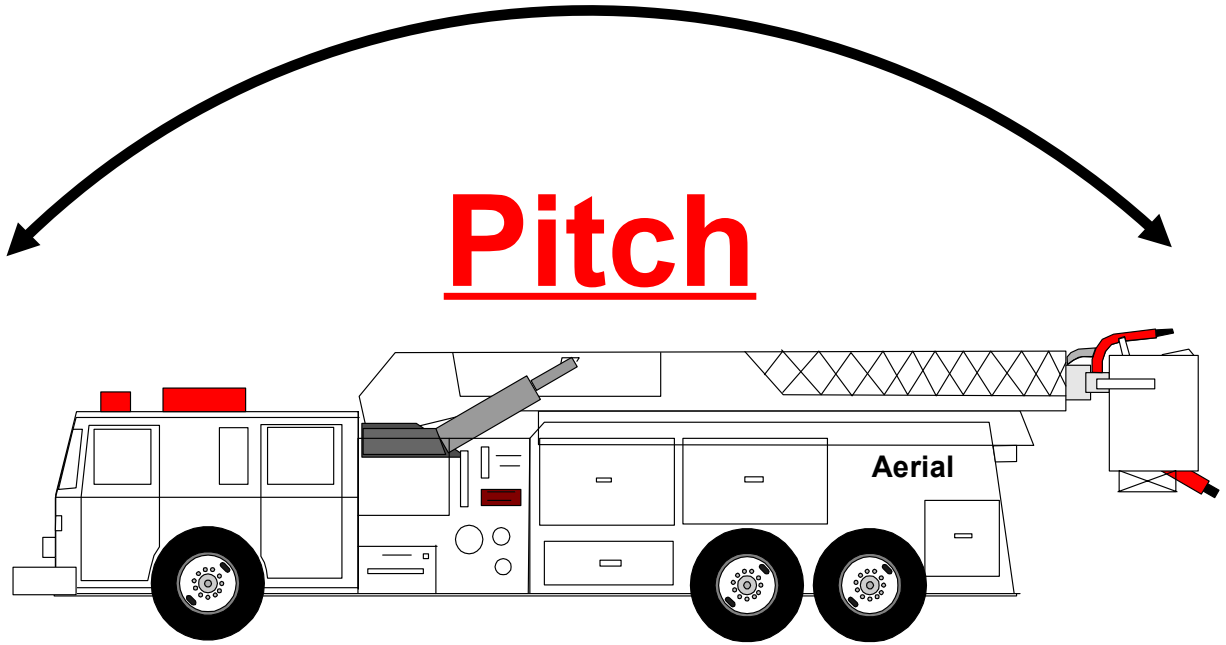


Vehicles in Motion

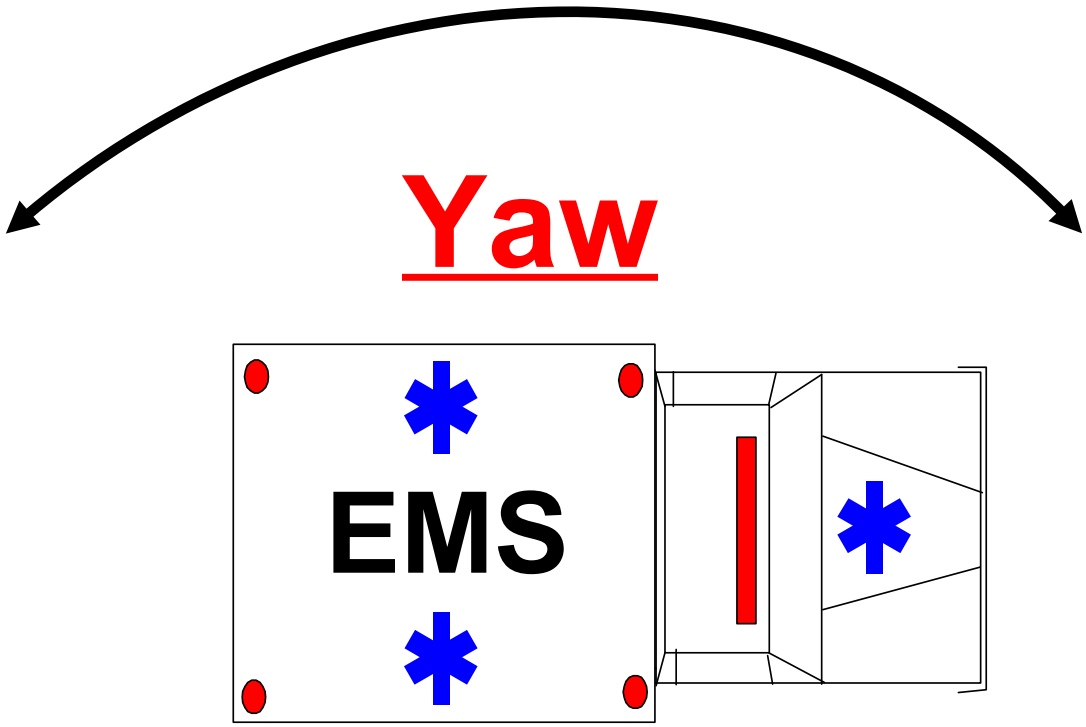
- Sway
- Dive – Squat
- Oversteer
- Roll
- Pitch
- Yaw

Vehicles in Motion

- Chassis in Motion
- Controlling Motion
- Weight Transfer

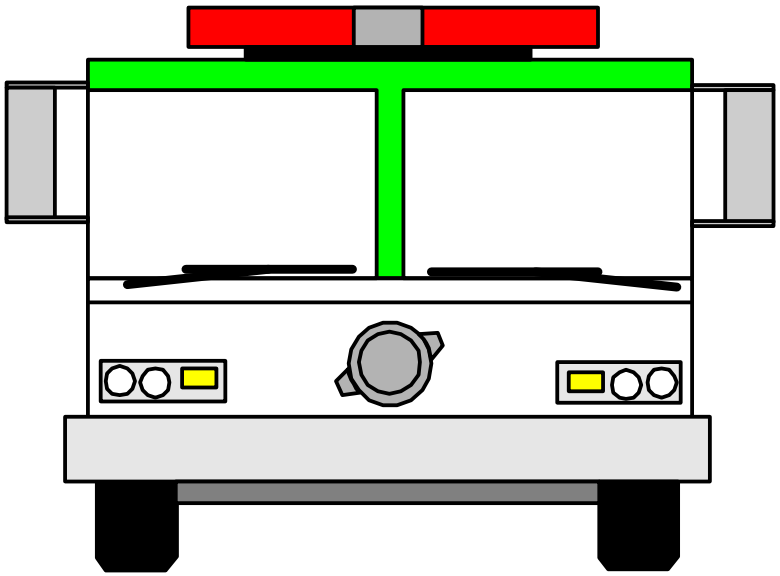


·**Pitch** is rotation around an axis running from the driver's left to right in a vehicle; thus the front pitches up and the rear down, or vice-versa.



·Yaw is rotation about an axis drawn from top to bottom, and perpendicular to the other two axes.

Roll



·**Roll** is rotation around an axis drawn through the body of the vehicle from rear to front in the normal direction of travel, or the direction the driver faces.

Vehicle Characteristics

- Total Weight and Weight Distribution
- Suspension System
- Braking System(s)
- Baffling System
- Rollover Awareness

Vehicle Characteristics

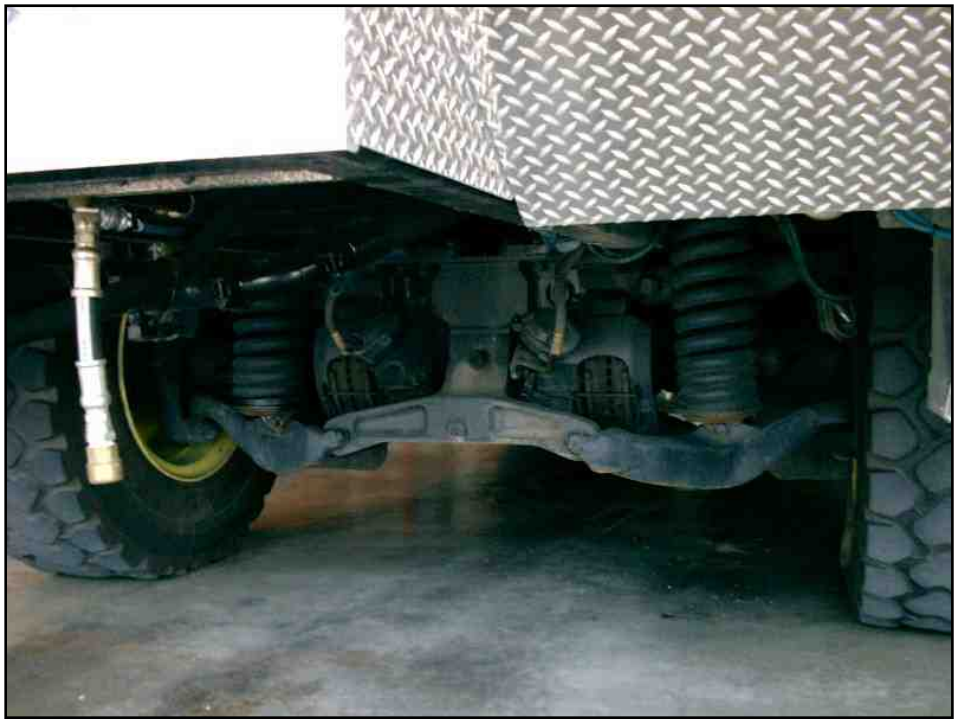
Total Weight and Weight Distribution

- Gross Axle Weight Rating (GAWR)
- Gross Vehicle Weight Rating (GVWR) or (GCWR)
- Weight Distribution – Horizontal and Vertical Centers of Gravity

Vehicle Characteristics

Suspension System

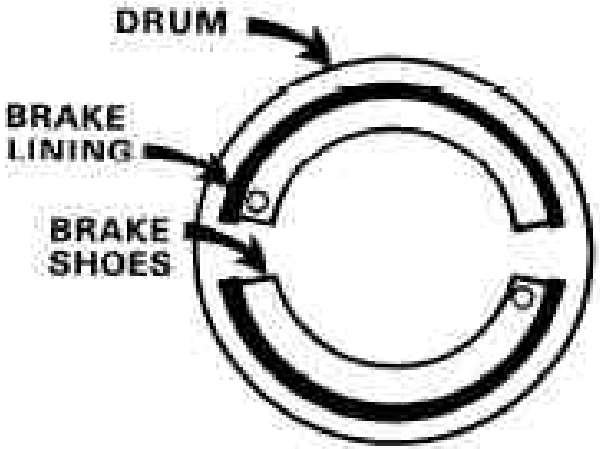
1. Axles
2. Springs
3. Wheels and Tires



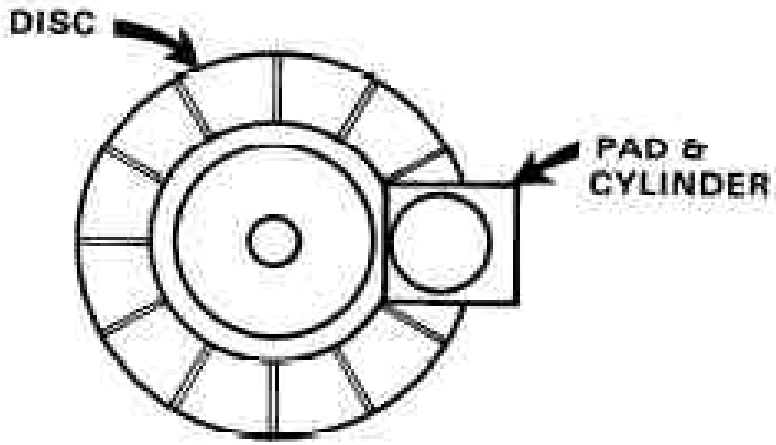
Braking Systems

- Standard
- Parking or Service
- Auxiliary Braking Systems

Standard



DRUM BRAKE



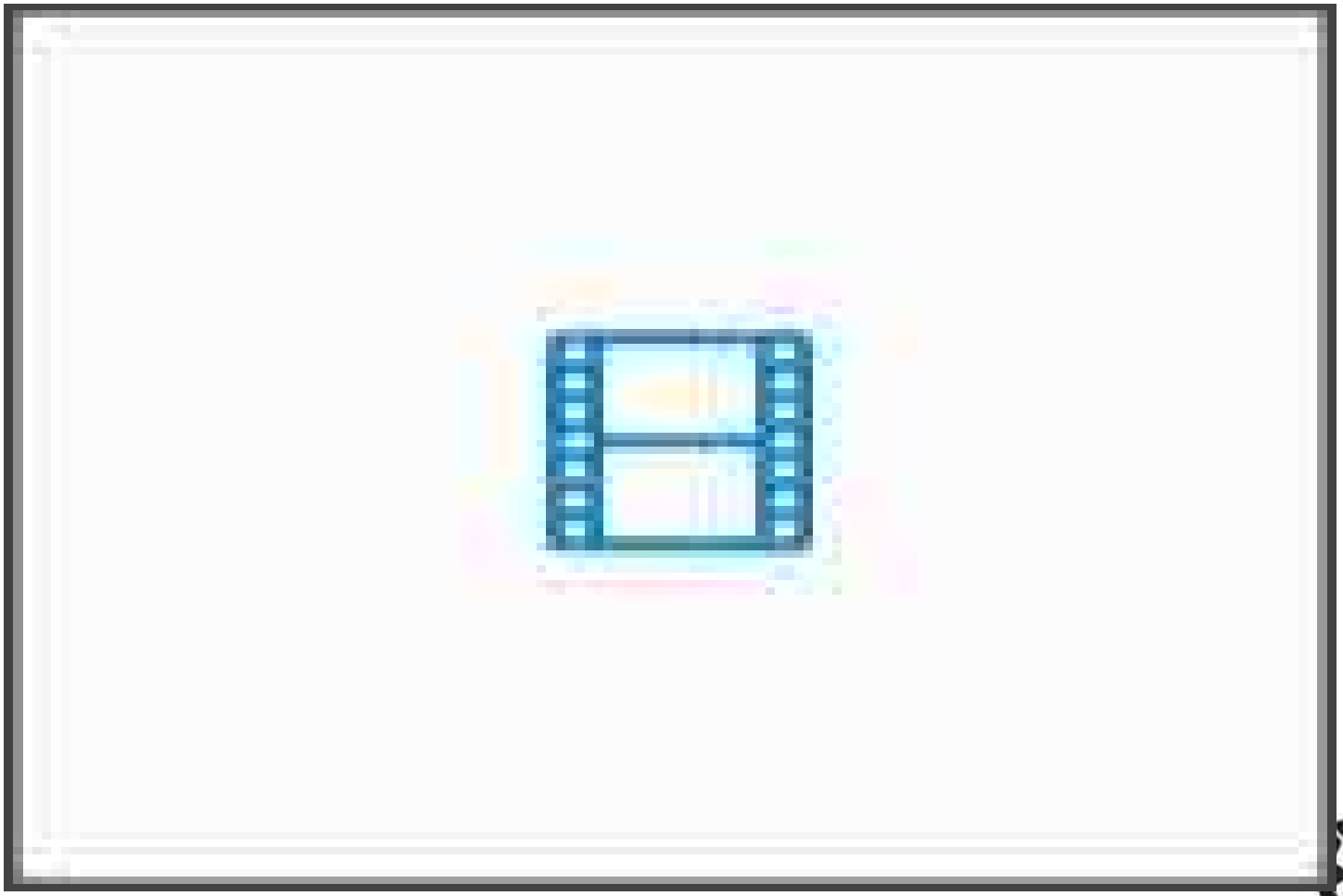
DISC BRAKE

Braking Systems

Braking Systems

- Electronic Braking Control Systems (ECBS) brake by wire
- Anti-lock Braking Systems (ABS)

ABS Video Clip



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Braking Systems

- Secondary or Auxiliary
  - Driveline Retarder
  - Compression or Engine Brake
  - Exhaust Brakes
  - Transmission Retarders

Vehicle Characteristics

Baffling Systems

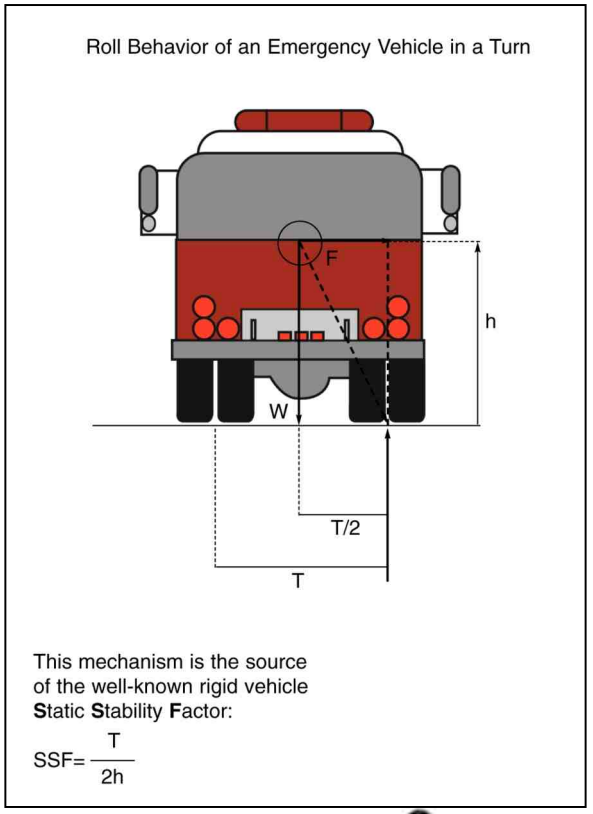
Vehicle Characteristics

Rollover Awareness

- Center of Gravity
- Road Conditions
- Seatbelts

Stability Factor Calculation

- Estimate where the middle of the water tank is and measure the distance from that point to the floor. (H)
- Measure the distance the rear wheels are from the center of the drivers side rear tire to the passenger side rear tire. (T)

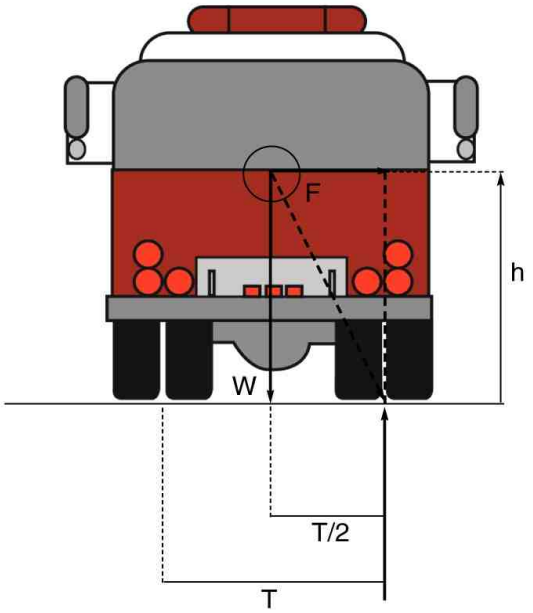


Stability Factor Calculation

Height	SSF
0.7m	1.5
1m	1.0
1.2m	.75
1.5m	.6
1.9m	.5
2.1m	.42
2.4m	.375
2.7m	.333
3m	.3

T = 2.1m

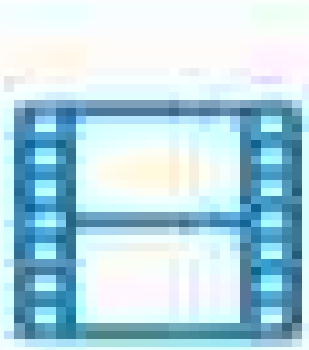
Roll Behavior of an Emergency Vehicle in a Turn



This mechanism is the source of the well-known rigid vehicle **S**tatic **S**tability **F**actor:

$$SSF = \frac{T}{2h}$$

Rollover Video Clip



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Wear Seatbelts & Slow Down

Module VII
Emergency Vehicle Operations / Safety

Goal

To have the participant appreciate the necessity of being prepared for driving emergency vehicles, and understanding the need to be mentally and physically prepared to address defensive driving tasks discussed to avoid or reduce the consequences of vehicle collisions.

Module VII
Emergency Vehicle Operations / Safety

Objectives

1. Describe both the physical and mental impact of motivation.

2. Explain the link between motivation and positive changes in individual behavior.

Module VII
Emergency Vehicle Operations / Safety

3. Outline the actions that must be completed prior to operating an emergency vehicle.

4. Recognize that emergency response driving is a complex process involving many factors, tasks, and maneuvers.

Motivational Exercises

Motivation

- Routine
- Comfort
- Confidence

Defensive Driving Goals

- To maintain the highest level of safety possible.
- To be prepared for unexpected situations and conditions which can adversely affect emergency vehicle operation.
- To avoid, through effective training and applied practice, unnecessary legal consequences.

Preparing to Drive

- Route Planning
- Driver Readiness
- Effective Start-Up Procedures

Preparing to Drive

Route Planning

- Maximize Response Efficiency
- Minimize Collision Exposure
- Enabling the Emergency Vehicle Driver to Focus on Actual Driving Tasks
- Avoiding Environmental and Construction Hazards

Preparing to Drive

Driver Readiness

- Fatigue
- Health
- Personal Problems

Preparing to Drive

Effective Start-Up Procedures

- Circle of Safety Inspection
- Adjustment of Cab Features
- Wearing of Occupant Restraints
- Receive Signal Before Moving

If another driver fails to give you the right of way in an emergency vehicle…

YOU CAN NOT FORCE IT!

YOU CAN NOT ASSUME IT!

YOU DO NOT HAVE IT!

Emergency Response Driving

SIPDE System

- Scan
- Identify
- Predict
- Decide
- Execute

Emergency Response Driving

Five Visual Habits

1. Aim High in Steering
2. Get the Big Picture
3. Keep Eyes Moving, Scan
4. Make Sure the Other Drivers See the Emergency vehicle
5. Identify an Escape Route

Use of Emergency Lights and Siren

Signal two basic concepts:

1. They notify other drivers that an approaching emergency vehicle is operating in an emergency mode.
2. They request other drivers to yield the right of way to the emergency vehicle in accordance with state and/or local law.

Make sure you are seen and heard.

- Lights
- Sirens
- Horns

Use of Emergency Lights and Siren

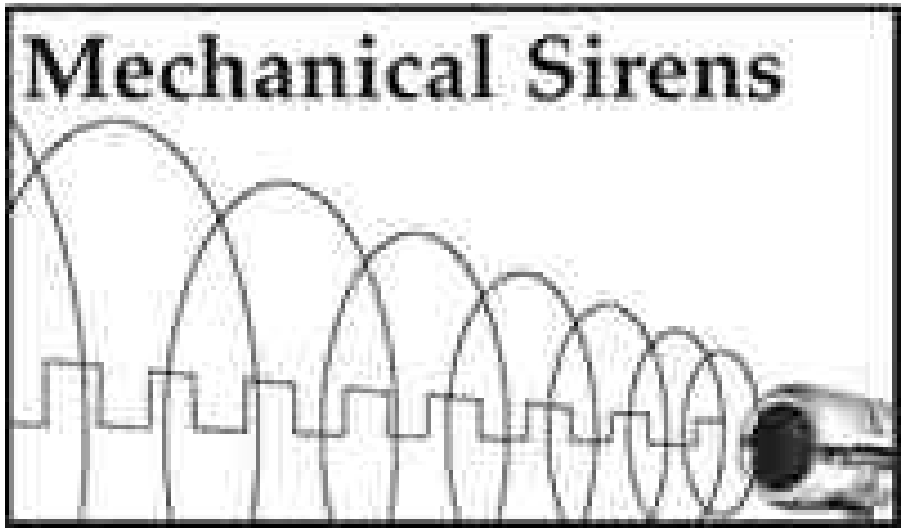
- RED - Emergency vehicle
  - (Fire/EMS) Stop! May also attract
- BLUE - Emergency vehicle
  - (Law enforcement)
- AMBER Danger/Caution
  - Excellent for rear of vehicle.

CLEAR

  - Good Visibility shut off at scene

Sirens

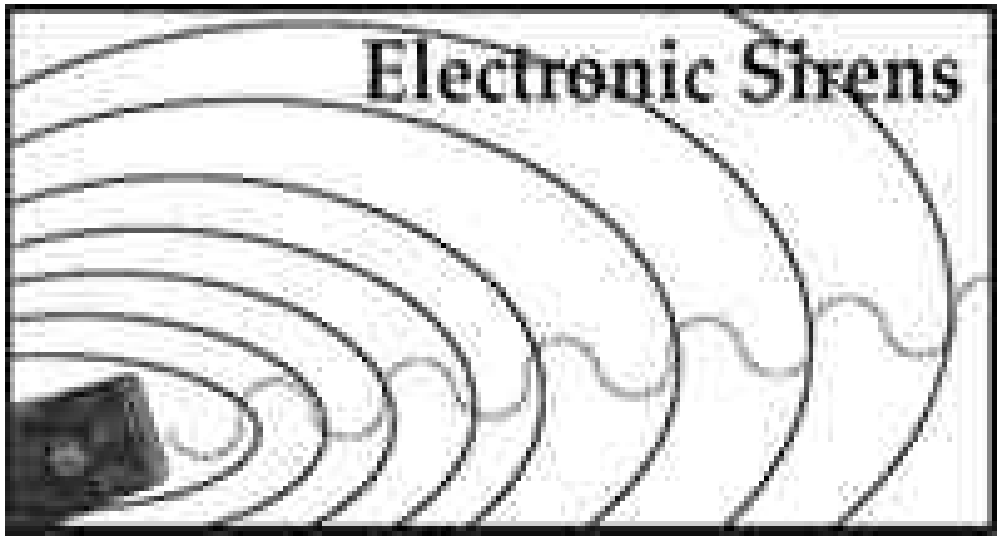
- A mechanical siren produces a spiraling square wave, thus offering a very strong and focused pattern.



Source: Timberwolf Sirens

Sirens

- Electronic sirens are notorious for having dead spots and creating noise pollution without direct sound penetration making them less effective.



Source: Timberwolf Sirens

"Sirencide"

100 meters

65 KPH

4 meters

100 KPH

Use of Emergency Lights and Siren

Procedures for Use of Siren

- Use When Responding to an Emergency
- Change to Yelp Mode at Least 60m from Intersection
- High-low Mode is Least Effective
- Use Another Audible Device to Alert Drivers Who Fail to Hear Siren

Emergency Dispatch Protocols

- Agencies usually have defined response guidelines for the emergency vehicle operator to follow. These may include light & siren usage, response speeds, number of vehicles and other locally specific policies.

Space Management

- Establishing a cushion of safety on all sides of an emergency vehicle is essential to safe operation.

Space Management

- Following Distance

  4 Second Rule at 65 kph or less; 5 Second Rule Above 65 kph
- Rate of Closure
- Blind Spots Alongside
- Overhead Clearance
- Ground Clearance
- Bridges
- Traffic Closure from Behind

Rate of Closure-Yielding

- Vehicle Speed Outruns Siren's Effectiveness
- Blocked Field of View
- Misinterpretation of Direction of Siren Sound
- Hearing Impaired Drivers
- Inattentive Drivers
- Drivers Distracted by Loud Music, Cellular Phone, Kids, Stress, Road Rage
- Aggressive Driving

Space Management

- Blind Spots Alongside
- Overhead Clearance
- Ground Clearance
- Bridges
- Traffic Closure from Behind

Speed Management

Two important rules:

1. Emergency vehicles must not be driven in excess of the posted speed limits.
2. Emergency vehicles must not exceed cautionary speeds.

Basic Maneuvers

Steering

- Use Both Hands
- Keep Arms Inside of Vehicle
- Maintain Hands in “3” and “9” Position

Basic Maneuvers

Braking and Stopping

- Hydraulic – Pump Brake Pedal
- Air – Firmly and Steadily Press Brake Pedal, Release if Wheels Lock
- ABS – Apply Firmly and Hold Down for Duration

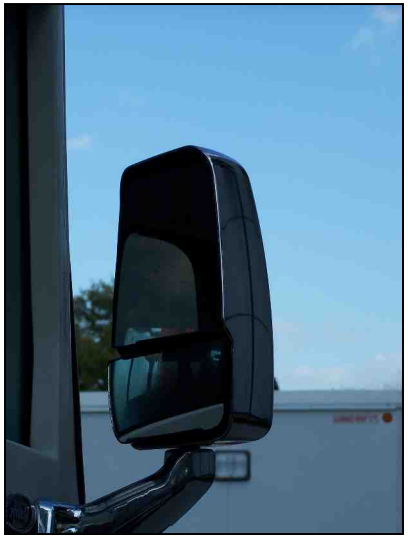
Basic Maneuvers

Backing Up

- Park Intelligently
- Give Audible Notice
- Use a Spotter
- Understand Signals
- Use Side Mirrors
- Check Front Corners
- Maintain Speed Control

Either Circle of Safety or Spotter

Mirrors





Basic Maneuvers

Lane Changing

- Plan Ahead
- Signal Intention
- Practice Space Management
- Make the Change of Lanes Smoothly

Basic Maneuvers

Turning

- Always Signal Before Turning
- Whenever Possible Turn from One Proper Lane into Another Proper Lane

Basic Maneuvers

Passing

- Check Traffic Both Ahead and Behind
- Check Sides and Double Check Blind Spots
- Signal Before Initiating Pass
- Accelerate While Changing Lanes
- Signal Before Returning to the Driving Lane
- Check Mirror Before Returning to the Driving Lane
- Cancel Directional Signal
- Resume Speed

Basic Maneuvers

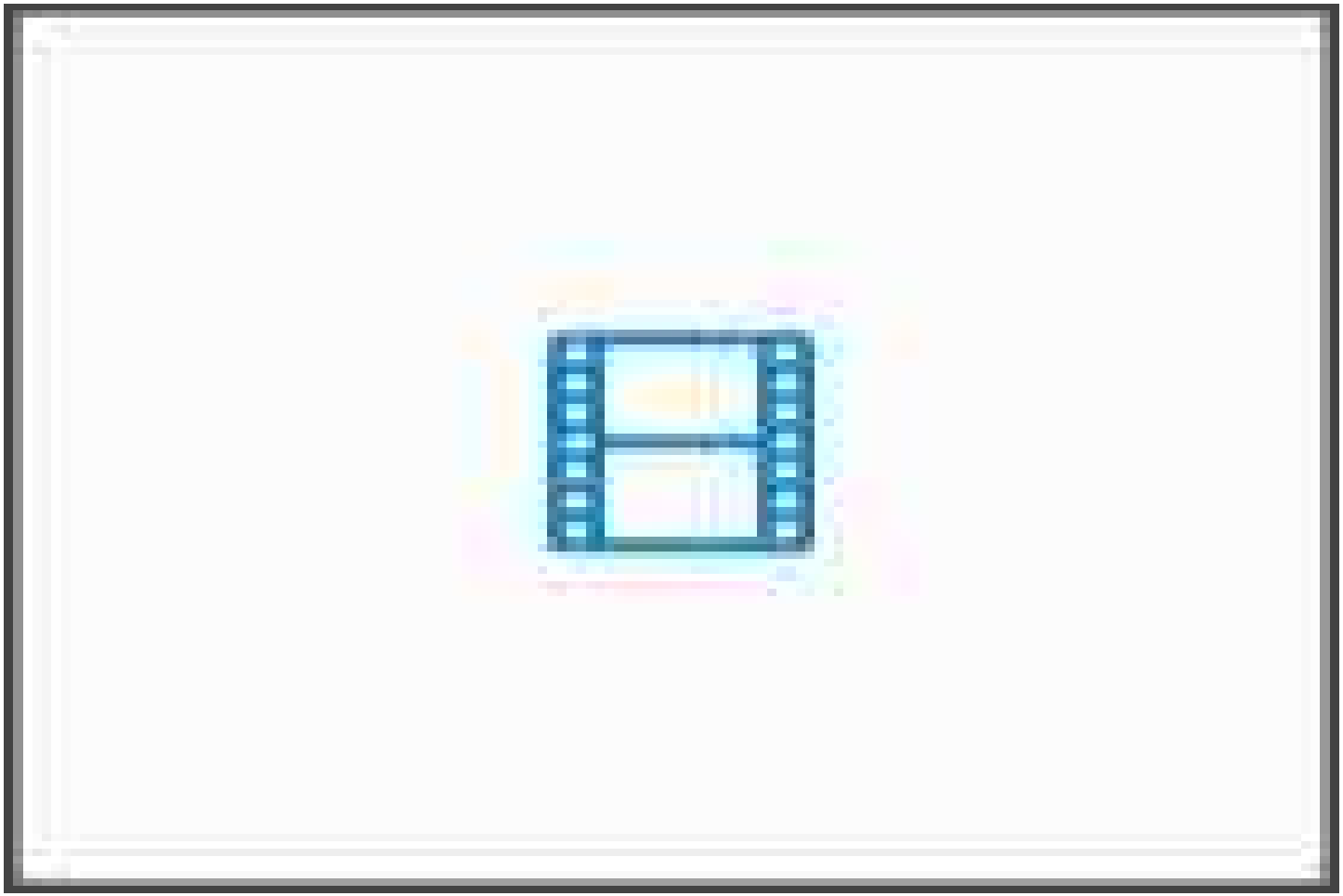
Negotiating Intersections

- Scan for Possible Hazards
- Slow Down
- Change Siren Cadence
- Check Options and Avoid Opposing Lane
- Come to a Complete Stop (controlled intersection)
- Establish Eye Contact
- Proceed One Lane at a Time

Basic Maneuvers

Account for traffic one lane of traffic at a time, treating each lane of traffic as a separate intersection.

Intersection Practices Video Clip



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Operating Under Adverse Conditions

Traction Implications

- Rain
- Snow and Ice
- Leaves
- Excessive Heat
- Loose Gravel & Stones

Operating Under Adverse Conditions

Vision Implications

- Night Driving
- Precipitation

Night Driving

- Dim Dash and Cab Lights
- Reduce Speed
- Keep Headlights and Windshield Clean
- Watch the Area Beyond the Headlights
- Keep your Eyes Moving, Scan Continuously

Operating Under Adverse Conditions

Adverse Handling Implications

- High Winds
- The Driver

The Driver

- Prepare Adequately Through Driver Training
- Use Low Beams and Wipers
- Watch for Slowed and/or Stopped Vehicles
- Check Rearview Mirrors Regularly
- Practice Both Space and Speed Management While Increasing the Safety Cushion

Collision Avoidance

Collision Avoidance

- Identify Escape Route
- Brake Smoothly and Firmly
- Accelerate Smoothly
- Steer to Avoid Head-On Impact

Placement of Vehicles at Emergency Incidents

- Placement at Incidents
- Positioning So As to Minimize the Blinding Effect of Warning Lights
- Identify Potential Hazards at Scenes
- Advanced Warning
- Traffic Control

Scene Safety

Module VIII
Vehicle Inspections and Maintenance

Goal

To have the participant understand and perform routine maintenance of their emergency vehicles and their role and responsibility in the process.

Module VIII
Vehicle Inspections and Maintenance

Objectives

1. Explain the value and importance of regular vehicles inspections.
2. Identify the major component systems of an emergency vehicle.
3. Describe how to perform pre- and post-trip inspections.

Module VIII
Vehicle Inspections and Maintenance

4. List the three types of preventive maintenance.
5. Explain the role of the emergency vehicle driver in performing certain vehicle inspections and maintenance functions.
6. Describe the importance of keeping accurate and complete records.

Emergency Vehicle Components

- Chassis
- Body
- Primary Function Components (task or mission)
- Auxiliary Systems

Emergency Vehicle Components

Chassis

- Frame
- Suspension System
- Steering and Braking Systems
- Power Train Components

Emergency Vehicle Components

- Body
- Primary Function
- Auxiliary Systems

Inspections

Post-Trip

- Cleaning of Vehicle.
- Replacing Supplies.
- Inventory Equipment.
- Re-fueling and Checking Fluid Levels, If Justified.
- Report Any Unusual Occurrences or Malfunctions.

Inspection Checklist

Pre-trip

- Vehicle Overview
- Check the Engine Compartment
- Start Engine and Check Inside Cab
- Check Headlights, Signal Lights, Warning Lights, and Audio Devices
- Conduct Walk Around Inspection
- Check Controls and Indicators
- Check Brake System (air brakes)

Preventive Maintenance Benefits

- Safety
- Costs
- Operational Effectiveness
- Liability
- Basis for Purchasing Decisions

Types of Preventive Maintenance

- Routine Maintenance
- Scheduled Maintenance
- Crisis Maintenance

Types of Preventive Maintenance

Routine

- Fluid Level Checks
- Wheels and Tires
- Electrical Systems and Devices

Types of Preventive Maintenance

Scheduled

- Manufacturer's Recommended Schedule
- Amount of Use
- Organizational Policy
- Professional Standards

Types of Preventive Maintenance

Crisis

- Classification A (immediate)
- Classification B (as soon as possible)
- Classification C (next P.M.)

EMERGENCY VEHICLE

DRIVER TRAINING

AFRICA FIRE MISSION

VFIS
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Role of the Emergency Vehicle Driver

- Battery or Batteries
- Braking System
- Coolant System
- Electrical System
- Fuel
- Hydraulic Fluids

Role of the Emergency Vehicle Driver

- Lubrication
- Oil (engine)
- Tires
- Steering System
- Belts
- Tools, Appliances, and Equipment

Role of the Emergency Vehicle Driver

- Document the need for maintenance on the assigned vehicle.
- Verify that the requested and needed maintenance was performed.
- Follow established departmental guidelines for taking the vehicle out of service.

Recordkeeping

- Maintenance Records
- Operational Records

Module IX: Emergency Vehicle Competency Course

Goal

To provide emergency vehicle operators with the skills to safely and efficiently operate emergency vehicles.

Module IX: Emergency Vehicle Competency Course

Objectives

1. Discuss the purpose of successfully completing a competency course as a component of an emergency vehicle driver training program.
2. List the specific skills associated with the competency course and their relationship to operating an emergency vehicle.

Module IX: Emergency Vehicle Competency Course

Objectives

3. Describe the importance of safe operations and specific safety precautions when participating on an emergency vehicle driver training competency course.
4. Explain the method of scoring for evaluating an emergency vehicle driver completing the competency course.

Purpose of Course Program

- Assist in the training of a candidate driver.
- Qualify a candidate for the street and highway portion.
- Verify the competency of an existing driver.
- Examine the proficiency of an existing emergency vehicle driver.

Performance Criteria

- Comfortable Seating Position
- Ease and Convenience for Reaching All Essential Vehicle Controls
- Proper Hand Position on the Steering Wheel
- Careful Vehicle Control
- Precise Steering Adjustments
- Consistent Vehicle Speed
- Proper Adjustment and Effective Use of Vehicle Mirrors

Supplemental Highway Driving

- Comply with NFPA 1002 and/or NHTSA's National Standard Curriculum – Ambulance
- Successfully Complete Competency Course First
- Minimum of Ten (10) Hours of Highway Driving

Emphasis on Safety

- Dedicated Safety Officer
- Driver Briefing
- All Personnel Identified and Visible
- Only Personnel with Assignment on Course
- Radio Communications
- Vehicle Can Be Declared as Unsafe
- Malfunctions Reported Immediately

Emphasis on Safety

- Only One Vehicle on Course at Any Time
- Second Person in Cab of Vehicle
- All Personnel Seated and Belted
- No Food, Drink, or Smoking Permitted
- Maximum Course Speed – 25 kph
- Operate with Headlights On
- Proceed Only After Being Given Signal

Scoring of Competency Course

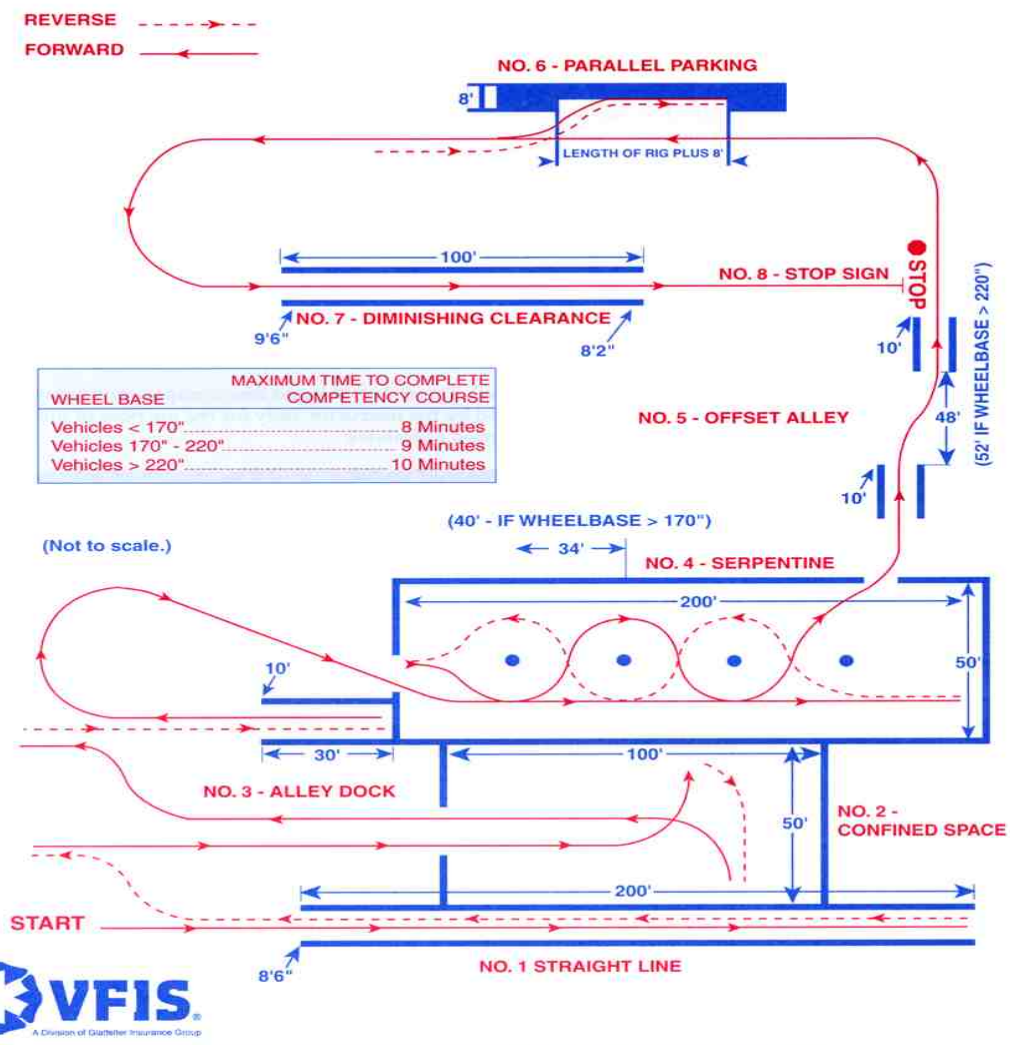
- Each cone brushed, moved, or overturned 10 Points
- Cross any line, each time crossed. 3 Points
- Park 12” or more from the curb (Parallel Park) 3 Points
- Stop 18” or more from or go past the measured point 10 Points

Competency Course

- Station One — Straight Line
- Station Two* — Confined Space Turn Around
- Station Three* — Alley Dock
- Station Four* — Serpentine
- Station Five — Offset Alley
- Station Six — Parallel Parking
- Station Seven* — Diminishing Clearance
- Station Eight — Stop Sign

***NFPA 1002- Required**

COMPETENCY COURSE



(Not to scale.)

WHEEL BASE	MAXIMUM TIME TO COMPLETE COMPETENCY COURSE
Vehicles < 170"	8 Minutes
Vehicles 170" - 220"	9 Minutes
Vehicles > 220"	10 Minutes

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For more information, see instructor's guide and videotape.

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QUESTIONS