

# **New Hampshire Fire Academy Driver / Operator – All Vehicles 2016 Curriculum Pilot Class Summary**

## **Curriculum**

### Classroom Presentation

- 5 Modules / 16 Hours
- 4 of the 5 Modules were designed by NHFA staff and are completely new.
  - Module 1: Driving & Operating the Vehicle
  - Module 2: Vehicle Checks & Maintenance
  - Module 3: Driving & Operating the Vehicle
  - Module 4: Emergency Response
- The new modules were designed in the same format and style as the previously revised Driver/Operator-Aerial Apparatus & Driver/Operator-Pumping Apparatus classes.
- Module 5 is the National Traffic Incident Management Responder Training Program developed by the US Department of Transportation.

### Skill Drills

- 10 Skill Drills / 8 Hours
- Skill Drills are designed to meet the requirements of the NFPA 1002 standard as well as CDL testing.
- Skill Drills that did not change from the previous curriculum:
  - DOAV-2: Basic Driving Skills (previously developed by NHFA staff)
  - DOAV-5: Parallel Parking (CDL skill)
  - DOAV-6: Alley Dock (NFPA 1002 & CDL skill)
  - DOAV-7: Straight Line & Offset Backing (CDL skill)
  - DOAV-8: Serpentine (NFPA 1002 skill)
  - DOAV-9: Confined Space Turnaround (NFPA 1002 skill)
  - DOAV-10: Diminishing Vertical Clearance (NFPA 1002 skill)
- Skill Drills that were revised:
  - DOAV-1: Vehicle Checks. Revised to better comply with the requirements of NFPA 1002 as well as the CDL Pre-Trip Inspection format.
- Skill Drills that are new:
  - DOAV-3: Emergency Driving Skills. Developed to replace the old Perception Reaction Skill Drill. The new skill drill better complies with the NFPA 1002 standard and includes the following elements:
    - Traffic Signal Prop with simulated traffic preemption signal to replicate an intersection
    - Railroad Crossing Prop
    - Restricted Horizontal Clearance Prop
    - Props to create controlled scenarios that force the driver to take emergency/evasive action, including lane changes and stops.

- DOAV-4: Traffic Incident Management. Taken directly from US DOT curriculum.

### **Pilot Classes**

#### NHFA: July 2016 (CREF 2317DOAV89)

- All Classroom Modules were delivered as intended with no problems encountered. Several minor slide revisions were identified to correct spelling errors, font errors, etc. Several photos were identified as needing to be replaced.
- All Skill Drills were delivered as intended with no problems encountered.
  - It was discovered that minor adjustments were needed to the new props used for Skill Drill DOAV-3: Emergency Driving Skills.
  - Student feedback for Skill Drill DOAV-3 was positive. Students felt that the drill was effective and a valuable learning experience. Many suggestions were given on ways to enhance the drill.

#### Derry Fire: October 2016 (CREF 2317DOAV166)

- All Classroom Modules were delivered as intended with no problems encountered.
- All Skill Drills were delivered as intended with no problems encountered.
  - The adjustments were to the new props used for Skill Drill DOAV-3: Emergency Driving Skills were effective.
  - Student feedback for Skill Drill DOAV-3 was positive. Students again felt that the drill was effective and a valuable learning experience. The suggestions from the first pilot class were incorporated and enhanced the drill; further suggestions will be incorporated into the final version of the drill.

## **Benefits of the New Curriculum**

- All 3 Driver/Operator programs now utilize the same textbook.
- The classroom presentation now matches the format and style of the Driver/Operator-Aerial Apparatus & Driver/Operator-Pumping Apparatus classes.
- The classroom presentation is predominately composed of photos of New Hampshire vehicles and apparatus thereby creating more interest and buy-in from students.
- The classroom presentation was developed in-house by NHFA staff. The NHFA has complete control of the content of the presentation. As NFPA standards, CDL testing requirements, textbooks, etc. are updated and change there will be minimal time and cost involved with updating the classroom presentation.
- Fire Chiefs throughout NH have previously indicated that quality training that helps prepare their members for CDL testing is needed; the revised curriculum better addresses those needs.
- Skill Drill DOAV-3: Emergency Driving Skills replaces the old Perception Reaction evolution which required a very large area to set-up and presented safety concerns.
- Fire Chiefs throughout NH have previously indicated that quality training that helps prepare their members for CDL testing is needed; the revised curriculum better addresses those needs.
- The revised format of the Driving Day is designed to potentially include additional evolutions should the NHFA obtain a Driving Simulator in the future. These evolutions/simulations could include response scenarios and emergency situations (loss of traction, leaving the roadway, etc.)

# DRIVER / OPERATOR – ALL VEHICLES

## OUTLINE & LESSON PLAN

CURRICULUM DEVELOPED & ADOPTED: *PENDING*



**New Hampshire Department of Safety**

**Division of Fire Standards &  
Training & Emergency Medical Services**

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## *COURSE DESCRIPTION*

The Driver/Operator-All Vehicles class is designed to introduce students to the types of emergency vehicles, the various components of modern emergency vehicles, the procedure for conducting vehicle checks, basic driving skills, emergency driving skills, and procedures for safe operations at roadway incidents.

## *COURSE PREREQUISITES*

- Valid Driver's License

## *COURSE LENGTH*

- Classroom: 16 Hours
- Practical: 8 Hours
- **Total Course Time: 24 Hours**

## *COURSE TERMINAL OBJECTIVE*

To provide fire and ems personnel with the basic knowledge and skills required to safely drive, operate, check, and maintain modern emergency vehicles.

## *COURSE TEXTBOOK*

IFSTA Pumping Apparatus Driver/Operator Handbook, Third Edition

Or

IFSTA Pumping and Aerial Apparatus Driver/Operator Handbook, Third Edition

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# *CLASSROOM PRESENTATIONS*

## Introduction

- Welcome & Introductions

## Module 1: Understanding the Vehicle

- Vehicle Types
- Vehicle Construction & Terminology
- Vehicle Dynamics

## Module 2: Vehicle Checks & Maintenance

- Conducting Vehicle Checks
- Maintenance & Repair

## Module 3: Driving & Operating the Vehicle

- Preparing to Drive the Vehicle
- Basic Driving Skills
- Driving Emergencies

## Module 4: Emergency Response

- Response Procedures
- Vehicle Positioning

## Module 5: Traffic Incident Management

- Introduction
- TIM Fundamentals & Terminology
- Notification & Size-Up
- Safe Vehicle Positioning
- Scene Safety
- Command Responsibilities
- Traffic Management
- Special Circumstances
- Clearance & Termination

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## **Module 1: Understanding the Vehicle**

<b>Standards Referenced</b>	<ul style="list-style-type: none"><li>• NFPA 1002 (2014): 4.2.1 &amp; 4.3</li><li>• 49 CFR: Part 383.111</li></ul>
<b>Time Required for Module Completion</b>	4 Hours
<b>Instructor/Student Ratio</b>	2 Instructors / 16 Students
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• Classroom with AV Equipment</li><li>• NHFA D/O-AV Classroom Delivery Kit # 1</li></ul>
<b>Textbook References</b>	<ul style="list-style-type: none"><li>• CH 1</li><li>• CH 3: pages 108 (starting with ABS) to 112</li></ul>
<b>Additional Resources</b>	<ul style="list-style-type: none"><li>• NFPA 1901</li><li>• Federal Motor Carrier Safety Regulations Handbook</li></ul>

### **Objectives**

At the conclusion of Module 1 students will be able to:

1. Describe the types of emergency vehicles and list the standards that apply to each vehicle type.
2. Recognize vehicle components and explain their function.
3. Describe factors that affect vehicle dynamics and relate how they influence operating an emergency vehicle.

### **Outline**

#### **1.1 *Vehicle Types***

##### 1.1.1 Staff Vehicles

##### 1.1.2 Cab & Chassis Types

- A. Conventional
- B. Cab-Forward

##### 1.1.3 Ambulances

- A. Type I
- B. Type II
- C. Type III

##### 1.1.4 Pumper Fire Apparatus

##### 1.1.5 Initial Attack Fire Apparatus

- 1.1.6 Mobile Water Supply Fire Apparatus
- 1.1.7 Mobile Foam Fire Apparatus
- 1.1.8 Aerial & Quint Fire Apparatus
- 1.1.9 Special Service Fire Apparatus
- 1.1.10 Trailers
- 1.1.11 Wildland Fire Apparatus
- 1.1.12 Aircraft Rescue & Firefighting Vehicles

## **1.2 Vehicle Construction & Terminology**

### 1.2.1 Chassis Components

- A. Frame & Components
  - 1. Frame Rails
  - 2. Cross Members
  - 3. Fuel Tanks & Fuel Lines
- B. Suspension Components
  - 1. Axles
  - 2. Springs
  - 3. Struts
  - 4. Rubber Block
  - 5. Air
  - 6. Hydraulic
  - 7. Independent
- C. Steering Components
  - 1. Steering Column
  - 2. Steering Box
  - 3. Pitman Arm
  - 4. Drag Link
  - 5. Steering Arm
  - 6. Tie Rods
- D. Wheels & Tires
  - 1. Split Rims
  - 2. Disc
  - 3. Wheel Simulators
  - 4. Tire Tread & Sidewalls
  - 5. Valve Stems & Caps
- E. Engine & Driveline Components
  - 1. Fuel Types
    - A. Gasoline

- B. Diesel
    - C. Alternative Fuels
  - 2. Cooling Systems
  - 3. Exhaust Systems
    - A. Basic Components
    - B. 2007 Emissions Controls
    - C. 2010 Emissions Controls
  - 6. Transmission, Driveshaft, & Differential
- F. Brake Components
  - 1. Actuating Systems
    - A. Hydraulic
    - B. Air
    - C. Air Over Hydraulic
  - 2. Foundation Brakes
    - A. Drum
    - B. Disc
  - 3. Auxiliary Brakes
    - A. Compression
    - B. Exhaust
    - C. Transmission Retarder
    - D. Driveline Retarder
  - 4. Anti-Lock Brakes (ABS)
  - 5. Roll Stability Control (RSC) & Electronic Stability Control (ESC)
- G. Electrical Components
  - 1. Batteries
  - 2. Alternator
  - 3. Wiring
  - 4. Multiplexing

### 1.2.2 Cab & Crew Areas

- A. Seats, Seat Belts, & Supplemental Restraint Systems
- B. Mirrors
- C. Controls
  - 1. Battery & Ignition
  - 2. Steering Wheel
  - 3. Throttle
  - 4. Brakes
  - 5. Transmission
  - 6. Lights

- 7. Mirrors
- 8. Windshield Wipers
- 9. HVAC
- 10. Traction Control, Differential Locks, & Inter-Axle Locks
- D. Gauges, Indicators, & Information Centers
- E. Rear & Side Vision Cameras
- F. Information Centers
- G. Passive Monitoring Systems
  - 1. Vehicle Data Recorders
  - 2. Monitoring Cameras

### 1.2.3 Auxiliary Components

- A. Fixed Vehicle Specific Components
- B. Tire Chains
- C. Warning Devices
  - 1. Visual
  - 2. Audible
  - 3. Traffic Preemption Devices
- D. Reflective Striping & Trim
- E. Equipment Mounting

## 1.3 **Vehicle Dynamics**

### 1.3.1 Vehicle Design

- A. Dimensions & Weight
- B. Angles
  - 1. Wheelbase
  - 2. Angle of Approach
  - 3. Ramp Break-Over Angle
  - 4. Angle of Departure
- C. Turning Radius & Cramp Angle
- D. Axle Ratings
- E. Weight Distribution
- F. Center of Gravity

### 1.3.2 Vehicle Operation

- A. Physics
  - 1. Potential Energy
  - 2. Kinetic Energy
  - 3. Velocity & Speed
  - 4. Inertia & Momentum
  - 5. Friction

6. Centrifugal Force
- B. Vehicle Motion
1. Pitch
  2. Roll
  3. Yaw
  4. Inertia & Momentum

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## Module 2: Vehicle Checks & Maintenance

<b>Standards Referenced</b>	<ul style="list-style-type: none"><li>• NFPA 1002 (2014): 4.2 &amp; 4.3.1</li><li>• 49 CFR: Part 383.111</li></ul>
<b>Time Required for Module Completion</b>	4 Hours
<b>Instructor/Student Ratio</b>	2 Instructors / 16 Students
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• Classroom with AV Equipment</li><li>• Fire Station Apparatus Floor or Similar Open Area</li><li>• NHFA D/O-AV Classroom Delivery Kit # 2</li><li>• NHFA D/O-AV Props</li><li>• Department SOGs</li></ul>
<b>Textbook References</b>	<ul style="list-style-type: none"><li>• CH 2: pages 27 to 68</li></ul>
<b>Additional Resources</b>	<ul style="list-style-type: none"><li>• NFPA 1901</li><li>• NFPA 1911</li><li>• NH Commercial Driver's License Manual</li></ul>

### Objectives

At the conclusion of Module 2 students will be able to:

1. Explain the importance of conducting emergency vehicle checks.
2. List and explain the steps to be taken to conduct an emergency vehicle check.
3. Recognize situations that would place an emergency vehicle out of service.
4. Describe considerations for the maintenance and repair of emergency vehicles.

### Outline

#### **2.1: *Conducting Vehicle Checks***

2.1.1: Importance of Checks

2.1.2: Pre-Use Checks

- A. Equipment & Supplies
- B. Vehicle Overview
  1. Records Review
  2. General Condition
- C. Engine Compartment Check
  1. Overview

2. Engine Oil
  3. Cooling System
  4. Transmission Fluid
  5. Power Steering Fluid & Hoses
  6. Belts
  7. Batteries
  8. Electrical Components
  9. Windshield Washer Fluid
- D. Cab Check
1. Battery & Ignition
  2. Gauges & Indicators
  3. Steering Wheel
  4. Accelerator
  5. Brake Controls
  6. Horn
  7. Windshield & Windshield Wipers
  8. Mirrors
  9. Lights
  10. Safety Equipment
- E. Exterior Walk-Around Check
1. Lights
  2. Glass, Doors, & Latches
  3. Wheels
  4. Tires
  5. Brake Components
  6. Frame & Fuel Tank
  7. Driveline Components
  8. Electrical Components
  9. Steering Components
  10. Suspension Components
  11. Exhaust Components
  12. Miscellaneous Items & Equipment
- F. Brake Check
1. Hydraulic
  2. Air
    - 2A: Air Pressure Loss Rate
    - 2B: Low Air Alarms
    - 2C: Spring Brake Application
    - 2D: Governor Check

2E: Spring Brake Test

2F: Brake Application

G. Auxiliary Equipment Checks

H. Driving the Vehicle

### 2.1.3: In-Use & Post-Use Checks

### 2.1.4: Out of Service Criteria

A. Regulations & Procedures

B. Categories

C. Examples

D. Notifications

### 2.1.5: Documentation

## **2.2: *Maintenance & Repair***

### 2.2.1: Preventative Maintenance

A. Cleaning

B. Adding Fluids

D. Preventative Maintenance Programs

### 2.2.2: Repairs

A. Repairs that Can Be Completed by the Driver/Operator

B. Repairs that Must Be Completed by a Mechanic

C. Documentation

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## **Module 3: Driving & Operating the Vehicle**

<b>Standards Referenced</b>	<ul style="list-style-type: none"><li>• NFPA 1002 (2014): 4.3</li><li>• 49 CFR: Part 383.111</li></ul>
<b>Time Required for Module Completion</b>	2 Hours
<b>Instructor/Student Ratio</b>	2 Instructors / 16 Students
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• Classroom with AV Equipment</li></ul>
<b>Textbook References</b>	<ul style="list-style-type: none"><li>• CH 3: pages 77 to 99, 113 to 116, 118 to 131</li></ul>
<b>References</b>	<ul style="list-style-type: none"><li>• NH Commercial Driver's License Manual</li></ul>

### **Objectives**

At the conclusion of Module 3 students will be able to:

1. List and describe the factors to be considered and steps to be taken when preparing to drive an emergency vehicle.
2. Explain the basic driving skills used to safely drive an emergency vehicle.
3. Explain the actions to be taken when unanticipated situations are encountered while driving an emergency vehicle.

### **Outline**

#### **3.1: *Preparing to Drive the Vehicle***

##### 3.1.1: Vehicle Readiness

##### 3.1.2: Driver Readiness

- A. Knowledge, Skills, & Abilities
- B. Personal Attributes & Considerations
  1. Attitude
  2. Health
  3. Medication Use
  4. Alcohol Use
  5. Sleep

##### 3.1.3: Start-Up Procedures

1. Circle Check
2. Entering the Vehicle
3. Adjusting Cab Features & Controls

- 3A: Seat
- 3B: Seat Belt
- 3C: Steering Wheel
- 3D: Mirrors
- 3E: Seat Belts & Safety Equipment

#### 4. Starting the Vehicle

### **3.2: *Driving Skills***

#### 3.2.1: Understanding Vehicle Dimensions & Weight

#### 3.2.2: Acceleration

#### 3.2.3: Braking

- A. Minimizing Pitch
- B. Stopping Distance
  - 1. Perception Distance
  - 2. Reaction Distance
  - 3. Braking Distance
  - 4. Air Brake Lag Time

#### 3.2.4: Steering

- A. Hand Placement
- B. Push / Pull Technique
- C. Visual Practices

#### 3.2.5: Cornering

- A. Effects of Centrifugal Force
- B. Corner Critical Speed
- C. Vehicle Positioning
  - 1. Early Apex
  - 2. Late Apex

#### 3.2.6: Vehicle Handling & Defensive Driving

- A. Lane Positioning
- B. Visual Practices
- C. Space & Speed Management

#### 3.2.7: Backing

- A. Use of Spotters
- B. Hand Signals
- C. Use of Cameras

#### 3.2.8: Inclement Weather

- A. Wind
- B. Decreased Visibility

- C. Flooding / High Water
- D. Slippery Road Conditions
  - 1. General Considerations
  - 2. Use of Auxiliary Brakes
  - 3. Use of Tire Chains

3.2.9: Distracted Driving

**3.3: *Unanticipated Situations / Driving Emergencies***

3.3.1: Loss of Traction/Skids

3.3.2: Leaving the Roadway

3.3.3: Mechanical Failure

- A. Tires
- B. Brakes

3.3.4: Collision Avoidance & Emergency Braking

3.3.5: Unavoidable Collisions

3.3.6: Post-Collision Procedures

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## **Module 4: Emergency Response**

<b>Standards Referenced</b>	<ul style="list-style-type: none"><li>• NFPA 1002 (2014): 4.3</li></ul>
<b>Time Required for Module Completion</b>	2 Hours
<b>Instructor/Student Ratio</b>	2 Instructors / 16 Students
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• Classroom with AV Equipment</li></ul>
	<ul style="list-style-type: none"><li>• CH 3: pages 100 to 104, 135 (starting with Special Positioning) to 155</li></ul>

### **Objectives**

At the conclusion of Module 3 students will be able to:

1. Describe the legal considerations for operating an emergency vehicle on an emergency response.
2. Explain the factors to consider when preparing for an emergency response and the procedures for operating the vehicle on an emergency response.
3. Explain considerations for the safe positioning of emergency vehicles.

### **Outline**

#### **4.1: Response Procedures**

##### 4.1.1: Legal Considerations

- A. Laws, Standards, & Procedures
  1. New Hampshire RSAs
  2. NFPA Standards / Industry Best Practices
  3. Department Policies & Procedures
- B. Legal Terms & Concepts
  1. Duty
  2. Liability
  3. Vicarious Liability
  4. Negligence
  5. Gross Negligence / Reckless Disregard

##### 4.1.2: Pre-Response

- A. Considerations
  1. Nature of the Call / Response Mode
  2. Location

- 3. Time of Day
- 4. Weather Conditions
- B. Vehicle Readiness
- C. Start-Up Procedures
  - 1. Starting the Vehicle
  - 2. Donning of PPE
  - 3. Seat Belts

#### 4.1.3: Emergency Response Driving Skills

- A. Driver Attitude
- B. Use of Warning Devices
  - 1. Visual Devices
  - 2. Audible Devices
- C. Space & Speed Management
- D. Maneuvering Around Traffic
- E. Intersections
- F. Limited Access Highways
- G. Multiple Responding Vehicles
- H. Ambulance Operations: Transport
  - 1. Patient Care Considerations
  - 2. Use of Occupant & Equipment Restraints
  - 3. Transport Considerations
- I. Personally Owned Vehicles

### **4.2: *Vehicle Positioning at Incidents***

#### 4.2.1: General Considerations

#### 4.2.2: Staging

#### 4.2.3: Fire Ground Operations

#### 4.2.4: Roadway Operations

## **Module 5: Traffic Incident Management**

<b>Standards Referenced</b>	<ul style="list-style-type: none"><li>• NFPA 1002 (2014)</li></ul>
<b>Time Required for Module Completion</b>	4 Hours
<b>Instructor/Student Ratio</b>	2 Instructors / 16 Students
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• Classroom with AV Equipment</li><li>• TIMs materials</li></ul>

### **Objectives**

1. Lesson 1: At the conclusion of this lesson, participants will be able to:
  - i. Describe the purpose of the Strategic Highway Research Program 2 (SHRP 2) National TIM Responder Training Program
  - ii. Recognize the dangers encountered by emergency responders working in or near traffic
  - iii. Define traffic incident management (TIM)
2. Lesson 2: At the conclusion of this lesson, participants will be able to:
  - i. Define safe, quick clearance
  - ii. List the principal laws that relate to responder safety and safe, quick clearance
  - iii. Describe how the Manual on Uniform Traffic Control Devices (MUTCD) relates to TIM
  - iv. Recall common response terminology, land designations, and incident scene terminology
3. Lesson 3: At the conclusion of this lesson participants will be able to:
  - i. Recognize the important role public safety communications centers play in incident response
  - ii. Describe the notification and verification process
  - iii. Recall the typical responsibilities of a Transportation Management Center (TMC)
  - iv. List the key information that should be included in a scene size-up report
4. Lesson 4: At the conclusion of this lesson participants will be able to:
  - i. Differential between Move It and Work It incidents

- ii. State the MUTCD definition of safe-positioned and describe blocking
  - iii. Define Lane + 1 blocking and describe the need for it
  - iv. Describe safe practices for working around or avoiding the zero buffer
- 5. Lesson 5: At the conclusion of this lesson participants will be able to:
  - i. Describe how emergency vehicle markings can improve scene safety
  - ii. Describe recommendations for emergency-vehicle lighting as set forth in the MUTCD
  - iii. Describe high-visibility safety apparel requirements for incident response
- 6. Lesson 6: At the conclusion of this lesson participants will be able to:
  - i. Describe both the need and the requirements for establishing and participating in the Incident Command System (ICS)
  - ii. Describe when it is appropriate to implement Unified Command
  - iii. Identify the need for an use of Staging Areas
- 7. Lesson 7: At the conclusion of this lesson participants will be able to:
  - i. Describe the four main components of a Traffic Incident Management Area
  - ii. Identify conditions at an incident scene that would require the Advanced Warning Area be extended
  - iii. Describe the need for, and how to set up, a taper
  - iv. Identify and describe the two types of buffers that may be established at an incident scene
- 8. Lesson 8: At the conclusion of this lesson participants will be able to:
  - i. Identify the safety concerns related to responding to an incident involving a vehicle fire
  - ii. Describe how to identify what hazardous material is being transported
  - iii. Recount good practices for responding to an incident involving a vehicle fluid spill
  - iv. Describe the primary goal of a crash investigation and the importance of preserving short-lived evidence
  - v. Describe the importance of performing response tasks concurrently as it relates to safe, quick clearance
- 9. Lesson 9: At the conclusion of this lesson participants will be able to:

- i. Describe quick clearance strategies for both minor incidents and incidents that involve tractor trailers and/or spilled cargo
- ii. List the types of information that needs to be provided to towing and recovery to facilitate their response
- iii. Describe the major activities that take place during termination and identify safety related considerations for scene breakdown

## **Outline**

### **5.1: Lesson 1: Introduction**

5.1.1: TIM History & Course Overview

5.1.2: "D" Drivers

5.1.3: Statistics & Case Studies

5.1.4: TIM Definition

### **5.2: Lesson 2: TIM Fundamentals & Terminology**

5.2.1: Safe, Quick Clearance

5.2.2: Removal Laws

5.2.3: MUTCD Chapter 61

5.2.4: Traffic Incident Management Area Components & Terminology

### **5.3: Lesson 3: Notification & Scene Size-Up**

5.3.1: Communications & Traffic Management Center Functions

5.3.2: Windshield Size-Ups & Progress Reports

5.3.3: Incident Duration Classifications

### **5.4: Lesson 4: Safe Vehicle Positioning**

5.4.1: Work the Scene vs. Move the Scene

5.4.2: Vehicle Positioning & Blocking

### **5.5: Lesson 5: Scene Safety**

5.5.1: Emergency Vehicle Markings

5.5.2: Emergency Vehicle Lighting

5.5.3: Emergency Responder PPE

### **5.6: Lesson 6: Command Responsibilities**

5.6.1: Incident Command System

5.6.2: Incident Action Plans

**5.7: Lesson 7: Traffic Management**

5.7.1: Traffic Incident Management Area Components

5.7.2: Temporary Traffic Control Distances

5.7.3: Advanced Warning Area

5.7.4: Transition Area, Tapers, & Buffer Space

5.7.5: Incident Space

5.7.6: Termination Area

**5.8: Lesson 8: Special Circumstances**

5.8.1: Fire & Hazardous Materials Considerations

5.8.2: Medical Helicopter Landing Zones

5.8.3: Law Enforcement & Related Investigations

**5.9: Lesson 9: Clearance & Termination**

5.9.1: Quick Clearance Considerations

5.9.2: Towing & Recovery Considerations

5.9.3: Incident Termination

# SKILL DRILLS

## Introduction & Safety Briefing

### DOAV-1

Vehicle Checks

### DOAV-2

Basic Driving Skills

### DOAV-3

Emergency Driving Skills

### DOAV-4A

TIMs – Vehicle Positioning (Table-Top)

### DOAV-4B

TIMs – Advanced Warning & Scene Safety

### DOAV-5

Parallel Parking

### DOAV-6

Alley Dock

### DOAV-7

Straight Line &  
Offset Backing

### DOAV-8

Serpentine

### DOAV-9

Confined Space  
Turnaround

### DOAV-10

Diminishing Vertical  
Clearance

## *Review & Conclusion*

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## **Skill Drill DOAV-1: Vehicle Checks**

<b>Standards Referenced</b>	<ul style="list-style-type: none"><li>• NFPA 1002 (2014): 4.2.1 &amp; 4.2.2</li><li>• 49 CFR: Part 383.113</li></ul>
<b>Skill Drill Prerequisites</b>	<ul style="list-style-type: none"><li>• Completion of All Classroom Modules</li><li>• Completion of the Introduction &amp; Safety Briefing</li></ul>
<b>Time Required for Skill Drill Completion</b>	2 Hours
<b>Instructor/Student Ratio</b>	1 Instructors / 2-3 Students
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• FESO Vehicles: 1</li><li>• NHFA DOAV Vehicle Check Kit</li></ul>
<b>References</b>	<ul style="list-style-type: none"><li>• NH Commercial Driver's License Manual</li><li>• Federal Motor Carrier Rules &amp; Regulations</li></ul>

### **Objective**

At the conclusion of Skill Drill DOAV-1 students will be able to:

1. Demonstrate the procedure for conducting a daily safety & readiness check of an emergency vehicle.

### **Outline**

1. Vehicle Overview
  - a. Prepare Vehicle for Check
  - b. Check General Vehicle Condition
  - c. Review Previous Maintenance Records
2. Engine Compartment Check
  - a. Verify Vehicle is Secure / Open Engine Compartment or Tilt Cab
  - b. Check for Fluid Leaks
  - c. Check Engine Oil
  - d. Check Radiator
  - e. Check Coolant
  - f. Check Hoses
  - g. Check Belts
  - h. Check Batteries

- i. Check Air Compressor
- j. Check Electrical Wiring
- k. Check Exhaust Components
- l. Check Frame Rails & Cross Members
- m. Check Suspension Components
- n. Check Steering Components
- o. Check Power Steering Fluid
- p. Check Wheels
- q. Check Tires
- r. Check Brake Components
- s. Check Windshield Washer Fluid
- t. Start Engine & Check Transmission Fluid

### 3. Cab Check

- a. Verify Vehicle is Secure
- b. Check Mirrors
- c. Check Windshield & Glass
- d. Check Safety Equipment
- e. Start Engine
- f. Check Gauges & Indicators
  - i. ABS Light
  - ii. Oil Pressure
  - iii. Air Pressure
  - iv. Transmission Temperature
  - v. Voltmeter
  - vi. Coolant Temperature
- g. Check for Warning Signals: Audible or Visual
- h. Check Steering Wheel
- i. Check Accelerator Pedal
- j. Check Brake Pedal
- k. Check Transmission Selector
- l. Check Windshield Wipers / Washer
- m. Check Horns
- n. Check Headlights
- o. Check Turn Signals & Hazard Lights
- p. Shut Off Engine

### 4. Exterior Walk-Around and Light Check

- a. Verify Vehicle is Secure
- b. Check Headlights

- i. Low Beam
    - ii. High Beam
  - c. Check Turn Signals & Hazard Lights
  - d. Check Clearance, Marker, & Parking Lights
  - e. Check Brake Lights
  - f. Check Windshield
  - g. Check Windshield Wipers
  - h. Check Side Glass
  - i. Check Doors & Latches
  - j. Check Body
    - i. Compartment Doors & Latches
    - ii. Equipment & Covers
  - k. Check Fuel Fill / Fuel Cap
  - l. Check License Plate & Light
  - m. Check Splash Guards
  - n. Check Electrical Wiring
  - o. Check Frame Rails & Cross Members
  - p. Check Driveshaft
  - q. Check Rear Suspension Components
  - r. Check Rear Axle & Differential
  - s. Check Rear Wheels
  - t. Check Rear Tires
  - u. Check Rear Brake Components
  - v. Check Fuel Tank
- 5. Air-Brake Check
  - a. Preparation
  - b. Test Air Leak Rate
  - c. Check Low Air Pressure Warning Signals
  - d. Start Engine
  - e. Verify Rate of Air Pressure Buildup
  - f. Verify Compressor Cut-In & Cut-Out Pressures
  - g. Test Parking Brake
  - h. Test Service Brake

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## **Skill Drill DOAV-2: Basic Driving Skills**

<b>Standards Referenced</b>	<ul style="list-style-type: none"><li>• NFPA 1002 (2014): 4.3.1</li><li>• 49 CFR: Part 383.113</li></ul>
<b>Skill Drill Prerequisites</b>	<ul style="list-style-type: none"><li>• Completion of All Classroom Modules</li><li>• Completion of Skill Drill DOAV-1</li></ul>
<b>Time Required for Skill Drill Completion</b>	2 Hours
<b>Instructor/Student Ratio</b>	4 Instructors / 8 Students
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• FESO Vehicles: 4 (Approved by NHFA D/O PC)</li><li>• Large Fluorescent Yellow Traffic Cones: 50</li><li>• Small Orange Traffic Cones: 150</li><li>• Steering Wheel Props: 2</li><li>• NHFA Portable Radios: 1 for Each Instructor &amp; Non-NHFA FESO Vehicle</li><li>• Traffic Safety Vests: 1 for Each Instructor</li></ul>

### **Objectives**

At the conclusion of Skill Drill DOAV-2 students will be able to:

1. Demonstrate correct acceleration and braking techniques.
2. Demonstrate correct cornering techniques.
3. Demonstrate correct steering techniques.

### **Outline**

#### Part A

1. Cone Course Familiarization
2. Acceleration & Braking Techniques

#### Part B

1. Trailover Correction
2. Cornering Techniques

#### Part C

1. Steering Techniques

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## Skill Drill DOAV-3: Emergency Driving Skills

<b>Standards Referenced</b>	<ul style="list-style-type: none"><li>• NFPA 1002 (2014): 4.3.6</li></ul>
<b>Skill Drill Prerequisites</b>	<ul style="list-style-type: none"><li>• Completion of All Classroom Modules</li><li>• Completion of Skill Drills DOAV-1 &amp; 2</li></ul>
<b>Time Required for Skill Drill Completion</b>	30 Minutes
<b>Instructor/Student Ratio</b>	3 Instructors / 4 Students
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• FESO Vehicles: 2 (Approved by NHFA D/O PC)</li><li>• Large Fluorescent Yellow Traffic Cones: <b>TBD</b></li><li>• Small Orange Traffic Cones: <b>TBD</b></li><li>• NHFA Portable Radios: 1 for Each Instructor &amp; Non-NHFA FESO Vehicle</li><li>• Traffic Safety Vests: 1 for Each Instructor</li><li>• Props:</li></ul>

### **Objectives**

At the conclusion of Skill Drill DOAV-3 students will be able to:

1. Demonstrate management of intersection hazards.
2. Demonstrate emergency lane change maneuvers.
3. Demonstrate emergency braking and collision avoidance techniques.
4. Recognize restricted horizontal clearance that prohibit forward operation of the vehicle.

### **Outline**

1. Intersection Management
2. Railroad Crossing Management
3. Emergency Lane Change
4. Emergency Braking & Collision Avoidance
5. Determination of Restricted Horizontal Clearance

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## **Skill Drill DOAV-4: Traffic Incident Management**

<b>Standards Referenced</b>	<ul style="list-style-type: none"><li>• NFPA 1091</li></ul>
<b>Skill Drill Prerequisites</b>	<ul style="list-style-type: none"><li>• Completion of Classroom Module 5</li></ul>
<b>Time Required for Skill Drill Completion</b>	Part A: 30 Minutes (Conducted simultaneously with DOAV-3) Part B: 30 Minutes
<b>Instructor/Student Ratio</b>	4 Instructor / 8 Students
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• NHFA DOAV TIMs Tabletop Kit</li><li>• Traffic Safety Vests: 1 for Each Instructor &amp; Student</li></ul>
<b>References</b>	<ul style="list-style-type: none"><li>• TIMs Support Materials</li></ul>

### **Objectives**

At the conclusion of Skill Drill DOAV-4 students will be able to:

1. Demonstrate the ability to position emergency apparatus at the scene of a roadway incident to protect the scene.
2. Demonstrate the ability to safely exit emergency apparatus parked at a roadway incident.
3. Demonstrate the ability to establish advanced warning and cone tapers at roadway incidents.

### **Outline**

#### Part A

1. Apparatus Positioning at Incidents on Two-Lane Roadways
2. Apparatus Positioning at Incidents on Limited Access Roadways

#### Part B

1. Safe Practices for Exiting Apparatus Parked at Roadway Incidents
2. Safe Practices for Establishing a Cone Taper at Roadway Incidents
3. Safe Practices for Establishing Early Warning at Roadway Incidents

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## **Skill Drill DOAV-5: Parallel Parking**

<b>Standards Referenced</b>	<ul style="list-style-type: none"><li>• 49 CFR: Part 383.113</li></ul>
<b>Skill Drill Prerequisites</b>	<ul style="list-style-type: none"><li>• Completion of All Classroom Modules</li><li>• Completion of Skill Drills DOAV-1 &amp; 2</li></ul>
<b>Time Required for Skill Drill Completion</b>	20 Minutes
<b>Instructor/Student Ratio</b>	1 Instructor / 2-3 Students
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• FESO Vehicles: 1 (Approved by NHFA D/O PC)</li><li>• Large Fluorescent Yellow Traffic Cones: <b>TBD</b></li><li>• Small Orange Traffic Cones: <b>TBD</b></li><li>• NHFA Portable Radios: 1 for Each Instructor &amp; Non-NHFA FESO Vehicle</li><li>• Traffic Safety Vests: 1 for Each Instructor &amp; Student</li></ul>

### **Objectives**

At the conclusion of Skill Drill DOAV-5 students will be able to:

1. Demonstrate the ability to Parallel Park an emergency vehicle.
2. Demonstrate the ability to act as a safety spotter to assist a driver positioning an emergency vehicle into a Parallel Parking Space.

### **Outline**

1. Walk-Around Safety Check completed.
2. The vehicle is backed into the Parallel Parking Space from the Driver's Side.
3. The vehicle is backed into the Parallel Parking Space from the Officer's Side

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## **Skill Drill DOAV-6: Alley Dock**

<b>Standards Referenced</b>	<ul style="list-style-type: none"><li>• NFPA 1002 (2014): 4.3.2</li><li>• 49 CFR: Part 383.113</li></ul>
<b>Skill Drill Prerequisites</b>	<ul style="list-style-type: none"><li>• Completion of All Classroom Modules</li><li>• Completion of Skill Drills DOAV-1 &amp; 2</li></ul>
<b>Time Required for Skill Drill Completion</b>	20 Minutes
<b>Instructor/Student Ratio</b>	1 Instructor / 2-3 Students
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• FESO Vehicles: 1 (Approved by NHFA D/O PC)</li><li>• Large Fluorescent Yellow Traffic Cones: <b>TBD</b></li><li>• Small Orange Traffic Cones: <b>TBD</b></li><li>• NHFA Portable Radios: 1 for Each Instructor &amp; Non-NHFA FESO Vehicle</li><li>• Traffic Safety Vests: 1 for Each Instructor &amp; Student</li></ul>

### **Objectives**

At the conclusion of Skill Drill DOAV-6 students will be able to:

3. Demonstrate the ability to Alley Dock an emergency vehicle.
4. Demonstrate the ability to act as a safety spotter to assist a driver positioning an emergency vehicle into an Alley Dock.

### **Outline**

1. Walk-Around Safety Check completed.
2. The vehicle is backed into the Alley Dock from the Driver's Side.
3. The vehicle is backed into the Alley Dock from the Officer's Side

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## Skill Drill DOAV-7: Straight Line & Offset Backing

<b>Standards Referenced</b>	<ul style="list-style-type: none"><li>• 49 CFR: Part 383.113</li></ul>
<b>Skill Drill Prerequisites</b>	<ul style="list-style-type: none"><li>• Completion of All Classroom Modules</li><li>• Completion of Skill Drills DOAV-1 &amp; 2</li></ul>
<b>Time Required for Skill Drill Completion</b>	20 Minutes
<b>Instructor/Student Ratio</b>	1 Instructor / 2-3 Students
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• FESO Vehicles: 1 (Approved by NHFA D/O PC)</li><li>• Large Fluorescent Yellow Traffic Cones: <b>TBD</b></li><li>• Small Orange Traffic Cones: <b>TBD</b></li><li>• NHFA Portable Radios: 1 for Each Instructor &amp; Non-NHFA FESO Vehicle</li><li>• Traffic Safety Vests: 1 for Each Instructor &amp; Student</li></ul>

### **Objectives**

At the conclusion of Skill Drill DOAV-7 students will be able to:

1. Demonstrate the ability to back an emergency vehicle through a straight lane.
2. Demonstrate the ability to back an emergency vehicle into an offset lane.
3. Demonstrate the ability to act as a safety spotter to assist a driver backing an emergency vehicle through a straight lane.
4. Demonstrate the ability to act as a safety spotter to assist a driver backing an emergency vehicle into an offset lane.

### **Outline**

1. Walk-Around Safety Check completed.
2. The vehicle is backed through the Straight Lane.
3. The vehicle is driven to the starting point.
4. The vehicle is backed into the Offset Lane on the Driver's Side of the Vehicle.
5. The vehicle is backed into the Offset Lane on the Officer's Side of the Vehicle.

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## **Skill Drill DOAV-8: Serpentine**

<b>Standards Referenced</b>	<ul style="list-style-type: none"><li>• NFPA 1002 (2014): 4.3.3</li></ul>
<b>Skill Drill Prerequisites</b>	<ul style="list-style-type: none"><li>• Completion of All Classroom Modules</li><li>• Completion of Skill Drills DOAV-1 &amp; 2</li></ul>
<b>Time Required for Skill Drill Completion</b>	20 Minutes
<b>Instructor/Student Ratio</b>	1 Instructor / 2-3 Students
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• FESO Vehicles: 1 (Approved by NHFA D/O PC)</li><li>• Large Fluorescent Yellow Traffic Cones: <b>TBD</b></li><li>• Small Orange Traffic Cones: <b>TBD</b></li><li>• NHFA Portable Radios: 1 for Each Instructor &amp; Non-NHFA FESO Vehicle</li><li>• Traffic Safety Vests: 1 for Each Instructor &amp; Student</li></ul>

### **Objectives**

At the conclusion of Skill Drill DOAV-8 students will be able to:

1. Demonstrate the ability to back an emergency vehicle through a serpentine row of cones.
2. Demonstrate the ability to act as a safety spotter to assist a driver backing an emergency vehicle through a serpentine row of cones.

### **Outline**

1. Walk-Around Safety Check completed.
2. The vehicle is driven through a serpentine row of cones.
3. The vehicle is backed through a serpentine row of cones.

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## **Skill Drill DOAV-9: Confined Space Turnaround**

<b>Standards Referenced</b>	<ul style="list-style-type: none"><li>• NFPA 1002 (2014): 4.3.4</li></ul>
<b>Skill Drill Prerequisites</b>	<ul style="list-style-type: none"><li>• Completion of All Classroom Modules</li><li>• Completion of Skill Drills DOAV-1 &amp; 2</li></ul>
<b>Time Required for Skill Drill Completion</b>	20 Minutes
<b>Instructor/Student Ratio</b>	1 Instructor / 2-3 Students
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• FESO Vehicles: 1 (Approved by NHFA D/O PC)</li><li>• Large Fluorescent Yellow Traffic Cones: <b>TBD</b></li><li>• Small Orange Traffic Cones: <b>TBD</b></li><li>• NHFA Portable Radios: 1 for Each Instructor &amp; Non-NHFA FESO Vehicle</li><li>• Traffic Safety Vests: 1 for Each Instructor &amp; Student</li></ul>

### **Objectives**

At the conclusion of Skill Drill DOAV-9 students will be able to:

1. Demonstrate the ability to turn an emergency vehicle around in an area of restricted clearance.
2. Demonstrate the ability to act as a safety spotter to assist a driver turning an emergency vehicle around in an area of restricted clearance.

### **Outline**

1. Walk-Around Safety Check completed.
2. The vehicle is driven into the area of restricted clearance and positioned to back to change direction.
3. The vehicle is backed to the opposite side of the area of restricted clearance.
4. The vehicle is driven out of the area of restricted clearance.

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## Skill Drill DOAV-10: Diminishing Clearance

<b>Standards Referenced</b>	<ul style="list-style-type: none"><li>• NFPA 1002 (2014): 4.3.5</li><li>• 49 CFR: Part 383.113</li></ul>
<b>Skill Drill Prerequisites</b>	<ul style="list-style-type: none"><li>• Completion of All Classroom Modules</li><li>• Completion of Skill Drills DOAV-1 &amp; 2</li></ul>
<b>Time Required for Skill Drill Completion</b>	20 Minutes
<b>Instructor/Student Ratio</b>	1 Instructor / 2-3 Students
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• FESO Vehicles: 1 (Approved by NHFA D/O PC)</li><li>• Large Fluorescent Yellow Traffic Cones: <b>TBD</b></li><li>• Small Orange Traffic Cones: <b>TBD</b></li><li>• NHFA Portable Radios: 1 for Each Instructor &amp; Non-NHFA FESO Vehicle</li><li>• Traffic Safety Vests: 1 for Each Instructor &amp; Student</li></ul>

### Objectives

At the conclusion of Skill Drill DOAV-10 students will be able to:

1. Demonstrate the ability to drive through an area of restricted clearance on either side of the apparatus.
2. Demonstrate the ability to act as a safety spotter to assist a driver backing an emergency vehicle through an area of restricted side to side clearance.

### Outline

1. Walk-Around Safety Check completed.
2. The vehicle is driven into the area of restricted side to side clearance and stopped as close to the end row of cones as possible.
3. The vehicle is backed through the area of restricted side to side clearance and back to the starting point.



# *STUDENT EVALUATION CRITERIA*

## **Formative Evaluations**

### Cognitive: Quizzes

Students must complete all course quizzes.

- Quiz 1: Module 1
- Quiz 2: Module 2
- Quiz 3: Modules 3 & 4

### Psychomotor: Skill Drills

Students must complete all course Skill Drills.

## **Summative Evaluations**

### Cognitive: Written Certification Exam

A 50 question certification exam consisting of multiple choice questions based upon the IFSTA text: Fire Apparatus Operator Pumper, Third Edition.

### Psychomotor

TBD