

New Hampshire Department of Safety  
Division of Fire Standards and Training & Emergency Medical Services

# DRIVER / OPERATOR – ALL VEHICLES

*2017 EDITION*



## CURRICULUM GUIDE

### *MODULE 4* *DOAV SKILL DRILLS*

Fall 2021 Revision



**Driver / Operator – All Vehicles**  
**Module 4: DOAV Skill Drills**  
**Summary & Outline**

<b>Goal</b>	To provide emergency vehicle driver/operators with an opportunity to drive emergency vehicles under routine and simulated non-emergency conditions in a controlled and supervised environment to develop abilities and confidence.
<b>Objectives</b>	At the conclusion of Module 4, students will be able to: <ol style="list-style-type: none"><li>1. Demonstrate the ability to perform and document an Emergency Vehicle Check.</li><li>2. List and describe the roles and responsibilities of the driver and crew while operating an emergency vehicle.</li><li>3. Explain vehicle dynamics considerations. Demonstrate an understanding of and ability to perform basic driving skills while driving an emergency vehicle.</li><li>4. Demonstrate the ability to drive an emergency vehicle under simulated emergency response conditions.</li><li>5. Explain the requirements of the CDL Basic Skills Control Test and demonstrate an ability to perform the skills required to complete the test while driving an emergency vehicle.</li><li>6. Demonstrate the ability to complete NFPA 1002 maneuvering exercises while driving an emergency vehicle.</li></ol>
<b>Prerequisite(s)</b>	Completion of Modules 1, 2, & 3.
<b>Instructor / Student Ratio</b>	<ul style="list-style-type: none"><li>• 1 Lead Instructor</li><li>• 3 Instructors</li><li>• 8 Students</li></ul>
<b>Time Required for Delivery</b>	8 Hours

**Outline**

**Evolution 4-1: Emergency Vehicle Checks**

**Discussion 4-2: Roles & Responsibilities**

- a. Driver
- b. Officer
- c. Crew

**Evolution 4-3: Basic Driving Skills**

- a. Part 1: Vehicle Positioning
- b. Part 2: Steering
- c. Part 3: Acceleration & Braking

**Evolution 4-4: Emergency Response**

**Evolution 4-5: CDL Maneuvering Skills**

**Evolution 4-6: NFPA Maneuvering Skills**

- a. Station 1: Confined Space Turnaround
- b. Station 2: Diminishing Clearance

c. Station 3: Serpentine

## References

**NH CDL Driver's Guide**

Section 12: Basic Vehicle Control Skills Test

Section 13: On-road Driving

**2021 Commercial Driver License Manual -  
Supplement**

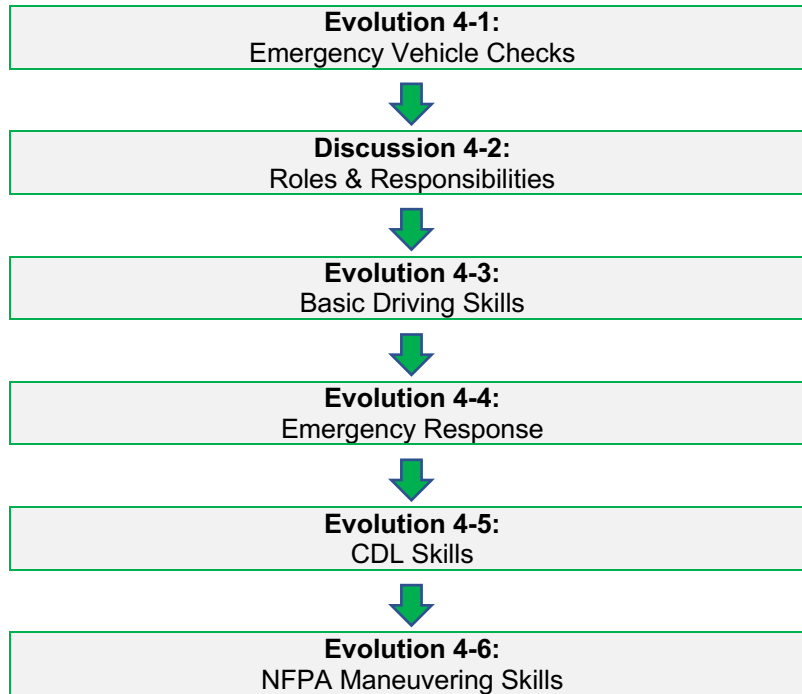
Section 12: Control Skills Test



## DOAV Module 4 Reference Chart

### Skill Drills

### Flow Chart





## Driver / Operator – All Vehicles

### Evolution 4-1

### Vehicle Checks

<b>Objective</b>	At the conclusion of Evolution 4-1, students will be able to: 1. Demonstrate the ability to perform and document an Emergency Vehicle Check.
<b>Delivery Format</b>	Skills Evolution
<b>Skill Sheet(s)</b>	<ul style="list-style-type: none"><li>• DOAV-1B: Brakes</li><li>• DOAV-1C: Cab</li><li>• DOAV-1EC: Engine Compartment</li><li>• DOAV-1EX: Exterior</li></ul>
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• Emergency Vehicles<ul style="list-style-type: none"><li>- Minimum of 3 Required / 4 Preferred</li></ul></li><li>• Cones (Quantity will vary depending on location):<ul style="list-style-type: none"><li>- 18" Blue</li><li>- 18" Red</li><li>- 12" Orange</li></ul></li><li>• DOAV Vehicle Check Kits</li><li>• Creepers</li></ul>
<b>Instructor / Student Ratio</b>	<ul style="list-style-type: none"><li>• 1 Lead Instructor</li><li>• 3 Instructors</li><li>• 8 Students</li></ul>

### Set-Up

Evolution 4-1 utilizes the "Fire House" from the Predetermined Driving Route used in Evolution 4-3 and 4-4.

Cone Color Code:

**Blue:** Marks the Entrance to a "Fire House" Apparatus Bay

**Orange:** Delineates the path of travel through a Corner or Turn, or the perimeter of a Station/Evolution

**Red:** Marks a Hazard or Area to Avoid

Apparatus should be parked in the apparatus bays to simulate the start of a shift or work period. The DOAV Vehicle Check Kits should be placed near the apparatus.

### Delivery

Divide the class into small groups of 2-3 students per apparatus. Students are instructed to perform a weekly apparatus check on their assigned apparatus and document the check on a vehicle appropriate DOAV Apparatus Check Form.

The students will be putting the elements learned in Module 2 together to perform a complete check. Instructors should not directly teach, but should coach, guide, and mentor students to assist them with applying the lessons learned from Module 2.



## Driver / Operator – All Vehicles

### Discussion 4-2

### Roles & Responsibilities

<b>Objective</b>	At the conclusion of Discussion 4-2, students will be able to: 2. List and describe the roles and responsibilities of the driver and crew while operating an emergency vehicle.
<b>Delivery Format</b>	Instructor Led Discussion / Demonstration
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• 1 Emergency Vehicle</li><li>• 1 Portable Radio for the Spotter</li><li>• 1 Hand Light</li></ul>
<b>Instructor / Student Ratio</b>	<ul style="list-style-type: none"><li>• 1 Lead Instructor</li><li>• 3 Instructors</li><li>• 8 Students</li></ul>

### Set-Up

The Discussion can be held in the “Fire House” Apparatus Floor or Kitchen.

The Demonstration can be conducted on the “Fire House” Ramp and adjoining “street”.

### Delivery

#### Step 1: Discussion

- Conduct a question-and-answer style discussion to review the Roles & Responsibilities of the Driver, Officer, and Crew.
- Ensure that all points on the Reference Chart are covered.

#### Step 2: Demonstration

- One Instructor drives while a second instructor functions as a spotter.
- Demonstrate the following:
  - ⇒ Spotter Positioning
  - ⇒ Communication via Hand Signals
  - ⇒ Communication via Hand Light
  - ⇒ Communication via Radio
  - ⇒ Correctly Backing / Spotting
  - ⇒ Spotter Moving out of View
  - ⇒ Backing Too Fast



## DOAV Discussion 4-2 Reference Chart

### Roles & Responsibilities

#### Step 1: Discussion

#### Driver

- **Ensure that All Vehicle Occupants are Seated & Belted**
- **Drive & Operate the Vehicle**
- **Prevent / Minimize Distractions**

#### Officer

- **Ensure that All Vehicle Occupants are Seated & Belted**
- **Prevent / Minimize Distractions**
  - *Limit Conversation to Response & Operations*
- **Operate the Audible Warning Devices**
- **Operate the Radios / Communicate**
- **Navigate**
- **Scan for / Communicate Hazards**

#### Crew

- **Ensure that All Vehicle Occupants are Seated & Belted**
- **Prevent / Minimize Distractions**
  - *Limit Conversation to Response & Operations*
- **Scan for / Communicate Hazards**



## **DOAV Discussion 4-2 Reference Chart**

### **Roles & Responsibilities**

#### **Step 2: Demonstration**

#### **Spotter Positioning**

- On the Left side in View of the Driver
- Far enough behind the vehicle to be in a safe position and to increase overall visibility
- The spotter should signal the driver to stop if there is a need to check clearance, etc. on the right side of the vehicle
- Avoid the use of multiple spotters.

#### **Hand Signals / Hand Light**

- Straight Back
- Move to the Left
- Move to the Right
- Stop

#### **Backing Incorrectly**

- Spotter moves out of view of the driver
- Driver backs too fast and does not allow the spotter to keep up
- Driver backs past the spotter

#### **Backing Correctly**

- Spotter remains in view of the driver
- Spotter uses correct hand signals
- Driver maintains a safe speed
- Driver stops when the spotter moves out of view





**Driver / Operator – All Vehicles**  
**Evolution 4-3**  
**Basic Driving Skills**

<b>Objective</b>	At the conclusion of Evolution 4-3, students will be able to: 3. Explain vehicle dynamics considerations. Demonstrate an understanding of and ability to perform basic driving skills while driving an emergency vehicle.
<b>Delivery Format</b>	Skills Evolution
<b>Skill Sheet(s)</b>	DOAV-2: Basic Driving Skills
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• Emergency Vehicles<ul style="list-style-type: none"><li>- Minimum of 3 Required / 4 Preferred</li><li>- 1 Cab-Forward Vehicle required</li><li>- 1 Conventional Cab Vehicle required</li></ul></li><li>• Cones (Quantity will vary depending on location):<ul style="list-style-type: none"><li>- 18" Blue</li><li>- 18" Green</li><li>- 18" Red</li><li>- 12" Orange</li></ul></li><li>• 1 Portable Radio for each Instructor &amp; Student</li><li>• Steering Wheel Prop</li></ul>
<b>Instructor / Student Ratio</b>	<ul style="list-style-type: none"><li>• 1 Lead Instructor</li><li>• 3 Instructors</li><li>• 8 Students</li></ul>

**Set-Up**

Evolution 4-3 utilizes a Predetermined Driving Route in a secure training area to create a simulated city or town. Each training area has a Predetermined Driving Route specific to the location to account for site geography, hazards, etc.

All Predetermined Driving Routes have the following minimum features:

- A "Fire house"
- One 90 left or right corner
- One intersection with a stop sign
- One intersection with a traffic signal
- One location where a left turn is required
- One location where a right turn is required
- A section of "straight road"

Cone Color Code:

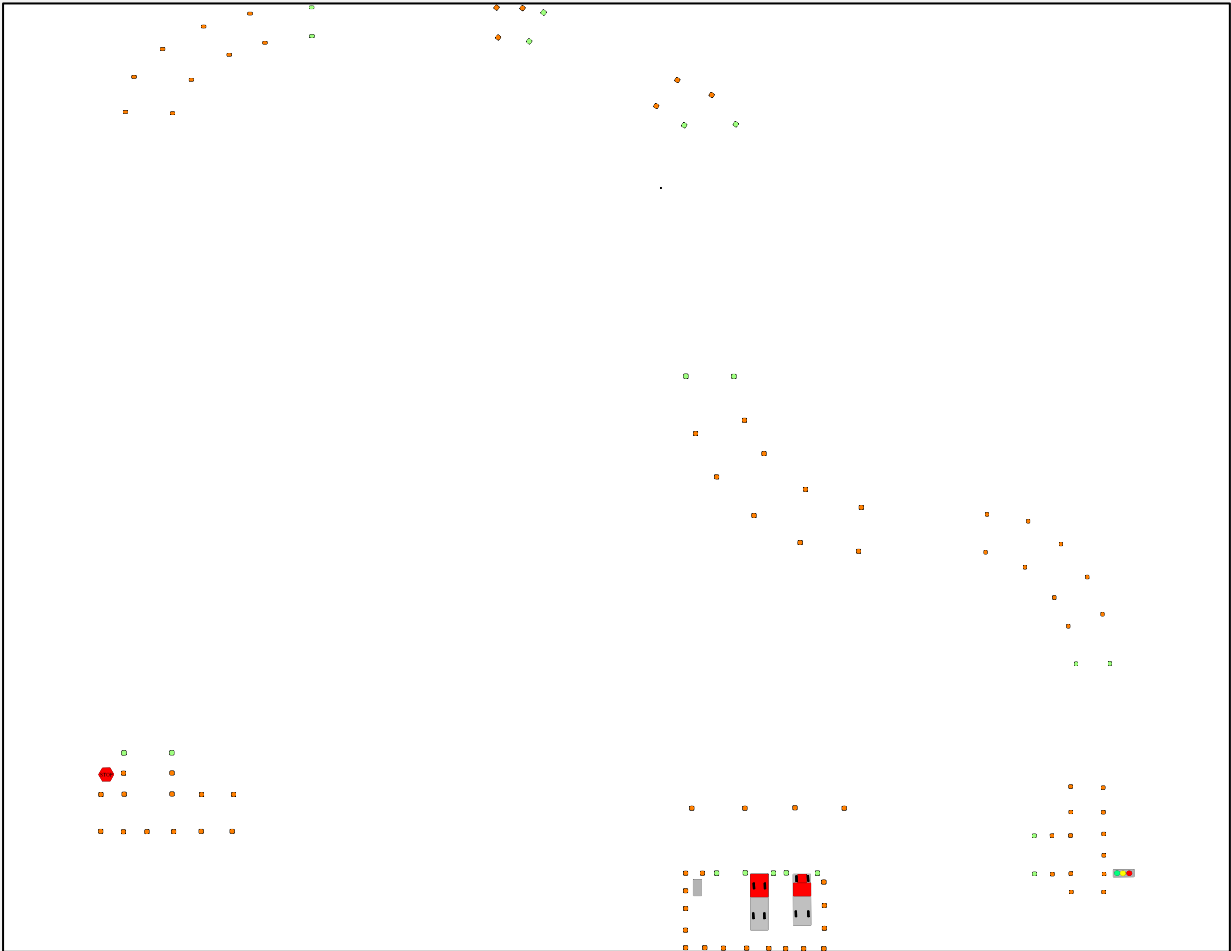
**Blue:** Marks the Entrance to a "Fire House" Apparatus Bay

**Green:** Entrance to a Corner, Turn, or Station/Evolution

**Orange:** Delineates the path of travel through a Corner or Turn, or the perimeter of a Station/Evolution

**Red:** Marks a Hazard or Area to Avoid

The diagram represents a typical Predetermined Driving Route:



Refer to the DOAV Map Book - Instructor Edition for site specific set-up maps.

### **Delivery**

The site-specific Predetermined Driving Route simulates driving in an average city or town and provides a realistic opportunity for students to practice basic driving skills.

The evolution is broken into three parts to cover vehicle positioning, steering, and acceleration and braking techniques.

Each part begins with the apparatus parked in the “Fire House” and a brief discussion/demonstration of the pertinent basic driving skills.

After the discussion/demonstration is complete, students are assigned to a vehicle and drive at least 2 times through the course to practice the skill(s) covered. After the first driver completes 2 trips through the course, the vehicle returns to the “Fire House” and the driver and passenger switch positions. The new driver then completes 2 trips through the course.

Instructors are spaced through the course to observe student's performance and provide feedback via the radio.

Once all students have driven through the course, students and instructors gather back at the "Fire House" kitchen to discuss the next part. After the discussion/demonstration is complete, students are rotated to different vehicles and drive through the course again, practicing the new skill as well as the previous skill.



## DOAV Evolution 4-3 Reference Chart

### Basic Driving Skills Part 1: Vehicle Positioning Step 1: Discussion

#### Discussion Point: Lane Positioning

**Roads of Average Width:** Center of the Lane

**Narrow Roads:** Closer To / On the Center Line

#### Discussion Point: Corner Positioning

**Applies to both curves/corners as well as intersections/turns.**

##### **Early Steering / Turning Too Soon:**

- Also known as Early Apex.
- Places the vehicle too close to the inside of the curve/corner.
- Increases the risk of placing the vehicle too close to the edge of the roadway/soft shoulder.
- Increases the risk of hitting curbs, signs, other vehicles, etc.
- Poor vehicle handling/energy management technique that leads to excessive lateral forces that can cause vehicle rollover.
- Does not give the driver room to react to, or maneuver around/away from obstacles or obstructions.

##### **Late Steering:**

- Also known as Late Apex.
- Places the vehicle closer to the outside of the curve/corner.
- Decreases the risk of placing the vehicle too close to the edge of the roadway/soft shoulder.
- Decreases the risk of hitting curbs, signs, other vehicles, etc.
- Good vehicle handling/energy management technique that minimizes lateral forces and maintains vehicle stability.
- Gives the driver room to react to, or maneuver around/away from obstacles or obstructions.

## Discussion Point: Vehicle Design

### Conventional Cab:

- **Lane Positioning:** Driver's seat is often positioned inward from the side of the vehicle; feels more similar to cars and SUVs/light trucks making it easier to judge lane position.
- **Corner Positioning:** Driver is seated behind the front axle; feels more similar to cars and SUVs/light trucks making it easier to judge when to start turning.

### Cab-Forward / Cab-Over:

- **Lane Positioning:** Driver's seat is positioned farther outward placing the driver closer to the edge of the vehicle making the driver feel as though they are over the centerline of the road.
- **Corner Positioning:** Driver is seated ahead the front axle making the driver feel that they have traveled too far into the corner when they are in the correct position to turn. Drivers must remember that they must drive into the corner slightly farther with this type of cab before they start to turn.

## Discussion Point: Where to Look

**Drivers must remember to scan, and to look ahead of the vehicle paying attention to the next corner or objective.**

**During the cone course evolutions, looking at the cones directly in front of the vehicle will place the vehicle in a position that will hit cones.**



## DOAV Evolution 4-3 Reference Chart

### Basic Driving Skills

#### Part 1: Vehicle Positioning

#### Step 2: Early Steering Demonstration

#### Demonstration: Early Steering

The Early Steering Demonstration is conducted in a Stop-Motion format. Students should gather in the center of the demonstration corner to view the demonstration. One instructor should explain the demonstration while additional instructors conduct the demonstration.

There are three stops with specific discussion points for each stop:

**Stop 1:** The driver has started to turn (steering input) prior to reaching the corner.

**Stop 2:** The early steering input places the vehicle on the inside of the corner and too close to the cones.

*Note: The instructor driving should purposely place the vehicle in a position that will strike cones on the inside of the corner for emphasis.*

**Stop 3:** As the vehicle exits the corner it is on the outside of the corner and again too close to the edge of the roadway. While the body of the vehicle is in line with the exit of the corner, there is still significant steering input applied and the front wheels are not pointing in the direction of travel. The driver needs to rapidly remove steering input which does not maintain the stability of the vehicle. The driver cannot accelerate until the wheels are back straight which is past the exit of the corner.

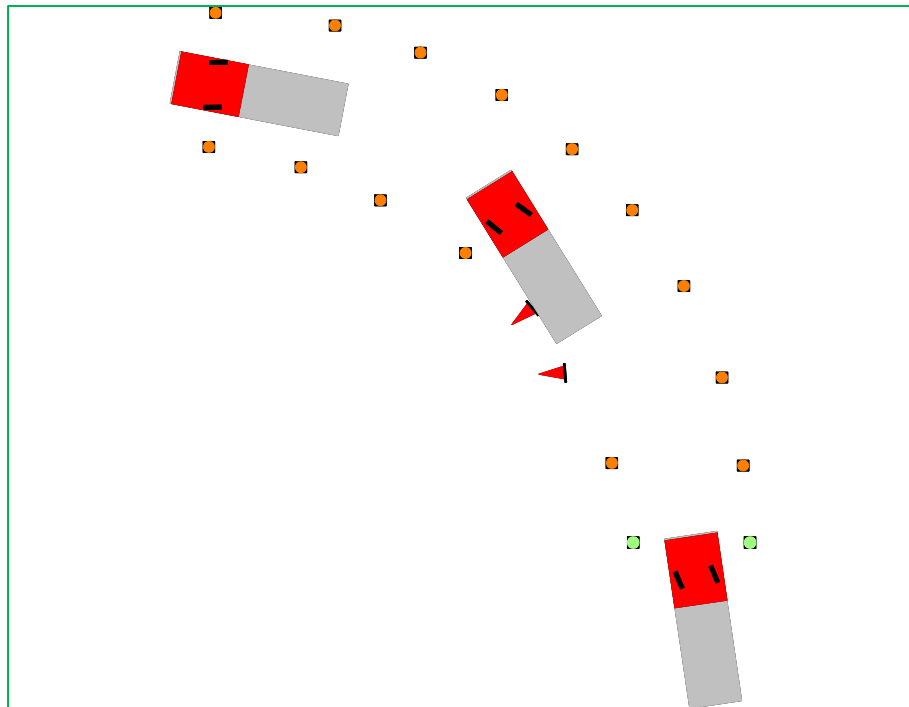
The Early Steering Demonstration should be conducted first with a Conventional Cab vehicle. The demonstration should then be repeated with a Cab-Forward / Cab-Over vehicle. The explanation should point out the difference in view/perspective from the driver's seat of both vehicles.

#### Caution!

*Instructors must maintain radio contact while conducting the demonstration.*

## Early Steering Positioning: Conventional Cab Apparatus

## Early Steering Positioning: Cab-Forward / Cab-Over Apparatus





## **DOAV Evolution 4-3 Reference Chart**

### **Basic Driving Skills**

#### **Part 1: Vehicle Positioning**

#### **Step 3: Late Steering Demonstration**

### **Demonstration: Late Steering**

The Late Steering Demonstration is initially conducted in a Stop-Motion format. Students should gather in the center of the demonstration corner to view the demonstration. One instructor should explain the demonstration while additional instructors conduct the demonstration

There are three stops with specific discussion points for each stop:

**Stop 1:** The driver maintains a straight line approaching the corner, enters with the vehicle on the outside of the corner, and travels straight into the corner without any steering input. The driver only starts to turn after entering the corner, at approximately the second cone.

**Stop 2:** The late steering input places the vehicle in the center of the travel lane, away from the edge of the roadway/soft shoulder. The driver has room to maneuver in the event of an obstacle or obstruction.

**Stop 3:** As the vehicle continues into the corner it remains centered in the travel lane and the front wheels are more in line with the direction of travel. The overall travel path through the corner has required less steering input which has reduced the lateral forces on the vehicle. As the vehicle nears the exit of the corner the driver can begin to accelerate. Late Steering enables a more efficient travel path through the corner which saves time as compared to Early Steering. Time savings on emergency response come from more efficient driving techniques, not from faster vehicle speeds.

After the Stop-Motion demonstration, the demonstration is conducted a second time in a continuous format. Vehicle speed should be approximately 20 to 25 mph.

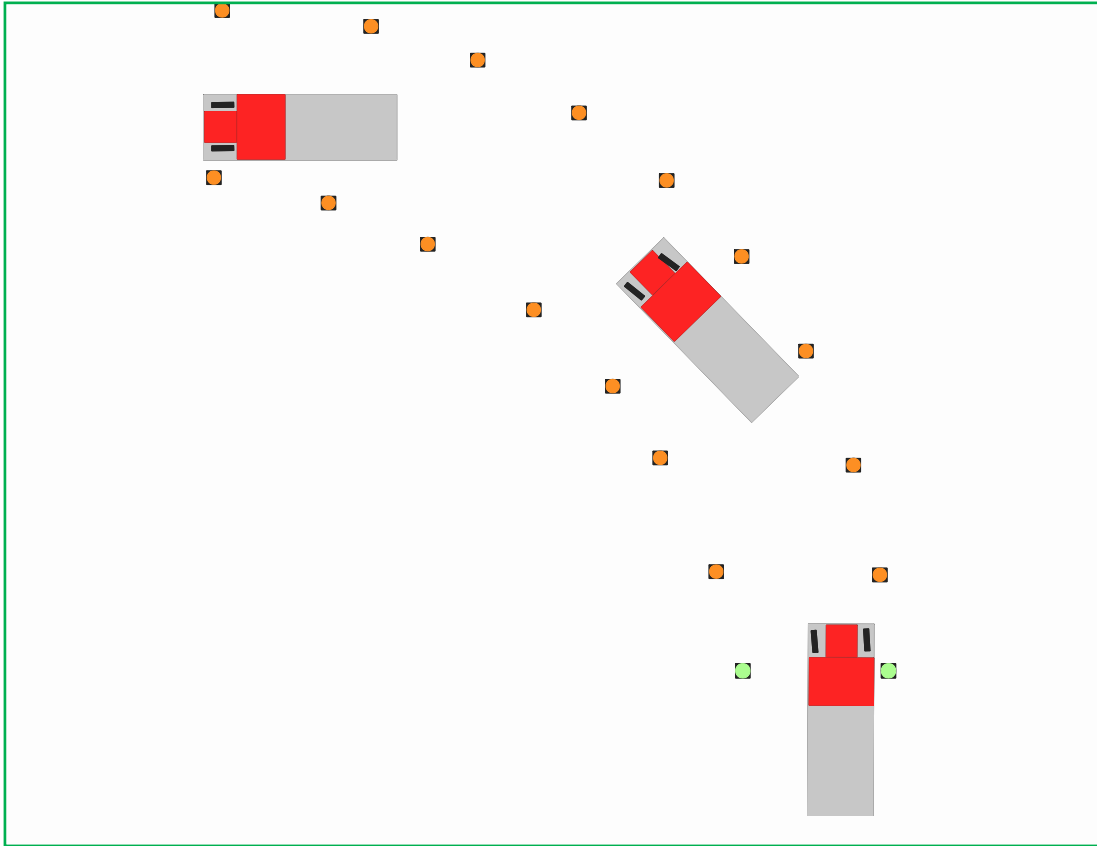
The Late Steering Demonstration should be conducted first with a Conventional Cab vehicle. The demonstration should then be repeated with a Cab-Forward / Cab-Over vehicle. The explanation should point out the difference in view/perspective from the driver's seat of both vehicles.

### **Caution!**

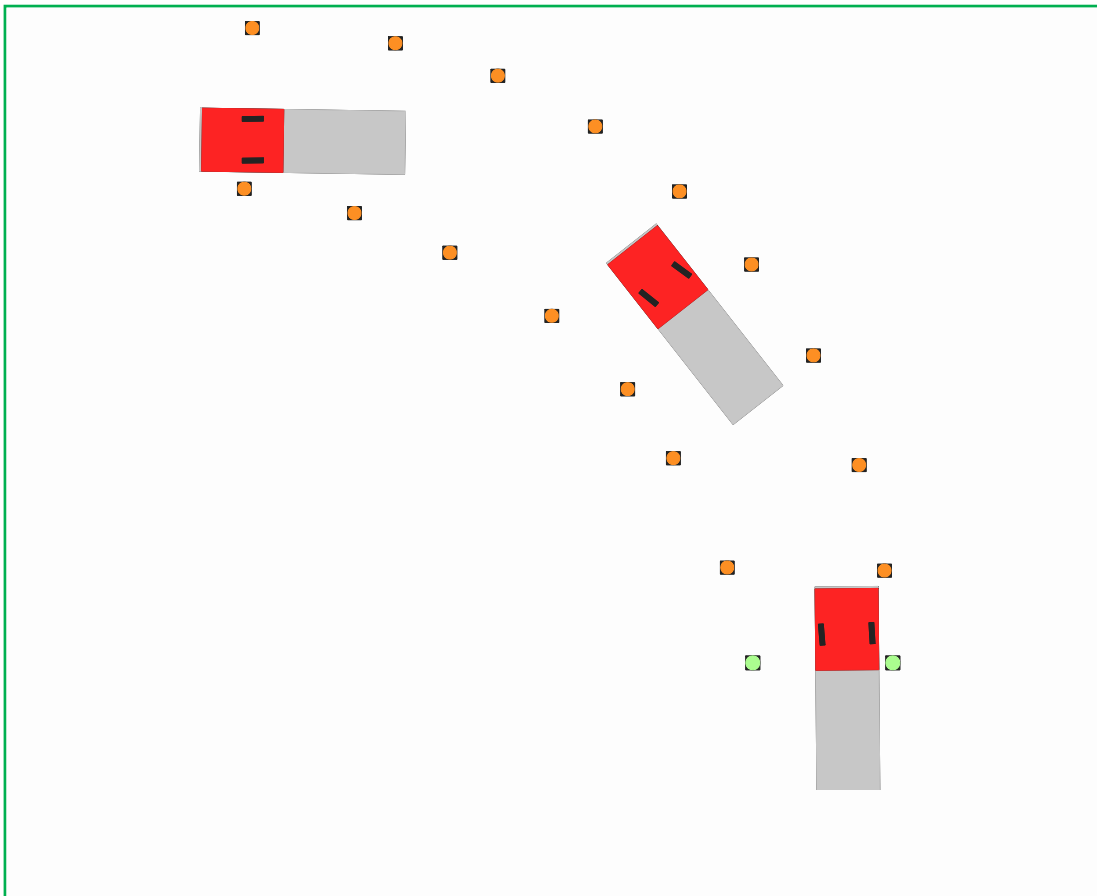
***Instructors must maintain radio contact while conducting the demonstration.***



## Late Steering Positioning: Conventional Cab Apparatus



## Late Steering Positioning: Cab-Forward / Cab-Over Apparatus





## **DOAV Evolution 4-3 Reference Chart**

### **Basic Driving Skills**

#### **Part 1: Vehicle Positioning**

#### **Step 4: Student Skills Application**

**Each Driver should complete a minimum of 2 trips through the Driving Route.**

**At the conclusion of the 2<sup>nd</sup> trip, the vehicle should return to the “Fire House” and be backed into the appropriate bay. A spotter must be used.**

**The Driver and Passenger will switch positions, and the new Driver will drive through the Driving Route.**

**The Instructional Staff may add additional trips through the Driving Route based on student performance.**



## **DOAV Evolution 4-3 Reference Chart**

### **Basic Driving Skills**

### **Part 2: Steering Techniques**

### **Step 1: Discussion & Demonstration**

#### **Discussion & Demonstration Points: Steering with One Hand**

##### **Limited Control:**

- Difficult to recover if the vehicle hits a bump in the road, pot hole, etc.
- Difficult to make an evasive maneuver if needed.

##### **Vehicle Components:**

- The power steering can keep up with turning the wheel quickly, but the tires cannot.
- When steering input is added by turning the steering wheel, the tires flex as they turn. The tires can only flex so much; if we add steering input faster than the rubber can flex, the risk of losing traction will increase. If the tires cannot flex as fast as steering input is added, the tires will lose traction and a skid will occur. There is also the risk of the tire coming off of the wheel.
- With vehicle with increased weight on the front axle (i.e., aerial apparatus or mobile water supply apparatus) placing rapid steering input on the steering and front suspension components could result in damage.

#### **Discussion & Demonstration Points: Push-Pull Steering**

**Two hands on the wheel increases control.**

**The Push-Pull technique also restricts the ability to rapidly add steering input. Slowing the steering will force the driver to travel into a corner more slowly, which will reduce the amount of roll placed on the vehicle.**



## **DOAV Evolution 4-3 Reference Chart**

### **Basic Driving Skills**

### **Part 2: Steering Techniques**

### **Step 2: Student Skills Application**

#### **“Fire House”:**

**Each Driver should practice the Push-Pull Steering technique using the DOAV steering wheel prop. The Instructional Staff should provide coaching to assist with developing the technique.**

#### **Driving Course:**

**Each Driver should complete a minimum of 2 trips through the Driving Route.**

**Drivers should be reminded to continue to use the skills and techniques covered in Part 1.**

**At the conclusion of the 2<sup>nd</sup> trip, the vehicle should return to the “Fire House” and be backed into the appropriate bay. A spotter must be used.**

**The Driver and Passenger will switch positions, and the new Driver will drive through the Driving Route.**

**The Instructional Staff may add additional trips through the Driving Route based on student performance.**



## **DOAV Evolution 4-3 Reference Chart**

### **Basic Driving Skills**

### **Part 3: Acceleration & Braking**

### **Step 1: Discussion & Demonstration**

#### **Discussion Points**

**There are 2 types of energy:**

- **Potential - energy at rest**
- **Kinetic - energy in motion**

**As the mass of an object increases (i.e., a vehicle) there is greater energy.**

**If the vehicles mass is doubled, the kinetic energy doubles if the speed remains the same.**

**If the speed is doubled, the kinetic energy increases 4 times.**

**If the speed is tripled, the kinetic energy increases 9 times.**

**Momentum:**

- **The “power” of a moving object - how much force does it carry.**
- **The product of mass & velocity (how fast something is moving in a particular direction).**

**Inertia is the resistance of an object to any change in its motion.**

- **Friction / Centrifugal Force**

**The Driver/Operator must manage energy while driving the vehicle.**

**There are 4 ways that energy can be managed:**

- 1. Vehicle Handling**
- 2. Braking**
- 3. Skidding**
- 4. Crashing**

**The purpose of the driving skills taught is to maintain control of the vehicle by maintaining stability and traction.**

**Discuss gentle acceleration and braking to minimize the pitch, roll, and yaw forces on the vehicle.**



## **DOAV Evolution 4-3 Reference Chart**

### **Basic Driving Skills**

### **Part 3: Acceleration & Braking**

### **Step 2: Student Skills Application**

**Each Driver should complete a minimum of 2 trips through the Driving Route.**

**Drivers should be reminded to continue to use the skills and techniques covered in Part 1 and Part 2.**

**At the conclusion of the 2<sup>nd</sup> trip, the vehicle should return to the “Fire House” and be backed into the appropriate bay. A spotter must be used.**

**The Driver and Passenger will switch positions, and the new Driver will drive through the Driving Route.**

**The Instructional Staff may add additional trips through the Driving Route based on student performance.**

**State of New Hampshire Department of Safety  
Division of Fire Standards & Training and Emergency Medical Services**

**Driver / Operator – All Vehicles Certification Exam (2017 edition)**

**Skill Sheet DOAV-2  
Basic Driving Skills  
NFPA 1002-2017: 4.3.1**

Candidate Number: \_\_\_\_\_ Date: \_\_\_\_\_

1<sup>st</sup> Attempt / Retest                      Pass / Fail

Vehicle Used: \_\_\_\_\_


Evaluator: \_\_\_\_\_

	Points Possible	Points Earned
Completes a 360° Vehicle Safety Check.	1	
Enters cab safely. Adjusts driver's seat, steering wheel, and mirrors.	1	
Fastens seat belt.	1	
Confirms that the vehicle is safe to move (crew seated and belted; equipment in cab secure).	1	
Correctly performs all maneuvers on the predetermined route.	1	
Maintains: <ul style="list-style-type: none"><li>• A safe following distance.</li><li>• Control of the vehicle while accelerating and braking.</li><li>• Control of the vehicle while cornering and turning.</li><li>• Reasonable speed for prevailing conditions (Roadway, weather, traffic)</li></ul>	1	
Maintains an awareness of vehicle gauges, instruments, and indicators.	1	
Operates vehicle in accordance with all applicable laws, policies, and procedures.	1	
	8	

Critical Criteria:

\_\_\_\_ Fails to correctly complete 8 steps

**Document all reasons for not awarding points in the space below:**

	<p style="text-align: center;"><b>Driver / Operator – All Vehicles</b>  <b>Evolution 4-4</b>  <b>Emergency Response Skills</b></p>	
<b>Objective</b>	<p>At the conclusion of Evolution 4-4, students will be able to:</p> <p>4. Demonstrate the ability to drive an emergency vehicle under simulated emergency response conditions.</p>	
<b>Delivery Format</b>	Skills Evolution	
<b>Skill Sheet(s)</b>	<ul style="list-style-type: none"> <li>• DOAV-6: Restricted Horizontal &amp; Vertical Clearance</li> <li>• DOAV-7: Defensive Driving Skills</li> <li>• DOAV-9: Emergency Response Initiation</li> <li>• DOAV-10: Telephone Procedures</li> <li>• DOAV-11: Radio Procedures</li> </ul>	
<b>Resources Required</b>	<ul style="list-style-type: none"> <li>• Emergency Vehicles <ul style="list-style-type: none"> <li>- Minimum of 3 Required / 4 Preferred</li> <li>- 1 Cab-Forward Vehicle Required</li> <li>- 1 Conventional Cab Vehicle Required</li> </ul> </li> <li>• Cones (Quantity will vary depending on location): <ul style="list-style-type: none"> <li>- 18" Blue</li> <li>- 18" Green</li> <li>- 18" Red</li> <li>- 12" Orange</li> </ul> </li> <li>• 1 Portable Radio for each Instructor &amp; Student</li> <li>• DOAV Evolution 4-4 Delivery Kit</li> <li>• DOAV Evolution 4-4 Props: <ul style="list-style-type: none"> <li>- Emergency Stop Kit</li> <li>- Height Limit Sign</li> <li>- Railroad Crossing</li> <li>- Stop Sign</li> <li>- Traffic Signal</li> </ul> </li> </ul>	
<b>Instructor / Student Ratio</b>	<ul style="list-style-type: none"> <li>• 1 Lead Instructor</li> <li>• 3 Instructors</li> <li>• 8 Students</li> </ul>	

### **Set-Up**

Evolution 4-3 utilizes the site-specific Predetermined Driving Route used in Evolution 4-2.

Cone Color Code:

**Blue:** Marks the Entrance to a "Fire House" Apparatus Bay

**Green:** Entrance to a Corner, Turn, or Station/Evolution

**Orange:** Delineates the path of travel through a Corner or Turn, or the perimeter of a Station/Evolution

**Red:** Marks a Hazard or Area to Avoid



## **Delivery**

All apparatus are parked in the "Fire House" at the start of the evolution.

Students are provided with the following information:

- ⇒ The evolution is intended to simulate apparatus response to emergency incidents.
- ⇒ Crews will stage in the "Fire House" kitchen area and will not start in the apparatus.
- ⇒ Crews will be dispatched to incidents and must communicate with the dispatcher via radio.
- ⇒ Crews should manage any and all things and situations encountered based on the scenarios discussed in Activity 3-3.
- ⇒ Apparatus emergency warning lights may be used as appropriate.
- ⇒ Apparatus sirens and air horns are NOT to be used.
- ⇒ An "audible warning device" will be assigned to each vehicle. When a situation requires the use of audible warning devices, the "audible warning device" assigned to the vehicle for the purpose of the evolution will be used.
- ⇒ Crews should monitor the radio; the "response" will continue until radio traffic indicates that the response can be terminated.
- ⇒ Upon termination of the response, the apparatus should return to the "Fire House" and the crew should stage for the next response with a new driver.

Instructor Staffing Requirements for the Evolution:

- One Instructor must function as the Safety Officer. This Instructor will also function as the Dispatcher.
- One Instructor operates the Traffic Signal prop.
- One Instructor operates the Railroad Crossing prop.
- One Instructor facilitates the Emergency Stop situations.
- The Height Limit sign can be changed by any Instructor.



## DOAV Evolution 4-4 Reference Chart

### Emergency Response Skills

### Dispatch Prompts

#### **Radio Check:**

“All companies stand-by for the daily radio and tone test”

#### **Alert Tone**

“All companies, Fire Alarm on the air with the daily radio and tone test. Fire Alarm testing with (call each apparatus designation).”

Ensure that each crew is on the correct channel and monitoring the radio by responding to the radio check.

#### **Dispatch:**

“Attention (Insert apparatus designation), respond to (insert address) for a (insert call type). Repeating, (apparatus designation) respond to (address) for a (call type). Time of the tone, (insert time).”

Refer to site specific map book for dispatch prompts created for the class.



## DOAV Evolution 4-4 Reference Chart

### Height Restriction

Each driver must stop at least once for a height that is less than the vehicle height.



## DOAV Evolution 4-4 Reference Chart

### Intersection: Stop Sign

The stop sign is a static prop and does not require operation by an instructor. Instructors should monitor the “intersection” with the stop sign to ensure that drivers are making a complete stop.



## DOAV Evolution 4-4 Reference Chart

### Intersection: Traffic Light with Preemption



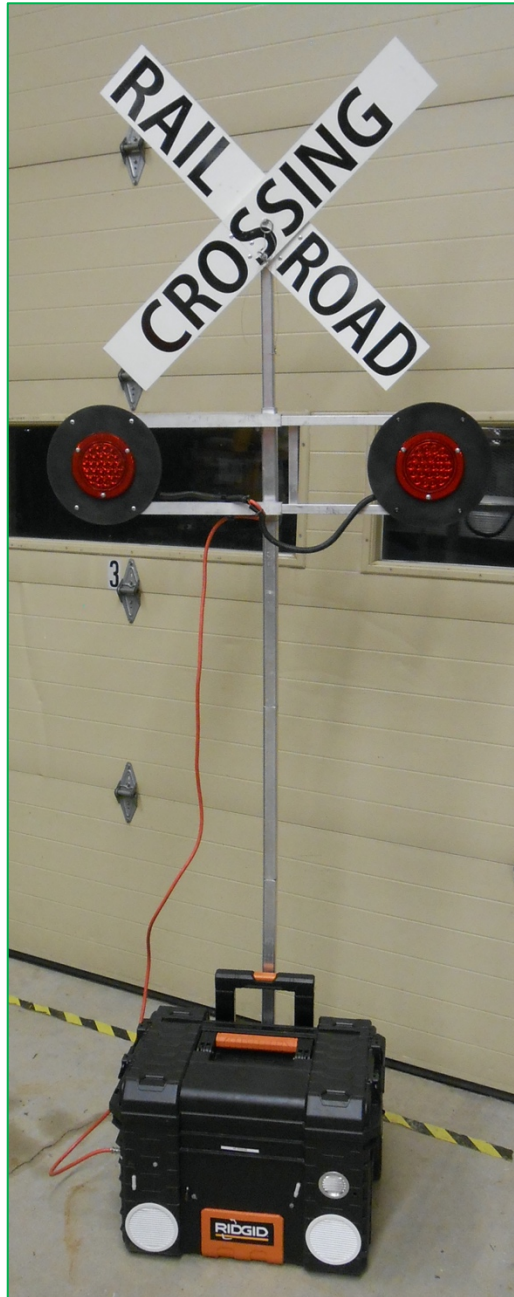
**Each driver is required to encounter the following:**

- Green signal with Preemption
- Red signal with NO Preemption
- Red signal with Preemption



## DOAV Evolution 4-4 Reference Chart

### Railroad Crossing



Each driver must stop at least once for the activated crossing signal.



## DOAV Evolution 4-4 Reference Chart

### Evasive Maneuver / Emergency Stop

Each driver must make at least one evasive maneuver or emergency stop. The soccer ball is used to facilitate this requirement.

**State of New Hampshire Department of Safety  
Division of Fire Standards & Training and Emergency Medical Services**

**Driver / Operator – All Vehicles Certification Exam (2017 edition)**

**Skill Sheet DOAV-6**  
**Restricted Horizontal & Vertical Clearances**  
*NFPA 1002-2017: 4.3.5*

Candidate Number: \_\_\_\_\_ Date: \_\_\_\_\_

1<sup>st</sup> Attempt / Retest      Pass / Fail

Vehicle Used: \_\_\_\_\_

Evaluator: \_\_\_\_\_

	Points Possible	Points Earned
<b>Horizontal Clearance</b>		
Drives the vehicle through the diminishing clearance lane and stops at the designated mark without striking any cones.	1	
Verifies that a safety observer is in place prior to backing the vehicle.	1	
Backs the vehicle through the diminishing clearance lane and stops at the designated mark without striking any cones.	1	
Immediately stops the vehicle if the safety observer moves out of view.	1	
<b>Vertical Clearance</b>		
Determines if the vehicle will safely fit under the simulated vertical height restriction. <ul style="list-style-type: none"><li>• If YES: Drives into the designated area.</li><li>• If NO: Informs the evaluator that there is not sufficient clearance for forward travel.</li></ul>	1	
Verifies that a safety observer is in place prior to backing the vehicle.	1	
Backs the vehicle to the designated starting point.	1	
Immediately stops the vehicle if the safety observer moves out of view.	1	
	8	

Critical Criteria:

\_\_\_\_ Fails to correctly complete 8 steps

**Document all reasons for not awarding points in the space below:**



**State of New Hampshire Department of Safety  
Division of Fire Standards & Training and Emergency Medical Services**

**Driver / Operator – All Vehicles Certification Exam (2017 edition)**

**Skill Sheet DOAV-7  
Defensive Driving Skills  
NFPA 1002-2017: 4.3.6**

Candidate Number: \_\_\_\_\_ Date: \_\_\_\_\_

1<sup>st</sup> Attempt / Retest

Pass / Fail

Vehicle Used: \_\_\_\_\_

Evaluator: \_\_\_\_\_

	Points Possible	Points Earned
Identifies an imminent hazardous condition or situation that may / will result in a collision.	1	
Takes appropriate action to avoid a collision (evasive maneuvering, emergency braking, acceleration, etc.)	1	
Maintains: <ul style="list-style-type: none"><li>• Control of the vehicle while accelerating or braking.</li><li>• Control of the vehicle while cornering or turning.</li><li>• Distance away from the object to prevent a collision.</li></ul>	1	
Operates the vehicle in accordance with all applicable laws, policies, and procedures.	1	
	4	

Critical Criteria:

\_\_\_\_\_ Fails to correctly complete 4 steps

**Document all reasons for not awarding points in the space below:**

**State of New Hampshire Department of Safety  
Division of Fire Standards & Training and Emergency Medical Services**

**Driver / Operator – All Vehicles Certification Exam (2017 edition)**

**Skill Sheet DOAV-9  
Emergency Response Initiation**  
*NFPA 1002-2017: 4.4.1*

Candidate Number: \_\_\_\_\_ Date: \_\_\_\_\_

1<sup>st</sup> Attempt / Retest      Pass / Fail

Vehicle Used: \_\_\_\_\_

Evaluator: \_\_\_\_\_

	Points Possible	Points Earned
Receives an emergency call; obtains pertinent information.	1	
Completes a 360° Vehicle Safety Check.	1	
Enters cab safely. Adjusts driver's seat, steering wheel, and mirrors.	1	
Fastens seat belt.	1	
Confirms that the vehicle is safe to respond (crew seated and belted; equipment in cab secure).	1	
	5	

Critical Criteria:

\_\_\_\_ Fails to correctly complete 5 steps

**Document all reasons for not awarding points in the space below:**

**State of New Hampshire Department of Safety  
Division of Fire Standards & Training and Emergency Medical Services**

**Driver / Operator – All Vehicles Certification Exam (2017 edition)**

**Skill Sheet DOAV-10  
Telephone Procedures**  
*NFPA 1002-2017: 4.4.2*

Candidate Number: \_\_\_\_\_ Date: \_\_\_\_\_

1<sup>st</sup> Attempt / Retest

Pass / Fail

Evaluator: \_\_\_\_\_

	Points Possible	Points Earned
Answers telephone promptly; identifies self and department / agency.	1	
Obtains the following information from the caller: <ul style="list-style-type: none"><li>• Nature of the emergency / request for service</li><li>• Location</li><li>• Caller's name</li><li>• Call-back telephone number</li></ul>	1	
Records necessary information.	1	
Provides appropriate follow-up information to the caller (safety information, instructions to evacuate the structure, instructions to call 911, etc.).	1	
	4	

Critical Criteria:

\_\_\_\_ Fails to correctly complete 4 steps

**Document all reasons for not awarding points in the space below:**

**State of New Hampshire Department of Safety  
Division of Fire Standards & Training and Emergency Medical Services**

**Driver / Operator – All Vehicles Certification Exam (2017 edition)**

**Skill Sheet DOAV-10**  
**Radio Procedures**  
*NFPA 1002-2017: 4.4.3*

Candidate Number: \_\_\_\_\_ Date: \_\_\_\_\_

1<sup>st</sup> Attempt / Retest

Pass / Fail

Evaluator: \_\_\_\_\_

	Points Possible	Points Earned
Verifies the absence of other radio traffic prior to transmitting.	1	
Holds radio microphone 1-2 inches away from mouth.	1	
Identifies who the message is directed to, identifies self/unit, and waits for a response.	1	
Transmits a message that is clear, concise, and accurate.	1	
Speaks calmly, clearly, distinctly, and at an appropriate speed.	1	
Acknowledges that the message has been received.	1	
Corrects any inaccurate information/messages.	1	
	7	

Critical Criteria:

\_\_\_\_ Fails to correctly complete 7 steps

**Document all reasons for not awarding points in the space below:**



**Driver / Operator – All Vehicles**  
**Evolution 4-5**  
**CDL Maneuvering Skills**

<b>Objective</b>	At the conclusion of Evolution 4-5, students will be able to: 5. Explain the requirements of the CDL Basic Skills Control Test and demonstrate an ability to perform the skills required to complete the test while driving an emergency vehicle.
<b>Delivery Format</b>	Skills Evolution
<b>Skill Sheet(s)</b>	<ul style="list-style-type: none"><li>• DOAV-3: Restricted Clearance Backing</li></ul>
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• Emergency Vehicles<ul style="list-style-type: none"><li>- Minimum of 3 Required / 4 Preferred</li><li>- 1 Cab-Forward Vehicle required</li><li>- 1 Conventional Cab Vehicle required</li></ul></li><li>• Cones (Quantity will vary depending on location):<ul style="list-style-type: none"><li>- 18" Green</li><li>- 18" Red</li><li>- 12" Orange</li></ul></li><li>• 1 Portable Radio for each Instructor &amp; Student</li></ul>
<b>Instructor / Student Ratio</b>	<ul style="list-style-type: none"><li>• 1 Lead Instructor</li><li>• 3 Instructors</li><li>• 8 Students</li></ul>

**Set-Up**

Cones should be placed to create the following stations based on the Lay-Out diagrams and the Site-Specific Map:

- Straight Line Backing
- Offset Backing
- Parallel Park
- Alley Dock

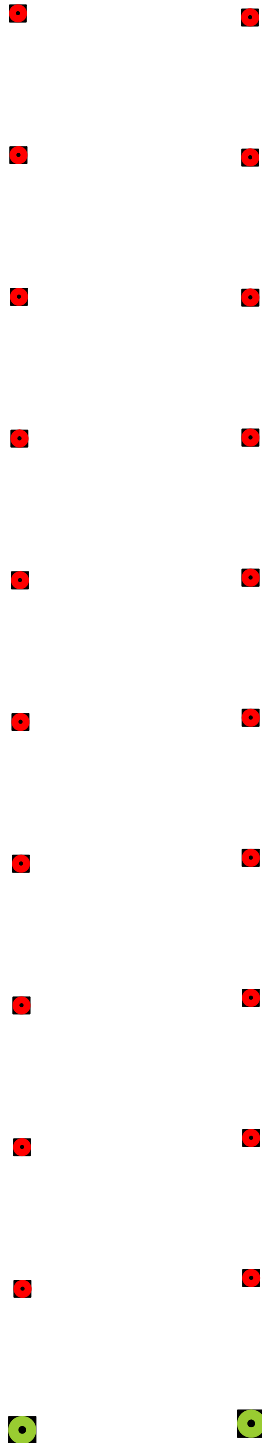
**Delivery**

The apparatus start in the "Fire House" at the start of the evolution. The apparatus leave the "Fire House" and proceeds to a Station as directed by the Instructional Staff. The apparatus then rotate through the 4 Stations as directed by the Instruction Staff. After a driver completes the 4 stations, the apparatus returns to the "Fire House".



## DOAV Evolution 4-5 Reference Chart

### CDL Maneuvering Skills Station 1: Straight Line Backing Cone Layout





## DOAV Evolution 4-5 Reference Chart

### CDL Maneuvering Skills

### Station 1: Straight Line Backing

### Procedure

1. The D/O drives the vehicle through the lane stopping past the last cones.
2. The D/O backs the vehicle through the lane stopping with the forwardmost portion of the vehicle just past the last cones.
3. The D/O drives through the lane and proceeds to the next station.

### **Warning!**

***A Safety Observer **MUST** be used when the vehicle is backing.***

### **Notes**

No portion of the vehicle should extend over the boundary lines of the lane.



## DOAV Evolution 4-5 Reference Chart

### CDL Maneuvering Skills Station 2: Offset Backing Cone Layout







## DOAV Evolution 4-5 Reference Chart

### CDL Maneuvering Skills

### Station 2: Offset Backing

### Procedure

1. The D/O drives the vehicle through the left lane stopping far enough past the lane to facilitate maneuvering into the right lane.
2. The D/O backs the vehicle into the right offset lane stopping with the forwardmost portion of the vehicle just past the last cones.
3. The D/O drives out of the right offset lane and proceeds to the next station.

### **Warning!**

***A Safety Observer *MUST* be used when the vehicle is backing.***

### **Notes**

No portion of the vehicle should extend over the boundary lines of the lanes.

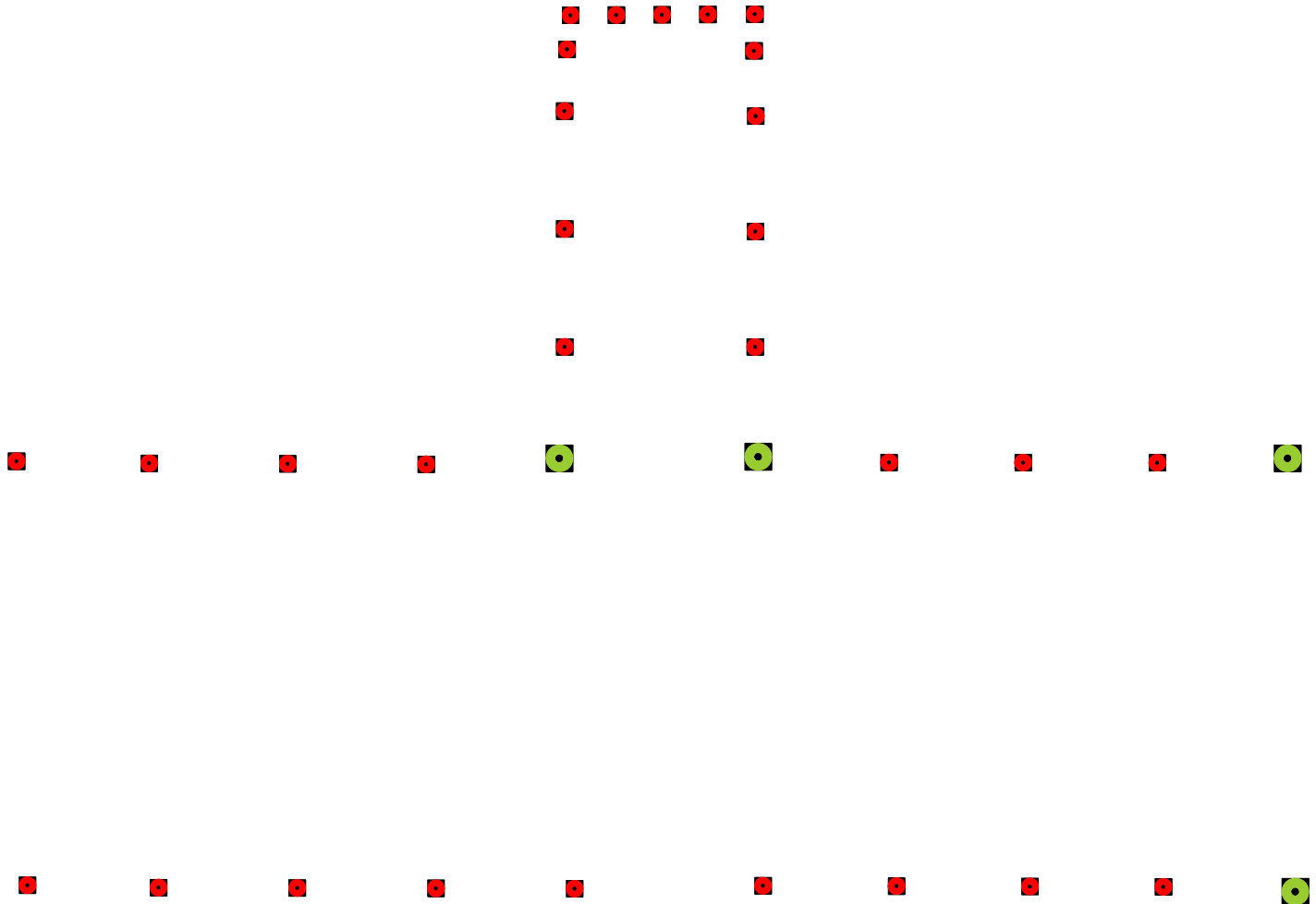


## DOAV Evolution 4-5 Reference Chart

CDL Maneuvering Skills

Station 3: Alley Dock

Cone Lay-Out





## DOAV Evolution 4-5 Reference Chart

### CDL Maneuvering Skills

### Station 3: Alley Dock

### Procedure

1. The D/O drives the vehicle into the marked lane.
2. The D/O drives past the alley and positions the vehicle parallel to the outer border of the lane.
3. The D/O backs the vehicle into the alley stopping with the rearmost portion of the vehicle within three feet of the rear of the alley.
4. The D/O drives the vehicle out of the alley, into the lane, and to the next station.

### **Warning!**

***A Safety Observer MUST be used when the vehicle is backing.***

### **Notes**

No portion of the vehicle should extend over the boundary lines of the lane or alley.

**State of New Hampshire Department of Safety  
Division of Fire Standards & Training and Emergency Medical Services**

**Driver / Operator – All Vehicles Certification Exam (2017 edition)**

**Skill Sheet DOAV-3  
Restricted Clearance Backing (Alley Dock)  
*NFPA 1002-2017: 4.3.2***

Candidate Number: \_\_\_\_\_ Date: \_\_\_\_\_

1<sup>st</sup> Attempt / Retest      Pass / Fail

Vehicle Used: \_\_\_\_\_

Evaluator: \_\_\_\_\_

	Points Possible	Points Earned
Drivers forward into the lane and passes the dock.	1	
Verifies that a safety observer is in place prior to backing the vehicle.	1	
Backs the vehicle into the dock without striking any cones.	1	
Immediately stops the vehicle if the safety observer moves out of view.	1	
	4	

Critical Criteria:

\_\_\_\_ Fails to correctly complete 4 steps

**Document all reasons for not awarding points in the space below:**



## DOAV Evolution 4-5 Reference Chart

### CDL Maneuvering Skills *Station 4: Parallel Parking* *Set-Up*





## **DOAV Evolution 4-5 Reference Chart**

### **CDL Maneuvering Skills Station 4: Parallel Parking Procedure**

1. The D/O drives the vehicle in a straight line past the parking space with the vehicle parallel to the space.
2. The D/O backs into the space without crossing the front, side, or rear boundaries.
3. The D/O backs the vehicle to change direction.
4. The D/O drives the vehicle out of the space and proceeds to the next station.

### **Warning!**

***A Safety Observer MUST be used when the vehicle is backing.***

### **Notes**

No portion of the vehicle should extend over the boundary lines of the space.  
The entire vehicle must be positioned within the space.



**Driver / Operator – All Vehicles**  
**Evolution 4-6**  
**NFPA Maneuvering Skills**

<b>Objective</b>	At the conclusion of Discussion 4-2, students will be able to: 6. Demonstrate the ability to complete NFPA 1002 maneuvering exercises while driving an emergency vehicle.
<b>Delivery Format</b>	Skills Evolution
<b>Skill Sheet(s)</b>	<ul style="list-style-type: none"><li>• DOAV-4: Serpentine</li><li>• DOAV-5: Confined Space Turnaround</li><li>• DOAV-6: Restricted Horizontal &amp; Vertical Clearance</li></ul>
<b>Resources Required</b>	<ul style="list-style-type: none"><li>• Emergency Vehicles<ul style="list-style-type: none"><li>- Minimum of 3 Required / 4 Preferred</li><li>- 1 Cab-Forward Vehicle required</li><li>- 1 Conventional Cab Vehicle required</li></ul></li><li>• Cones (Quantity will vary depending on location):<ul style="list-style-type: none"><li>- 18" Green</li><li>- 18" Red</li><li>- 12" Orange</li></ul></li><li>• 1 Portable Radio for each Instructor &amp; Student</li></ul>
<b>Instructor / Student Ratio</b>	<ul style="list-style-type: none"><li>• 1 Lead Instructor</li><li>• 3 Instructors</li><li>• 8 Students</li></ul>

**Set-Up**

Cones should be placed to create the following stations based on the Lay-Out diagrams and the Site-Specific Map:

- Serpentine
- Confined Space Turnaround
- Restricted Horizontal Clearance

**Delivery**

The apparatus start in the "Fire House" at the start of the evolution. The apparatus leaves the "Fire House" and proceeds to a Station as directed by the Instructional Staff. The apparatus then rotate through the 3 Stations as directed by the Instruction Staff. After a driver completes the 3 stations, the apparatus returns to the "Fire House".

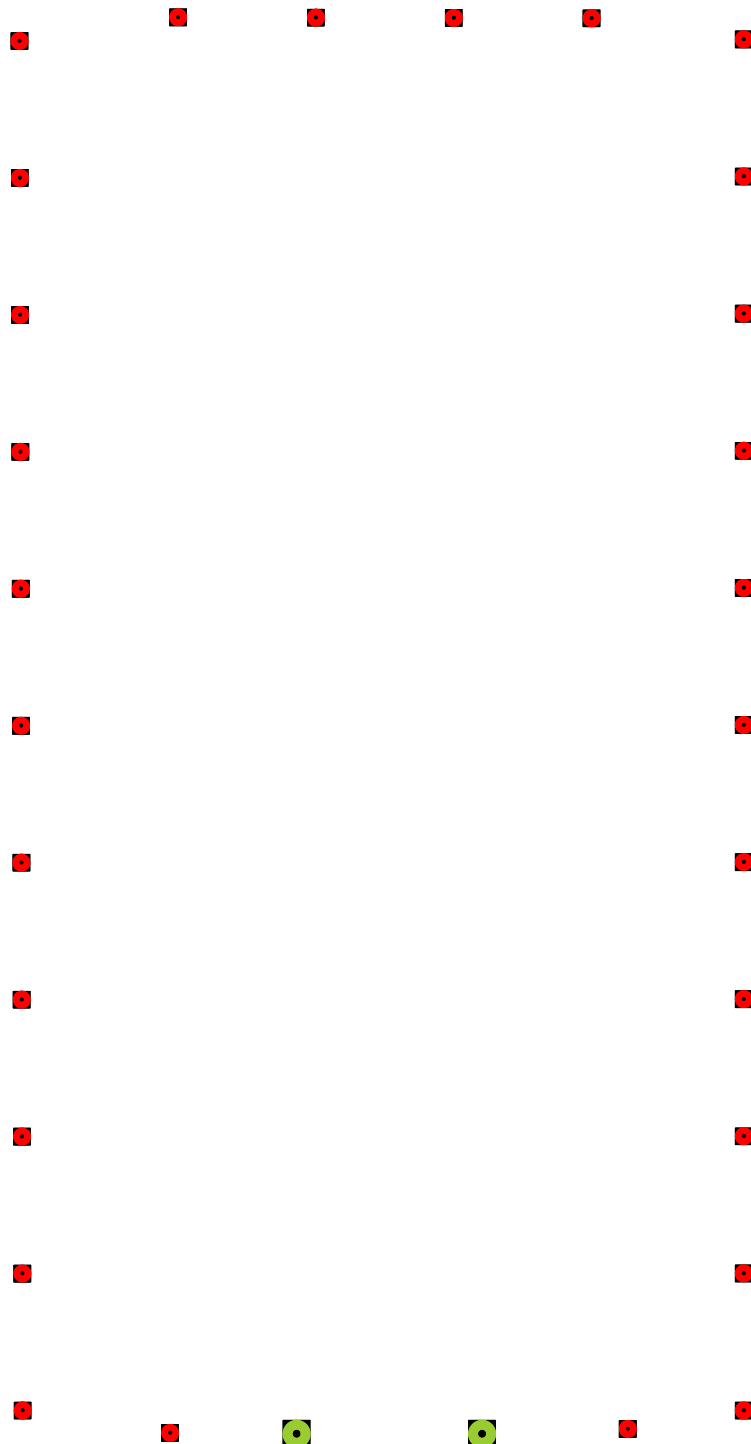


## DOAV Evolution 4-6 Reference Chart

### NFPA Maneuvering Skills

#### Station 1: Confined Space Turnaround

#### Lay-Out







## **DOAV Evolution 4-6 Reference Chart**

### **NFPA Maneuvering Skills**

### **Station 1: Confined Space Turnaround**

### **Procedure**

1. The D/O drives the vehicle into the box through the opening marked by the two lime green cones.
2. The D/O maneuvers the vehicle towards the right side of the box, proceeding towards the far side of the box, and turning towards the left side of the box to position the vehicle in a location that will facilitate backing to change direction.
3. The D/O backs the vehicle to change direction.
4. The D/O drives the vehicle out of the box through the opening marked by the two lime green cones.

### **Warning!**

***A Safety Observer **MUST** be used when the vehicle is backing.***

### **Notes**

No portion of the vehicle should extend over the boundary lines of the box.

There is no limitation on the number of times the D/O can maneuver the vehicle to complete the 180° change of direction in the box.

**State of New Hampshire Department of Safety  
Division of Fire Standards & Training and Emergency Medical Services**

**Driver / Operator – All Vehicles Certification Exam (2017 edition)**

**Skill Sheet DOAV-5  
Confined Space Turnaround**  
*NFPA 1002-2017: 4.3.4*

Candidate Number: \_\_\_\_\_ Date: \_\_\_\_\_

1<sup>st</sup> Attempt / Retest                      Pass / Fail

Vehicle Used: \_\_\_\_\_

Evaluator: \_\_\_\_\_

	Points Possible	Points Earned
Drives into the confined space via the designated opening without striking any cones.	1	
Turns the vehicle 180° within the confined space without positioning the vehicle over the boundary line formed by the cones and without striking any cones.	1	
Verifies that a safety observer is in place prior to backing the vehicle.	1	
Immediately stops the vehicle if the safety observer moves out of view.	1	
Drives out of the confined space via the designated opening without striking any cones.	1	
	5	

Critical Criteria:

\_\_\_\_ Fails to correctly complete 5 steps

**Document all reasons for not awarding points in the space below:**



## DOAV Evolution 4-6 Reference Chart

### NFPA Maneuvering Skills

#### Station 2: Serpentine

#### Lay-Out





## DOAV Evolution 4-6 Reference Chart

### NFPA Maneuvering Skills

#### Station 2: Serpentine

#### Procedure

1. The D/O drives the vehicle in a straight line to the left of the cones and stops just beyond the last cone.
2. The D/O backs the vehicle to the Left of Cone 1, to the Right of Cone 2, and to the Left of Cone 3. The vehicle should be backed far enough past Cone 3 to center the vehicle on the row of cones and facilitate driving forward through the row.
3. The D/O drives the vehicle forward to the Right of Cone 3, to the Left of Cone 2, and to the Right of Cone 1.

#### **Warning!**

***A Safety Observer *MUST* be used when the vehicle is backing.***

**State of New Hampshire Department of Safety  
Division of Fire Standards & Training and Emergency Medical Services**

**Driver / Operator – All Vehicles Certification Exam (2017 edition)**

**Skill Sheet DOAV-4**  
**Roadway Obstructions (Serpentine)**  
*NFPA 1002-2017: 4.3.3*

Candidate Number: \_\_\_\_\_ Date: \_\_\_\_\_

1<sup>st</sup> Attempt / Retest      Pass / Fail

Vehicle Used: \_\_\_\_\_

Evaluator: \_\_\_\_\_

	Points Possible	Points Earned
Drives the vehicle in a straight line along the left side of the cones without striking any cones.	1	
Verifies that a safety observer is in place prior to backing the vehicle.	1	
Backs the vehicle to the Left of Cone 1, to the Right of Cone 2, and to the Left of Cone 3 without striking any cones.	1	
Immediately stops the vehicle if the safety observer moves out of view.	1	
Drives the vehicle forward to the Right of Cone 3, to the Left of Cone 2, and to the Right of Cone 1 without striking any cones.	1	
	5	

Critical Criteria:

\_\_\_\_ Fails to correctly complete 5 steps

**Document all reasons for not awarding points in the space below:**



## DOAV Evolution 4-6 Reference Chart

### NFPA Maneuvering Skills Station 3: Diminishing Clearance Lay-Out

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## DOAV Evolution 4-6 Reference Chart

### **NFPA Maneuvering Skills** ***Station 3: Diminishing Clearance*** **Procedure**

1. The D/O drives the vehicle in a straight line into the diminishing clearance lane.
2. The D/O drives through the lane and continues to the finish line of cones placed beyond the lane stopping as close to the cones as possible.
3. The D/O backs the vehicle through the diminishing clearance lane stopping far enough past the lane to facilitate driving forward to the next station.

#### **Warning!**

***A Safety Observer **MUST** be used when the vehicle is backing.***

#### **Notes**

No portion of the vehicle should extend past the finish line.

The last cones in the diminishing clearance lane will need to be removed for apparatus with 100" cabs.

Explain that the center lane narrows and drivers should not focus on the cones.

**State of New Hampshire Department of Safety  
Division of Fire Standards & Training and Emergency Medical Services**

**Driver / Operator – All Vehicles Certification Exam (2017 edition)**

**Skill Sheet DOAV-6**  
**Restricted Horizontal & Vertical Clearances**  
*NFPA 1002-2017: 4.3.5*

Candidate Number: \_\_\_\_\_ Date: \_\_\_\_\_

1<sup>st</sup> Attempt / Retest      Pass / Fail

Vehicle Used: \_\_\_\_\_

Evaluator: \_\_\_\_\_

	Points Possible	Points Earned
<b>Horizontal Clearance</b>		
Drives the vehicle through the diminishing clearance lane and stops at the designated mark without striking any cones.	1	
Verifies that a safety observer is in place prior to backing the vehicle.	1	
Backs the vehicle through the diminishing clearance lane and stops at the designated mark without striking any cones.	1	
Immediately stops the vehicle if the safety observer moves out of view.	1	
<b>Vertical Clearance</b>		
Determines if the vehicle will safely fit under the simulated vertical height restriction. <ul style="list-style-type: none"><li>• If YES: Drives into the designated area.</li><li>• If NO: Informs the evaluator that there is not sufficient clearance for forward travel.</li></ul>	1	
Verifies that a safety observer is in place prior to backing the vehicle.	1	
Backs the vehicle to the designated starting point.	1	
Immediately stops the vehicle if the safety observer moves out of view.	1	
	8	

Critical Criteria:

\_\_\_\_ Fails to correctly complete 8 steps

**Document all reasons for not awarding points in the space below:**