

## **VEHICLE AND MACHINERY OPERATIONS OBJECTIVES**

NOTE: The numbers in ( ) refer to the text of NFPA 1670 Chapter 6, Vehicle and Machinery Objectives.

NOTE: State certification requirements *(6-3.1)*

- a. firefighter II certification
- b. technical rescue awareness certification
- c. course completion
- d. validation/attestation (practical key)
- e. passage of state examination

### **54-1.0      ORIENTATION**

54-1.1      Identify the course contents and objectives.

### **54-2.0      SAFETY**

54-2.1      Describe the need to protect both patients and rescuers during extrication/  
rescue operations.  
*(6-3.3d)(6-3.3g)*

54-2.2      Describe the consequences of not protecting patients and rescuers during  
extrications/ rescue operations. *(6-3.3d)*

54-2.3      Identify the vehicle/machinery hazards affecting patients and rescuers. *(6-  
3.3h)*

54-2.4      Identify the hazards affecting patients and rescuers by Public Utilities  
involved in vehicle/machinery rescue operations. *(6-3.b)(6-3.3h)*

54-2.5      Identify the hazards affecting patients and rescuers associated with traffic  
hazards during a vehicle/machinery rescue operation. *(6-3.3j)*

54-2.6      Identify safety practices used on the scene of a vehicle/machinery rescue  
operation. *(6-3.3b)*

54-2.7      Identify and describe how to contain and stop fuel/fluid or vapor release  
during a vehicle/machinery rescue operation. *(6-3.3c)*

54-2.8      Describe apparatus placement techniques. *(6-3.3j)*

- 54-2.9 Describe procedures necessary for securing the scene of a vehicle/machinery rescue operation. (6-3.3b)
- 54-2.10 Identify the communications necessary on the scene of a vehicle/machinery rescue operation. (6-3.3)
- 54-2.11 Identify and describe procedures for the procurement and utilization of resources necessary to conduct safe and effective vehicle/machinery rescue operations. (6-3.3i)
- 54-2.12 Identify the considerations for environmental and geographical conditions at vehicle/machinery rescue operations. (6-3.3b)

**54-3.0 INCIDENT COMMAND**

- 54-3.1 Define and describe the structure of Incident Command during a vehicle/machinery rescue operation. (6-3.3)

**54-4.0 SIZE-UP**

- 54-4.1 Identify the priorities in size up of a vehicle/machinery rescue operation. (6-2.2)(6-3.3)
- 54-4.2 Identify techniques to counteract the effects of: (6-3.3b)
- a. weather
  - b. time of day
  - c. lighting
  - d. location
- 54-4.3 Identify and describe how the terrain plays a part in the vehicle/machinery rescue operation. (6-3.3f)
- a. access of resources
  - b. approaching the scene
  - c. removal resources

**54-5.0 EQUIPMENT**

- 54-5.1 Identify and describe the appropriate uses of extrication tools: (6-3.3g)
- a. Hand Tools
  - b. Pneumatic Tools
  - c. Electric/Battery Tools
  - d. Heavy Hydraulics
  - e. Chemical Tools

54-5.2 Identify and describe the appropriate uses of cribbing/stabilization equipment. *(6-3.3b) (6-3.3d) (6-3.3g) (6-3.3i)*

**54-6.0 EXTRICATION PROCESS “VEHICLE” AND PATIENT CARE**

54-6.1 Describe the construction features of a vehicle. *(6-3.3g)*

- a. Exterior components
- b. interior components

54-6.2 Identify and describe the stabilization of a vehicle during a rescue operation. *(6-3.3b)(6-3.3d) (6-3.3g)*

54-6.3 Define the term “patient access” as it relates to vehicle rescue operation. *(6-3.3f)*

54-6.4 Identify and describe mechanisms that might have the patient trapped. *(6-3.3g)*

54-6.5 Identify and describe techniques used during access/disentanglement of a vehicle rescue operation. *(6-3.3g)*

54-6.6 Identify and describe the packaging and treatment of a victim prior to transport. *(6-3.3e) (6-3.3g)*

**54-7.0 EXTRICATION PROCESS “MACHINERY” AND PATIENT CARE**

54-7.1 Describe the construction features of machinery/equipment that relate to machinery rescue operation. *(6-3.3g)*

- a. farm machinery
- b. construction equipment
- c. hydraulic systems equipment
- d. metal cutting/stamping/forming equipment
- e. lifting, moving, transfer equipment/conveyers

54-7.2 Identify the stabilization of machinery during a rescue operation. *(6-3.3b)*

54-7.3 Define the term “patient access” as it relates to machinery rescue operation. *(6-3.3f)*

54-7.4 Identify and describe mechanisms that might have the patient trapped as it relates to machinery. *(6-3.3g)*

54-7.5 Identify the procedures used as it relates to scene safety at machinery rescue operations. *(6-3.3b)*

- 54-7.6 Identify the techniques used during disentanglement at the scene of a machinery rescue operation. (6-3.3g)
- 54-7.7 Identify and describe the packaging and treatment of a victim prior to transport. (6-3.3e) (6-3.3g)
- 54-8.0 TERMINATION**
- 54-8.1 Identify the appropriate methods for removing debris, preserving evidence and transferring scene control. (6-3.3h) (6-3.3i)
- 54-8.2 Identify and describe the maintenance that must be performed prior to the equipment being returned for service. (6-3.3g)

**54-9.0 PRACTICAL OBJECTIVES**

**54-9.1 Given a summary of extrication tools, a stabilized vehicle, and donned in required protective clothing in accordance with the safety section, the student shall demonstrate the operation of the following tools with 100% accuracy:**

- A. Window punch**
- B. Pry axe**
- C. Seat belt cutter**
- D. Hacksaws**
- E. Mechanical tools**
- F. Glass cutting equipment**
- G. Prying tools**
- H. Misc. tools**

**54-9.2 Given a summary of vehicle stabilization, extrication tools, a vehicle, and donned in required protective clothing in accordance with the safety section, the student shall stabilize the vehicle using the following tools with 100% accuracy:**

- A. Wood cribbing**
- B. Stepchocks**

**54-9.3 Given a summary of extrication tools, a stabilized vehicle, and donned in required protective clothing in accordance with the safety section,**

**the student shall demonstrate the operation of the following tools with 100% accuracy:**

- A. Cable style**
- B. Chain style**

**54-9.4 Given a summary of extrication tools, a stabilized vehicle, and donned in required protective clothing in accordance with the safety section, the student shall demonstrate the operation of the following tools with 100% accuracy:**

- A. Air bags**
- B. Proper air delivery system**
- C. Regulate air supply**

**54-9.5 Given a summary of extrication tools, a stabilized vehicle, and donned in required protective clothing in accordance with the safety section, the student shall demonstrate the operation of the following tools with 100% accuracy:**

- A. Bottle jacks**
- B. High-lift jacks**

**54-9.6 Given a summary of pneumatic tools, a stabilized vehicle, and donned in required protective clothing in accordance with the safety section, the student shall demonstrate the operation of the following tools with 100% accuracy:**

- A. Air chisel**
- B. Impact wrench**
- C. Cut-off tools**
- D. Sheet metal shears**
- E. Reciprocating saws**

**54-9.7 Given a summary of extrication tools, a stabilized vehicle, and donned in required protective clothing in accordance with the safety section, the student shall demonstrate the operation of the following tools with 100% accuracy:**

- A. Reciprocating saw**

**54-9.8 Given a summary of extrication tools with a power unit, a stabilized vehicle, and donned in required protective clothing in accordance with the safety section, the student shall demonstrate the operation of the following tools with 100% accuracy:**

- A. Spreaders
- B. Cutters
- C. Rams
- D. Combinations

**54-9.9** Given a summary of extrication tools without a power unit, a stabilized vehicle, and donned in required protective clothing in accordance with the safety section, the student shall demonstrate the operation of the following tools with 100% accuracy:

- A. Spreaders
- B. Cutters
- C. Rams
- D. Combinations

**54-9.10** Given a summary of extrication tools, a stabilized vehicle, and donned in required protective clothing in accordance with the safety section, the student shall demonstrate the technique utilized to force a door with 100% accuracy.

**54-9.11** Given a summary of extrication tools, a stabilized vehicle, and donned in required protective clothing in accordance with the safety section, the student shall demonstrate the technique utilized to remove a door with 100% accuracy.

**54-9.12** Given a summary of extrication tools, a stabilized 4-door vehicle, and donned in required protective clothing in accordance with the safety section, the student shall demonstrate the technique utilized to perform a fifth door evolution with 100% accuracy.

**54-9.13** Given a summary of extrication tools, a stabilized vehicle, and donned in required protective clothing in accordance with the safety section, the student shall demonstrate the technique utilized to pull a steering column with 100% accuracy.

**54-9.14** Given a summary of extrication tools, a stabilized vehicle, and donned in required protective clothing in accordance with the safety section, the student shall demonstrate the technique utilized to perform a dash roll-up with 100% accuracy.

**54-9.15** Given a summary of extrication tools, a stabilized vehicle, and donned in required protective clothing in accordance with the safety section, the student shall demonstrate the technique utilized to perform a dash lift with 100% accuracy.

**54-9.16** Given a summary of extrication tools, a stabilized vehicle, and donned in required protective clothing in accordance with the safety section, the student shall demonstrate the technique utilized to perform a partial roof flap with 100% accuracy.

**54-9.17** Given a summary of extrication tools, a stabilized vehicle, and donned in required protective clothing in accordance with the safety section, the student shall demonstrate the technique utilized to perform a roof removal with 100% accuracy.

**54-9.18** Given a summary of a stabilized vehicle, EMS equipment, and donned in required protective clothing in accordance with the safety section, the student shall demonstrate the technique for patient care, packaging and removal with 100% accuracy.

**54-9.19** Given a summary of extrication tools and donned in required protective clothing in accordance with the safety section, the student shall demonstrate the ability to clean, maintain, and return equipment to a readiness position with 100% accuracy.

- A. Accessory tools and equipment
- B. Extrication tools and equipment

**54-10.0** Final Practical Skills (select one)

**54-10.1** Given a 4-door vehicle, the necessary equipment and an assigned 6-person team, the student will perform tasks in a safe and proper manner. These tasks are assigned by the instructor and are specifically listed in the instructor reference manual titled “State Practical Skill Examination”.

**54-10.2** Given a 4-door vehicle, the necessary equipment and an assigned 7-person team, the student will perform tasks in a safe and proper manner. These tasks are assigned by the instructor and are specifically listed in the instructor reference manual titled “State Practical Skill Examination”.

**54-10.3** Given a 4-door vehicle, the necessary equipment and an assigned 8-person team, the student will perform tasks in a safe and proper manner. These tasks are assigned by the instructor and are specifically listed in the instructor reference manual titled “State Practical Skill Examination”.