

VI. MINIMUM STANDARDS FOR DRIVER/OPERATOR CERTIFICATION

The duties of an Emergency Vehicle Operator are extremely dangerous, as well as mentally and physically exhausting, when responding to, returning from, or operating at an emergency scene. In order to render proper service to his/her department, and in keeping with this concept, an Emergency Vehicle Operator must be physically sound and free from any defect which may adversely affect his/her performance of duty. An Emergency Vehicle Operator's personal safety and the lives of others will be endangered without appropriate training and driving skills. If these skills and training are not applied at regular intervals, competency decreases, hence the need for continual driver re-certification. Driver re-certification is a vital element in maintaining a valid and professional emergency vehicle driver program.

A. Reference Materials

The jurisdictional entity in which the Driver/Operator Personnel serves must have access to the following training manuals:

NFPA

NFPA 1002: Standard for Fire Apparatus Driver/Operator Professional Qualifications

NFPA 1451: Standard for a Fire Service Vehicle Operations Training Program

NFPA 1500: Standard on Fire Department Occupational Safety and Health Program

B. Applicants must complete one of the following:

1. SFFMA Driver/Operator Curriculum
2. TCFP Driver/Operator Curriculum

C. Upon meeting all requirements, an application should be completed, signed by the applicant, Certification Coordinator, and Fire Chief, and sent to the Austin office, accompanied by the twenty-five dollar (\$25.00) application processing fee.

D. Upon review the Austin office will issue the appropriate certificate and, upon request, a shoulder patch. A permanent record of the certification will be maintained in the Austin office.

E. Curriculum for Driver/Operator

SECTION 1 PUMP OPERATIONS/HYDRAULICS - 24 HOURS

- 1-01** Trainee shall identify the operating principles of single stage and multi-stage centrifugal fire pumps as follows:
- 1-01.01 Trainee shall list the percentages of rated capacity, rated pressures, and capacity in gallons per minute at the rated pressures of a fire department pump.
 - 1-01.02 Trainee, given a pump model/diagram, shall identify the main components indicating pump capacity, number of discharges and number of suction inlets.
 - 1-01.03 Trainee shall explain the difference between series/parallel operations of centrifugal fire pumps.
 - 1-01.04 Trainee, given the proper information, shall list three (3) advantages of a centrifugal fire pump as compared to other types of fire pumps (i.e. positive displacement, rotary vane).
- 1-02** Trainee shall demonstrate the use of mathematical calculations as required to solve fire department pumper hydraulic problems as follows:
- 1-02.01 Trainee shall list the mathematical orders of operation concerning addition, subtraction, multiplication, and division.
 - 1-02.02 Trainee shall solve mathematical problems finding the square root, and decimal/fraction conversions.
 - 1-02.03 Trainee shall list formulas used in finding GPM rates, friction loss of fire hose, engine pressure for hose layouts of nozzles, standpipe/sprinkler, master streams, and elevation operations.
 - 1-02.04 Trainee, given the proper information, shall list conversion factors of fire hose that are smaller/larger than 2½ inches.
 - 1-02.05 Trainee shall calculate the correct engine pressures for a specific situation.
- 1-03** Trainee shall set up and perform pumping operations as follows:
- 1-03.01 Trainee shall list conditions that may result in pump damage.
 - 1-03.02 Trainee, given a pump model or diagram, shall demonstrate the proper test/check inspection routines required to assure operational readiness.
 - 1-03.03 Trainee, given a pump panel or diagram, shall identify all gauges and valves, and demonstrate their usage.
 - 1-03.04 Trainee, given a pump panel or diagram, shall identify the proper usage of valves and gauges to obtain a flow of water from the following:
 - a. a 1" (booster line) discharge outlet;
 - b. a 1½" or 1¾" discharge outlet;
 - c. a 2½" discharge outlet; and
 - d. master stream discharge outlet (if applicable)
 - 1-03.05 Trainee, given a pump panel or diagram, shall demonstrate the proper technique of hooking up or connecting intake hoses to the pumps.

- 1-03.06 Trainee, given an engine apparatus or diagram, shall demonstrate/list the engagement procedure of the power take-off (PTO) systems for the pumping apparatus.
- 1-03.07 Trainee, given a pump panel or diagram, shall demonstrate the proper procedure of valve manipulation to produce water from:
 - a. a positive water source
 - b. a static water source by drafting
 - c. booster tank
- 1-04 Trainee shall identify the type, design, operation, nozzle pressure and flow in GPM of various types of nozzles.
- 1-05 Trainee shall list the different types of fire streams.
- 1-06 Trainee, given a 2½” straight stream nozzle, shall demonstrate the proper opening and closing techniques and line movement procedures.
- 1-07 Trainee shall calculate nozzle reaction for various nozzle pressures.
- 1-08 Trainee, given the proper information, shall list advantages and disadvantages of various nozzles:
 - 1-08.01 straight stream
 - 1-08.02 fog
 - 1-08.03 master stream
- 1-09 Trainee shall define water hammer and list ways of preventing water hammer.
- 1-10 Trainee shall calculate the water flow rate needed to control fire in a room that is 20'x20'x8'.
- 1-11 Trainee, given a diagram of various nozzles, shall list major parts and trace flow routes through each.
- 1-12 Trainee shall list factors that influence fire streams.
- 1-13 Trainee shall list the proper procedures for inspection and maintenance of fire fighting nozzles.
- 1-14 Trainee shall demonstrate the operations of the pumper pressure relief system and/or pressure control valve as follows:
 - 1-14.01 Trainee, given a pump panel, shall identify a pressure relief system.
 - 1-14.02 Trainee shall list the reasons a pressure relief system is used.
 - 1-14.03 Trainee shall list the different types of pressure relief systems used in the fire service.
 - 1-14.04 Trainee shall list three (3) reasons of how excessive pressure develops in the fire hose.
- 1-15 Trainee shall identify terms relating to the principles of fire service hydraulics as follows:
 - 1-15.01 Trainee shall list the forms water takes and advantages water exhibits as an extinguishing agent.
 - 1-15.02 Trainee shall list six (6) types of pressure which affect the properties of water in fire service hydraulics.
 - 1-15.03 Trainee, given a pump diagram and flow chart, shall explain the theory of drafting and principle component uses in a drafting operation.
 - 1-15.04 Trainee shall calculate the available water supply from a fire hydrant.
 - 1-15.05 Trainee shall demonstrate assembly and connection of the equipment necessary for drafting from a static water supply source and demonstrate drafting operations.

SECTION 2 APPARATUS FAMILIARIZATION - 2 HOURS

- 2-01 Trainee shall be able to identify various types of automotive fire apparatus.
- 2-02 Trainee shall identify various types of fire apparatus pumps, pumps components, and their function.
- 2-03 Trainee shall identify various types of aerial apparatus components and their function.
- 2-04 Trainee shall identify various types of tools and appliances, and their location on the fire department apparatus.

SECTION 3 EMERGENCY VEHICLE OPERATIONS - 6 HOURS

- 3-01 Trainee shall define and demonstrate the departmental policy and prescribed procedures for emergency vehicle response.
- 3-02 Trainee shall define and explain the authority and responsibility of the emergency vehicle operator.
- 3-03 Trainee shall identify and explain state and local laws governing emergency vehicle response.
- 3-04 Trainee shall identify the prescribed methods used in driver selection, training, testing and licensing of emergency vehicle operators.
- 3-05 **Trainee shall have a thorough knowledge of applicable federal, state and local regulations governing the operation of fire service vehicles.** NFPA 1451 4-01.1
- 3-06 Trainee shall identify the water distribution system, and other alternate water sources in the area of responsibility.
- 3-07 Trainee shall define, explain, and demonstrate where applicable, the use of a rural dry fire hydrant system and static water supply source.
- 3-08 Trainee shall define a tanker shuttle.
- 3-09 Trainee shall identify the apparatus, equipment, and appliances required to provide water at rural locations by relay pumping, large diameter hose, or a tanker shuttle.

SECTION 4 DRIVING APPLICATIONS - 4 HOURS

- 4-01 Trainee shall identify the acquired abilities to operate a fire department vehicle while responding to and returning from an emergency.
- 4-02 Trainee shall identify administrative rules and regulations governing the performance of the fire vehicle while responding to and returning from emergencies.
- 4-03 Trainee shall identify the proper driver's licenses for the operation of fire department vehicles.
- 4-04 Trainee shall identify the legal terms:
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|------------------------|--------------------|
| 4-04.01 true emergency | 4-04.03 negligence |
| 4-04.02 due regard | |
- 4-05 Trainee shall identify the national standards addressing the fire department vehicle driver:
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|-------------------|-------------------|
| 4-05.01 NFPA 1002 | 4-05.03 NFPA 1451 |
| 4-05.02 NFPA 1500 | |
- 4-06 Trainee shall identify the affects that physical forces have on a fire department vehicle:
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| 4-06.01 friction | 4-06.03 momentum and inertia |
| 4-06.02 velocity | 4-06.04 centrifugal force |
- 4-07 Trainee shall identify the areas where gross axle weight ratings and gross vehicle weight may be found on a fire department vehicle.
- 4-08 Trainee shall identify the types of primary and secondary braking systems on a fire department vehicle:
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| 4-08.01 air | 4-08.04 automatic transmission retarder |
| 4-08.02 hydraulic | 4-08.05 driveline retarder |
| 4-08.03 antilock braking systems | |
- 4-09 Trainee shall identify baffling systems and how they affect the physical forces of a fire department vehicle.
- 4-10 Trainee shall identify an inspection and maintenance program of a fire department vehicle.
- 4-11 Trainee shall identify major components of a fire department vehicle:
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|-----------------|---------------------------------|
| 4-11.01 chassis | 4-11.03 primary functions/tasks |
| 4-11.02 body | 4-11.04 auxiliary systems |
- 4-12 Trainee shall identify pre and post inspections.
- 4-13 Trainee shall identify the checklist of a fire department vehicle.
- 4-14 Trainee shall identify components of a fire department vehicle checklist:
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| 4-14.01 vehicle overview | 4-14.05 walk-round inspections |
| 4-14.02 engine compartment | 4-14.06 pump panel components |
| 4-14.03 cab area | 4-14.07 brake system(s) |
| 4-14.04 lights and audio devices | |
- 4-15 Trainee shall identify automotive gauges and controls and demonstrate the operation of automotive gauges and proper operation limits.
- 4-16 Trainee shall demonstrate the operation of all systems and equipment on a fire department vehicle.
- 4-17 Trainee shall identify types of maintenance programs:
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| 4-17.01 routine | 4-17.03 crisis |
| 4-17.02 schedule | |
- 4-18 Trainee shall identify the recording keeping process of a fire department vehicle.
- 4-19 Trainee shall identify safe road operation of a fire department vehicle:
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|----------------------------------|----------------------------|
| 4-19.01 defensive driving skills | 4-19.04 startup procedures |
| 4-19.02 route planning | 4-19.05 emergency driving |
| 4-19.03 driver readiness | |
- 4-20 Trainee shall identify and demonstrate:
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|--------------------------|-----------------------|
| 4-20.01 space management | 4-20.05 lane changing |
| 4-20.02 speed management | 4-20.06 turning |
| 4-20.03 basic maneuvers | 4-20.07 passing |
| 4-20.04 backing up | |
- 4-21 Trainee shall identify operating a fire department vehicle under adverse conditions:
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|-------------------------------|--|
| 4-21.01 traction implications | |
| 4-21.02 vision implications | |
| 4-21.03 crash avoidance | |
- 4-22 Trainee shall identify placement of fire department vehicles at emergency incidents, on and off roadways.
- 4-23 Trainee shall identify hand signals of a spotter while backing a fire department vehicle.

SECTION 5 DRIVING PRACTICES – 4 HOURS

- 5-01** Trainee shall operate a fire department vehicle incorporating various maneuvers:
 - 5-01.01 four left and four right turns
 - 5-01.02 a straight section of roadway one mile long or more
 - 5-01.03 one through intersection and two intersections where a stop has to be made
 - 5-01.04 one railroad crossing
 - 5-01.05 one curve
 - 5-01.06 a section of limited-access highway that includes a conventional ramp entrance and exit and a section of road long enough for two lane changes
 - 5-01.07 one underpass or low clearance or bridge; as applicable to the local jurisdiction
- 5-02** Trainee shall demonstrate vehicle dimension knowledge and turning characteristics while using mirrors for backing.
- 5-03** Trainee shall demonstrate backing from a roadway into restricted space, requiring 90-degree right and left hand turns from the roadway, so that the vehicle is parked within the restricted areas without having to stop and pull forward and without striking obstructions.
- 5-04** Trainee shall demonstrate maneuvering a vehicle around an obstruction.
- 5-05** Trainee shall maneuver a vehicle around obstructions while moving forward and in reverse, so that the vehicle is maneuvered through the obstructions without stopping to change the direction of travel and without striking the obstruction.
- 5-06** Trainee shall demonstrate backing a vehicle within a confined space.
- 5-07** Trainee shall turn a vehicle 180 degrees within a confined space in an area in which the vehicle cannot perform a U-turn without stopping and backing up, so that the vehicle is turned 180 degrees without striking obstructions within the given space.
- 5-08** Trainee shall maneuver a vehicle in areas with restricted horizontal and vertical clearances.