



**Fire Apparatus  
Driver/Operator – Pumper  
Certification Preparation Guide  
June, 2016**

# Firefighter Code of Ethics

**I understand that I have the responsibility to conduct myself in a manner that reflects proper ethical behavior and integrity. In so doing, I will help foster a continuing positive public perception of the fire service. Therefore, I pledge the following...**

- Always conduct myself, on and off duty, in a manner that reflects positively on myself, my department and the fire service in general.
- Accept responsibility for my actions and for the consequences of my actions.
- Support the concept of fairness and the value of diverse thoughts and opinions.
- Avoid situations that would adversely affect the credibility or public perception of the fire service profession.
- Be truthful and honest at all times and report instances of cheating or other dishonest acts that compromise the integrity of the fire service.
- Conduct my personal affairs in a manner that does not improperly influence the performance of my duties, or bring discredit to my organization.
- Be respectful and conscious of each member's safety and welfare.
- Recognize that I serve in a position of public trust that requires stewardship in the honest and efficient use of publicly owned resources, including uniforms, facilities, vehicles and equipment and that these are protected from misuse and theft.
- Exercise professionalism, competence, respect and loyalty in the performance of my duties and use information, confidential or otherwise, gained by virtue of my position, only to benefit those I am entrusted to serve.
- Avoid financial investments, outside employment, outside business interests or activities that conflict with or are enhanced by my official position or have the potential to create the perception of impropriety.
- Never propose or accept personal rewards, special privileges, benefits, advancement, honors or gifts that may create a conflict of interest, or the appearance thereof.
- Never engage in activities involving alcohol or other substance use or abuse that can impair my mental state or the performance of my duties and compromise safety.
- Never discriminate on the basis of race, religion, color, creed, age, marital status, national origin, ancestry, gender, sexual preference, medical condition or handicap.
- Never harass, intimidate or threaten fellow members of the service or the public and stop or report the actions of other firefighters who engage in such behaviors.
- Responsibly use social networking, electronic communications, or other media technology opportunities in a manner that does not discredit, dishonor or embarrass my organization, the fire service and the public. I also understand that failure to resolve or report inappropriate use of this media equates to condoning this behavior.

**Developed by the National Society of Executive Fire Officers**

# Firefighter Code of Ethics

## Background

The Fire Service is a noble calling, one which is founded on mutual respect and trust between firefighters and the citizens they serve. To ensure the continuing integrity of the Fire Service, the highest standards of ethical conduct must be maintained at all times.

Developed in response to the publication of the [Fire Service Reputation Management White Paper](#), the purpose of this National Firefighter Code of Ethics is to establish criteria that encourages fire service personnel to promote a culture of ethical integrity and high standards of professionalism in our field. The broad scope of this recommended Code of Ethics is intended to mitigate and negate situations that may result in embarrassment and waning of public support for what has historically been a highly respected profession.

Ethics comes from the Greek word ethos, meaning character. Character is not necessarily defined by how a person behaves when conditions are optimal and life is good. It is easy to take the high road when the path is paved and obstacles are few or non-existent. Character is also defined by decisions made under pressure, when no one is looking, when the road contains land mines, and the way is obscured. As members of the Fire Service, we share a responsibility to project an ethical character of professionalism, integrity, compassion, loyalty and honesty in all that we do, all of the time.

We need to accept this ethics challenge and be truly willing to maintain a culture that is consistent with the expectations outlined in this document. By doing so, we can create a legacy that validates and sustains the distinguished Fire Service institution, and at the same time ensure that we leave the Fire Service in better condition than when we arrived.





**The mission of the Wisconsin Technical College System is to provide citizens with comprehensive technical and adult education that:**

- Enables individuals to acquire the occupational education necessary for full participation and advancement in the workforce;
- Provides remedial and basic skills education to enable individuals to function as literate members of society;
- Fosters economic development through on-site training and technical assistance to business, industry, and labor.



<http://mywtcs.wtcsystem.edu/fire-service>

**The mission of Wisconsin Fire Service Training is to provide the state's fire service personnel with:**

- A comprehensive education and training program in fire prevention and protection;
- Certification according to standards established by the National Fire Protection Association.

## **Acknowledgment**

The Wisconsin Technical College System (WTCS) gratefully acknowledges the assistance of many dedicated fire service personnel during both the development and the administration of the WTCS Fire Service Training (FST) Certification Program. It would be impossible to individually recognize each and every person who has helped to make the program the resounding success that it is.

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***Special recognition for their technical expertise, time and effort is extended to the Driver/Operator-Pumper Curriculum Committee.***

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As a member of the Training Resources and Data Exchange (TRADE) of the National Fire Academy, WTCS FST is committed to fostering the ongoing exchange of ideas, programs, and curricula among and between Federal, State and local fire training organizations. Many of the publications and training materials of the WTCS FST may be freely used to aid emergency responders in any way possible. This manual is one of the aforementioned publications. We would appreciate the accompaniment of a credit line with any portion of this guide that is used indicating WTCS FST as the origin of the material. We also ask that such materials borrowed from us not be sold for profit.

## Table of Contents

<b>CERTIFICATION OVERVIEW</b>	Page No.
a. Foreword.....	7
b. Assistance in Preparing for Certification.....	7
Certification Program Policy and Procedures Manual	
Fire Education and Training Education Director Information	
c. Entrance into the Wisconsin Fire Service Certification System.....	7
d. Written Examination Element.....	8
Number of Questions	
Format of Instrument	
Passing Score	
Retesting	
e. Practical Skills Examination Element.....	8
Test Site Assignment	
Testing Fee	
Candidates' Responsibilities	
Number of Possible Evolutions	
Pass/fail Information	
Retesting	
f. Examination Results.....	9
g. Certification.....	9
h. Denial and Revocation of Certification.....	9
i. Appeal Process.....	9
 <b>DRIVER/OPERATOR-PUMPER CERTIFICATION PREPARATION GUIDE</b>	
a. Self-Study Requirements and Study Hints.....	11
b. Written Exam Requirements and Study Hints.....	11
c. Practical Exam Requirements and Study Hints.....	11
 <b>APPENDIX</b>	
a. Samples of Questions Used in the Written Examination Element.....	19
b. Practical Skills Test Station Summary.....	20
c. Practical Skills Examination Checklist.....	22
d. Driving Course Specifications.....	54

## **Foreword**

On May 23, 1978, the Wisconsin Board of Vocational, Technical and Adult Education (WBVTAE), since renamed the Wisconsin Technical College System Board (WTCSB), approved the provision of certification to the Wisconsin fire service. The WTCSB also adopted the Professional Qualifications for the Fire Service, National Fire Protection Association (NFPA) 1000 Series Standards, and any future standards of the series as those which shall be used for identifying training course content for the certification of Wisconsin fire service personnel.

Fire service certification in the state of Wisconsin is not mandated by the WTCSB or any other state agency. Certification is rather an endeavor to be undertaken voluntarily by individuals or by collective members of fire departments. Those who aspire to Wisconsin Fire Service Certification, however, must satisfy the program requirements which are based on the appropriate NFPA Standards, and be tested for competency.

Certification is not necessarily a means of determining who may participate in the vocation or avocation of fire fighting, but is rather a symbol of dedication and commitment by the certified individual. Certification also provides documentation that the individual has demonstrated a high level of proficiency established through national consensus.

The WTCS Fire Service Training (FST) is ready and able to assist motivated individuals and/or fire departments in achieving their training and certification goals.

### **Assistance in Preparing for Certification**

The WTCS FST publishes a *Certification Program Policy and Procedures Manual* which lists each category and level of certification offered. These manuals contain pertinent information designed to assist candidates in preparing for the certification process. *Certification Program Policy and Procedures Manual* may be obtained from the WTCS web page:

<http://mywtcs.wtcsystem.edu/fire-service/fire-certification/policy-and-procedures>

### **Entrance into the Wisconsin Fire Service Certification System**

Qualified individuals may enter the certification system by contacting any of the institutions of the WTCS. Upon receipt of a request, appropriate information and application materials for any of the certification categories/levels available will be forwarded. A listing of WTCS institutions and their respective fire service coordinators/supervisors can be accessed from the WTCS FST web page.

### **Written Examination Element**

Approved candidates will be allowed to write the state certification examination for the category and/or level chosen. The written examination will consist of 100 questions with a 90-minute time limit. Multiple choice, true/false and matching questions can be expected. If the candidates successfully achieve a minimum score of 70 percent on the written examination, they will advance to the practical skills examination element of the process. Candidates who received their preparatory training through the state-approved training program and who fail their initial attempt at the written examination will be allowed up to 2 retests. If still unsuccessful after their second retest, these candidates are required to re-enroll in and complete the approved training program before being allowed to again write the examination. A variety of exams will be used to insure that no candidate is allowed to take the same exam more than once. Each exam will be based on the NFPA 1002, *Standard for Fire Apparatus Driver/Operator Professional Qualifications*, 2014 Edition, and constructed from a bank of questions maintained by WTCS FST. Individuals granted advanced standing for documented training from sources other than the state-approved training program will be allowed a one-time challenge of the written examination. If successful in the challenge, they will be scheduled for the practical skills component of the certification process; if unsuccessful, they must complete the state-approved training program before being allowed to again write the examination.

### **Practical Skills Examination Element**

Candidates who have passed the written examination element will be assigned to a practical skills examination at an approved WTCS test site on a date of their choosing (pending availability of openings). All candidates are required to pay the standardized statewide practical skills examination fee of \$80.00 (checks only, payable to the assigned WTCS test site).

Candidates will be responsible for all skills required by the appropriate NFPA standard, and must be prepared to perform any of the skills contained within the examination structure (a summary of the practical skills test stations is included in this document [see appendix]). Due to the large number of skills required by the standard, however, all skills cannot possibly be tested in a given examination. Rather, a number of series of skills will be selected for each exam through a random process. Skills to be tested will not be selected until the day of the exam to prevent prior knowledge by the candidates. The intent of this process is to insure that candidates are prepared to test on all of the skills required by the standard. Each candidate must perform a total of 8 of the 15 possible evolutions contained within the Driver/Operator-Pumper examination structure, as an individual.

Practical examinations are graded on a 100 percent pass/fail basis. Throughout the design of the evaluation checklists, critical components of the skills will be strictly evaluated. "Non-fatal" components and many "local issue" components that vary from fire department to fire department will not be critically evaluated during the examination.

Candidates must successfully complete all skills stations of an examination to receive a passing grade. Candidates who fail up to 2 stations may retest on the same day at no additional cost. If, after retesting, the candidates fail the station(s) again, they must retake the entire examination at a later date. Candidates who fail 3 or more stations on their initial examination attempt must retake the entire examination at a later date as well. This requirement is necessitated by the random examination skills selection process. Such retakes also require payment of another examination fee.

### **Examination Results**

Candidates will be notified of certification examination results upon examination completion.

### **Certification**

Upon successful completion of all elements of the certification process, the candidate's name will be entered into the WTCS FST Certification database. Individuals will also receive, at no additional cost, an individualized certificate from the WTCS FST.

### **Denial and Revocation of Certification**

The WTCS FST will deny or revoke certification if the individual(s):

- Knowingly submits false information to the WTCS FST.
- Cheats during the examination process.

### **Appeal Process**

If certification is denied or revoked, the individual is entitled to due process, including appeal and hearing. The entire appeal process is listed in the *WTCS FST Certification Program Policy and Procedures Manual*.

## **Driver/Operator Certification Preparation Guide**

This document is provided to assist candidates as they ready themselves to enter the WTCS FST Driver/Operator-Pumper Certification Process.

The requirements of NFPA 1002, *Standard for Fire Apparatus Driver/Operator Professional Qualifications*, 2014 Edition, Driver/Operator Job Performance Requirements (JPRs) are listed in the left column. The right column contains information that will help candidates identify study resources or other notes on how to prepare for the examination elements.

The requirements that must be met for certification are divided into four (4) elements. These elements are: State Summary Form; Self-Study Assignment(s); Written Examination; and Practical Skills Examination.

The primary reference material for meeting the certification requirements is the International Fire Service Training Association (IFSTA) *Pumping and Aerial Apparatus Driver/Operator Handbook*, 3<sup>rd</sup> Edition and Jones and Bartlett Fire Apparatus Driver/Operator, 2<sup>nd</sup> Edition, and the accompanying student manuals.

**Self-Study, Written, and Practical Skills Requirements and Study Hints**

**NFPA 1002, Fire Apparatus Driver/Operator JPR, 2014 Edition**

<b>JPR's</b>	<b><u>Chapter References</u></b>	<b><u>Page References</u></b>
NFPA 1002, Fire Apparatus Driver/Operator Professional Qualifications, Chapter 2, General Requirements, 2014 Ed. JPR's		
<b>4.1 General.</b> Prior to operating fire department vehicles, the fire apparatus driver/operator shall meet the job performance requirements defined in Sections 4.2 through 4.3.		
<b>4.2 Preventative Maintenance.</b>		
<p><b>4.2.1</b> Perform routine tests, inspections, and servicing functions on the systems and components specified in the following list, given a fire department vehicle and its manufacturer's specifications, and policies and procedures of the jurisdiction, so that the operational status of the vehicle is verified.</p> <ul style="list-style-type: none"> <li>• Battery(ies)</li> <li>• Braking system</li> <li>• Coolant system</li> <li>• Electrical system</li> <li>• Fuel</li> <li>• Hydraulic fluids</li> <li>• Oil</li> <li>• Tires</li> <li>• Steering system</li> <li>• Belts</li> <li>• Tools, appliances, and equipment</li> </ul> <p><b>(A) Requisite Knowledge:</b> Manufacturer specifications and requirements, policies, and procedures of the jurisdiction.</p> <p><b>(B) Requisite Skills.</b> The ability to use hand tools, recognize system problems, and correct any deficiency noted according to policies and procedures.</p>	<p>IFSTA Chapters 2, 16</p> <p>J&amp;B Chapters 1, 2, 3, 8, 19</p>	<p>IFSTA Pages 29-30, 36-48, 582-585, 588-604</p> <p>J&amp;B Pages 8-13, 26-28, 36-37, 168-187, 467-504</p>
<p><b>4.2.2</b> Document the routine tests, inspections, and servicing functions, given maintenance and inspection forms, so that all items are checked for operation and deficiencies are reported.</p> <p><b>(A) Requisite Knowledge.</b> Departmental requirements for documenting maintenance performed and the importance of keeping accurate records.</p> <p><b>(B) Requisite Skills.</b> The ability to use tools and</p>	<p>IFSTA Chapters 2, 15, 16, 17</p> <p>J&amp;B Chapter 8</p>	<p>IFSTA Pages 29-30, 36-41, 44-45, 48, 515-530, 582-585, 588-604</p> <p>J&amp;B Pages 168-187</p>

**Self-Study, Written, and Practical Skills Requirements and Study Hints**

**NFPA 1002, Fire Apparatus Driver/Operator JPR, 2014 Edition**

equipment and complete all related departmental forms.		
<b>4.3 Driving/Operating.</b>		
<p><b>4.3.1*</b> Operate a fire apparatus, given a vehicle and a predetermined route on a public way that incorporates the maneuvers and features that the driver/operator is expected to encounter during normal operations, so that the vehicle is operated in compliance with all applicable state and local laws and departmental rules and regulations.</p> <p><b>(A) Requisite Knowledge.</b> The importance of donning passenger restraint devices and ensuring crew safety; the common causes of fire apparatus accidents and the recognition that drivers of fire apparatus are responsible for the safe and prudent operation of the vehicle under all conditions; the effects on vehicle control of liquid surge, braking reaction time, and load factors; effects of high center of gravity on roll-over potential, general steering reactions, speed, and centrifugal force; applicable laws and regulations; principles of skid avoidance, night driving, shifting, and gear patterns; negotiating intersections, railroad crossings, and bridges; weight and height limitations for both roads and bridges; identification and operation of automotive gauges; and operational limits.</p> <p><b>(B) Requisite Skills.</b> The ability to operate passenger restraint devices; maintain safe following distances; maintain control of the vehicle while accelerating, decelerating, and turning, given road, weather, and traffic conditions; operate under adverse environmental or driving surface conditions; and use automotive gauges and controls.</p>	<p>IFSTA Chapter 3</p> <p>J&amp;B Chapters 9, 10, 16</p>	<p>IFSTA Pages 83-112, 118-119</p> <p>J&amp;B Pages 194-204, 207, 209-201, 219-225, 238-239</p>
<p><b>4.3.2*</b> Back a vehicle from a roadway into restricted spaces on both the right and left sides of the vehicle, given a fire apparatus, a spotter, and restricted spaces 12 ft (3.7 m) in width, requiring 90-degree right-hand 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.</p> <p><b>(A) Requisite Knowledge.</b> Vehicle dimensions, turning characteristics, spotter signaling, and principles of safe vehicle operation.</p>	<p>IFSTA Chapter 3</p> <p>J&amp;B Chapters 9, 16</p>	<p>IFSTA Pages 100-104, 113-116, 118-119</p> <p>J&amp;B Pages 200-208, 404-405, 407-408</p>

**Self-Study, Written, and Practical Skills Requirements and Study Hints**

**NFPA 1002, Fire Apparatus Driver/Operator JPR, 2014 Edition**

<p><b>(B) Requisite Skills.</b> The ability to use mirrors and judge vehicle clearance.</p>		
<p><b>4.3.3*</b> Maneuver a vehicle around obstructions on a roadway while moving forward and in reverse, given a fire apparatus, a spotter for backing, and a roadway with obstructions, so that the vehicle is maneuvered through the obstructions without stopping to change the direction of travel and without striking the obstructions.</p> <p><b>(A) Requisite Knowledge.</b> Vehicle dimensions, turning characteristics, the effects of liquid surge, spotter signaling, and principles of safe vehicle operation.</p> <p><b>(B) Requisite Skills.</b> The ability to use mirrors and judge vehicle clearance.</p>	<p>IFSTA Chapter 3</p> <p>J&amp;B Chapters 9, 16</p>	<p>IFSTA Pages 100-104, 113-116, 118-119</p> <p>J&amp;B Pages 200-204, 404-405</p>
<p><b>4.3.4*</b> Turn a fire apparatus 180 degrees within a confined space, given a fire apparatus, a spotter for backing up, and 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.</p> <p><b>(A) Requisite Knowledge.</b> Vehicle dimensions, turning characteristics, the effects of liquid surge, spotter signaling, and principles of safe vehicle operation.</p> <p><b>(B) Requisite Skills.</b> The ability to use mirrors and judge vehicle clearance.</p>	<p>IFSTA Chapter 3</p> <p>J&amp;B Chapters 9, 16</p>	<p>IFSTA Pages 100-104, 113-116, 118-119</p> <p>J&amp;B Pages 200-204, 404-405, 407, 409</p>
<p><b>4.3.5*</b> Maneuver a fire apparatus in areas with restricted horizontal and vertical clearances, given a fire apparatus and a course that requires the operator to move through areas of restricted horizontal and vertical clearances, so that the operator accurately judges the ability of the vehicle to pass through the openings and so that no obstructions are struck.</p> <p><b>(A) Requisite Knowledge.</b> Vehicle dimensions, turning characteristics, the effects of liquid surge, spotter signaling, and principles of safe vehicle operation.</p> <p><b>(B) Requisite Skills.</b> The ability to use mirrors and judge vehicle clearance.</p>	<p>IFSTA Chapter 3</p> <p>J&amp;B Chapters 9, 16</p>	<p>IFSTA Pages 100-104, 118-119</p> <p>J&amp;B Pages 200-204, 404-405</p>
<p><b>4.3.6*</b> Operate a vehicle using defensive driving techniques, given an assignment and a fire apparatus, so that control of the vehicle is maintained.</p>	<p>IFSTA Chapter 3</p>	<p>IFSTA Pages 85-93, 96-116, 118-119</p>

**Self-Study, Written, and Practical Skills Requirements and Study Hints**

**NFPA 1002, Fire Apparatus Driver/Operator JPR, 2014 Edition**

<p><b>(A) Requisite Knowledge.</b> The importance of donning passenger restraint devices and ensuring crew safety; the common causes of fire apparatus accidents and the recognition that drivers of fire apparatus are responsible for the safe and prudent operation of the vehicle under all conditions; the effects on vehicle control of liquid surge, braking reaction time, and load factors; the effects of high center of gravity on rollover potential, general steering reactions, speed, and centrifugal force; applicable laws and regulations; principles of skid avoidance, night driving, shifting, gear patterns; and automatic braking systems in wet and dry conditions; negotiation of intersections, railroad crossings, and bridges; weight and height limitations for both roads and bridges; identification and operation of automotive gauges; and operational limits.</p> <p><b>(B) Requisite Skills.</b> The ability to operate passenger restraint devices; maintain safe following distances; maintain control of the vehicle while accelerating, decelerating, and turning, given road, weather, and traffic conditions; operate under adverse environmental or driving surface conditions; and use automotive gauges and controls.</p>	<p>J&amp;B Chapter 10</p>	<p>J&amp;B Pages 219-225, 238-239</p>
<p><b>4.3.7*</b> Operate all fixed systems and equipment on the vehicle not specifically addressed elsewhere in this standard, given systems and equipment, manufacturer's specifications and instructions, and departmental policies and procedures for the systems and equipment, so that each system or piece of equipment is operated in accordance with the applicable instructions and policies.</p> <p><b>(A) Requisite Knowledge.</b> Manufacturer's specifications and operating procedures, and policies and procedures of the jurisdiction.</p> <p><b>(B) Requisite Skills.</b> The ability to deploy, energize, and monitor the system or equipment and to recognize and correct system problems.</p>	<p>IFSTA Chapters 2, 16</p> <p>J&amp;B Chapters 6, 11</p>	<p>IFSTA Pages 40-41, 566-581</p> <p>J&amp;B Pages 102-109, 111-115, 246-250, 253-255, 257-268, 271-274</p>
<p><b>5.1* General.</b> The requirements of Fire Fighter 1 as specified in NFPA1001 (or the requirements of Advanced Exterior Industrial Fire Brigade Member or Interior Structural Fire Brigade Member as specified in NFPA1081) and the job performance requirements defined in Sections 5.1 and 5.2 shall be met prior to qualifying as a fire department driver/operator—pumper.</p>		

**Self-Study, Written, and Practical Skills Requirements and Study Hints**

**NFPA 1002, Fire Apparatus Driver/Operator JPR, 2014 Edition**

<p><b>5.1.1</b> Perform the routine tests, inspections, and servicing functions specified in the following list in addition to those in 4.2.1, given a fire department pumper, its manufacturer's specifications, and policies and procedures of the jurisdiction, so that the operational status of the pumper is verified:</p> <p>(1) Water tank and other extinguishing agent levels (if applicable) (2) Pumping systems (3) Foam systems</p> <p><b>(A) Requisite Knowledge.</b> Manufacturer's specifications and requirements, and policies and procedures of the jurisdiction.</p> <p><b>(B) Requisite Skills.</b> The ability to use hand tools, recognize system problems, and correct any deficiency noted according to policies and procedures.</p>	<p>IFSTA Chapters 2, 10, 14, 15</p> <p>J&amp;B Chapters 1, 2, 3, 6, 8, 14, 19</p>	<p>IFSTA Pages 29-30, 48, 336-351, 366, 506, 515-530</p> <p>J&amp;B Pages 8-13, 26-28, 37-38, 105, 107-109, 111-115, 168-187, 471-476, 480-504</p>
<p><b>5.2 Operations.</b></p>		
<p><b>5.2.1</b> Produce effective hand or master streams, given the sources specified in the following list, so that the pump is engaged, all pressure control and vehicle safety devices are set, the rated flow of the nozzle is achieved and maintained, and the apparatus is continuously monitored for potential problems:</p> <p>(1) Internal tank (2)*Pressurized source (3) Static source (4) Transfer from internal tank to external source</p> <p><b>(A) Requisite Knowledge.</b> Hydraulic calculations for friction loss and flow using both written formulas and estimation methods, safe operation of the pump, problems related to small-diameter or dead-end mains, low-pressure and private water supply systems, hydrant coding systems, and reliability of static sources.</p> <p><b>(B) Requisite Skills.</b> The ability to position a fire department pumper to operate at a fire hydrant and at a static water source, power transfer from vehicle engine to pump, draft, operate pumper pressure control systems, operate the volume/pressure transfer valve (multistage pumps only), operate auxiliary cooling</p>	<p>IFSTA Chapters 4, 5, 6, 7, 8, 9, 10, 11</p> <p>J&amp;B Chapters 7, 11</p>	<p>IFSTA Pages 136-141, 178-181, 188-189, 193-204, 210, 218-219, 222-272, 281-282, 287-289, 295-296, 298-352, 403-407, 410-418</p> <p>J&amp;B Pages 121-147, 150-153, 156-162, 246-250, 253-255, 257-274</p>

**Self-Study, Written, and Practical Skills Requirements and Study Hints**

**NFPA 1002, Fire Apparatus Driver/Operator JPR, 2014 Edition**

<p>systems, make the transition between internal and external water sources, and assemble hose lines, nozzles, valves, and appliances.</p>		
<p><b>5.2.2</b> Pump a supply line of 2½ in. (65 mm) or larger, given a relay pumping evolution the length and size of the line and the desired flow and intake pressure, so that the correct pressure and flow are provided to the next pumper in the relay.</p> <p><b>(A) Requisite Knowledge.</b> Hydraulic calculations for friction loss and flow using both written formulas and estimation methods, safe operation of the pump, problems related to small-diameter or dead-end mains, low-pressure and private water supply systems, hydrant coding systems, and reliability of static sources.</p> <p><b>(B) Requisite Skills.</b> The ability to position a fire department pumper to operate at a fire hydrant and at a static water source, power transfer from vehicle engine to pump, draft, operate pumper pressure control systems, operate the volume/pressure transfer valve (multistage pumps only), operate auxiliary cooling systems, make the transition between internal and external water sources, and assemble hose lines, nozzles, valves, and appliances.</p>	<p>IFSTA Chapters 4, 5, 7, 8, 9, 10, 12</p> <p>J&amp;B Chapter 13</p>	<p>IFSTA Pages 141-146, 178-181, 188-189, 211-214, 218-219, 283-284, 287-289, 296-298, 307-362, 425-436</p> <p>J&amp;B Pages 312-321, 327-350</p>
<p><b>5.2.3</b> Produce a foam fire stream, given foam-producing equipment, so that properly proportioned foam is provided.</p> <p><b>(A) Requisite Knowledge.</b> Proportioning rates and concentrations, equipment assembly procedures, foam system limitations, and manufacturer's specifications.</p> <p><b>(B) Requisite Skills.</b> The ability to operate foam proportioning equipment and connect foam stream equipment.</p>	<p>IFSTA Chapter 14</p> <p>J&amp;B Chapter 14</p>	<p>IFSTA Pages 480-494, 502-506, 508-509</p> <p>J&amp;B Pages 327-350</p>
<p><b>5.2.4</b> Supply water to fire sprinkler and standpipe systems, given specific system information and a fire department pumper, so that water is supplied to the system at the correct volume and pressure.</p> <p><b>(A) Requisite Knowledge.</b> Calculation of pump discharge pressure; hose layouts; location of fire department connection; alternative supply procedures if fire department connection is not usable; operating principles of sprinkler systems as defined in NFPA 13,</p>	<p>IFSTA Chapters 4, 7, 10</p> <p>J&amp;B Chapters 6, 7</p>	<p>IFSTA Pages 137, 141, 362-366, 214-218</p> <p>J&amp;B Pages 105-106, 147, 149-155</p>

**Self-Study, Written, and Practical Skills Requirements and Study Hints**

**NFPA 1002, Fire Apparatus Driver/Operator JPR, 2014 Edition**

NFPA 13D, and NFPA 13R; fire department operations in sprinklered properties as defined in NFPA 13E; and operating principles of standpipe systems as defined in NFPA 14.

**(B) Requisite Skills.** The ability to position a fire department pumper to operate at a fire hydrant and at a static water source, power transfer from vehicle engine to pump, draft, operate pumper pressure control systems, operate the volume/pressure transfer valve (multistage pumps only), operate auxiliary cooling systems, make the transition between internal and external water sources, and assemble hose lines, nozzles, valves, and appliances.

# APPENDIX

## **SAMPLES OF QUESTIONS USED IN THE WRITTEN EXAMINATION ELEMENT**

### **DRIVING/OPERATION [NFPA 1002: 4.3.1(a)]**

1. The extreme \_\_\_\_\_ of fire apparatus can contribute to skidding or rollover.
  - A. Visibility
  - B. Maneuvering
  - C. Braking ability
  - D. Weight

### **DRIVING/OPERATION [NFPA 1002: 4.3.3(a)]**

2. The distance a vehicle takes to stop after the driver perceives the need to stop is called?
  - A. Reaction time
  - B. Stopping distance
  - C. Braking distance
  - D. Visual lead time

### **OPERATIONS [NFPA 1002: 5.2.1(a)]**

3. The minimum size for water mains in residential areas is?
  - A. 6 inches
  - B. 12 inches
  - C. 16 inches
  - D. 4 inches

### **OPERATIONS [NFPA 1002: 5.2.2(a)]**

4. During relay operations apparatus position is based upon?
  - A. Maximum working pressure
  - B. Number of personnel
  - C. Number of apparatus being supplied
  - D. All of the above

### **OPERATIONS [NFPA 1002: 5.2.4(a)]**

5. The rule of thumb for pumping pressure into sprinkler systems is?
  - A. 200 psi.
  - B. 250 psi.
  - C. 100 psi.
  - D. 150 psi.

## PRACTICAL SKILLS TEST STATIONS

### 1. Pre-trip Inspection – Individual

1 - Individual will conduct a pre-trip inspection for **one** of the following areas randomly selected by the station examiner:

- 1-A Inside driver compartment
- 1-B Outside the apparatus
- 1-C Engine compartment
- 1-D Fire Pumps (All Candidates will inspect)

Target Time 8-10 minutes

### 2. Staged Driving Evolutions – Simulated Emergency Driving – Individual

2 - Individual will drive the apparatus both forward and in reverse for **one** of the following:

- 2-A Serpentine
- 2-B Diminishing Clearance

Target Time 10-12 minutes

### 3. Staged Driving Evolutions – Non-Emergency Driving – Individual

3 - Individual will drive the apparatus for **one** of the following:

- 3-A Alley Dock or Station Apparatus Backing Maneuver
- 3-B Confined Space Turnaround

Target Time 7-12 minutes

### 4. Over-the Road Driving Evolutions – Individual

4 - Individual will drive the apparatus over-the-road on **one** of four predetermined routes randomly selected by the station examiner.

Target time 15-20 minutes

### 5. Basic Pumping Exercises – Individual

5 -The individual will perform all **three** of the following pumping exercises in order:

- 5-A Single 1 ½" or 1 ¾" handline
  - 5-A.1 Internal
  - 5-A.2 Pressurized (**or**)
  - 5-A.3 Static
- 5-B Single 2 ½" handline
- 5-C Pump to multiple handlines

Target Time 10-15 minutes

### 6. Pumping Evolutions – Individual

6 -The individual will operate the pump in **one** of the following evolutions:

- 6-A Portable Master Stream
- 6-B Relay Pumping
- 6-C Sprinkler or standpipe system
- 6-D Foam Operation

Target Time 5-10 minutes

## **Grading Schedule**

The following criteria will be used to evaluate and determine the pass/fail status of a candidate. Each item in the performance test checklist is given a rating.

**Critical (C)**—This rating has been assigned to items, which, if omitted or performed incorrectly, would result in severe injury to, or death of, an individual. Should a candidate fail to perform any **ONE** item rated as *critical (C)*, the candidate would be unsuccessful in demonstrating the required proficiency level for that standard.

**Major (M)**—This rating refers to any item that is very important to the general safety of personnel and the successful completion of the evolution. Should a candidate fail to perform any **TWO** items rated as *major (M)*, the candidate would be unsuccessful in demonstrating the required proficiency level for that standard.

**General**—This rating, although there is no symbol, has been given to all remaining items that in combination are relevant to the successful completion of the evolution. Should a candidate fail to perform any **THREE** items rated as *general*, the candidate would be unsuccessful in demonstrating the required proficiency level for that standard.

Should a candidate fail to perform any combination of Major or General rated items resulting in a sum total of **THREE**, the candidate would be unsuccessful in demonstrating the required proficiency level for that standard.

**\*Candidates will not be penalized for equipment failures or cancellations/delays due to inclement weather or other circumstances.**

The test evolutions are based on the **2014 NFPA 1002 Job Performance Requirements**. Skills are evaluated in accordance with the IFSTA *Pumping and Aerial Apparatus Driver/Operator Handbook, 3<sup>rd</sup> Edition* and Jones and Bartlett *Fire Apparatus Driver/Operator, 2<sup>nd</sup> Edition* curriculum.

Each candidate will perform a total of 8 of the 15 possible evolutions (one from each of the 2 major areas). The tests will be selected randomly either by the state or by the evaluator. Candidates must be prepared to perform any of the skills listed. The assignment of each team member during the evolution is randomly selected at the time of the test and cannot be changed. Non-compliance can be grounds for failure of the entire examination.

Target time is the time to accomplish the task. Total time includes replacing tools and equipment. Times are estimated and may vary slightly from site to site. Test evolutions include properly breaking down equipment and replacing to the starting point.

The Driver/Operator-Pumper Practical Skills Examination is physically demanding and the candidate is responsible for his/her own physical fitness and ability to perform the skills required.

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**Candidates are responsible for providing the proper PPE to be worn by driver/operators of their respective fire department. If the candidate is a member of a fire department, the candidate's fire department must provide a operational pumper for the candidate to use during the driving portion of the practical examination. The candidate must have a CDL learner's permit if he/she is not an active member of a Wisconsin fire department at the time of the practical examination. The candidate is also responsible for supplying the evaluator with a pump chart that the candidate will use during the pumping evolutions. The candidate must have a valid driver's license and show the license to the evaluator before participating in the driving portion of the practical examination.**

**TEST # 1  
INDIVIDUAL TEST**

**PRE-TRIP INSPECTION**

**Description:**

The candidate will perform a pre-trip inspection on one area of the apparatus.

**Procedures:**

1. In accordance with IFSTA Pumping Apparatus Driver/Operator Handbook checklist and local policies and procedures.
  - a) Track vital information such as pump and engine capacities.
  - b) Recording basic service information including condition of body, pump, engine hours, road mileage, etc.
  - c) Identify and explain the use of fire apparatus maintenance and inspection forms.
2. Station examiner will select the area of the pumper the candidate will inspect.
3. Inspection to be performed at a starting location designated by the station examiner.
4. A fire department inspection check list or a CDL checklist may be used as a guide.
5. The inspection should be limited to 10 minutes

**Performance Evaluation Guidelines:**

NFPA 1002 – JPR 4.2.1, 4.2.2, 4.3.7, 5.1.1

*IFSTA Pumping Apparatus Driver/Operator Handbook, 3rd Edition*

*Jones and Bartlett Fire Apparatus Driver/Operator, 2<sup>nd</sup> Edition*

**TEST # 1  
INDIVIDUAL TEST**

**PRE-TRIP INSPECTION**

**Directions to the Candidate:**

**All skill stations are pass/fail. Failure to meet the criteria will result in a failure.** At this station the candidate will be evaluated on performing a pre-trip inspection on an area of the pumper designated by the station examiner. The candidate may use a department inspection checklist or a CDL checklist as a guide. If the candidate is inspecting the inside of the driver compartment, the station examiner should have the candidate start the engine to perform the inspection on the gauges. The cab (tilt cab) does not have to be tilted nor do the engine covers have to be opened or removed for this evolution. The type of inspection and checks would be the type performed by a career fire department at the beginning of the tour of duty or a non-career firefighter on a weekly or biweekly basis.

You will be assigned either:

- A – Inside driver compartment
- B – Outside the apparatus
- C – Engine compartment

All Candidates will also inspect D – Fire Pump.

**Candidates will do one of A, B, or C**

**All candidates will perform check of D fire pump.**

**Time: – Target: 8 Minutes**

**Maximum: 10 Minutes**

**Total Station Time – 10 Minutes**

***Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General***

ELEMENTS/STEPS	STANDARDS	NO	YES
<p><b>Candidate is assigned either A, B, C.</b></p> <p><b>All candidates perform check of D fire pump.</b></p>	<b>A. Inside driver compartment</b>		
	1. Checked that wheels are chocked (if applicable)		
	2. Checked correct position of mirrors		
	3. Checked all apparatus controls and gauges (vehicle must be turned on)		
	4. <b>(M)</b> Checked fuel levels, verbalize when refill is required.		
	5. Checked all interior lights		
	6. Checked horn (verbalize checked)		
	7. Checked audible and visual warning devices (verbalize)		
	8. Tested brake pressure by operating foot pedal		
	9. Check SCBA (if applicable)		
10. Check headlights			

**Time: – Target: 8 Minutes**

**Maximum: 10 Minutes**

**Total Station Time – 10 Minutes**

<b>Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General</b>			
<b>ELEMENTS/STEPS</b>	<b>STANDARDS</b>	<b>NO</b>	<b>YES</b>
	11. Checked windshield wipers		
	12. Inspected seats for tears and adjustability		
	13. Checked seatbelts for operation and wear		
	14. Checked emergency and parking brakes		
	15. Checked steering wheel adjustment and reaction		
	16. Checked heater/air conditioner operation		
	17. Checked clutch pedal (if applicable)		
	18. Checked turrets (if applicable)		
	19. Checked communication systems (if applicable)		
	20. Document inspection according to department policy		
	<b>B. Outside the apparatus</b>		
	1. Checked that wheels are chocked (if applicable)		
	2. Checked body panel for rust, dents, or exposed areas needing touch-up paint		
	3. Checked tires for proper inflation and condition (verbalize)		
	4. Checked wheel lugs for tightness (verbalize)		
	5. Checked all exterior lights for operation and damage		
	6. Checked weather seals around cab and compartment doors for looseness, damage and deterioration		
	7. Inspected windows for cracks or discoloration		
	8. Checked battery terminals and cleaned as needed (verbalize)		
	9. Checked battery cables for loose connections (verbalize)		

**Time: – Target: 8 Minutes**

**Maximum: 10 Minutes**

**Total Station Time – 10 Minutes**

<b>Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General</b>			
<b>ELEMENTS/STEPS</b>	<b>STANDARDS</b>	<b>NO</b>	<b>YES</b>
	10. Checked electrolyte level and added water as needed (verbalize)		
	11. <b>(M)</b> Checked for fuel or oil leaks		
	12. Check hose lines		
	13. Check portable extinguishers		
	14. Check equipment inventory		
	15. Operate power tools (if applicable - verbalize)		
	16. Document inspection according to department policy		
<b>Candidates may verbalize steps 3-14.</b>	<b>C. Engine compartment</b>		
	1. Checked that wheels are chocked (if applicable)		
	2. <b>(M)</b> Checked under vehicle for leaks		
	3. Checked all drive belts for wear or defects; adjusted as needed		
	4. Checked coolant overflow reservoir and fill as needed		
	5. Checked cooling fan, cooling system hoses, and the radiator		
	6. Checked coolant level, color and cleanliness and filled, if necessary		
	7. Checked all oil levels		
	8. Checked all hydraulic fluid levels		
	9. Checked brake/master cylinder fluid level and filled it as needed (if applicable)		
	10. Checked power steering reservoir and filled it as needed (if applicable)		
	11. Checked the automatic transmission fluid level, both cold and hot		
	12. Checked the windshield washer fluid level		
	13. Checked any exposed wiring for breaks, loose connections, and insulation frays		

**Time: – Target: 8 Minutes**

**Maximum: 10 Minutes**

**Total Station Time – 10 Minutes**

<b>Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General</b>			
<b>ELEMENTS/STEPS</b>	<b>STANDARDS</b>	<b>NO</b>	<b>YES</b>
	14. Checked the exhaust system for damage		
	15. Checked the air system for leaks with the air system and the engine shut off		
	16. Document inspection according to department policy		
<b>All candidates perform check of D fire pump.</b>	<b>D. Fire Pump</b>		
	1. Checked that wheels are chocked (if applicable)		
	2. Opened all pump drains and flushed sediment		
	3. Check pump primer oil level (if applicable)		
	4. Operated pump primer with all pump valves closed (can be verbalized)		
	5. Operated changeover valve while pumping from booster tank (applies to two-stage pumps only)		
	6. Operated all valves, including the pressure control device		
	7. Checked all other pump panel instruments for proper operation		
	8. Operated valves in auxiliary cooling system		
	9. <b>(M)</b> Checked water level		
	10. Checked water tanks for leaks		
	11. Checked foam/tank (if applicable)		
	12. Check foam tank for leaks (if applicable)		
		<b>(C) Completed task within listed time limits with no safety violations</b>	

**Description:**

*This exercise simulates maneuvering the fire apparatus in tight locations and around parked vehicles.*

**Procedures:**

1. The candidate should drive the apparatus along the left side of the markers in a straight line and stop just beyond the last marker.
2. Spotter will be used during the backing segment but only to prevent a collision (not providing directions)
3. The candidate will back the pumper to the left side of marker No. 1
4. Candidate will back the pumper to the right-side of marker No. 2.
5. Candidate will back the pumper to the left-side of marker No. 3
6. Activate warning lights and siren to simulate emergency driving conditions while driving forward through the course (a recording of the siren on a tape player maybe used inside the cab).
7. Candidate will drive forward to the right-side of marker No. 3.
8. Candidate will drive forward to the left-side of maker No. 2.
9. Candidate will drive forward to the right-side of marker No. 1.
10. Candidate will stop just beyond the last cone.
11. De-activate siren.
12. Station is complete after backing and driving forward through the course.

**Performance Evaluation Guidelines:**

NFPA 1002 – JPR 4.3.3, 4.3.6

*IFSTA Pumping Apparatus Driver/Operator Handbook, 3rd Edition*

*Jones and Bartlett Fire Apparatus Driver/Operator, 2<sup>nd</sup> Edition*

**Directions to the Individual:**

**All skill stations are pass/fail. Failure to meet the criteria will result in a failure.** The individual will demonstrate the ability to maneuver a pumper forward and backward through a traffic cone serpentine course. Warning lights and siren will be used during the forward segment of the exercise to simulate emergency driving conditions. The candidate should drive the apparatus along the left side of the markers in a straight line and stop just beyond the last marker. The candidate then should begin the exercise by backing the pumper between the markers by passing to the left of marker No. 1, to the right of marker No. 2, and to the left of marker No. 3. At this point, the candidate should stop the vehicle and then drive it forward between the markers by passing to the right of marker No. 3, to the left of marker No. 2, and to the right of marker No. 1. The candidate will not lean out the window, but must use the mirrors and spotter during the backing maneuver. The candidate is not permitted to stop, reposition or change direction during the maneuver. The evolution is concluded after the candidate has driven forward and backed the apparatus through the exercise without touching the cones.

Spotter will be used during the backing segment but only to prevent a collision (not providing directions).

**Time: – Target: 10 Minutes                      Maximum: 12 Minutes                      Total Station Time – 12 Minutes**

<b>Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General</b>			
<b>ELEMENTS/STEPS</b>	<b>STANDARDS</b>	<b>NO</b>	<b>YES</b>
	<b>A. Serpentine</b>		
	1. <b>(C)</b> Fastened seat belt		
	2. Drove apparatus along the left side of the markers in a straight line and stopped just beyond the last barrel/cone		
	3. <b>(M)</b> Backed the apparatus between the markers by passing to the left of #1, to the right of #2, and to the left of #3 and stop beyond the last barrel/cone without stopping to change direction		
	4. <b>(M)</b> Drove vehicle forward and to the right of #3, left of #2, and right of #1 without stopping to change direction		
	5. <b>(M)</b> Used all applicable warning devices		
	6. <b>(M)</b> Completed exercise without striking a cone (each struck cone counts as a major)		
	<b>(C) Completed task within listed time limits with no safety violations</b>		

**TEST # 2-B  
INDIVIDUAL TEST**

**STAGED DRIVING EVOLUTIONS  
SIMULATED EMERGENCY DRIVING  
DIMINISHING CLEARANCE**

**Description:**

This exercise measures a candidate's ability to steer the apparatus in a straight line, to judge distances from wheel to object, and to stop at a finish line.

**Procedures:**

1. Candidate to position apparatus at entrance to lane.
2. Candidate will activate warning lights and siren to simulate emergency driving conditions while driving forward through the course (a recording of the siren on a tape player maybe used inside the cab).
3. Candidate drives through the lane maintaining a constant speed.
4. Candidate will stop within three feet to row of cones beyond the lane. (siren off when stopped)
5. Candidate will back through course with a spotter.
6. Candidate backs through the lane maintaining a constant speed.
7. Candidate stops at the row of cones beyond the lane.
8. Candidate may not lean out of the window while driving.
9. Spotter will be used during the backing segment but only to prevent a collision (not providing directions)

**Note:** Cones may have to be repositioned for each pumper as required using the **driving course specification sheet** found in the Appendix.

**Performance Evaluation Guidelines:**

NFPA 1002 – JPR 4.3.5, 4.3.6

*IFSTA Pumping Apparatus Driver/Operator Handbook, 3rd Edition*

*Jones and Bartlett Fire Apparatus Driver/Operator, 2<sup>nd</sup> Edition*

**Directions to the Candidate:**

**All skill stations are pass/fail. Failure to meet the criteria will result in a failure.** The candidate will demonstrate driving forward and backing a pumper through the restricted lanes of a diminishing clearance exercise. Warning lights and siren will be used during the forward segment of the exercise to simulate emergency driving conditions. The course is set-up using two rows of traffic cones forming a lane that varies in width. The candidate starts forward at the widest end of the lane with the lane becoming narrower as the pumper proceeds through the course. The candidate will stop the pumper within three feet of a row of cones positioned 50 feet beyond the last cone of the lane. The candidate will then back through the diminishing clearance course until clear of all cones using a spotter. The candidate must maintain a constant speed while maneuvering through the exercise. The candidate is not permitted to lean out of the window during the exercise. The exercise is completed after driving forward and backing through the course.

Spotter will be used during the backing segment but only to prevent a collision (not providing directions).

**Time: – Target: 10 Minutes**

**Maximum: 12 Minutes**

**Total Station Time – 12 Minutes**

**Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General**

ELEMENTS/STEPS	STANDARDS	NO	YES
	<b>A. Diminishing</b>		
	1. <b>(C)</b> Fastened seat belt		
	2. Proceeded from wide to narrow end		
	3. <b>(M)</b> Stopped within 3 feet of finish line		
	4. Came to complete stop in a smooth and safe manner		
	5. <b>(M)</b> Back vehicle through course using mirrors until clear of all cones		
	6. <b>(M)</b> Used all applicable warning devices (forward only)		
	7. <b>(M)</b> Completed exercise without striking cones (each cone struck counts as a major)		
	<b>(C) Completed task within listed time limits with no safety violations</b>		

**TEST # 3-A  
INDIVIDUAL TEST**

**STAGED DRIVING EVOLUTIONS  
NON-EMERGENCY DRIVING  
ALLEY DOCK OR STATION APPARATUS BACKING**

**Description:**

This exercise tests the ability of the candidate to back a fire pumper into a restricted area such as an alley dock or fire apparatus bay without striking markers, cones or walls. The backing maneuvers will be accomplished using mirrors and a spotter.

**Procedures:**

1. Candidate will drive past and stop with the restricted area on the left side.
2. Candidate will back into the restricted area using a spotter.
3. Candidate will stop when signaled from the spotter.
4. Candidate will not strike any markers, cones or obstructions.
5. Candidate will be directed to repeat the exercise from the opposite direction.
6. Spotter will be used during the backing segment but only to prevent a collision (not providing directions).

**Performance Evaluation Guidelines:**

NFPA 1002 – JPR 4.3.2

*IFSTA Pumping Apparatus Driver/Operator Handbook, 3rd Edition*

*Jones and Bartlett Fire Apparatus Driver/Operator, 2<sup>nd</sup> Edition*

**TEST # 3-A  
INDIVIDUAL TEST**

**STAGED DRIVING EVOLUTIONS  
NON-EMERGENCY DRIVING  
ALLEY DOCK OR STATION APPARATUS BACKING**

**Directions to the Candidate:**

**All skill stations are pass/fail. Failure to meet the criteria will result in a failure.** The candidate will maneuver and back the pumper into a restricted area, such as an apparatus bay or a simulated apparatus bay using traffic cones. The candidate will back into the restricted area from the left and right sides of the pumper. The candidate will use mirrors and a spotter during the exercise. The candidate is not permitted to lean out of the window during the exercise. The candidate is to complete the exercise without striking markers, cones or obstructions.

Spotter will be used during the backing segment but only to prevent a collision (not providing directions).

**Time: – Target: 10 Minutes**

**Maximum: 12 Minutes**

**Total Station Time – 12 Minutes**

**Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General**

ELEMENTS/STEPS	STANDARDS	NO	YES
	<b>A. Alley dock</b>		
	1. <b>(C)</b> Fastened seat belt		
	2. Passed the “barricades” marking the loading dock on the left		
	3. Using side mirrors, backed apparatus by a left turn into the marked loading dock		
	4. Using side mirrors, backed apparatus by a right turn into the marked loading dock		
	5. Came to a complete stop in a smooth and safe manner		
	6. Stopped where and when directed		
	7. <b>(M)</b> Used spotters when backing		
	8. <b>(M)</b> Completed exercise without pulling forward		
	9. <b>(M)</b> Completed exercise without striking cones and/or obstructions (each struck cone counts as a major)		
	<b>(C) Completed task within listed time limits with no safety violations</b>		

**TEST # 3-B  
INDIVIDUAL TEST**

**STAGED DRIVING EVOLUTIONS  
NON-EMERGENCY DRIVING  
CONFINED SPACE TURNAROUND**

**Description:**

This exercise tests the ability of the candidate to turn the pumper 180 degrees and change direction within a confined space.

**Procedure:**

1. Candidate will start by positioning the pumper at the opening to the confined space.
2. Candidate will enter the confined space and start the turnaround.
3. Spotter will be used during the backing segment but only to prevent a collision (not providing directions).
4. Candidate will back-up and pull forward until the pumper is turned 180 degrees.
5. Candidate will then exit through the original starting point.
6. Candidate will not cross any boundaries or touch any cones.

**Performance Evaluation Guidelines:**

NFPA 1002 – JPR 4.3.4  
*IFSTA Pumping Apparatus Driver/Operator Handbook, 3rd Edition*  
*Jones and Bartlett Fire Apparatus Driver/Operator, 2<sup>nd</sup> Edition*

**TEST # 3-B STAGED DRIVING EVOLUTIONS  
INDIVIDUAL TEST**

**NON-EMERGENCY DRIVING  
CONFINED SPACE TURNAROUND**

**Directions to the Candidate:**

**All skill stations are pass/fail. Failure to meet the criteria will result in a failure.** The candidate will perform a 180 degree turnaround maneuver within a confined space or an area in which the vehicle can not perform a U-turn without stopping and backing up. The confined space turnaround area should measure 50 feet by 100 feet with a 12 foot opening on one of the 50 foot sides. The candidate will begin the maneuver by entering the 12 foot opening, turning the pumper around in the confined space and exiting through the same 12 foot opening. The candidate will use a spotter and will complete the exercise without striking obstructions or extending a portion of the pumper over any boundary lines of the given space. There is no limitation on the number of times the candidate has to maneuver the pumper to accomplish the exercise.

Spotter will be used during the backing segment but only to prevent a collision (not providing directions).

**Time: – Target: 7 Minutes**

**Maximum: 10 Minutes**

**Total Station Time – 12 Minutes**

**Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General**

ELEMENTS/STEPS	STANDARDS	NO	YES
	<b>A. Confined Space Turnaround</b>		
	1. <b>(C)</b> Fastened seat belt		
	2. Pulled into a designated area through opening		
	3. Made confined space turnaround		
	4. Backed up at least once using spotters and mirrors		
	5. Exited area through same opening		
	6. <b>(M)</b> Completed exercise without striking obstruction or extending over the boundary lines of the space (each struck cone counts as a major)		
	<b>(C) Completed task within listed time limits with no safety violations</b>		

**TEST # 4  
INDIVIDUAL TEST**

**OVER-THE-ROAD DRIVING & POSITIONING**

**Description**

This exercise demonstrates the ability of the candidate to safely control and operate the pumper on public roads and thoroughfares.

**Procedures:**

1. Pumper properly prepared for driving.
2. Candidate will properly position seat and mirrors.
3. Candidate will inform station examiner when they are ready to begin driving.
4. Station examiner will provide instruction and candidate will start engine and begin the driving.
5. Station examiner will describe any adverse weather or road conditions for the candidate to respond to.

**Performance Evaluation Guidelines:**

NFPA 1002 – JPR 4.3.1, 4.3.6

IFSTA *Pumping Apparatus Driver/Operator Handbook, 3rd Edition*

Jones and Bartlett *Fire Apparatus Driver/Operator, 2<sup>nd</sup> Edition*

**TEST # 4  
INDIVIDUAL TEST**

**OVER-THE-ROAD DRIVING & POSITIONING**

**Directions to the Candidate:**

**All skill stations are pass/fail. Failure to meet the criteria will result in a failure.** The candidate will be driving the pumper on public roads and highways over a pre-determined route. The pumper should have been properly prepared for driving. The candidate should adjust the seat position and the mirrors before starting the apparatus. Seat belts must be worn by all occupants during the exercise. The station examiner will provide instructions and directions to the candidate regarding the route that the candidate will be driving. The candidate will follow the station examiner’s instructions and directions as to where to turn and what lane to move into for lane changes. The candidate should not look at the station examiner or engage in conversation while operating the pumper during the exercise. The candidate is encouraged and allowed to ask the station examiner to repeat the instructions or directions if they were not heard or understood. The candidate must obey all traffic laws, including the speed limit, failure to do so will result in immediate failure. The candidate will demonstrate the proper posture and hand positions while operating the apparatus. A traffic accident will result in immediate failure for the day (exam).

**Time: – Target: 15 Minutes**

**Maximum: 20 Minutes**

**Total Station Time – 20 Minutes**

**Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General**

ELEMENTS/STEPS	STANDARDS	NO	YES
	<b>A. Drive Predetermined Course</b>		
	1. <b>(C)</b> Demonstrated responsibility and concern for safety of apparatus and personnel while driving apparatus		
	2. Properly adjusted mirrors		
	3. <b>(M)</b> Adjusted speed for weather		
	4. <b>(M)</b> Adjusted stopping distances		
	5. <b>(C)</b> Fastened seat belt		
	<b>B. Made 4 left turns</b>		
	1. <b>(M)</b> Activated left turn signal		
	2. Checked the side and rear view mirrors		
	3. Moved vehicle to left lane when necessary		
	4. Checked for oncoming traffic		
	5. Checked to see if side street or road is clear		
	6. Made safe left turns		
	<b>C. Made 4 right turns</b>		
	1. <b>(M)</b> Activated the right turn signal		

Time: – Target: 15 Minutes

Maximum: 20 Minutes

Total Station Time – 20 Minutes

<b>Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General</b>			
<b>ELEMENTS/STEPS</b>	<b>STANDARDS</b>	<b>NO</b>	<b>YES</b>
	2. Checked side and rear view mirrors		
	3. Moved to the right lane, if necessary		
	4. Checked for oncoming traffic		
	5. Checked to see if side street or road was clear		
	6. Safely made the right turns		
	<b>D. Drove straight section of road or highway</b>		
	1. Maintained vehicle speed and safe following distance		
	2. Checked for oncoming traffic		
	3. Checked side and rear view mirrors		
	4. Checked side streets or roads		
	<b>E. Passed through one intersection</b>		
	1. Approached the intersection with caution		
	2. Brought the apparatus to a complete stop, if necessary		
	3. Checked for traffic on the left, right, and left again		
	4. Safely proceeded through the intersection		
	<b>F. Passed through two intersections with stop</b>		
	1. Approached intersection with caution		
	2. <b>(M)</b> Brought the vehicle to a complete stop		
	3. Checked traffic – left, right, and left again		
	4. Safely proceeded through the intersection		
	<b>G. Railroad crossing</b>		
	1. Approached crossing with caution		
	2. Checked tracks – left and right		
	3. Stopped when necessary		
	4. Proceeded across tracks when safe to do so		

Time: – Target: 15 Minutes

Maximum: 20 Minutes

Total Station Time – 20 Minutes

<b>Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General</b>			
<b>ELEMENTS/STEPS</b>	<b>STANDARDS</b>	<b>NO</b>	<b>YES</b>
	<b>H. Curve in highway – right or left</b>		
	1. Slowed vehicle before entering curve		
	2. Adjusted speed as required		
	3. Maintained safe control of vehicle		
	<b>I. Entered limited access highway</b>		
	1. Checked traffic while on entrance ramp		
	2. Adjusted speed of vehicle to match flow of traffic		
	3. <b>(M)</b> Activated turn signal		
	4. Checked side and rear view mirrors		
	5. Moved vehicle from acceleration lane to highway safely		
	<b>J. Changed lanes on limited access highway</b>		
	1. <b>(M)</b> Activated turn signal		
	2. Checked side and rear view mirrors		
	3. Safely completed lane change		
	<b>K. Exited limited access highway</b>		
	1. <b>(M)</b> Activated turn signal		
	2. Checked side and rear view mirrors		
	3. Safely moved vehicle into deceleration lane		
	4. Slowed vehicle and exited safely		
	<b>L. Downgrade</b>		
	1. Downshifted before entering grade (if applicable)		
	2. Made sure vehicle remained in gear		
	3. Used brakes and lower gears		
	4. Maintain proper engine RPM		
	<b>M. Upgrade</b>		
	1. Downshifted standard transmission to maintain engine rpm and speed (if applicable)		

**Time: – Target: 15 Minutes**

**Maximum: 20 Minutes**

**Total Station Time – 20 Minutes**

<b>Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General</b>			
<b>ELEMENTS/STEPS</b>	<b>STANDARDS</b>	<b>NO</b>	<b>YES</b>
	<b>N. Underpass or low clearance</b>		
	1. Approached with caution		
	2. Checked to see if underpass height is marked		
	3. Stopped and checked for proper clearance if it's not apparent		
	4. Proceeded only when sure it was safe to do so		
	<b>(C) Completed task within listed time limits with no safety violations</b>		

**TEST # 5-A**  
**Individual**

**BASIC PUMPING EXERCISE**  
**SINGLE 1 ½" or 1 ¾" HANDLINE**

**Description:**

*Demonstrate correct pump discharge pressures to a single 1 ½ or 1 ¾ inch handline.*

**Note:** PPE as required by candidate's fire department or AHJ – **HELMET AND GLOVES ARE REQUIRED**

*Students are allowed to use pump chart - hydraulic calculator (electronic, manual or mechanical).*

**Performance Evaluation Guidelines:**

NFPA 1001 – JPR 5.2.1, 5.2.1(2)

*IFSTA Pumping Apparatus Driver/Operator Handbook, 3rd Edition*

*Jones and Bartlett Fire Apparatus Driver/Operator, 2<sup>nd</sup> Edition*

**Directions to the Candidate:**

All skill stations are pass/fail. Failure to meet the criteria will result in a failure. The examiner will advise the candidate to charge a 1 1/2 or 1 3/4 inch handline. The station examiner will tell the candidate the length of the line and the type of nozzle, tip size or flow requirement. The candidate is encouraged to use a paper or electronic pump chart to determine the correct pump discharge pressure. The candidate will engage the pump. The candidate will begin the pumping evolution from the apparatus water tank and after the pressure has been established switch over to a pressurized water source. If drafting, the candidate will establish the water supply from a draft. The candidate will charge the line and tell the station examiner when the correct pump discharge pressure has been established. The candidate must also use and set the pressure control device after establishing the correct pump discharge pressure for the handline. The candidate is to refill the water tank after switching to the external water source. The station examiner will advise the candidate when to shut down the line.

**Time: – Target: 5 Minutes**

**Maximum: 7 Minutes**

**Total Station Time – 10 Minutes**

**Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General**

ELEMENTS/STEPS	STANDARDS	NO	YES
Station examiner will tell candidate the length of the line and the type of nozzle, tip size or flow requirement	<b>A. Basic Pumping – Single 1 1/2 or 1 3/4 Handline</b>		
	1. Pumper positioned at water source		
	2. <b>(M)</b> Sets wheel chocks		
	3. Assemble hoselines, nozzels, valves and appliances		
	4. <b>(M)</b> Properly engages pump and selects proper gear in transmission		
	5. <b>(M)</b> Opens tank-to-pump		
	6. <b>(M)</b> Opens discharge and throttles to proper pump discharge pressure		
	7. Proper use of pump controls and gauges		
	8. <b>(M)</b> Properly sets pressure control device		
	9. Switches over from water tank to external water source (hydrant or draft)		
	10. Close tank to pump valve		
	11. Operate Auxiliary Cooling System		
	12. Candidate will monitor intake/inlet pressure		
	13. <b>(C)</b> Does not run out of water		
	14. Properly refills water tank		
	15. Prepares for operation of multiple handlines		
	<b>(C) Completed task within listed time limits with no safety violations</b>		

**TEST # 5-B  
INDIVIDUAL TEST**

**BASIC PUMPING EXERCISE  
SINGLE 2 ½" HANDLINE**

**Description:**

*Demonstrate correct pump discharge pressure to a single 2 ½ inch handline.*

**Note:** PPE as required by candidate's fire department or AHJ – **HELMET AND GLOVES ARE REQUIRED**

*Students are allowed to use pump chart - hydraulic calculator (electronic, manual or mechanical).*

**Performance Evaluation Guidelines:**

NFPA 1001 – JPR 5.2.1, 5.2.1(2)

IFSTA *Pumping Apparatus Driver/Operator Handbook, 3rd Edition*

Jones and Bartlett *Fire Apparatus Driver/Operator, 2<sup>nd</sup> Edition*

**Directions to the Candidate:**

**All skill stations are pass/fail. Failure to meet the criteria will result in a failure.** The examiner will advise the candidate to charge a 2 ½ inch handline. The station examiner will tell the candidate the length of the line and the type of nozzle, tip size or flow requirement. The candidate is encouraged to use a paper or electronic pump chart to determine the correct pump discharge pressure. The pump will be engaged and a continuous water supply will be established from the previous test (#5-A). If drafting, the candidate will verify draft or re-establish the water supply. The candidate will charge the line and tell the station examiner when the correct pump discharge pressure has been established. The candidate must also use and set the pressure control device after establishing the correct pump discharge pressure for the handline. The station examiner will advise the candidate when to shut down the line.

**Time: – Target: 3 Minutes**

**Maximum: 5 Minutes**

**Total Station Time – 10 Minutes**

**Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General**

ELEMENTS/STEPS	STANDARDS	NO	YES
Station examiner will tell candidate the length of the line and the type of nozzle, tip size or flow requirement.	<b>A. Basic Pumping - Single 2 ½ Handline</b>		
	1. <b>(M)</b> Properly engages pump and selects proper gear in transmission		
	2. Verifies water supply -or- draft maintaining proper intake pressure		
	3. <b>(M)</b> Opens discharge and throttles to proper pump discharge pressure for all lines		
	4. Proper use of pump controls and gauges		
	5. <b>(M)</b> Properly sets pressure control device		
	6. <b>(M)</b> Properly shuts down handlines		
	7. <b>(M)</b> Reduces pressure and disengages pump		
	8. Properly shuts down the operation		
		<b>(C) Completed task within listed time limits with no safety violations</b>	

**Description:**

*Demonstrate correct discharge pressures to two different size (diameter) handlines and the proper use of the pressure control device.*

**Note:** PPE as required by candidate's fire department or AHJ – **HELMET AND GLOVES ARE REQUIRED**

*Students are allowed to use pump chart - hydraulic calculator (electronic, manual or mechanical).*

**Performance Evaluation Guidelines:**

NFPA 1001 – JPR 5.2.1, 5.2.1(2)

*IFSTA Pumping Apparatus Driver/Operator Handbook, 3rd Edition*

*Jones and Bartlett Fire Apparatus Driver/Operator, 2<sup>nd</sup> Edition*

**TEST # 5-C  
INDIVIDUAL TEST**

**BASIC PUMPING EXERCISE  
MULTIPLE HANDLINES**

**Direction to the Candidate:**

**All skill stations are pass/fail. Failure to meet the criteria will result in a failure.** The pump will be engaged and a continuous water supply will be established from the previous tests (#5-A & #5-B). If drafting, the candidate will verify draft or re-establish the water supply from draft. The examiner will advise the candidate to charge the 2 ½ inch handline. The station examiner will tell the candidate the length of the line and the type of nozzle, tip size or flow requirement. The candidate may consult a paper or electronic pump chart and establish the correct pump discharge pressure. The examiner will advise the candidate to charge the 1 ½ or 1 ¾ inch handline. The station examiner will tell the candidate the length of the line and the type of nozzle, tip size or flow requirement for the 1 ½ or 1 ¾ inch handline. The candidate may consult a paper or electronic pump chart. The candidate should gate the lines as required. The candidate must also use and set the pressure control device after establishing the correct pump discharge pressure for the handlines. The station examiner will advise the candidate when to shut down the lines.

**Time: – Target:5 Minutes**

**Maximum: 10 Minutes**

**Total Station Time – 15 Minutes**

<b>Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General</b>			
<b>ELEMENTS/STEPS</b>	<b>STANDARDS</b>	<b>NO</b>	<b>YES</b>
Station examiner will tell candidate the length of the line and the type of nozzle, tip size or flow requirement.	<b>A. Basic Pumping – Multiple Handlines</b>		
	1. Verifies water supply -or- draft maintaining proper intake pressure		
	2. <b>(M)</b> Properly engages pump and selects proper gear in transmission		
	3. <b>(M)</b> Charges both handlines to proper discharge pressure		
	4. Proper use of pump controls and gauges		
	5. <b>(M)</b> Properly sets pressure control device		
	6. <b>(M)</b> Properly shuts down handlines		
	7. <b>(M)</b> Reduces pressure and disengages pump		
	8. Properly shuts down the operation		
		<b>(C) Completed task within listed time limits with no safety violations</b>	

**TEST # 6-A  
INDIVIDUAL TEST**

**PUMPING EVOLUTIONS  
PORTABLE MASTER STREAM**

**Description:**

*Operate the pump at the correct pump discharge pressure for a master stream device.*

**Note:** PPE as required by candidate's fire department or AHJ – **HELMET AND GLOVES ARE REQUIRED**

*Students are allowed to use pump chart - hydraulic calculator (electronic, manual or mechanical).*

**Performance Evaluation Guidelines:**

NFPA 1001 – JPR 5.1.1, 5.2.1, 5.2.1(2)

*IFSTA Pumping Apparatus Driver/Operator Handbook, 3rd Edition*

*Jones and Bartlett Fire Apparatus Driver/Operator, 2<sup>nd</sup> Edition*

**TEST # 6-A  
INDIVIDUAL TEST**

**PUMPING EVOLUTIONS  
PORTABLE MASTER STREAM**

**Direction to the Candidate:**

**All skill stations are pass/fail. Failure to meet the criteria will result in a failure.** A continuous water supply may be established from the previous tests. If drafting, the candidate will verify draft or re-establish the water supply from draft. The candidate will operate the pump at the correct pump discharge pressure when pumping through a minimum of two 100 foot MDH (2 ½” or 3”) lines or a single 100 foot LDH line to a portable master stream device. The master stream device will have a minimum of two MDH or one LDH inlet and be equipped with stacked tips or a master stream fog nozzle. The station examiner will advise the candidate of the size of the tip or the required flow for the appliance. The candidate may consult a paper or electronic pump chart. The candidate should establish the correct flow and pump discharge pressure for the appliance. The candidate must also use and set the pressure control device after establishing the correct pump discharge pressure for the handlines. The station examiner will advise the candidate when to shut down the lines.

**Time: – Target:5 Minutes**

**Maximum: 7 Minutes**

**Total Station Time – 10 Minutes**

**Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General**

ELEMENTS/STEPS	STANDARDS	NO	YES
Station examiner will tell candidate the length of the line and the type of nozzle, tip size or flow requirement.	<b>A.Pumping Evolutions – Portable Master Stream</b>		
	1. Verifies water supply		
	2. <b>(M)</b> Candidate ensures pump is engaged		
	3. <b>(M)</b> Place pump in proper series/pressure or parallel/volume position (if applicable)		
	4. <b>(M)</b> Charges master stream line(s) to correct discharge pressure		
	5. Proper use of pump controls and gauges		
	6. <b>(M)</b> Monitor intake/inlet pressure		
	7. <b>(M)</b> Properly sets pressure control device		
	8. <b>(M)</b> Properly shuts down line(s)		
	9. <b>(M)</b> Reduces pressure and disengages pump		
	<b>(C) Completed task within listed time limits with no safety violations</b>		

**TEST # 6-B  
INDIVIDUAL TEST**

**PUMPING EVOLUTIONS  
RELAY PUMPING**

**Description:**

*The candidate will be able to correctly operate a pumper in a relay pumping operation.*

**Note:** PPE as required by candidate's fire department or AHJ – **HELMET AND GLOVES ARE REQUIRED**

*Students are allowed to use pump chart - hydraulic calculator (electronic, manual or mechanical).*

**Performance Evaluation Guidelines:**

NFPA 1001 – JPR 5.1.1, 5.2.2

*IFSTA Pumping Apparatus Driver/Operator Handbook, 3rd Edition*

*Jones and Bartlett Fire Apparatus Driver/Operator, 2<sup>nd</sup> Edition*

**TEST # 6-B PUMPING EVOLUTIONS  
INDIVIDUAL TEST**

**RELAY PUMPING**

**Direction to the Candidate:**

**All skill stations are pass/fail. Failure to meet the criteria will result in a failure.** The candidate will operate the supply pumper in a relay operation. A continuous water supply may be established from the previous tests. If drafting, the candidate will verify draft or re-establish the water supply from draft. The station examiner will tell the candidate the amount of flow (GPM) required by the pumper receiving the supply. The candidate can only communicate with the operator of the attack pumper to verify the flow requirements. The candidate must supply the other pumper with the correct amount of water, so the attack pumper can maintain 20 psi residual pressure. The candidate will use a minimum of two-300 foot MDH supply lines or a single 400 foot LDH supply line. The candidate must engage the pump and correctly pump at the required pump discharge pressure. The pressure control device must be correctly operated and set. The candidate must demonstrate proper start up procedures and shut down procedures. Candidate may consult a paper or electronic pump chart.

**Time: – Target:5 Minutes**

**Maximum: 7 Minutes**

**Total Station Time – 10 Minutes**

**Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General**

ELEMENTS/STEPS	STANDARDS	NO	YES
Station examiner will inform the candidate of the required flow to be relayed.	<b>A. Pumping Evolutions – Relay Pumping</b>		
	1. Verifies water supply -or- draft		
	2. <b>(M)</b> Properly engages pump and selects proper gear in transmission		
	3. <b>(M)</b> Place pump in proper series/pressure or parallel/volume position (if applicable)		
	4. <b>(M)</b> Charges supply line(s) to correct discharge pressure		
	5. Proper use of pump controls and gauges		
	6. <b>(M)</b> Monitor intake/inlet pressure		
	7. <b>(M)</b> Properly sets pressure control device		
	8. <b>(M)</b> Properly shuts down relay operation		
	9. <b>(M)</b> Reduces pressure and disengages pump		
	<b>(C) Completed task within listed time limits with no safety violations</b>		

**TEST # 6-C  
INDIVIDUAL TEST**

**PUMPING EVOLUTIONS  
SPRINKLER/STANDPIPE SYSTEM**

**Description:**

*Correctly pump into and supply a sprinkler/standpipe system*

**Note:** PPE as required by candidate's fire department or AHJ – **HELMET AND GLOVES ARE REQUIRED**

*Students are allowed to use pump chart - hydraulic calculator (electronic, manual or mechanical).*

**Performance Evaluation Guidelines:**

NFPA 1001 – JPR 5.1.1, 5.2.4

*IFSTA Pumping Apparatus Driver/Operator Handbook, 3rd Edition*

*Jones and Bartlett Fire Apparatus Driver/Operator, 2<sup>nd</sup> Edition*

**TEST # 6-C  
INDIVIDUAL TEST**

**PUMPING EVOLUTIONS  
SPRINKLER/STANDPIPE SYSTEM**

**Direction to the Individual:**

**All skill stations are pass/fail. Failure to meet the criteria will result in a failure.** Given either a standpipe or sprinkler system, the candidate will correctly pump into the fire department connection and supply the system. A continuous water supply may be established from the previous tests. If drafting, the candidate will verify draft or re-establish the water supply. The candidate will pump through two-50 foot MDH lines or one-100 foot LDH line to the fire department connection. The standpipe system should be supplied to support a 100 foot-1 ½ or 1 ¾ handline with the flow (GPM) determined by the station examiner. The standpipe will be three stories in height. The candidate may be requested to pump into the fire department connection of a sprinkler system. The candidate must operate the pump at the correct pump discharge pressure (PDP) for either evolution. The station examiner will select the evolution to be pumped into. Candidate may consult a paper or electronic pump chart. The candidate must also use and set the pressure control device after establishing the correct pump discharge pressure for the handlines.

**Times:**                      *Target:* 5 min.                      *Maximum:* 7 min.                      *Total Station:* 10 min.

**Time: – Target:5 Minutes                      Maximum: 7 Minutes                      Total Station Time – 10 Minutes**

<b>Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General</b>			
<b>ELEMENTS/STEPS</b>	<b>STANDARDS</b>	<b>NO</b>	<b>YES</b>
Station examiner will select either the standpipe or sprinkler evolution.	<b>A. Pumping Evolutions – Sprinkler/Standpipe</b>		
	1. Verifies water supply -or- draft		
	2. <b>(M)</b> Properly engages pump and selects proper gear in transmission		
	3. <b>(M)</b> Candidate charges line(s) to correct pump discharge pressure		
	4. Proper use of pump controls and gauges		
	5. <b>(M)</b> Properly sets pressure control device		
	6. <b>(M)</b> Monitor intake/inlet pressure		
	7. <b>(M)</b> Properly shuts down standpipe/sprinkler operation		
	8. <b>(M)</b> Reduces pressure and disengages pump		
		<b>(C) Completed task within listed time limits with no safety violations</b>	

**TEST # 6-D  
INDIVIDUAL TEST**

**PUMPING EVOLUTIONS  
FOAM OPERATION**

**Description:**

The candidate will pump into foam proportioning equipment and produce effective foam streams.

**Note:** PPE as required by candidate's fire department or AHJ – **HELMET AND GLOVES ARE REQUIRED**

*Students are allowed to use pump chart - hydraulic calculator (electronic, manual or mechanical).*

**Performance Evaluation Guidelines:**

NFPA 1001 – JPR 5.1.1, 5.2.3

*IFSTA Pumping Apparatus Driver/Operator Handbook, 3rd Edition*

*Jones and Bartlett Fire Apparatus Driver/Operator, 2<sup>nd</sup> Edition*

**Directions to the Candidate:**

**All skill stations are pass/fail. Failure to meet the criteria will result in a failure.** The candidate will charge a foam fire stream using the candidate’s apparatus-mounted foam proportioning system, CAFS system or a portable/external foam proportioning system. A continuous water supply may be established from the previous tests. If drafting, the candidate will verify draft or re-establish the water supply. The candidate will pump through 100 feet of 1 ½ or 1 ¾ using training foam or simulated foam with the flow (GPM) determined by the station examiner. The candidate should use the pump chart and set the correct pump discharge pressure (PDP) for the given system. The candidate should be aware of the type of foam and percentage of foam to use to produce an effective fire foam stream. The candidate only needs to use one pail (5 gallons) of foam during the evolution. The candidate will be told when to shut down the line. The candidate will then flush the foam system. Candidate may consult a paper or electronic pump chart. The candidate must also use and set the pressure control device after establishing the correct pump discharge pressure for the handlines.

**Time: – Target:5 Minutes**

**Maximum: 7 Minutes**

**Total Station Time – 10 Minutes**

**Passing Criteria (Failures): 1 Critical, 2 Major, 3 General or combination of 3 Major/General**

ELEMENTS/STEPS	STANDARDS	NO	YES
	<b>A. Pumping Evolutions – Sprinkler/Standpipe</b>		
	1. Verifies water supply -or- draft		
	2. <b>(M)</b> Properly engages pump and selects proper gear in transmission		
	3. <b>(M)</b> Candidate will activate foam system or install proportioning appliances		
	4. <b>(M)</b> Candidate charges line(s) to correct pump discharge pressure		
	5. Proper use of pump controls and gauges		
	6. <b>(M)</b> Properly sets pressure control device		
	7. <b>(M)</b> Monitor intake/inlet pressure		
	8. <b>(M)</b> Properly shuts down foam operation		
	9. <b>(M)</b> Properly flushes foam system and appliances		
	10. <b>(M)</b> Reduces pressure and disengages pump		
<b>(C) Completed task within listed time limits with no safety violations</b>			

## Driving Course Specifications

Utilize this sheet to design your driving course in relation to the vehicles you have assigned. Please set up your course per calculations outline below.

### Key

VW = Vehicle Width

VL = Vehicle Length

ft = feet

<b>Exercise</b>	<b>Dimensions</b>
<b>Alley Dock</b>	Depth of Dock: VL plus <b>3</b> ft Width of Dock: VW plus <b>2</b> ft Wall distance from Dock entrance: VL multiplied by <b>1.48</b>
<b>Serpentine</b>	Distance between cones: VL multiplied by <b>1.25</b>
<b>Confined Space Turnaround</b>	Entrance Width: VW plus <b>4</b> ft Width of Space: VL multiplied by <b>1.85</b> Length of Space: VL multiplied by <b>3.7</b>
<b>Diminishing Clearance</b>	Wide Entrance: VW plus <b>1.5</b> ft Narrow Point: VW plus <b>2</b> inches

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