



**Fire Apparatus
Driver/Operator – Pumper
Certification Preparation Guide
October, 2007**

The logo for the Wisconsin Technical College System features a blue arch at the top. Below the arch, the words "WISCONSIN", "TECHNICAL COLLEGE", and "SYSTEM" are stacked in a bold, black, sans-serif font.

WISCONSIN
TECHNICAL COLLEGE
SYSTEM

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.



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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Annette Severson, Associate Vice President, Office of Instruction
Gregory Hanchar, Education Director, Fire Service

Recognition for their support, time and input is extended to the following of the WTCS Fire Service Advisory Committee on Education and Training.

Tod Doebler, WI Fire Inspectors Assoc.	Steve Krause, WI State Firefighters Assoc.
Cathy Etter, Dept. of Health & Family Serv.	Michael Kunesh, Office of Justice Assistance
Jerry Haberl, WI Emergency Management	Robert Piechura, Professional Fire Fighters of WI
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Special recognition for their technical expertise, time and effort is extended to the members of the Driver/Operator-Pumper Subcommittee:

Mark Lorge	David McFadden	Gregory Hanchar
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Special recognition for their technical expertise, time and effort is also extended to the current and past members of the IFSAC Self-Study Team:

John W. Fulcher	James Heim	Charlie Myers (Past)	Dawn Way
Greg Hanchar	Shari Jacobson	Gary Miller (Past)	Mike Jones
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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.

In keeping with our policy of sharing and acknowledgment, we express sincere thanks to the Indiana Board of Firefighting Personnel Standards and Education for its gracious assistance during the formulation of this manual.

Special thanks to David Brooks, former WTCS Fire Education & Training Director. IFSAC accreditation would not have been accomplished without his leadership and perseverance.

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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 by contacting:

Education Director, Fire Service
Wisconsin Technical College System
4622 University Avenue, P. O. Box 7874
Madison, WI 53707-7874
608-266-7289

They can also be downloaded from the WTCS web page:

<http://systematic.wtcsystem.edu/fire/Firecert/>

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.

Application/State Summary Form Element

All candidates seeking certification within the WTCS FST Certification Program must submit completed application and state summary forms to the WTCS institution of their residency. Application and color-coded state summary forms can be obtained from the WTCS fire service coordinators/supervisors.

Self-Study Element

Some requirements of the NFPA standards cannot be adequately or fairly tested on the practical examination without completion of a self-study element. Such “homework” must be completed beforehand and candidates must bring the assignment(s) to the practical examination. Due to the random selection of the skills tested, candidates may or may not be required to use the self-study assignment during the examination.

NFPA 1002 standard for *Fire Apparatus Driver/Operator Professional Qualifications*, 2003 Edition is the current adopted standard for Driver/Operator.

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 appropriate NFPA standard, 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). The appropriate practical skills examination fee is due, payable to the assigned WTCS test site (checks only), prior to the assigned examination date (a listing of the currently approved WTCS Driver/Operator-Pumper test sites is included in this document [see appendix]).

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. Such retests will be conducted only after all other candidates have completed their examinations. 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*, 2003 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 Apparatus Driver/Operator Handbook*, 2nd Edition and the accompanying student manual. The IFSTA *Pumping Apparatus Driver/Operator Handbook*, 2nd Edition, however, may not address many items in-depth. Additional reference materials candidates should consider include:

1. *Fire Department Pumping Apparatus*, 7th Edition, 5th Printing, IFSTA, 1989.
2. *Fire Stream Practices*, 7th Edition, 3rd Printing, IFSTA, 1989.
3. *Water Supplies for Fire Protection*, 4th Edition, 3rd Printing, IFSTA, 1988.

Written Exam Requirements and Study Hints

NFPA 1002, Fire Apparatus Driver/Operator Professional Qualifications, Chapter 4, General Requirements, 2003 Ed. JPR's	Preparation Activities:
<p>4.1 General. 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.</p>	
<p>4.2 Preventative Maintenance.</p>	
<p>4.2.1 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, so that the operational status of the vehicle is verified.</p> <ul style="list-style-type: none"> • Battery(ies) • Braking system • Coolant system • Electrical system • Fuel • Hydraulic fluids • Oil • Tires • Steering system • Belts • Tools, appliances, and equipment <p><i>Requisite Knowledge:</i> Manufacturer specifications and requirements, policies, and procedures of the jurisdiction.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i> , 2nd. Edition:</p> <p>Chapter 3, <u>Introduction to Apparatus Inspection and Maintenance</u>, pages 35-54</p> <p>Chapter 4, <u>Operating Emergency Vehicles</u>, pages 46-54</p>
<p>4.2.2 Document the routine tests, inspections, and servicing functions, given maintenance and inspection forms, so that all items are checked for proper operation and deficiencies are reported.</p> <p><i>Requisite Knowledge:</i> Departmental requirements for documenting maintenance performed, understanding the importance of accurate record keeping.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i> , 2nd. Edition:</p> <p>Chapter 3, <u>Introduction to Apparatus Inspection and Maintenance</u>, pages 42-54</p> <p>Chapter 16, <u>Apparatus Testing</u>, pages 483-485</p>

Written Exam Requirements and Study Hints

<p>NFPA 1002, Fire Apparatus Driver/Operator Professional Qualifications, Chapter 4, General Requirements, 2003 Ed. JPR's</p>	<p>Preparation Activities:</p>
<p>4.3 Driving/Operating.</p>	
<p>4.3.1 Operate a fire department vehicle, given a vehicle and a predetermined route on a public way that incorporates the maneuvers and features specified in the following list that the driver/operator is expected to encounter during normal operations, so that the vehicle is safely operated in compliance with all applicable state and local laws, departmental rules and regulations, and the requirements of NFPA 1500, <i>Standard on Fire Department Occupational Safety and Health Program</i>, Section 4-2.</p> <ul style="list-style-type: none"> • Four left and four right turns • A straight section of urban business street or a two-lane rural road at least 1 mile (1.6 km) in length • One through-intersection and two intersections where a stop has to be made • One railroad crossing • One curve, either left or right • A section of limited-access highway that includes a conventional ramp entrance and exit and a section of road long enough to allow two lane changes • A downgrade steep enough and long enough to require downshifting and braking • An upgrade steep enough and long enough to require gear changing to maintain speed • One underpass or a low clearance or bridge <p><i>Requisite Knowledge:</i> The effects on vehicle control of liquid surge, braking reaction time, load factors, general steering reactions, speed, and centrifugal force; applicable laws and regulations; principles of skid avoidance, night driving, shifting, and gear patterns; negotiating</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook, 2nd Edition</i></p> <p>Chapter 4, <u>Operating Emergency Vehicles</u>, pages 59-87</p>

NFPA 1002, Fire Apparatus Driver/Operator Professional Qualifications, Chapter 4, General Requirements, 2003 Ed. JPR's	Preparation Activities:
intersections, railroad crossings, and bridges; weight and height limitations for both roads and bridges; identification and operation of automotive gauges; and proper operation limits.	

Written Exam Requirements and Study Hints

<p>NFPA 1002, Fire Apparatus Driver/Operator Professional Qualifications, Chapter 4, General Requirements, 2003 Ed. JPR's</p>	<p>Preparation Activities:</p>
<p>4.3.2 Back a vehicle from a roadway into restricted spaces on both the right and left sides of the vehicle, given a fire department vehicle, a spotter, and restricted spaces 12 ft (3.66 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 obstruction.</p> <p><i>Requisite Knowledge:</i> Vehicle dimensions, turning characteristics, spotter signaling, and principles of safe vehicle operation.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 4, <u>Operating Emergency Vehicles</u>, pages 90-92</p>
<p>4.3.3 Maneuver a vehicle around obstructions on a roadway while moving forward and in reverse, given a fire department vehicle, 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><i>Requisite Knowledge:</i> Vehicle dimensions, turning characteristics, the effects of liquid surge, spotter signaling, and principles of safe vehicle operation.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 4, <u>Operating Emergency Vehicles</u>, page 91</p>
<p>4.3.4 Turn a fire department vehicle 180 degrees within a confined space, given a fire department vehicle, a spotter for backing, 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><i>Requisite Knowledge:</i> Vehicle dimensions, turning characteristics, the effects of liquid surge, spotter signaling and principles of safe vehicle operation.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 4, <u>Operating Emergency Vehicles</u>, page 91</p>

Written Exam Requirements and Study Hints

	Preparation Activities:
<p>4.3.5 Maneuver a fire department vehicle in areas with restricted horizontal and vertical clearances, given a fire department vehicle 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><i>Requisite Knowledge:</i> Vehicle dimensions turning characteristics, the effects of liquid surge, spotter signaling and principles of safe vehicle operation.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 4, <u>Operating Emergency Vehicles</u>, pages 91-92</p>
<p>4.3.6 Operate a vehicle using defensive driving techniques under emergency conditions, given a fire department vehicle and emergency conditions, so that control of the vehicle is maintained.</p> <p><i>Requisite Knowledge:</i> The effects on vehicle control of liquid surge, braking reaction time, load factors, 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 proper operation limits.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 4, <u>Operating Emergency Vehicles</u>, pages 85 and 91</p>
<p>4.3.7 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 polices.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 2, <u>Types of Fire Apparatus Equipped with a Fire Pump</u>, pages 24-28</p>

NFPA 1002, Fire Apparatus Driver/Operator Professional Qualifications, Chapter 2, General requirements, 2003 Ed. JPR's	Preparation Activities:
<i>Requisite Knowledge:</i> Manufacturer specifications and operating procedures, policies, and procedures of the jurisdiction.	

Written Exam Requirements and Study Hints

<p>NFPA 1002, Fire Apparatus Driver/Operator Professional Qualifications, Chapter 5, Apparatus Equipped with an Attack or Fire Pump, 2003 Ed. JPR's</p>	<p>Preparation Activities:</p>
<p>5.1 General. The requirements of Fire Fighter I as specified in NFPA 1001, Standard for Fire Fighters Professional Qualifications, and the job performance requirements defined in Sections 5.1 through 5.2 shall be met prior to certification as a fire department driver/operator-pumper.</p>	
<p>5.1.1 Perform the specified routine tests, inspections, and servicing functions specified in the following list in addition to those contained in the list in 4.2.1, given a fire department pumper and its manufacturer's specifications, so that the operational status of the pumper is verified.</p> <ul style="list-style-type: none"> • Water tank and other extinguishing agent levels (if applicable) • Pumping systems • Foam systems <p><i>Requisite Knowledge:</i> Manufacturer specifications and requirements, policies, and procedures of the jurisdiction.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 3, <u>Introduction to Apparatus Inspection and Maintenance</u> page 52-54</p> <p>Chapter 16, <u>Apparatus Testing</u>, pages 493-501</p>

Written Exam Requirements and Study Hints

<p>NFPA 1002, Fire Apparatus Driver/Operator Professional Qualifications, Chapter 4, Apparatus Equipped with an Attack or Fire Pump, 2003 Ed. JPR's</p>	<p>Preparation Activities:</p>
<p>5-2 Operations.</p>	
<p>5.2.1 Produce effective hand or master streams, given the sources specified in the following list, so that the pump is safely 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> <ul style="list-style-type: none"> • Internal tank • Pressurized source • Static source • Transfer from internal tank to external source <p><i>Requisite Knowledge:</i> 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 cooling systems and reliability of static sources.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 11, <u>Operating Fire Pumps</u> pages 329-350</p> <p>Chapter 6, <u>What is Water and Where Does it Come From</u>, pages 143-151</p> <p>Chapter 7, <u>Fire Hose, Nozzles, and Flow</u>, pages 166-179</p> <p>Chapter 8, <u>U.S. Theoretical Pressures</u> pages 185-213</p> <p>Chapter 9, <u>Fireground Hydraulic Calculations</u>, pages 254-261</p> <p>Chapter 10, <u>Fire Pump Theory</u>, pages 271-308</p> <p>Chapter 11, <u>Operating Fire Pumps</u>, pages 316-351</p>

Written Exam Requirements and Study Hints

	Preparation Activities:
<p>NFPA 1002, Fire Apparatus Driver/Operator Professional Qualifications, Chapter 5, Apparatus Equipped with an Attack or Fire Pump, 2003 Ed. JPR's</p> <p>5.2.2 Pump a supply line of 2 1/2 in. (65 mm) or larger, given a relay pumping evolution of the length and size of the line and the desired flow and intake pressure, so that the proper pressure and flow are provided to the next pumper in the relay. <i>Requisite Knowledge:</i> 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 cooling systems, and reliability of static sources.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 5, <u>Positioning Apparatus</u>, 113-114</p> <p>Chapter 6, <u>What is Water and Where Does it Come From</u>, pages 143-159</p> <p>Chapter 7, <u>Fire Hose Nozzles, and Flow</u>, pages 171-172</p> <p>Chapter 8, <u>U.S. Theoretical Pressure</u>, pages 184-190; 199-206</p> <p>Chapter 9, <u>Fireground Hydraulics</u>, pages 253-260</p> <p>Chapter 10, <u>Fire Pump Theory</u>, 285-290; 293-298</p> <p>Chapter 11, <u>Operating Fire Pumps</u>, 323-331</p> <p>Chapter 13, <u>Relay Pumping Operations</u>, pages 398-408</p>
<p>5.2.3 Produce a foam fire stream, given foam-producing equipment, so that properly proportioned foam is provided. <i>Requisite Knowledge:</i> Proportioning rates and concentrations, equipment assembly procedures, foam systems limitations, and manufacturer specifications.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 15 <u>Foam Equipment and Systems</u>, pages 453-472</p>

Practical Skills Exam Requirements and Study Hints

	Preparation Activities:
4.2 General. 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.	
4.2 Preventative Maintenance.	
4.2.1 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, so that the operational status of the vehicle is verified. <ul style="list-style-type: none"> • Battery(ies) • Braking system • Coolant system • Electrical system • Fuel • Hydraulic fluids • Oil • Tires • Steering system • Belts • Tools, appliances, and equipment <i>Requisite Skills:</i> The ability to use hand tools, recognize system problems, and correct any deficiency noted according to policies and procedures.	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 3, <u>Introduction to Apparatus Inspection and maintenance</u>, pages 21-38</p> <p>Review inspection forms from your fire department and forms provided in Appendix B</p> <p>Refer to skill sheet 3-2 in handout</p> <p>Refer to skill sheet 3-3 in handout</p> <p>Refer to skill sheet 3-5 in handout</p> <p>Refer to skill sheet 3-7 in handout</p> <p>Practice all requisite skills</p>
4.2.2 Document the routine tests, inspections, and servicing functions, given maintenance and inspection forms, so that all items are checked for proper operation and deficiencies are reported. <p><i>Requisite Skills:</i> The ability to use tools and equipment and complete all related departmental forms.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 3, <u>Introduction to Apparatus Inspection and Maintenance</u>, pages 39-42</p> <p>Chapter 16, <u>Apparatus Testing</u>, pages 394-396</p> <p>Practice all requisite skills</p> <p>Refer to skill sheet 3-7 in handout</p>

Practical Skills Exam Requirements and Study Hints

	Preparation Activities:
4.3	Driving/Operating.
<p>4.3.1 Operate a fire department vehicle, given a vehicle and a predetermined route on a public way that incorporates the maneuvers and features specified in the following list that the driver/operator is expected to encounter during normal operations, so that the vehicle is safely operated in compliance with all applicable state and local laws, departmental rules and regulations, and the requirements of NFPA 1500, <i>Standard on Fire Department Occupational Safety and Health Program</i>, Section 4-2.</p> <ul style="list-style-type: none"> • Four left and four right turns • A straight section of urban business street or a two-lane rural road at least 1 mile (1.6 km) in length • One through-intersection and two intersections where a stop has to be made • One railroad crossing • One curve, either left or right • A section of limited-access highway that includes a conventional ramp entrance and exit and a section of road long enough to allow two lane changes • A downgrade steep enough and long enough to require downshifting and braking • An upgrade steep enough and long enough to require gear changing to maintain speed • One underpass or a low clearance or bridge <p><i>Requisite Skills:</i> The ability to operate passenger restraint devices, maintain safe following distances, maintain control of the vehicle while accelerating, decelerating, and turning, maintain reasonable speed for road, weather, and traffic conditions, operate under adverse</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 4, <u>Operating Emergency Vehicles</u>, pages 43-74</p> <p>Refer to skill sheet 4-1 in handout</p> <p>Refer to skill sheet 4-2a in handout</p> <p>Refer to skill sheet 4-2b in handout</p> <p>Refer to job sheet 4-3 in handout</p> <p>Refer to skill sheet 4-4 in handout</p> <p>Refer to skill sheet 4-5 while practice driving the different evolutions and over-the-road driving with an experienced driver from your fire department using a pumper from your fire department</p>

NFPA 1002, Fire Apparatus Driver/Operator Professional Qualifications, Chapter 4, General Requirements, 2003 Ed. JPR's	Preparation Activities:
environmental or driving surface conditions, and use automotive gauges and controls.	

Practical Skills Exam Requirements and Study Hints

	Preparation Activities:
<p>4.3.2 Back a vehicle from a roadway into restricted spaces on both the right and left sides of the vehicle, given a fire department vehicle, a spotter, and restricted spaces 12 ft (3.66 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 obstruction.</p> <p><i>Requisite Skills:</i> The ability to use mirrors, judge vehicle clearance, and operate the vehicle safely.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 4, <u>Operating Emergency Vehicles</u>, Page 90</p> <p>Refer to skill sheet 4-4 in handout</p> <p>Practice driving in your fire department with an experienced driver and pumper from your fire department</p>
<p>4.3.3 Maneuver a vehicle around obstructions on a roadway while moving forward and in reverse, given a fire department vehicle, 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><i>Requisite Skills:</i> The ability to use mirrors, judge vehicle clearance, and operate the vehicle safely.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 4, <u>Operating Emergency Vehicles</u>, Page 91</p> <p>Refer to skill sheet 4-4 in handout</p> <p>Practice driving in your fire department with an experienced driver and pumper from your fire department</p>
<p>4.3.4 Turn a fire department vehicle 180 degrees within a confined space, given a fire department vehicle, a spotter for backing, 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><i>Requisite Skills:</i> The ability to use mirrors, judge vehicle clearance, and operate the vehicle safely.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 4, <u>Operating Emergency Vehicles</u>, page 90</p> <p>Refer to skill sheet 4-4 in handout</p> <p>Practice driving in your fire department with an experienced driver and pumper</p>
<p>4.3.5 Maneuver a fire department vehicle in areas with restricted horizontal and vertical clearances, given a fire department vehicle 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</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 4, <u>Operating Emergency Vehicles</u>, Page 92</p> <p>Refer to skill sheet 4-4 in and out</p>

<p>NFPA 1002, Fire Apparatus Driver/Operator Professional Qualifications, Chapter 2, General Requirements, 2003 Ed. JPR's</p>	<p>Preparation Activities:</p>
<p>of the vehicle to pass through the openings and so that no obstructions are struck. <i>Requisite Skills:</i> The ability to use mirrors, judge vehicle clearance, and operate the vehicle safely.</p>	<p>Practice driving in your fire department with an experienced driver and pumper</p>

Practical Exam Requirements and Study Hints

NFPA 1002, Fire Apparatus Driver/Operator Professional Qualifications, Chapter 4, General Requirements, 2003 Ed. JPR's	Preparation Activities:
<p>4.3.6 Operate a vehicle using defensive driving techniques under emergency conditions, given a fire department vehicle and emergency conditions, so that control of the vehicle is maintained.</p> <p><i>Requisite Skills:</i> The ability to operate passenger restraint devices, maintain safe following distances, maintain control of the vehicle while accelerating, decelerating and turning, maintain reasonable speed for road, weather, and traffic conditions, operate safely during non-emergency conditions, operate under adverse environmental or driving surface conditions, and use automotive gauges and controls.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 4, <u>Operating Emergency Vehicles</u>, pages 77-88</p> <p>Practice driving in your fire department with an experienced driver and pumper</p>
<p>4.3.7 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><i>Requisite Skills:</i> The ability to deploy, energize, and monitor the system or equipment and to recognize and correct system problems.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 2 <u>Types of Fire Apparatus Equipped with a Fire Pump</u>, pages 24-28</p>

Practical Exam Requirements and Study Hints

<p>NFPA 1002, Fire Apparatus Driver/Operator Professional Qualifications, Chapter 5, Apparatus Equipped with an Attack or Fire Pump, 2003 Ed. JPR's</p>	<p>Preparation Activities:</p>
<p>5.1 General. The requirements of Fire Fighter I as specified in NFPA 1001, Standard for Fire Fighters Professional Qualifications, and the job performance requirements defined in Sections 3-1 through 3-2 shall be met prior to certification as a fire department driver/operator-pumper.</p>	
<p>5.1.1 Perform the specified routine tests, inspections, and servicing functions specified in the following list in addition to those contained in the list in 4-2.1, given a fire department pumper and its manufacturer's specifications, so that the operational status of the pumper is verified.</p> <ul style="list-style-type: none"> • Water tank and other extinguishing agent levels (if applicable) • Pumping systems • Foam systems <p><i>Requisite Skills:</i> The ability to use hand tools, recognize system problems, and correct any deficiency noted according to policies and procedures.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 3, <u>Introduction to Apparatus Maintenance and Inspection</u>, pages 40-42</p> <p>Chapter 16, <u>Apparatus Testing</u>, pages 394-396</p> <p>Complete skill sheet 3-7 in handout</p> <p>Practice all requisite skills</p>

Practical Exam Requirements and Study Hints

	<p>Preparation Activities:</p>
<p>4.3.1 Operate a fire department pumper over a predetermined route on a public way that incorporates the maneuvers and features specified in the list in 4-3.1, so that the vehicle is safely operated in compliance with all applicable state and local laws, departmental rules and regulations, and the requirements of NFPA 1500, <i>Standard on Fire Department Occupational Safety and Health Program</i>, Section 4-2. <i>Requisite Skills:</i> The ability to operate passenger restraint devices, maintain safe following distances, maintain control of the vehicle while accelerating, decelerating, and turning, maintain reasonable speed for road, weather, and traffic conditions, operate under adverse environmental or driving surface conditions, and use automotive gauges and controls.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 4 <u>Operating Emergency Vehicles</u>, pages 59-93</p> <p>Refer to skill sheet 4-5 while practice driving the different evolutions and over-the-road driving with an experienced driver from your fire department using a pumper from your fire department</p>
<p>5.2 Operations.</p>	
<p>5.2.1 Produce effective hand or master streams, given the sources specified in the following list, so that the pump is safely 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> <ul style="list-style-type: none"> • Internal tank • Pressurized source • Static source • Transfer from internal tank to external source <p><i>Requisite Skills:</i> 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>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 11 <u>Operating Fire Pumps</u> pages 247-269</p> <p>Refer to skill sheet 5-1 in handout Refer to skill sheet 11-3 in handout Refer to skill sheet 11-5 in handout Refer to skill sheet 11-6 in handout Refer to skill sheet 11-7 in handout Refer to skill sheet 11-8 in handout Refer to skill sheet 11-9 in handout Refer to skill sheet 11-10 in handout</p> <p>Practice operating the pump and pumping operations with an experienced pump operator and pumper from your fire department</p>

Practical Exam Requirements and Study Hints

<p>NFPA 1002, Fire Apparatus Driver/Operator Professional Qualifications, Chapter 5, Apparatus Equipped with an Attack or Fire Pump, 2003 Ed. JPR's</p>	<p>Preparation Activities:</p>
<p>5.2.2 Pump a supply line of 2 1/2 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 proper pressure and flow are provided to the next pumper in the relay.</p> <p><i>Requisite Skills:</i> 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>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 13, <u>Relay Pumping Operations</u> pages 395-413</p> <p>Refer to assignment sheet 13-1 in handout</p> <p>Practice operating the pump and pumping operations with an experienced pump operator and pumper from your fire department</p>
<p>5.2.3 Produce a foam fire stream, given foam-producing equipment, so that properly proportioned foam is provided.</p> <p><i>Requisite Skills:</i> The ability to operate foam proportioning equipment and connect foam stream equipment.</p>	<p>Read IFSTA <i>Pumping Apparatus Driver/Operator Handbook</i>, 2nd Edition</p> <p>Chapter 15 <u>Foam Equipment and Systems</u> pages 451-480</p> <p>Refer to skill sheet 15-1 in handout</p>

APPENDIX

SAMPLES OF QUESTIONS USED IN THE WRITTEN EXAMINATION ELEMENT

DRIVING/OPERATION [NFPA 1002: 2-3.1(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: 2-3.3(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: 3-2.1(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: 3-2.2(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: 3-2.4(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.

WISCONSIN FIRE SERVICE DRIVER OPERATOR SKILLS TEST

SUMMARY OF 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 Front, right and left sides of the cab.
- 1-B Right-rear and left-rear side and rear of apparatus.
- 1-C In-cab inspection

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-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

The test evolutions are based on the **2003 NFPA 1002 Job Performance Requirements**. Skills are evaluated in accordance with the IFSTA Pumping Apparatus Driver/Operator curriculum and job sheets.

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.

Candidates are responsible for providing the bunker gear required 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 Class-A 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.

The current certification examination fee is payable (checks only) to the approved WTCS Driver/Operator-Pumper test site.

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