



# Driver/Operator-Pumping Apparatus

2017 Edition

## Course Summary

<b>Description</b>	The NH Fire Academy's 32-hour Driver/Operator-Pumping Apparatus course provides the fundamental knowledge & skills needed to operate fire service pumping apparatus safely & efficiently. Modules include Fire Suppression Systems, Understanding Pumping Apparatus, Operating Pumping Apparatus, Pumping Apparatus Maintenance, and Pumping Apparatus on the Fire Ground. The course meets the requirements of NFPA 1002: Standard for Fire Service Driver/Operator Professional Qualifications, Chapter 5, 2017 edition; successful completion enables students to take the Driver/Operator-Pumping Apparatus Certification Exam leading to NHFST & Pro-Board certification.
<b>NFPA Standard Referenced</b>	NFPA 1002: Standard for Fire Apparatus Driver/Operator Professional Qualifications, 2017 edition
<b>Textbook Referenced</b>	IFSTA Pumping and Aerial Apparatus Driver/Operator Handbook, Third edition
<b>Additional References</b>	<ul style="list-style-type: none"><li>• New Hampshire Commercial Driver's License (CDL) Manual</li><li>• Federal Motor Carrier Safety Regulations</li><li>• NFPA 1451: Standard for a Fire and Emergency Service Vehicle Operations Training Program, 2018 edition</li><li>• NFPA 1500: Standard on Fire Department Occupational Safety, Health, and Wellness Program, 2018 edition</li><li>• NFPA 1901: Standard for Automotive Fire Apparatus, 2016 edition</li><li>• NFPA 1911: Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles, 2017 edition</li></ul>
<b>Prerequisite</b>	<ul style="list-style-type: none"><li>• Valid Driver's License</li><li>• Driver/Operator-All Vehicles or NHFST Emergency Vehicle Driver Training</li></ul>
<b>Enrollment</b>	<ul style="list-style-type: none"><li>• Minimum: 8 Students</li><li>• Maximum: 16 Students</li></ul>
<b>Timeline</b>	Total Time Required for Delivery: 32 Hours <ul style="list-style-type: none"><li>• Module 1: Suppression Systems (4 Hours)</li><li>• Module 2: Understanding Pumping Apparatus (4 Hours)</li><li>• Module 3: Operating Pumping Apparatus (8 Hours)</li><li>• Module 4: Maintaining Pumping Apparatus (4 Hours)</li><li>• Module 5: Pumping Apparatus on the Fire Ground (12 Hours)</li></ul>
<b>Certification Exam</b>	<ul style="list-style-type: none"><li>• Knowledge: 50 question written test</li><li>• Skills: 2 skill stations</li></ul>



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## Course Outline

### Module 1: Suppression Systems

#### Outline

##### Discussion 1-1: Introduction to Suppression Systems

##### Activity 1-2: Suppression Systems Breakout Stations

- a. Nozzles
- b. Hose
- c. Foam
- d. Building Systems

#### References

##### IFSTA Pumping & Aerial Apparatus Driver/Operator Handbook, 3<sup>rd</sup> edition

- Chapter 5: Principles of Water
- Page 167 to Page 181
- Chapter 6: Hose Nozzles and Flow Rates
- Chapter 14: Foam Equipment and Systems
- Page 479 to Page 481
  - Page 486 (Starting at Foam Concentrates) to Page 494 (Stopping at Low Energy Foam Proportioning Systems)

## Module 2: Understanding Pumping Apparatus

### Outline

#### Discussion 2-1: Introduction to Pumping Apparatus Design & Construction

#### Activity 2-2: Pumping Apparatus Design & Construction Breakout Stations

- a. Pump Construction
- b. Pump Panel Components A
- c. Foam Systems
- d. Pump Panel Components B

### References

**IFSTA Pumping & Aerial Apparatus  
Driver/Operator Handbook, 3<sup>rd</sup> edition**

Chapter 9: Fire Pump Theory

Chapter 14: Foam Equipment and Systems

- Page 482 to Page 486 (Stopping at Foam Concentrates)
- Page 494 (Starting at Low Energy Foam Proportioning Systems) to Page 511

## Module 3: Operating Pumping Apparatus

### Outline

#### Discussion 3-1: Introduction to Operating Pumping Apparatus

#### Discussion 3-2: Introduction to Water Sources

#### Evolution 3-3A: Operating Pumping Apparatus

- a. Pumping Apparatus with a Relief Valve - Pressurized Source
- b. Pumping Apparatus with a Pressure Governor - Static Source

#### Evolution 3-3B: Operating Pumping Apparatus

- a. Pumping Apparatus with a Pressure Governor - Pressurized Source
- b. Pumping Apparatus with a Relief Valve - Static Source

#### Evolution 3-4: Foam System Operation

- a. Apparatus System
- b. Portable Eductor

### References

#### IFSTA Pumping & Aerial Apparatus Driver/Operator Handbook, 3<sup>rd</sup> edition

- Chapter 5: Principles of Water
  - Page 182 to Page 189
- Chapter 7: Theoretical Pressure Calculations
- Chapter 8: Fireground Hydraulic Calculations
- Chapter 10: Operating Fire Pumps
- Chapter 11: Static Water Supply Operations

## Module 4: Maintaining Pumping Apparatus

### Outline

#### Discussion 4-1: Introduction to Maintaining Pumping Apparatus

#### Activity 4-2: Pumping Apparatus Checks

- a. Pumping Apparatus Check - Relief Valve
- b. Hose / Nozzle / Equipment Checks
- c. Pumping Apparatus Check - Pressure Governor
- d. Pre-Planning Pumping Apparatus

#### Discussion 4-3: Pumping Apparatus Testing

#### Activity 4-4: Flow Testing

### References

**IFSTA Pumping & Aerial Apparatus  
Driver/Operator Handbook, 3<sup>rd</sup> edition**

Chapter 2:

- Page 69 to Page 75

Chapter 15: Apparatus Testing

## Module 5: Pumping Apparatus on the Fire Ground

### Outline

**Discussion 5-1: Pumping Apparatus Driver/Operator Roles & Responsibilities**

**Activity 5-2: Fire Ground Scenarios**

**Activity 5-3: Troubleshooting Scenarios**

**Evolution 5-4: Pumping Apparatus Checks**

- a. Pumping Apparatus with a Relief Valve
- b. Pumping Apparatus with a Pressure Governor

**Evolution 5-5: Pumping Apparatus Roll-In Drills**

- a. Pressurized Source
- b. Static Source

**Evolution 5-6: Supporting Building Fire Suppression Systems**

**Evolution 5-7: Pumping Apparatus Fire Ground Scenarios**

- a. Fire Attack
- b. Water Supply

### References

**IFSTA Pumping & Aerial Apparatus  
Driver/Operator Handbook, 3<sup>rd</sup> edition**

Chapter 12: Relay Pumping Operations