

**STUDY MATERIAL FOR THE  
CERTIFICATE OF FITNESS FOR:**

**SERVICING PORTABLE FIRE  
EXTINGUISHERS**

**F-62/W-62**

**ALSO INCLUDED IN THIS BOOKLET YOU WILL FIND  
THE FOLLOWING:**

**1. NOTICE OF EXAMINATION (NOE)**

## NOTICE OF EXAMINATION

**Title:** **Examination for Certificate of Fitness for Servicing Portable Fire Extinguishers (F-62/W-62)**

**Date of Test:** Written tests are conducted Monday through Friday (except legal holidays) 9:00 AM to 2:30 PM

### QUALIFICATION REQUIREMENTS

1. Applicants must be at least 18 years of age.
2. Applicants must have a reasonable understanding of the English language.
- 3a. Applicants seeking a CoF (**W-62**) for employment with a Portable Fire Extinguisher Servicing Company must submit a letter signed by the owner or principal of the company. Additionally, this letter must state that the company has the tools, materials, equipment, facilities and servicing manuals required to properly service portable fire extinguishers consistent with Chapter 4 of NFPA Standard 10-1998. Until their company is recognized by the FDNY, applicants will receive a **Z-62**. It will be updated, at no cost to the applicants when their company is recognized. This Certificate, W-62, allows holders to work citywide under the supervision of the owner or principal of a recognized Portable Fire Extinguisher Servicing Company.
- 3b. Applicants seeking a CoF (**F-62**) for a company other than a Portable Fire Extinguisher Servicing Company must submit a letter on official letterhead, from the employer, with the applicant's name, character, physical condition, and experience. Additionally, this letter must state that the company has the tools, materials, equipment, facilities and servicing manuals required to properly service portable fire extinguishers consistent with Chapter 4 of NFPA Standard 10-1998. Applicants will receive their CoF upon passing the test. This CoF is only valid for the employer's location.
4. Applicants must present two (2) forms of satisfactory identification i.e., driver's license and passport picture ID.

### APPLICATION INFORMATION

**Application Fees:** \$25.00 for originals and \$15.00 for renewals. The fee may be paid in cash, money order, or personal check payable to the New York City Fire Department. The \$25.00 fee is payable prior to taking the Certificate of Fitness Test. Application forms are available at the Public Certification Unit, 1<sup>st</sup> floor, 9 MetroTech Center, Brooklyn, NY 11201.

### TEST INFORMATION

**Test:** The test will be of the written, multiple choice type. A passing score of at least 70% is required in order to secure a Certificate of Fitness.. **An official version of the Study Material will be provided shortly.** However, it is recommended that applicants be familiar with **NFPA Standard 10-1998 and 3RCNY §15-02**. Call (718)999-1985, or 2525 for additional information and forms.

This study material contains important information you will need to prepare for the certificate of fitness examination for Servicing Portable Fire Extinguishers (F-62/W-62). It contains an overview of the classification of fires and fire extinguishers, and restrictions on use of certain fire extinguishers. This material, for the most part, covers inspection, maintenance and recharging of portable fire extinguishers. A section containing definitions of uncommon terms is included at the end of this document.

This study material does not contain all the information a certificate of fitness holder needs to perform the job at his/her work location. It is the responsibility of the certificate of fitness holder to learn whatever is necessary to do his/her job. It is strongly recommended that an applicant seeking this certification make reference to the Rules of the City of New York §15-02 and NFPA Standard 10 of 1998.

## INTRODUCTION

Inspection is a "**quick check**". It is intended to give **reasonable assurance** that the fire extinguisher is fully charged and operable. This quick check is done by verifying that the portable fire extinguisher is in its designated place, that it has not been actuated or tampered with, and that there is no visible physical damage or condition to prevent its operation.

Maintenance is a **thorough** examination of the fire extinguisher. It is intended to give **maximum assurance** that a portable fire extinguisher will operate effectively and safely. It includes a **detailed examination**, including any necessary repair or replacement. Maintenance will normally reveal if hydrostatic testing or internal maintenance is required. Maintenance and recharging are considered "**servicing**".

Recharging is the **replacement** of the extinguishing agent. It may also include the replacement of the pressurizing gas (expellant gas) for certain types of fire extinguishers. The following items are critical in the effective and safe operation of portable fire extinguishers:

1. Type and amount of recharge material
2. Type and pressure of pressurizing gas (for portable fire extinguishers requiring a gas to expel the extinguishing agent)

Maintenance and recharging must be performed by trained persons having available the appropriate servicing manual(s), the proper types of tools, recharge materials, lubricants, and manufacturer's replacement parts or parts listed for use in a specific fire extinguisher. Service manuals can be obtained from the fire extinguisher manufacturer.

## CLASSIFICATION OF FIRES AND FIRE EXTINGUISHERS

### Classification of fires

Fires are classified into five (5) classes. They are described below:

**Class A** fires are fires in ordinary combustible materials, such as woods, cloth, paper, rubber, and many plastics.

**Class B** fires are fires in flammable liquids, combustible liquids, petroleum greases, tars, oils, oil-based paints, solvents, lacquers, alcohols, and flammable gases.

**Class C** fires are fires that involve energized electrical equipment where the electrical nonconductivity of the extinguishing media is of importance.

**Class D** fires are fires in combustible metals, such as magnesium, titanium, zirconium, sodium, lithium and potassium.

**Class K** fires are fires in cooking appliances that involve combustible cooking media (vegetable or animal oils and fats).

### Classification of fire extinguishers

The classification of portable fire extinguishers consists of a letter that indicates the **Class of Fire** on which a fire extinguisher has been found effective. In addition, fire extinguishers classified for Class A or Class B fires are required to have a rating number indicating the relative extinguishing effectiveness preceding the classification letter. Some fire extinguishers may have more than one letter classification such as 2-A:20-B:C. This classification means that this portable fire extinguisher has an effectiveness of 2 when used to extinguish Class A fires, and an effectiveness of 20 when used to extinguish Class B and/or Class C fires. Fire extinguishers classified for Class C, Class D or Class K fires are not required to have a rating number preceding the classification letter.

## RESTRICTIONS ON USE OF CERTAIN FIRE EXTINGUISHERS

### Obsolete fire extinguishers

A certificate of fitness holder should be aware that the following types of portable fire extinguishers are obsolete and must remove from service immediately.

- (a) Soda acid
- (b) Chemical foam (excluding film-forming agents)
- (c) Vaporizing liquid (e.g., carbon tetrachloride)
- (d) Cartridge-operated water
- (e) Cartridge-operated loaded stream
- (f) Copper or brass shell (excluding pump tanks) joined by soft solder or rivets

## Temperature range for fire extinguishers

Fire extinguishers must not be exposed to temperatures outside the range shown on the fire extinguisher label.

Water-type fire extinguishers must not be installed in areas where the temperatures are outside the range of 40°F to 120°F because they would freeze at temperatures below 40°F, or a build-up of vapor may cause the rupture of the cylinder at temperatures beyond 120°F. Portable fire extinguishers containing plain water only can be protected to temperatures as low as -40°F by the adding of antifreeze. Calcium chloride solutions must not be used in stainless steel fire extinguisher. Portable fire extinguishers containing aqueous film-forming foam (AFFF) and portable extinguishers containing film-forming fluoroprotein foam (FFFP) cannot be protected against temperatures below 40°F because it will tend to impair the effectiveness of the extinguishing agent.

All other types of portable fire extinguishers must be installed in areas where the temperatures are between the range of -40°F and 120°F. When fire extinguishers are installed in locations where temperatures are outside these ranges, they must be of a type approved and listed for the temperature to which they are exposed, or they must be placed in an enclosure capable of maintaining the stipulated temperature range.

## INSPECTION OF PORTABLE FIRE EXTINGUISHERS

### General

Inspection is a "quick check" that a portable fire extinguisher is available and will operate. It is intended to give reasonable assurance that the portable fire extinguisher is fully charged and operable. This is done by verifying that it is in its designated place, that it has not been actuated or tampered with, and that there is no obvious or physical damage or condition to prevent its operation. Basically, inspection means a **visual** examination of the portable fire extinguisher. According to 3RCNY, **inspecting** a portable fire extinguisher is not considered **servicing** of a portable fire extinguisher. A certificate of fitness **is not** required to perform this inspection.

Portable fire extinguishers must be inspected when initially placed in service and at least monthly thereafter. Portable fire extinguishers must be inspected more frequently when circumstances require.

### Inspection procedures

Periodic inspection of portable fire extinguishers must include a check of at least the following items:

- (a) Location in designated place
- (b) No obstruction to access or visibility
- (c) Operating instructions on nameplate legible and facing outward
- (d) Safety seals and tamper indicators not broken or missing
- (e) Fullness determined by weighing or "hefting"
- (f) Examination for obvious physical damage, corrosion, leakage, or clogged nozzle
- (g) Pressure gauge reading or indicator in the operable range or position

- (h) Condition of tires, wheels, carriage, hose, and nozzle checked (for wheeled units)
- (i) HMIS label in place

When an inspection of **any portable fire extinguisher** reveals a deficiency in any of the conditions listed in (a), (b), (h), and (i), immediate corrective action must be taken.

When an inspection of **rechargeable portable fire extinguishers**, reveals a deficiency in any of the conditions listed in (c), (d), (e), (f), and (g), they must be subjected to applicable maintenance procedures.

When an inspection of **non-rechargeable dry chemical portable fire extinguishers** reveals a deficiency in any of the conditions listed in (c), (e), (f), and (g), they must be removed from service, discharged, and destroyed at the direction of the owner or returned to the manufacturer.

When an inspection of **non-rechargeable Halon agent portable fire extinguishers** reveals a deficiency in any of the conditions listed in (c), (e), (f), and (g), it must be removed from service, NOT discharged, and returned to the manufacturer, or a fire equipment dealer or distributor, for recovery of halon.

### **Inspection recordkeeping**

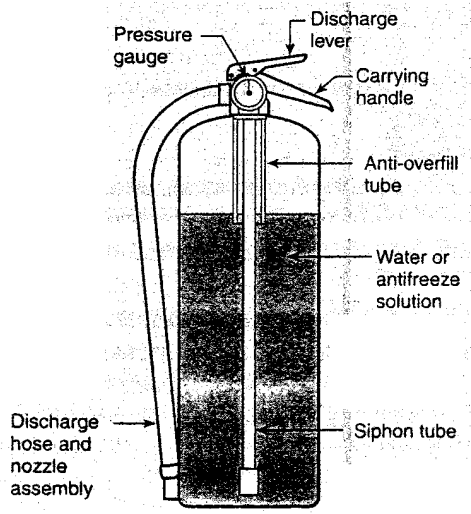
The date the inspection was performed and the initials of the person performing the inspection must be recorded. Records must be kept on a tag or label attached to the portable fire extinguisher, on an inspection checklist maintained on file, or in an electronic system (e.g., bar coding) that provides a permanent record.

## **MAINTENANCE**

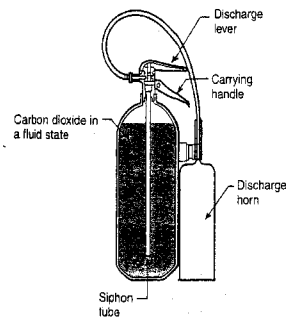
Maintenance is a thorough examination of the portable fire extinguisher. It is intended to give maximum assurance that a portable fire extinguisher will operate effectively and safely. It also includes any necessary repair or replacement. Maintenance will reveal if hydrostatic testing or internal maintenance is needed. **A certificate of fitness is required to service (maintain and/or recharge) a portable fire extinguisher.** A Servicing Company certificate is also required for a company providing such service.

Portable fire extinguishers must be maintained **at least annually**, at the time of hydrostatic test, or when specifically indicated by an inspection. Portable fire extinguishers removed from service for maintenance or recharging must be replaced by a similar portable fire extinguisher and must be of at least equal rating.

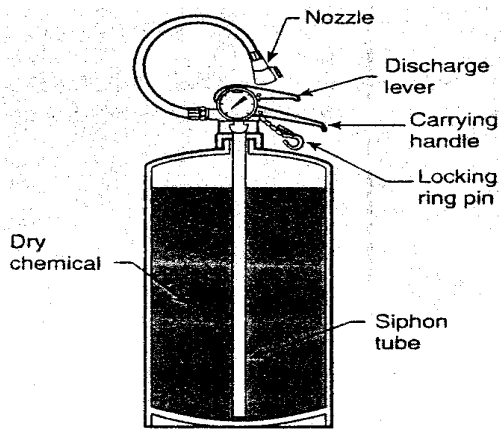
Persons performing maintenance on portable fire extinguishers should be familiar with various parts or components (internal and external) of portable fire extinguishers. Figures 1 through 7 are diagrams showing various parts or components of some typical portable fire extinguishers. Fig. 5 through 7 show in detail the internal parts or components of such extinguishers.



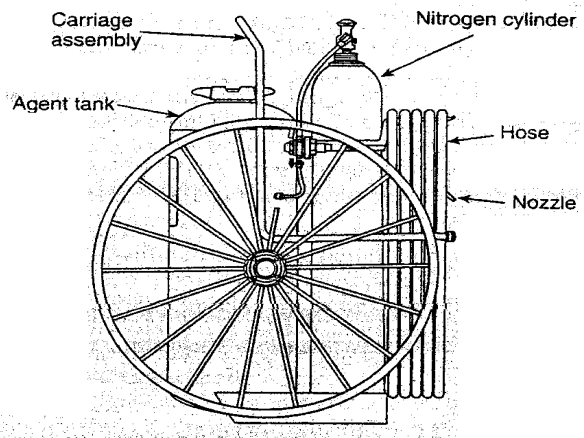
**Fig. 1. Stored-pressure water extinguisher**



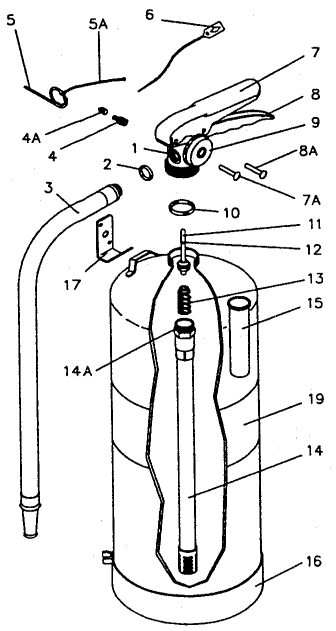
**Fig. 2 Carbon dioxide extinguisher**



**Fig. 3. Stored-pressure dry chemical portable fire extinguisher**

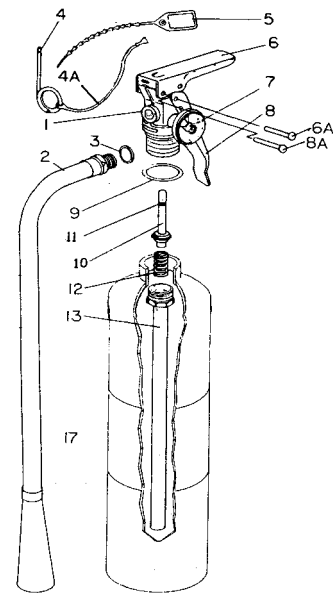


**Fig. 4. Wheeled-type cylinder-operated dry chemical portable fire**



1. Valve assembly
2. Hose gasket (O ring)
3. Hose and nozzle assembly
4. Pressure valve and cap assembly
- 4A. Cap for pressure valve
5. Ring pin (Pull pin)
- 5A. Chain (nylon) for ring pin
6. Lock wire seal
7. Lever and rivet
- 7A. Rivet only for lever
8. Handle and rivet
- 8A. Rivet only for handle
9. Pressure gauge
10. Collar O ring
11. Valve stem assembly
12. Valve stem O ring
13. Spring
14. Downtube (Siphon tube)/retainer assembly
- 14A. Downtube O ring
15. Fill tube
16. Foot stand
17. Wall hanger bracket
19. Nameplate

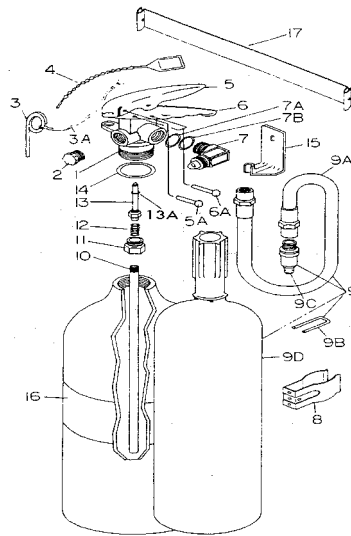
**Fig. 5. Stored-pressure water extinguisher detailing internal parts or components**



1. Valve assembly
2. Hose and horn assembly
3. Hose gasket (o ring)
4. Ring pin (Pull pin)
- 4A. Chain (nylon) for ring pin
5. Lock wire seal
6. Lever and rivet
- 6A. Rivet only for lever
7. Pressure gauge
8. Handle and rivet
- 8A. Rivet only for handle
9. Collar O ring
10. Valve stem assembly
11. Valve stem O ring
12. Spring
13. Downtube (Siphon tube)/retainer assembly
- 17 Nameplate

**Fig. 6. Stored-pressure dry chemical extinguisher detailing internal parts or components**





1. Valve assembly
2. Safety disc, gasket and nut assembly
3. Ring pin (Pull pin)
- 3A. Chain (nylon) for ring pin
4. Lock wire seal
5. Lever and rivet
- 5A. Rivet only for lever
6. Handle and rivet
- 6A. Rivet only for handle
7. Elbow with O ring and spacer
- 7A. O ring for elbow
- 7B. Nylon spacer for elbow
8. Horn clip
9. Hose and nozzle assembly
- 9A. Hose assembly
- 9B. U pin
- 9C. Nozzle
- 9D. Horn with handle
10. Downtube (Siphon tube)
11. Retainer
12. Spring
13. Valve stem assembly
- 13A. Valve stem O ring
14. Collar O ring
15. Wall hanger bracket
16. Nameplate
17. Strap for horn clip

**Fig. 7. Carbon dioxide extinguisher detailing internal parts or components**

## Maintenance procedures

Maintenance procedures must include a thorough examination of portable fire extinguishers, including, all mechanical parts, extinguishing agent, and expelling means. The following are some common checklists for these three elements.

<u>Items</u>	<u>Corrective Action</u>
Mechanical damage on the shell.....	Hydrostatic test and refinish, or discard
Nozzle or horn deformed, damaged, or cracked.....	Replace
Hose assembly damaged (cut, cracked, or worn).....	Replace
Hose obstruction.....	Remove obstruction or replace
Valve locking device damaged (bent, corroded, or binding).....	Repair and lubricate or replace
Immovable, jammed, or missing pointer on gauge, or pressure-indicating device.....	Depressurize and replace
Corroded, damaged or jammed lever, handle, spring, stem, or fastener joint on shell or cylinder valve.....	Depressurize, check freedom of movement, and repair, or replace
Corroded, damaged or jammed lever, handle, spring, stem, or fastener joint on nozzle shutoff valve.....	Repair and lubricate, or replace
Leaking seals on pressurizing valve.....	Depressurize and replace valve or core
Gasket O ring and seals damaged (cut, cracked, or worn).....	Replace and lubricate
Improper fill level or weight.....	Refill to the correct level or weight
Improper gauge pressure.....	Re-pressurize and leak test
Broken or missing tamper indicator.....	Check pressure, leak test, replace indicator if correct pressure and no leak

At the time of maintenance, the tamper seal of rechargeable portable fire extinguishers must be removed. This is done by operating the pull pin (ring pin) or locking device. After the maintenance procedures are completed, a new tamper seal must be installed.

Pressure regulators provided with wheeled-type portable fire extinguishers must be tested for outlet static pressure and flow rate in accordance with manufacturer's instructions. Stored-pressure type of portable fire extinguisher containing a loaded stream agent must be disassembled on an annual basis and subjected to complete maintenance. Prior to disassembly, the portable fire extinguisher must be fully discharged to check the operation of the discharge valve and pressure gauge.

A conductivity test must be conducted annually on all carbon dioxide hose assemblies. Hose assemblies found to be nonconductive must be replaced.

Every 6 years, stored-pressure portable fire extinguishers that require a 12-year hydrostatic test must be emptied and subjected to maintenance procedures. The removal of Halon agent from portable fire extinguishers must only be done using a listed Halon closed recovery system. When the maintenance procedures are performed during recharging or hydrostatic testing, the 6-year requirement must begin from that date. Nonrechargeable portable fire extinguishers must not be hydrostatically tested but must be removed from service at a maximum interval of 12 years from the date of manufacture. Nonrechargeable Halon agent portable fire extinguishers must be returned to the manufacturer or a fire equipment dealer or distributor for recovery of halon.

### **Maintenance recordkeeping**

Carbon dioxide hose assemblies that pass a conductivity test must have the test information recorded on a suitable metallic label or equally durable material that has a minimum size of ½ in. x 3 in. The label must be affixed to the hose by a heatless process. It must include the following information:

- (a) Month and year the test was performed indicated by perforation such as done by a hand punch.
- (b) Name and certificate of fitness number of the person who performed the test.
- (c) Name, street address and telephone number of the portable fire extinguisher servicing company, if any.

Each portable fire extinguisher must have a tag or label securely attached that indicates the month and year the maintenance was performed, the name and certificate of fitness number of the person who performed the maintenance, and the name, street address and telephone number of the portable fire extinguisher servicing company, if any.

Each portable fire extinguisher that passes the applicable 6-year maintenance requirement must have such maintenance information recorded on a suitable metallic label or equally durable material that has a minimum size of 2 in. x 3½ in. The new label must be affixed to the shell by a heatless process, and any old maintenance labels must be removed. The label must be of the self-destructive type. It must include the following information:

- (a) Month and year the maintenance was performed, indicated by perforation such as done by a hand punch.
- (b) Name and certificate of fitness number of the person who performed the maintenance.
- (c) Name, street address and telephone number of the portable fire extinguisher servicing company, if any.

In addition to having a label affixed to the shell, a rechargeable dry chemical portable fire extinguisher must have an internal legible marking to indicate the following:

- (a) Month and year the maintenance was performed.
- (b) Name and certificate of fitness number of the person who performed the maintenance.
- (c) Name, street address and telephone number of the portable fire extinguisher servicing company, if any.

If a label is used for the above marking, it must be of material that is component-listed for that purpose.

Each portable fire extinguisher that has undergone maintenance that includes internal examination must have a "**Verification of Service**" collar located around the neck of the container. The collar must contain a single circular piece of uninterrupted material forming a hole over the neck of the container unless the valve is completely removed. The collar must not interfere with the operation of the portable fire extinguisher. The "Verification of Service" collar must include the month and year the maintenance was performed, indicated by a perforation such as done by a hand punch. Cartridge/cylinder-operated portable fire extinguishers do not require a "Verification of Service" collar.

## **RECHARGING**

Recharging is the replacement of the extinguishing agent. It also includes the replacement of the expellant for certain types of portable fire extinguishers. All rechargeable-type portable fire extinguishers must be recharged after any use or as indicated by an inspection or maintenance. A portable fire extinguisher must not be recharged if it is beyond its hydrostatic test due date. Moisture must be removed from all non-water types of portable fire extinguishers before recharging because it will cause the agent to cake and lump, and will cause corrosion to the fire extinguisher shell and valve. After recharging, a leak test must be performed on stored-pressure and self-expelling types of portable fire extinguishers.

Portable fire extinguishers must not be converted from one type to another, nor must any portable fire extinguisher be converted to use a different type of extinguishing agent. Portable fire extinguishers must not be used for any other purpose than that of a portable fire extinguisher.

### **Recharge agents**

Only those agents specified on the nameplate or agents proven to have equal chemical composition, physical characteristics, and fire extinguishing capabilities must be used. Agents specifically listed for use with that portable fire extinguisher must be considered to meet these requirements. This is to maintain the efficiency of each portable fire extinguisher as produced by the manufacturer and as labeled by one or more of the fire testing laboratories. For instance, the extinguisher agent and the

additives used in the various types of dry chemical portable fire extinguishers vary in chemical composition and in particle size and, thus, in flow characteristics. **Each portable fire extinguisher is designed to achieve maximum efficiency with the particular formulation used.** Changing the agent from that specified on the portable fire extinguisher nameplate could affect flow rates, nozzle discharge characteristics and the quantity of available agent, and would void the label of the testing laboratory.

Carbon dioxide must have the quality as follows:

- (a) Carbon dioxide in the vapor phase must not be less than 99.5%.
- (b) The water content in the liquid phase must not be more 0.01% by weight (-30°F dew point).
- (c) Oil content of the carbon dioxide must not exceed 10 ppm by weight.

The amount of recharge agent must be verified by weighing. The recharged gross weight must be the same as the gross weight marked on the label. For those portable fire extinguishers that do not have the gross weight marked on the label, a permanent label that indicates the gross weight must be affixed to the container. The label containing the gross weight must be a durable material of pressure-sensitive, self-destruct type.

When stored-pressure water-type portable fire extinguishers are recharged, the proper amount of liquid agent must be determined by using one of the following:

- (a) Exact measurement by weight
- (b) Exact measurement in volume
- (c) An anti-overfill tube, if provided
- (d) A fill mark on portable fire extinguisher shell, if provided

Multipurpose dry chemicals must not be mixed with alkaline-based dry chemicals. Mixing multipurpose dry chemicals with alkaline-based dry chemicals could result in a chemical reaction capable of developing sufficient pressure to rupture a portable fire extinguisher. Substituting a different formulation for the one originally employed could cause malfunctioning of the portable fire extinguisher or result in substandard performance.

Pails or drums containing dry powder agents for scoop or shovel application for use on metal fires must be kept full and covered at all times. The dry powder must be replaced if found damp. When damp, dry powder will not be free flowing. In addition, when dry powder contains sufficient moisture, a hazardous reaction could result when applied to a metal fire.

### **Periodic replacement of extinguishing agent**

**Pump tank.** Every 12 months, pump tank water and pump tank calcium chloride-based antifreeze types of portable fire extinguishers must be replaced with new chemicals or water, as applicable.

**Wetting agent.** The agent in stored-pressure wetting agent portable fire extinguishers must be replaced annually. Only the agent specified on the nameplate must be used for recharging. The use of water or other agents is prohibited.

The premixed agent in liquid-type AFFF and FFFP portable fire extinguishers must be replaced at least once every 3 years. The agent in solid-type AFFF portable fire extinguishers must be replaced once every 5 years. **These requirements do not apply to the agent in non-pressurized AFFF and FFFP portable fire extinguishers that is subjected to agent analysis in accordance with manufacturer's instructions.**

### **Re-use of extinguishing agents**

**Dry chemical agent.** Portable fire extinguishers removed for 6-year maintenance or hydrostatic testing must be emptied. The dry chemical agent may be re-used provided a closed recovery system is used and the agent is stored in a sealed container to prevent contamination. Prior to re-use, the dry chemical must be thoroughly checked for the proper type, contamination, and condition. In a partially discharged portable fire extinguisher, the remaining dry chemical may be re-used provided it is thoroughly checked for the proper type, contamination, and condition. Where doubt exists with respect to the type, contamination, or condition of the dry chemical, the dry chemical must be discarded.

**Halogenated agent.** The removal of Halon 1211 from portable fire extinguishers must be done only using a listed halon closed recovery system. The removal of agent from other halogenated agent portable fire extinguishers must be done only using a closed recovery system. The portable fire extinguisher must be examined internally for contamination or corrosion, or both. The halogenated agent retained in the recovery system may be re-used only if no evidence of internal contamination is observed in the portable fire extinguisher container. Halogenated agent removed from the portable fire extinguisher that exhibits evidence of internal contamination must be processed in accordance with the portable fire extinguisher manufacturer's instructions.

**Loaded stream agent.** Loaded stream agent may be recovered and re-used provided it is subjected to agent analysis in accordance with manufacturer's instructions.

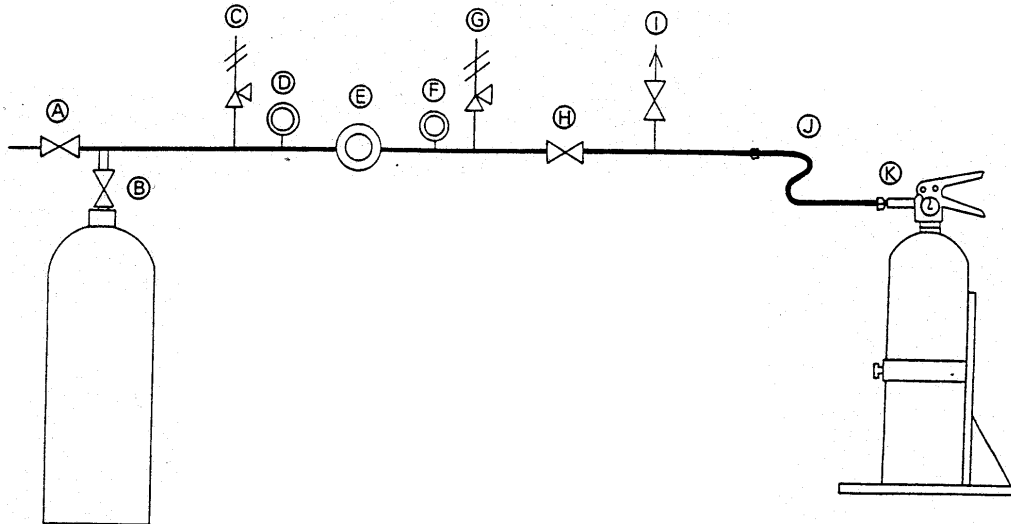
**Wet chemical agent.** Wet chemical agents are not to be re-used. If a wet chemical portable fire extinguisher is partially discharged, all remaining wet chemical must be discarded.

### **Pressurization of stored-pressure portable fire extinguishers and precautionary measures**

Only standard industrial-grade nitrogen with a dew point of -60°F or lower must be used to pressurize stored-pressure dry chemical type and halon type portable fire extinguishers. **Compressed air through moisture traps must not be used for pressurizing even though so stated in the instructions on older portable fire extinguishers.** Compressed air may be used from special compressor systems capable of delivering air with a dew point of -60°F or lower and equipped with an automatic monitoring and alarm system to ensure that the dew point remains at or below -60°F at all times.

Pressure gauges must have the proper indicated charging pressure, must be marked for use with the agent in the portable fire extinguisher, and must be compatible with the portable fire extinguisher valve body material. A stored-pressure type portable fire extinguisher must be pressurized only to the charging pressure specified on the portable fire extinguisher nameplate. The manufacturer's pressurizing adapter must be connected to the valve assembly before the portable fire extinguisher is pressurized. A regulated source of pressure, set no higher than 25 psi above the operating (service) pressure, must be

used to pressurize portable fire extinguishers. The pressure regulator used to regulate the source of pressure must be calibrated at least annually. The diagram below shows a schematic diagram for the pressurization of a stored-pressure portable fire extinguisher.



**High pressure gas supply**

**Portable fire extinguisher**

- A. Bleed-off valve (to atmosphere)
- B. High pressure supply valve
- C. High pressure relief valve
- D. Pressure gauge (high pressure)
- E. Pressure regulator
- F. Pressure gauge (low pressure)
- G. Low pressure relief valve
- H. Valve
- I. Bleed-off valve (to atmosphere)
- J. Flexible charging hose
- K. Pressurizing (charging) adapter

The following procedures are typical for such pressurization:

- (a) Secure the portable fire extinguisher in an upright position.
- (b) Attach appropriate recharge adapter K to the extinguisher valve.
- (c) Connect flexible hose J to adapter.
- (d) Assure that valves A, H, and I are closed.
- (e) Open the pressurizing gas supply valve B.
- (f) Set the pressure regulator to, but no higher than 25 psi above, the operating (service) pressure.
- (g) Open extinguisher valve by depressing lever.
- (h) Pressurize by opening valve H and continue until operating (service) pressure is reached.
- (i) Close extinguisher valve by releasing lever and then close valve H. Open valve I to vent the line pressure to the atmosphere before disconnecting the portable fire extinguisher.

## **General safety guidelines for recharging**

- (a) Make sure that all pressure is vented from the portable fire extinguisher before attempting to remove valve body or fill closure. Do not depend on pressure-indicating devices to tell if container is under pressure because they could malfunction.
- (b) Use proper recharge materials when refilling a portable fire extinguisher. Mixing of some extinguishing agents could cause a chemical reaction resulting in a dangerous pressure buildup in the container.
- (c) The weight of agent as specified on the nameplate is critical. Overfilling could render the portable fire extinguisher dangerous or ineffective.
- (d) All sealing components should be cleaned and properly lubricated to prevent leakage after recharge.
- (e) Check pressure-indicating device to ascertain that it is reading properly.
- (f) Pressurize stored-pressure portable fire extinguishers with a suitable gas. Most manufacturers recommend the use of dry nitrogen as an expellant gas for stored-pressure portable fire extinguishers, particularly for the dry chemical type and halon type. Some Class D portable fire extinguishers are required to be pressurized with argon. Follow the manufacturer's instructions as to the type of gas to be used for the pressurization of specific type of stored-pressure portable fire extinguishers.
- (g) Set the pressure regulator to no higher than 25 psi above the operating (service) pressure. Never connect the portable fire extinguisher to be pressurized directly to the high-pressure source. Connecting directly to the high-pressure source could cause the container to rupture, resulting in injury. Never leave a portable fire extinguisher connected to the regulator of a high-pressure source for an extended period of time. A defective regulator could cause the container to rupture due to excess pressure.
- (h) Use the manufacture's recommended charging adapter to prevent damage to valve and its components.
- (i) Use only gas cartridges recommended by the manufacturer. Cartridge features such as pressure relief, puncturing capabilities, fill density, and thread compatibility are designed and approved to specific functional requirements.
- (j) Use proper safety seals, as other types, such as meter seals, could possibly fail to break at the prescribed requirement.
- (k) Regulators utilized on wheeled portable fire extinguishers are factory pinned at the operating pressure and should not be field adjusted.

## **Recharge recordkeeping**

Each portable fire extinguisher must have a tag or label securely attached that indicates the month and year the recharging was performed, the name and certificate of fitness number of the person who performed the recharging, and the name, street address and telephone number of the portable fire extinguisher servicing company, if any.

The portable fire extinguisher that that has been recharged must have a "Verification of Service" collar located around the neck of the container. The collar must contain a single circular piece of uninterrupted material forming a hole over the neck of the container unless the valve is completely removed. The collar must not interfere with the operation of the portable fire extinguisher. The "Verification of



Service" collar must include the month and year the recharging was performed, indicated by a perforation such as is done by a hand punch.

Liquefied gas, halogenated agent, and carbon dioxide portable fire extinguishers that have been recharged without valve removal do not require a "Verification of Service" collar. Cartridge/cylinder-operated portable fire extinguishers do not require a "Verification of Service" collar.

## APPENDIX

### Glossary

**AFFF.** An abbreviation for aqueous film-forming foam.

**Carbon dioxide.** A colorless, odorless, electrically nonconductive inert gas that is suitable for the extinguishment of Class B and Class C fires.

**Cartridge/Cylinder-operated portable fire extinguisher.** A portable fire extinguisher in which the expellant gas is in a separate container from the agent storage container.

**Dry chemical.** Various mixtures of finely divided solid particles which are specially treated to provide resistance to packing and moisture absorption (caking) and to promote proper flow characteristics. These agents are designed for the extinguishment of Class A and Class B fires. They are nonconductors and are approved for use on energized electrical Class C fires.

**Dry chemical closed recovery system.** A system that provides for the transfer of dry chemical agent between portable fire extinguishers and recovery containers that is closed to prevent the loss of agent to the atmosphere.

**Dry powder.** Solid materials in powder or granular form designed to extinguish Class D combustible metal fires by crusting, smothering, or heat-transferring means.

**FFFP.** An abbreviation for film-forming fluoroprotein foam.

**Film-forming foam agents.** The film-forming foam agents are aqueous film-forming foam (AFFF) and film-forming fluoroprotein foam (FFFP).

**Halogenated agents.** Halogenated (clean) agents are of the following types:

- (a) Halons, which include bromochlorodifluoromethane (Halon 1211), bromotrifluoromethane (Halon 1301), and mixtures of Halon 1211 and Halon 1301 (Halon 1211/1301).
- (b) Halocarbons which include hydrochlorofluorocarbon (HCFC), hydrofluorocarbon (HFC), perfluorocarbon (PFC), and fluoroiodocarbon (FIC) types of agents.

**Halogenated agent closed recovery system.** A system that provides for the transfer of halogenated agents between portable fire extinguishers, supply containers, and recharge and recovery containers so that none of the halogenated agent escapes to the atmosphere. Closed recovery systems for halogenated agents with an ozone depleting potential (ODP) of 0.2 or greater must be listed for use with that agent.

**HMIS.** An abbreviation for hazardous materials identification systems.

**Loaded stream charge.** A water-based extinguishing medium that uses an alkali metal salt as a freezing point depressant.

**Nonrechargeable portable fire extinguisher.** A portable fire extinguisher that is not capable of (nor intended to be capable of) undergoing complete maintenance, hydrostatic testing, and being restored to its full operating capability by the standard practices used by fire equipment dealers and distributors. Nonrechargeable (nonrefillable) portable fire extinguishers are marked "Discharge and Dispose of After Any Use" or "Discharge and Return to the Manufacturer After Any Use" or with a similar equivalent marking. Some portable fire extinguishers that are physically rechargeable are marked "nonrechargeable" and are therefore considered to be nonrechargeable (nonrefillable) portable fire extinguishers.

**PPM (or ppm).** An abbreviation for parts per million.

**Portable fire extinguisher.** A portable device, carried or on wheels and operated by hand, containing an extinguishing agent that can be expelled under pressure for the purpose of suppressing or extinguishing fires.

**Rechargeable portable fire extinguisher.** A portable fire extinguisher is one that is capable of undergoing complete maintenance, including internal inspection of the pressure vessel, replacement of all substandard parts and seals, and hydrostatic testing. The portable fire extinguisher is capable of being recharged with agent and restored to its full operating capability by the standard practices used by fire equipment dealers and distributors. Rechargeable (refillable) portable fire extinguishers are marked "Recharge Immediately After Any Use" or with a similar equivalent marking.

**Self-expelling portable fire extinguisher.** A portable fire extinguisher in which the agents have sufficient vapor pressure at normal operating temperature to expel themselves.

**Service pressure.** The normal operating pressure as indicated on the gauge and nameplate of a portable fire extinguisher.

**Stored-pressure portable fire extinguisher.** A portable fire extinguisher in which both the extinguishing agent and expellant gas are kept in a single container, and that includes a pressure indicator or gauge.

**Water-type portable fire extinguisher.** A portable fire extinguisher that contains water-based agents, such as water, AFFF, FFFP, antifreeze, and loaded stream.

**Wet chemical.** Wet chemicals include, but are not limited to, aqueous solutions of potassium acetate, potassium carbonate, potassium citrate, or combinations of these materials.

**Wheeled-type portable fire extinguisher.** A portable fire extinguisher equipped with a carriage and wheels intended to be transported to the fire by one person.

## **SECTION 15-02 OF TITLE 3 OF THE RULES OF THE CITY OF NEW YORK**

Section 15-02 of Title 3 of the Rules of the City of New York is repealed and re-promulgated as follows:

### §15-02 Portable Fire Extinguishers

#### (a) Applicability

This section shall apply to the specification, selection, distribution, inspection, maintenance, recharging and hydrostatic testing of portable fire extinguishers and the qualifications of the persons and companies engaged in servicing such equipment.

(b) Definitions. For purposes of this section, the following terms shall be defined as follows:

**Certificate of fitness for portable fire extinguisher servicing.** A certificate issued by the Department pursuant to this section and 3 RCNY §9-01 authorizing a person to service portable fire extinguishers.

**NFPA Standard 10-1998.** National Fire Protection Association Standard No. 10, "Standard for Portable Fire Extinguishers" (1998 edition).

**Portable fire extinguisher servicing company certificate.** A certificate issued by the Department to a company engaged in the business of servicing portable fire extinguishers, which authorizes an owner or principal of such company to supervise portable fire extinguisher servicing by company employees holding a certificate of fitness for portable fire extinguisher servicing.

**Servicing.** The maintenance and recharging of portable fire extinguishers as defined in NFPA Standard 10-1998, including any thorough examination, repair or replacement of portable fire extinguishers or the replacement of the extinguishing agent.

#### (c) General Requirements

(1) The specification, selection, distribution, inspection, maintenance and recharging of portable fire extinguishers shall be in accordance with NFPA Standard 10-1998, except as otherwise provided in this section.

(2) Portable fire extinguishers shall be hydrostatically tested on a periodic basis in accordance with the requirements of Chapter 5 of NFPA Standard 10-1998 and

§1910.157 of Title 29 and §173.34 of Title 49 of the United States Code of Federal Regulations, as applicable.

(3) It shall be unlawful for any person to service a portable fire extinguisher without a certificate of fitness for portable fire extinguisher servicing, except that a person training for such certificate of fitness may service portable fire extinguishers in the presence of and under the personal supervision of a certificate of fitness holder.

(4) It shall be unlawful for any person or company engaged in the business of servicing portable fire extinguishers to service portable fire extinguishers without a portable fire extinguisher servicing company certificate. Nothing in this section shall preclude portable fire extinguishers that are maintained on a premises for use at such premises from being serviced by the owner or occupant of the premises, or an employee of such owner or occupant, who possesses:

(i) a certificate of fitness for portable fire extinguisher servicing; and

(ii) the tools, materials, equipment and facility necessary to service such portable fire extinguishers in accordance with the requirements of this section.

(d) Portable Fire Extinguisher Servicing Company Certificate

(1) The Department shall issue a portable fire extinguisher servicing company certificate to a company that possesses the requisite character and fitness, tools, materials, equipment and facility to properly service portable fire extinguishers.

(2) Original Application Requirements. Applicants for portable fire extinguisher servicing company certificates shall apply for such certificate to the Bureau of Fire Prevention at Fire Department Headquarters in accordance with the provisions of subdivision (b) of 3 RCNY §9-01. In addition to such other information and documentation as the Department may require, each applicant shall submit an affidavit executed by an owner or principal of the company:

(i) attesting that one or more of the owners or principals of the company possess a minimum of two years experience in portable fire extinguisher servicing and a certificate of fitness for portable fire extinguisher servicing;

(ii) disclosing the names and addresses of all companies engaged in the business of portable fire extinguisher servicing with which each owner or principal of the company is affiliated or has been affiliated in the last five years;

(iii) listing the names, addresses, and certificate of fitness numbers of all company employees who will be servicing portable fire extinguishers; and

(iv) certifying that the company has the tools, materials, equipment, facilities and servicing manuals required to service portable fire extinguishers, as specified in

Chapter 4 of NFPA Standard 10-1998.

(3) Term and renewal. Portable fire extinguisher servicing company certificates shall be issued for a term of one year. Certificates may be renewed in accordance with the provisions of paragraph (10) of subdivision (b) of 3 RCNY §9-01.

(4) Application fees. The fee for an original application for a portable fire extinguisher servicing company certificate shall be one hundred dollars (\$100). The fee for a renewal application shall be fifty dollars (\$50).

(5) Maintenance of employee list. Portable fire extinguisher servicing company certificate holders shall maintain on file with the Department a current list of company employees servicing portable fire extinguishers, and shall update such list within 30 days of any change.

(6) Facility inspections.

(i) All facilities maintained by portable fire extinguisher servicing company certificate applicants and holders for the servicing of portable fire extinguishers are subject to Department inspection. Such inspections may be conducted for any purpose related to the enforcement of the requirements of this section, including but not limited to verifying that the company:

(A) possesses the tools, materials, equipment and servicing manuals required to service portable fire extinguishers; and

(B) is servicing portable fire extinguishers in accordance with the requirements of this section.

(ii) Facility inspections conducted in connection with original or renewal applications for a portable fire extinguisher servicing company certificate shall be conducted at the expense of the applicant, at the rate of \$210.00 per hour, plus reasonable travel expenses for facilities located outside of New York City.

(e) Specification, Selection and Distribution of Portable Fire Extinguishers

(1) The owner or occupant of any occupancy or space shall ensure that such occupancy or space is equipped with the portable fire extinguishers as set forth in NFPA Standard 10-1998, except as otherwise required by this subdivision. The Department may prescribe such other or additional portable fire extinguisher requirements as it determines to be necessary for fire protection purposes, based on the use or configuration of the occupancy or space.

(2) Portable fire extinguishers shall be provided in the following occupancies or spaces:

(i) Occupancies or spaces used or classified as offices or places of worship, hotels

and motels shall be provided with one fire extinguisher of minimum 2-A rating for every six thousand (6,000) square feet of floor area or fraction thereof on each floor, except that such a fire extinguisher shall be provided for every twelve thousand (12,000) square feet of floor area or fraction thereof on each floor for occupancies or spaces used as or classified as offices or places of worship in fully sprinklered buildings.

(ii) Rooming houses and single room occupancies, as defined in the New York State Multiple Dwelling Law, with over 15 sleeping rooms shall be provided with one fire extinguisher of minimum 2-A rating in the apartment of the manager or the building superintendent.

(iii) Hospitals, nursing homes, homes for the aged, day nurseries accommodating more than 15 children and asylums shall be provided with one fire extinguisher of minimum 2-A rating for every 2,500 square feet of floor area or fraction thereof on each floor.

(iv) Places of public assembly or other occupancies or spaces where 75 or more people congregate, including places for entertainment or amusement, shall be provided with one fire extinguisher of minimum 2-A rating for every 2,500 square feet of floor area or fraction thereof on each floor.

(v) Occupancies used or classified as retail stores or shops shall be provided with one fire extinguisher of minimum 2-A rating for every 2,500 square feet of floor area or fraction thereof on each floor.

(vi) Piers, stables, warehouses, manufacturing occupancies and all commercial occupancies except stores and office buildings shall be provided with one fire extinguisher of minimum 2-A rating for every 2,500 square feet of floor area or fraction thereof on each floor.

(vii) Occupancies or spaces used or classified as lumber yards shall be provided with one fire extinguisher of minimum 2-A rating for every 2,000 square feet of floor area or fraction thereof.

(viii) Occupancies or spaces used or classified as telephone exchanges shall be provided with portable fire extinguishers suitable for Class A and Class C fires. A fire extinguisher of a minimum 2-A rating shall be provided for every 3,000 square feet of floor area or fraction thereof.

(ix) Storage garages, electric power plants and occupancies or spaces that manufacture, use or store flammable liquids or mixtures, combustible liquids or mixtures, fats, paints, waxes or similar substances shall be provided with an extinguisher suitable for a Class B fire that shall meet the rating and travel distance requirements for Extra (High) Hazard occupancies as specified in Table 3-3.1 of NFPA Standard 10-1998. Kitchens (except those used

domestically in residential occupancies, but including those kitchens used communally by the occupants of more than one dwelling unit), shall be provided with an extinguisher suitable for a Class K fire, and shall meet the travel distance requirement of §3-7.2 of NFPA Standard 10-1998.

The requirements of sub-paragraph (ix) shall be in addition to sub-paragraphs (i), (ii), (iii), (iv), (v), (vi),(vii) and (viii) of this paragraph.

(x) The fire extinguisher required by Section 28.1 of Reference Standard RS 19-2 of the New York City Building Code shall be of minimum 10-B:C rating, and shall be kept in the cab or in the immediate vicinity of the crane or derrick.

(f) Record keeping

Records of inspection, maintenance, recharging, and hydrostatic testing of portable fire extinguishers shall be provided and maintained in accordance with Chapters 4 and 5 of NFPA Standard 10-1998. The required tag or label for servicing shall also include the following information:

(1) The name and certificate of fitness number of the person who serviced the portable fire extinguisher.

(2) The month and year the portable fire extinguisher was serviced.

(3) The name, street address and telephone number of the portable fire extinguisher servicing company, if any, servicing the portable fire extinguisher.

(g) Modification

Whenever circumstances, conditions, limitations, or surroundings are unusual, or such as to render it impracticable to comply with any or all of the foregoing provisions, the Commissioner may waive or modify such provisions to such extent as he or she may deem necessary, consistent with public safety.

**STATEMENT OF BASIS AND PURPOSE OF RULE:**

The rule makes the Department's requirements for the inspection, maintenance, recharging, and hydrostatic testing of portable fire extinguishers consistent with the 1998 edition of National Fire Protection Association Standard 10. It also adopts certificate of fitness requirements for all persons who service portable fire extinguishers, and certificate requirements for companies engaged in the business of servicing portable fire extinguishers. The adoption of specific qualifications for such persons or companies is intended to address the problem of improper or fraudulent servicing of portable fire extinguishers by persons lacking the qualifications, tools, materials, equipment or facility necessary to properly service portable fire extinguishers.

If any paragraph, subparagraph or subdivision of this section shall be adjudged by any court or agency

of competent jurisdiction to be invalid, such judgment shall not affect, impair or invalidate the remainder thereof, but shall be confined in its operation to the paragraph, subparagraph or subdivision directly involved in the controversy in which such judgment shall have been rendered.