

Annex I Maintenance Procedures

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

I.1 Maintenance Checklists.

For convenience, the following checklists are organized into two parts. The first, Table I.1(a), is arranged by mechanical parts (components and containers) common to most fire extinguishers. The second, Table I.1(b), is arranged by extinguishing material and expelling means and involves a description of the problems peculiar to each agent.

Table I.1(a) Mechanical Parts Maintenance Checklist

Shell		Corrective Action	
1.	Hydrostatic test date or date of manufacture [†]	1.	Retest, if needed
2.	Corrosion [†]	2.	Conduct hydrostatic test and refinish, or discard
3.	Mechanical damage (denting or abrasion) [†]	3.	Conduct hydrostatic test and refinish, or discard
4.	Paint condition	4.	Refinish
5.	Presence of repairs (welding, soldering, brazing, etc.)	5.	Discard or consult manufacturer
6.	Damaged threads (corroded, crossthreaded, or worn)	6.	Discard or consult manufacturer
7.	Broken hanger attachment, carrying handle lug	7.	Discard or consult manufacturer
8.	Sealing surface damage (nicks or corrosion) [†]	8.	Clean, repair, and leak test, or discard
Nameplate		Corrective Action	
1.	Illegible wording	1.	Clean or replace
2.	Corrosion or loose plate	2.	Inspect shell under plate (see shell check points) and reattach plate
Nozzle or Horn		Corrective Action	
1.	Deformed, damaged, or cracked	1.	Replace
2.	Blocked openings	2.	Clean
3.	Damaged threads (corroded, crossthreaded, or worn)	3.	Replace
4.	Aged (brittle)	4.	Replace
Hose Assembly		Corrective Action	
1.	Damaged (cut, cracked, or worn)	1.	Replace
2.	Damaged couplings or swivel joint (cracked or corroded)	2.	Replace
3.	Damaged threads (corroded, crossthreaded, or worn)	3.	Replace
4.	Inner tube cut at couplings	4.	Repair or replace
5.	Electrically nonconductive between couplings (CO ₂ hose only)	5.	Replace

Table I.1(a) Mechanical Parts Maintenance Checklist

6.	Hose obstruction	6.	Remove obstruction or replace
Valve Locking Device		Corrective Action	
1.	Damaged (bent, corroded, or binding)	1.	Repair and lubricate, or replace
2.	Missing	2.	Replace
Gauge or Pressure-Indicating Device		Corrective Action	
1.	Immovable, jammed, or missing pointer (pressure test) [†]	1.	Depressurize and replace gauge
2.	Missing, deformed, or broken crystal [†]	2.	Depressurize and replace gauge
3.	Illegible or faded dial [†]	3.	Depressurize and replace gauge
4.	Corrosion [†]	4.	Depressurize and check calibration, clean and refinish, or replace gauge
5.	Dented case or crystal retainer [†]	5.	Depressurize and check calibration, or replace gauge
6.	Immovable or corroded pressure-indicating stem (nongauge type) [†]	6.	Replace head assembly, depressurize, and replace shell or complete extinguisher
Shell or Cylinder Valve		Corrective Action	
1.	Corroded, damaged, or jammed lever, handle, spring, stem, or fastener joint [†]	1.	Depressurize, check freedom of movement, and repair or replace
2.	Damaged outlet threads (corroded, crossthreaded, or worn) [†]	2.	Depressurize and replace
Nozzle Shutoff Valve		Corrective Action	
1.	Corroded, damaged, jammed, or binding lever, spring, stem, or fastener joint	1.	Repair and lubricate, or replace
2.	Plugged, deformed, or corroded nozzle tip or discharge passage	2.	Clean or replace
Puncture Mechanism		Corrective Action	
1.	Damaged, jammed, or binding puncture lever, stem, or fastener joint	1.	Replace
2.	Dull or damaged cutting or puncture pin	2.	Replace
3.	Damaged threads (corroded, crossthreaded, or worn)	3.	Replace
Gas Cartridge		Corrective Action	
1.	Corrosion	1.	Replace cartridge
2.	Damaged seal disc (injured, cut, or corroded)	2.	Replace cartridge
3.	Damaged threads (corroded, crossthreaded, or worn)	3.	Replace cartridge
4.	Illegible weight markings	4.	Replace cartridge
Gas Cylinders		Corrective Action	
1.	Hydrostatic test date or date of manufacture	1.	Retest if needed
2.	Corrosion	2.	Conduct hydrostatic test and refinish, or discard
3.	Paint condition	3.	Refinish
4.	Presence of repairs (welding, soldering, brazing, etc.)	4.	Discard or consult manufacturer

Table I.1(a) Mechanical Parts Maintenance Checklist

5.	Damaged threads (corroded, crossthreaded, or worn)	5.	Discard or consult manufacturer
Wheel Cap or Fill Cap		Corrective Action	
1.	Corroded, cracked, or broken	1.	Replace
2.	Damaged threads (corroded, crossthreaded, or worn)	2.	Replace
3.	Sealing surface damage (nicked, deformed, or corroded)	3.	Clean, repair, and leak test, or replace
4.	Blocked vent hole or slot	4.	Clean
Nonrechargeable Shell		Corrective Action	
1.	Corrosion [†]	1.	Discard shell
2.	Damaged seal disc (injured, cut, or corroded) [†]	2.	Discard shell
3.	Damaged threads (corroded, crossthreaded, or worn)	3.	Discard shell
4.	Illegible weight markings [†]	4.	Discard shell
Carriage and Wheels		Corrective Action	
1.	Corroded, bent, or broken carriage	1.	Repair or replace
2.	Damaged wheel (buckled or broken spoke, bent rim or axle, loose tire, low pressure, jammed bearing)	2.	Clean, repair, and lubricate, or replace
Carrying Handle		Corrective Action	
1.	Broken handle lug	1.	Discard shell or valve, or consult manufacturer
2.	Broken handle	2.	Replace
3.	Corroded, jammed, or worn fastener joint	3.	Clean or replace
Seals or Tamper Indicator		Corrective Action	
1.	Broken or missing	1.	Check under agent and expelling means [Table I.1(b)] for specific action
Hand Pump		Corrective Action	
1.	Corroded, jammed, or damaged pump	1.	Repair and lubricate, or replace
2.	Improper adjustment of packing nut	2.	Adjust
Pressurizing Valve		Corrective Action	
1.	Leaking seals	1.	Depressurize and replace valve or core
Gasket "O" Ring and Seals		Corrective Action	
1.	Damaged (cut, cracked, or worn) [†]	1.	Replace and lubricate
2.	Missing [†]	2.	Replace and lubricate
3.	Aged or weathered (compression set, brittle, cracked) [†]	3.	Replace and lubricate
Brackets		Corrective Action	
1.	Corroded, worn, or bent	1.	Repair and refinish, or replace
2.	Loose or binding fit	2.	Adjust fit or replace

Table I.1(a) Mechanical Parts Maintenance Checklist

3.	Worn, loose, corroded, or missing screw or bolt	3.	Tighten or replace
4.	Worn bumper, webbing, or grommet	4.	Replace
Gas Tube and Siphon or Pickup Tube		Corrective Action	
1.	Corroded, dented, cracked, or broken	1.	Replace
2.	Blocked tube or openings in tube	2.	Clean or replace
Safety Relief Device		Corrective Action	
1.	Corroded or damaged [†]	1.	Depressurize and replace, or consult manufacturer
2.	Broken, operated, or plugged [†]	2.	Depressurize and replace, or repair
Pressure Regulators		Corrective Action	
1.	External condition	1.	
	(a) Damage		(a) Replace regulator
	(b) Corrosion		(b) Clean regulator or replace
2.	Pressure relief (corroded, plugged, dented, leaking, broken, or missing)	2.	Disconnect regulator from pressure source, replace pressure relief
3.	Protective bonnet relief hole (tape missing or seal wire broken or missing)	3.	Check regulator in accordance with manufacturer's regulator test procedures
4.	Adjusting screw (lock pin missing)	4.	Check regulator in accordance with manufacturer's regulator test procedures
5.	Gauges	5.	
	(a) Immovable, jammed, or missing pointer		(a) Disconnect regulator from pressure source, replace gauge
	(b) Missing or broken crystal		(b) Replace crystal
	(c) Illegible or faded dial		(c) Replace gauge
	(d) Corrosion		(d) Check calibration, clean and refinish, or replace gauge
	(e) Dented case or crystal retainer		(e) Check calibration or replace gauge
6.	Regulator hose	6.	
	(a) Cut, cracked, abraded, or deformed exterior		(a) Conduct hydrostatic test or replace hose
	(b) Corroded or cracked coupling		(b) Replace hose
	(c) Corroded, crossthreaded, or worn coupling threads		(c) Replace hose

Note: For disposable-type extinguishers, those items indicated with a dagger cannot be inspected and serviced. If the corrective action requires the depressurization of the extinguisher, disposable halogenated agent fire extinguishers are not to be depressurized but returned to the manufacturer or service agency for proper disposal and reclaiming of the extinguishing agent.

Table I.1(b) Agent and Expelling Means Maintenance Checklist

Table I.1(b) Agent and Expelling Means Maintenance Checklist

Foam		Corrective Action	
1.	Recharging date due	1.	Empty, clean, and recharge
2.	Improper fill levels in inner container and shell	2.	Empty, clean, and recharge
3.	Agent condition (check for sediment)	3.	Empty, clean, and recharge
Self-Expelling			
Carbon Dioxide		Corrective Action	
1.	Improper weight	1.	Recharge to proper weight
2.	Broken or missing tamper indicator	2.	Leak test and weigh, also recharge or replace indicator
Halon 1301 Bromotrifluoromethane		Corrective Action	
1.	Punctured cylinder seal disc	1.	Replace shell
2.	Improper weight	2.	Replace shell or return to manufacturer for refilling
3.	Broken or missing tamper indicator	3.	Examine cylinder seal disc, replace indicator
Combination Halon 1211/1301		Corrective Action	
1.	Improper weight	1.	Return to manufacturer (<i>see 7.2.3.3</i>)
2.	Broken or missing tamper indicator	2.	Return to manufacturer (<i>see 7.2.3.3</i>)
Mechanical Pump			
Water and Antifreeze		Corrective Action	
1.	Improper fill level	1.	Refill
2.	Defective pump	2.	Clean, repair, and lubricate, or replace
Dry Powder		Corrective Action	
1.	Improper fill level	1.	Refill
2.	Agent condition (contamination or caking)	2.	Discard and replace
3.	Missing scoop	3.	Replace
Gas Cartridge or Cylinder			
Dry Chemical and Dry Powder Types		Corrective Action	
1.	Improper weight or charge level	1.	Refill to correct weight
2.	Agent condition (contamination, caking, or wrong agent)	2.	Empty and refill
3.	For cartridge	3.	For cartridge
	(a) Punctured seal disc		(a) Replace cartridge
	(b) Improper weight		(b) Replace cartridge
	(c) Broken or missing tamper indicator		(c) Examine seal disc, replace indicator
4.	For gas cylinder with gauge	4.	For gas cylinder with gauge
	(a) Low pressure		(a) Replace cylinder
	(b) Broken or missing tamper indicator		(b) Leak test, replace indicator

Table I.1(b) Agent and Expelling Means Maintenance Checklist

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|---|---|
| 5. For gas cylinder without gauge
(a) Low pressure (attach gauge and measure pressure)
(b) Broken or missing tamper indicator | 5. For gas cylinder without gauge
(a) Leak test (if normal, leak test and repair indicator and if low, replace cylinder)
(b) Measure pressure, leak test, replace indicator |
|---|---|

Stored-Pressure

- | Combination Halon 1211/1301 | Corrective Action |
|--|---|
| 1. Refillable
(a) Improper extinguisher agent
(b) Improper gauge pressure
(c) Broken or missing tamper indicator
2. Nonrechargeable extinguisher with pressure indicator
(a) Low pressure
(b) Broken or missing tamper indicator | 1. Refillable
(a) Return to manufacturer (<i>see 7.2.3.3</i>)
(b) Return to manufacturer (<i>see 7.2.3.3</i>)
(c) Examine extinguisher, leak test, replace tamper indicator
2. Nonrechargeable extinguisher with pressure indicator
(a) Return to manufacturer (<i>see 7.2.3.3</i>)
(b) Leak test, check pressure, replace tamper indicator |

Dry Chemical and Dry Powder Types

- | | Corrective Action |
|--|---|
| 1. Refillable
(a) Improper extinguisher weight
(b) Improper gauge pressure
(c) Broken or missing tamper indicator
2. Disposable shell with pressure indicator
(a) Punctured seal disc
(b) Low pressure
(c) Broken or missing tamper indicator
3. Disposable shell without pressure indicator
(a) Punctured seal disc
(b) Low weight
(c) Broken or missing tamper indicator
4. Nonrechargeable extinguisher with pressure indicator
(a) Low pressure
(b) Broken or missing tamper indicator | 1. Refillable
(a) Refill to correct weight
(b) Repressurize and leak test
(c) Leak test and replace indicator
2. Disposable shell with pressure indicator
(a) Replace shell
(b) Depressurize; replace shell
(c) Check pressure, check seal disc, replace indicator
3. Disposable shell without pressure indicator
(a) Replace shell
(b) Depressurize; replace shell
(c) Check seal disc, replace indicator
4. Nonrechargeable extinguisher with pressure indicator
(a) Depressurize and discard extinguisher
(b) Leak test, check pressure, replace indicator |

Wet Chemical Type

- | | Corrective Action |
|--|--|
| 1. Improper fill level (by weight or observation)
2. Improper gauge pressure
3. Broken or missing tamper indicator | 1. Empty and recharge with new solution to correct weight fill line
2. Repressurize and leak test
3. Leak test, replace indicator line |

Halogenated-Type Agents

- | | Corrective Action |
|---------------------------------------|--|
| 1. Broken or missing tamper indicator | 1. Weigh, leak test, and replace indicator |

Table I.1(b) Agent and Expelling Means Maintenance Checklist

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|----------------------------|---|
| 2. Improper gauge pressure | 2. Weigh, repressurize, and leak test |
| 3. Improper weight | 3. Leak test and refill to correct weight |

Water, Antifreeze, and Loaded Stream

Corrective Action

- | | |
|---|---------------------------------|
| 1. Improper fill level (by weight or observation) | 1. Refill to correct level |
| 2. Agent condition if antifreeze or loaded stream | 2. Empty and refill |
| 3. Improper gauge pressure | 3. Repressurize and leak test |
| 4. Broken or missing tamper indicator | 4. Leak test, replace indicator |

AFFF and FFFP Liquid Charge

Corrective Action

- | | |
|--|---|
| 1. Improper fill level (by weight or observation) | 1. Empty and recharge with new solution |
| 2. Agent condition (presence of precipitate or other foreign matter) | 2. Empty and recharge with new solution |
| 3. Improper gauge pressure | 3. Repressurize and leak test |
| 4. Broken or missing tamper indicator | 4. Leak test, replace indicator |