



## **NORTH AMERICAN FIRE HOSE**

### **FIRE HOSE CARE, HANDLING & MAINTENANCE**

North American Fire Hose is committed to providing the highest quality raw material, unique designs features, and special manufacturing methods in producing our attack line hose and large diameter hose. Our goal is to provide superior performance, low maintenance, and long service life.

The following care, handling, and maintenance guidelines were prepared to provide information to both first-time hose users, as well as to departments that are experienced in the use of hose lines.

#### **Dragging Attack Line Hose or Large Diameter Hose (LDH)**

Avoid dragging hose along the edge or fold, as this action concentrates abrasion of the outer jacket in the folded area. Also, avoid dragging hose that is kinked back upon itself, as this greatly concentrates abrasion to the area where the kink contacts the ground. By dragging the hose along the flat surface, the abrasion is distributed over a larger surface area, thereby minimizing wear. In contrast, dragging hose along the edge or while kinked, can greatly concentrate and accelerate abrasion damage. Also, avoid dragging hose that has not been completely drained of water, either along the edge or while kinked back upon itself, as the added weight will further contribute to premature hose wear.

#### **Loading Hose into the Apparatus Hose Bed**

Only hose that is thoroughly dried should be reloaded in the hose bed and stored for a prolonged period of time. Hose should be loaded by laying the hose flat in the hose bed. The hose should never be loaded on edge, with the folds in contact with the bottom of the hose bed. Lay the hose across the bed in alternating layers rather than loading one row of hose all the way to the top of the hose bed. Loading in this manner will prevent chafing of the hose in the hose bed and will also prevent the folds from contacting the roadway surface on deployment, thereby reducing edge wear to the hose. Couplings should be loaded in a manner that prevents them from flipping over when deploying hose and striking the apparatus hand rail. Hose should be removed and reloaded on the hose bed at least once every six months so that the folds occur at different locations along the hose to prevent localized wear and to allow for visual inspection of the hose in order to evaluate any damaged areas. It is strongly recommended to reload Nitrile Rubber Covered Hose after each use with the folds at different locations.

#### **Storage of Fire Hose**

The hose should be loaded in a manner to allow for air to freely circulate between the hose bed and the hose to prevent rusting, corrosion or rotting of the hose bed. If this is not possible, then hose should be as dry as practical before reloading (NFPA 1962 Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose, Latest Edition). Even though North America Fire Hose uses synthetic materials to construct large diameter hose and

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attack fire hose, and they are not deteriorated or affected by mildew formation, such a situation may cause rusting of the apparatus or rotting of the wooden flooring under the hose bed.

If hose is reloaded in a wet condition, then mold and/or mildew will be likely to form on the hose and within the hose bed. Beyond the obvious housekeeping effects (unattractive mold and mildew growth on the hose, unappealing musty, stale odor from the hose bed), there may also be undesirable health effects in certain sensitive individuals.

Also, in certain extreme situations, severe mold and/or mildew growth can result in the molecular breakdown of some of the synthetic components used in fire hose constructions. For these reasons, we strongly suggest that the hose be as dry as possible before storage, especially in high ambient temperature and high humidity environments.

## **Coupling Damage Due to Hose Deployment**

Care must be taken when laying hose onto the street from a hose bed to prevent the couplings from being damaged by flipping up and striking the hand rail or by dropping too hard onto the apparatus tailboard or onto the street. Also, care should be taken to avoid dropping the couplings onto a hard surface when disconnecting the hose after use.

## **Driving Over Hose and Use of Hose Bridges**

Hose bridges should be used whenever it is necessary for vehicles to drive over any fire hose, to prevent damaging either the couplings or hose. NFPA states: Vehicles shall not be driven over charged or uncharged fire hose unless the hose is bridged and the vehicle has sufficient ground clearance to cross the bridged hose. [NFPA 1962, Care, Use, Inspection, Testing, and Replacement of Hose, Couplings, Nozzles and Appliances, 2013 Edition: 4.1.1 Damage Prevention 4.1.11.2]

## **Hydrant Connections**

When attaching the hose to a hydrant, allow for enough slack to permit a smooth bend radius from the hydrant. Also, open the hydrant slowly to minimize any water hammer effects.

## **Pumper Connections**

Allow for enough slack in the hose to permit a smooth bend radius to the pumper connection.

## **Relay Applications for Large Diameter Hose (LDH)**

When relaying water from a pumper near the water source to another pumper, the inlet or suction side of the pump receiving the relay should be equipped with a relief valve to reduce and control any water hammer effects. A discharge relief valve or automatic pressure governor does not protect the suction side of the pump. The relay relief valve should also be capable of controlling the build-up of air pressure. Correct operational procedures

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should be established and practiced before attempting relay-supply operations as personal injuries, pump damage and hose coupling damage could result from improper operations. The surge of pressure experienced when a high velocity water flow is abruptly shut off can cause momentary pressures and stresses up to seven times the static pressure (NFPA 1962 Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose, Latest Edition). Therefore, it is of utmost importance when using large diameter hose to open and close valves slowly to minimize this effect.

## **Reloading and Coiling Procedures - All Fire Hose**

After shutting off all pumps and hydrants, but prior to breaking loose any of the couplings, the normal twisting that occur when the hose is pressurized should be removed. Only after this twist in the hose is removed should the couplings be broken loose. At this point, it is important to:

- First, break loose all of the couplings in order to allow the water to drain from the hose.
- This procedure is important to prevent the inner jacket and the liner from collapsing and twisting within the outer jacket as a result of the vacuum that can form inside the hose as the water is drained.
- Second, remove the residual water by walking along the length of the hose and lifting the hose to shoulder level as you walk, thereby forcing the water ahead of you towards the coupling.
- Third, pull the hose straight and remove any remaining twist from the hose.
- Finally, the department can choose either to re-connect the couplings or to reload the hose at the fire scene by backing the truck up to the hose, or else the hose can be coiled and reloaded onto the hose bed at the station.

Remember, rolling the hose before reloading purges any water and air trapped inside the hose allowing the hose to lay flat. This will make for a more compact load. When possible avoid the horseshoe and accordion lays as these loads place extra wear on the edges of the hose.

## **Inspection and Service Testing**

The hose shall be inspected and service tested annually per NFPA 1962 Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose, Latest Edition. Also, the hose should be service tested after the re-attachment of couplings. In addition, inspection and service testing is warranted whenever the hose is questionable or has been exposed to severe abrasion, cutting, heat damage, chemical attack, freezing or extreme water hammer. When visually inspecting the hose and couplings under pressure, always walk at least 15 feet to the left side of the hoseline, facing the free end, with the apparatus / pressure source behind you. While testing the hose, never stand in front of the free end of the hose, straddle the hose, walk on the right side of the hose

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in front of the free end of the hose, straddle the hose, walk on the right side of the hose (facing the free end) or walk closer than 15 feet to the left side of the hose (facing the free end).

## Hose Repair

To maintain the Warranty provided by North American Fire Hose, repairs will be limited to coupling attachment replacements, provided the person conducting the repair has attended the Coupling Attachment Hands-on Instructional Class at North American Fire Hose's facility. This training is provided at no charge at the time of the lot acceptance testing, if requested. If the hose is re-coupled for any reason, that length of hose shall not be placed back into service before being re-tested.

## FIRE HOSE CLEANING PROCEDURES

After each use, all hose shall be cleaned per NFPA 1962 Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose, Chapter 4.7 Cleaning and Drying (Latest Edition). It is recommended to "dry" brush the hose using a soft to medium bristle brush. However, if the dirt cannot be thoroughly brushed from the hose the hose shall be washed. If the hose has been exposed to hazardous materials, it shall be decontaminated by the method(s) approved for the contaminate. Covered (nitrile, rubber) hose shall be permitted to be wiped dry.

If the hose needs to be washed, use the following guidelines:

- 1) Unroll the hose (avoid dragging the hose) and stretch it out in its entirety on a clean, level surface. Care must be taken not to damage to the male coupling threads. Thoroughly rinse the fire hose with clean water. Note: If several hose sections are being cleaned at the same time, lay them side to side but be sure to separate them enough to allow for proper draining.
- 2) Fill a large bucket with mild, soapy water. The water should be ambient temperature. Using a long-handled brush with soft to medium bristles, scrub the entire length of hose. Note: Do not use a pressure washer or pressure washer solution, as this could damage the hose.
- 3) Carefully turn the hose over to the opposite side and thoroughly rinse the hose with clean water.
- 4) Using a long-handled brush with soft to medium bristles, scrub the entire length of hose with mild, soapy water.
- 5) Using a garden hose, completely rinse the soap from the hose on both sides. Avoid using a high powered pressure washer.
- 6) Dry the hose thoroughly using the method best suited for the weather conditions and facility equipment (hose tower, hose dryer, slanted hose rack, etc.).
- 7) Note: Hose shall not be dried on hot pavements or under intense sunlight.

# FIRE HOUSE DO'S AND DON'T'S

## Do:

After shutting off dumps & hydrants but before breaking loose any couplings, remove any normal twisting that occurs when hose is pressurized

- Completely drain hose of water
- Drag hose along its flat surface - abrasion distributed over a larger surface area
- Reload only thoroughly dried hose
- Load hose by laying it flat
- Lay hose in hose bed by laying in alternating layers
  - Prevents chafing of the hose in the hose bed
  - Prevents folds from contacting roadway surfaces on deployment
- Thoroughly drain & dry hose before storing
- Walk at least 15 feet to the left side (facing the free end) of a hoseline being tested
- Remove & reload hose in hose bed every six months
  - Folds occur in different locations along the hose
  - prevents localized wear
  - allows visual inspection of hose
- Roll hose with male coupling inside roll to protect threads
  - If male coupling must be on outside, use a protective cap over threads
- Use hose bridge whenever necessary for vehicles to drive over any charged or uncharged fire hose
- Open & close valves slowly on Large Diameter Hose (LDH)

## Don't:

- Do not - drag hose along edge or fold – concentrates abrasion on outer jacket in the folded area
- Do not - drag hose with water in line – causes premature hose wear
  - Remember that water weighs approximately 8.3 pounds per gallon
- Do not - drag hose that is kinked over itself – concentrates & accelerates abrasion damage
- Do not - lay hose on edge with folds in contact with the hose bed
- Do not - use a pressure washer to clean fire hose
- Do not - drive over a charged or uncharged fire hose without the use of a hose bridge
- Do not - walk on the right side (facing free end) or straddle fire hose being pressure tested
- Do not - store fire hose wrapped in plastic material or bags
- Do not - store fire hose with stretch wrap or any air-tight environment
- Do not - store hose in direct sunlight or in poorly-ventilated areas