Learning Objective 1

- Explain basic fire hose characteristics.
Each type of fire hose transports water for on scene operations.

<table>
<thead>
<tr>
<th>Supply</th>
<th>Attack</th>
</tr>
</thead>
<tbody>
<tr>
<td>• From hydrant/water supply to apparatus</td>
<td>• Water or other agents at increased pressure</td>
</tr>
</tbody>
</table>
To be reliable, fire hose must be constructed, used, and maintained appropriately.

**Common Construction**
- Flexible
- Watertight
- Smooth rubber or neoprene lining
- Covered by durable jacket

**Common Configurations**
- Single-jacket
- Double-jacket
- Rubber single-jacket
- Hard-rubber or plastic noncollapsible
Hose size measurements in diameter refer to the internal diameter.
Hose size measurements in length refer to a manufactured section of hose.

- Suction supply
- Soft sleeve hose
- Hard suction
Fire hose couplings are used to make connections to hose and equipment.

<table>
<thead>
<tr>
<th>Designed to</th>
<th>National Standards</th>
<th>Made of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form continuous hoseline</td>
<td>NFPA® 1963</td>
<td>Durable, rustproof materials</td>
</tr>
<tr>
<td>Connect hoses to nozzles, hydrants</td>
<td>Can share between departments</td>
<td>Various alloys</td>
</tr>
<tr>
<td>Connect to pumper connections and FDCs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Fire hose couplings are categorized by the way they are manufactured.

- Cast
- Extruded
- Drop forged
Threaded couplings have male and female parts.
CAUTION

- Connect couplings hand tight to avoid damage to the coupling and gasket.
Couplings have other parts including different cuts, sizes, and gaskets.
Lugs and handles help to tighten and loosen hose connections.
Nonthreaded couplings are connected with locks or cams.
What are the three basic fire hose characteristics a firefighter must understand?
Learning Objective 2

- Describe different causes of and prevention methods for hose damage.
Mechanical damage can occur in several ways to a fire hose.

- Slices
- Rips
- Abrasions
- Crushed
- Cracked
There are many ways to prevent mechanical damage.

- Avoid contact with rough, sharp objects
- Protect with hose roller or folded salvage cover
- Clear broken glass from window sills
- Prevent vehicles from driving over hose
- Use hose ramps or bridges

(Cont.)
There are many ways to prevent mechanical damage.

- Open, close slowly to avoid water hammer
- Use chafing blocks
- Avoid excessive pressure
- Deploy away from debris
- Change position of folds
- Clean hose before reloading
Thermal damage can result from exposure to excessive temperatures.

Caused by excessive heat/cold, direct flame contact

Can char, melt, weaken, dehydrate linings
There are many ways to prevent thermal damage to fire hose.
Organic damage to fire hose can weaken the jacket and lead to ruptures.

Mildew and mold
Firefighters should know the methods to prevent organic damage.
There are several types of chemical damage that may occur to fire hose.

- Petroleum products, paints, acids, alkalis
- Battery acid
- Runoff water
- Leftover water can form sulfuric acid
Preventing chemical damage requires following specific cleaning practices.

- Avoid chemical exposure
- Scrub, wash contaminated hoselines
- Test periodically
- Dispose of according to local SOPs
Corrosion is a type of damage that weakens or destroys metal hose parts.

- Brass coupling
- Aluminum coupling
Age deterioration is caused by leaving a hose in an apparatus for a long time.

**Prevention**

- Remove and replace hose loads periodically
- Reload loosely with new folds
- Remove from tower once dry
REVIEW QUESTION

- How are thermal damage and corrosion in a hose similar or different?
Learning Objective 3

- Identify basic inspection, care, and maintenance methods for fire hose.
Inspecting a fire hose requires following a schedule and reporting process if deficiencies are found.
The method of washing a hose will depend on the type of hose.
Drying a hose also requires different methods for various types of hose.
Storing hose is usually done on racks that may be mounted or stand free.
Never store solvents, petroleum products, or other chemicals close to fire hose and couplings.
There are several methods to prevent damage to stored hose stored in racks.

- Store in clean, well ventilated room
- Avoid exposure to sunlight, pack loosely
- Protect couplings, roll hose with male end inside
- Prevent dirt from collecting in sexless couplings
Fire hose couplings can be damaged even though designed to be durable.
When caring for fire hose couplings you should follow these guidelines.

**General**
- Avoid dropping, dragging
- Do not drive over
- Inspect when washing
- Twist swivel in soapy water
- Clean threads
- Inspect, replace gaskets

**If coupling swivel difficult to spin**
- Washing machine insufficient
- Submerge in warm, soapy water
- Clean male threads with brush
- Lubricate
- Replace damaged gaskets
What are the steps taken to perform basic inspection and maintenance for fire hose?
Learning Objective 4

- Compare various uses for hose appliances and tools.
Hose appliances include a variety of hardware used in conjunction with hose.

### Valves
- Ball
- Gate
- Butterfly
- Clapper

### Valve Devices
- Wye
- Siamese
- Water thief
- LDH - thief and manifold
- Hydrant valve

### Fittings
- Adapters
- Reducers

### Intake Strainers
- Attached to drafting end of hard suction when pumping
- Designed to keep debris from entering
- Preventing from resting on bottom
There are several types of hose tools that firefighters should know about.

- Hose roller
- Hose jacket
- Hose clamp

(Cont.)
CAUTION

Never stand over the handle of a hose clamp when applying or releasing it. The handle or frame may pop open and swing upward violently.
There are several types of hose tools that firefighters should know about.

- Spanner, hydrant wrench, rubber mallet
- Hose bridge/ramp
- Chafing block
- Hose strap, rope, chain
- LDH roller
What are the types of hose appliances and tools a firefighter may need to use?
Learning Objective 5

- Describe basic hose rolls.
The straight roll is the simplest of all hose rolls.
The donut roll is used in situations where the hose will likely be deployed for use directly from a roll.
The twin donut roll creates a compact roll that is easily transported.
The self-locking twin donut roll adds a built-in carrying loop for the hose.
REVIEW QUESTION

- When should firefighters use basic hose rolls?
Slides adapted from