

FIRE HOSE

- **Use**
 - Transport water from one place to another or in order to put out a fire. It must withstand high pressures, be flexible, and have limited friction loss.

- **Couplings**
 - Purpose: Provide a way to connect and extend the hose
 - Made of aluminum alloy- pyrolite.
 - Male end with exposed national standard threads
 - s
 - Female end recessed threads and a shank.
 - Rocker lugs on M & F ends
 - Hig-bee indicator is a notch that is cut into one of the rocker lugs.
 - Where threads start- hig-bee cut
 - Hig-bee cut: 45 degree cut at the beginning of the threads on both male and female coupling.
 - 3 gaskets
 - Rubber swivel gasket in female that allows for watertight connection.
 - 2 expansion ring gaskets where the coupling attaches to the hose
 - 5 methods of attaching hose to couplings
 - Expansion rings
 - Screw-in expanders
 - Collars
 - Tension rings
 - Banding
 - Made from three processes:
 - Casting
 - Extruding
 - Dropped force (strongest)
 - Classifications of construction:
 - Woven-jacket hose (1 ½ , 1 ¾ , 2 ½)
 - Rubber-covered hose (4")
 - Braided hose (Booster & extinguisher, 1")
 - Rubber liner is covered with several alternating layers of braided yarn and rubber, then vulcanized to produce a hose.
 - Wrapped hose (Hard suction)
 - Wrapping several layers of diagonally cut fabric around an extruded rubber tube. A rubber compound is applied to hold them in place. To prevent collapsing a heavy gauge (copper or galvanized) wire is coiled between the layers.
 - Types
 - Attack hose
 - Supply hose

- Intake hose
 - Extinguisher hose
- **Hose**
 - 1- 100', 16.32 gal held
 - 1 ½ - 50', 22 lbs, 12.24 gal held, 95 gpm
 - 1 ¾ - 50', 26 lbs, 14.28 gal held, 150 gpm
 - 2 ½ - 50', 40 lbs, 20.4 gal held, 250 gpm
 - 2 jackets synthetic nylon and synthetic polyester
 - Wrap woven and filler weave
 - Wrap yarns- lengthwise
 - Filler yarns- circumference stress
 - Referred to as circular loom construction
 - Rubber tube made of synthetic rubber called butol, made by extrusion from rubber block.
 - Resists oils, ozone, and fuels
 - Extruded rubber tube is lubed and slid into the hose jacket.
 - Vulcanization process runs hot steam through the hose turns the lube into glue which seats the hose jacket to the rubber tube.
 - Filler strands cause water to move clockwise
 - Cotton (No cotton in RFD)
 - Advantage: absorbs heat and good for abrasions
 - Disadvantage: mildews easily
 - Nylon
 - Advantage: Highly resistant to abrasion and kinking
 - Disadvantage: Expensive
 - 1 (100 ft sticks) & 1 ½ some
 - Same as above but one jacket
 - 4- 100', 78 lbs, 65.2 gal held, 1,000 gpm
 - 3 ply synthetic material
 - Outer layer: Duristaflex- Lightweight, highly flexible and ribbed for added resistance to wear and abrasion.
 - Center layer: Polyester- high tensile, add strength and minimal expansion and non absorption.
 - Inner layer- Polyurethane- High tensile strength and minimal weight and bulk, resists aging.
 - Identification
 - ID # stenciled in black 18 inches from couplings on both ends and opposite side of manufacturers writing (97103-02)
 - 1st two #s year purchased 1997
 - 2nd three #s is # of that hose purchased in that hose type of that year. 103 third stick of hose purchased
 - Last 2 station hose belongs to.
 - Tested
 - Annually by each station
 - Reverse of month

- Station 14 in January, Station 13 in Feb, etc.
- Connect hose to pump (300 max), nozzle, Pump at 250 psi, 5 min, masking tape on coupling indication year of test, might shift 1/16 to 1/8 inch during 1st test, after that none.

Damaged Hose

- Clean hose
- Drain the hose
- Dry the hose
- Roll out of service (male coupling on outside)

Tag Hose with:

- Date of damage
- Hose size
- Length
- Hose ID #
- Location of the problem

Notify Station 10

- Send to Station 10 when they call for the hose.

Care and Maintenance

Types of Hose Damage

- Mechanical Damage
 - Abrasions, cuts, tears
 - Try to avoid sharp objects
- Environmental/ thermal damage
 - Heat- charring, melting, and weakening
 - Cold- freezing, tightening of couplings
 - Avoid by circulating water at all times
- Organic Damage
 - Mildew weakens the hose while fungus consumes the fibers
- Chemical Damage
 - Burns, holes, breakdown of inner liner

Care and Maintenance continued

- Hose is inspected every four months and reloaded.
 - January, May, and September
- If soiled use mild soap and water with brush
- If chemicals use baking soda and follow manufactures instructions.
- May be loaded wet
 - It will mildew but will not rot and ruin the hose
- Cotton
 - Mild soap
 - Dry before reloading
 - In emergency can stay wet on engine for 24 hours
 - Should not be left on hose rack more than 7 days
- Synthetic/ Rubber coated hose
 - Use mild soap and water
 - Can reload wet
 - Clean couplings in a bucket with mild soap and water and rise

NFPA Requirements

- Suction hose
 - Minimum of 15' of soft suction or 20' of hard suction.
- Fire Hose and Nozzles
 - 800' of 2 ½ or larger fire hose
 - 400' f 1 ½ , 1 ¾ , or 2" fire hose
 - One combo nozzle, 200 gpm minimum
 - Two combo nozzles, 95 gpm
 - One play pipe with shutoff and 1, 1 1/8 , and 1 ¼ tips.
- Important Standards
 - NPFA 1961- Standard for Fire hose
 - NFPA 1962 Standard for the Care, Use, and Maintenance of Fire Hose, including Connections and Nozzles
 - NFPA 1963 Standard for Screw Threads and Gaskets for Fire Hose Connections

Extra Info

- Engine can still be in service after 300' of 2.5" hose and one 1 ½ inch of 200' pre-connect is pulled