



One-Fire Fighter Foot-Tilt Method of Coupling a Fire Hose

- Place one foot on the hose behind the male coupling. Push down with your foot to tilt the male coupling upward.
- Place one hand behind the female coupling and grasp the hose.
- Place the other hand on the coupling swivel. Bring the two couplings together and align the Higbee indicators. Rotate the swivel in a clockwise direction to connect the hoses.



One-Fire Fighter Knee-Press Method of Uncoupling a Fire Hose

- Pick up the connection by the female coupling end.
- Turn the connection upright, resting the male coupling on a firm surface.
- Place a knee on the female coupling and press down on it with your body weight. Turn the female swivel counterclockwise and loosen the coupling.



Uncoupling a Hose with Spanner Wrenches

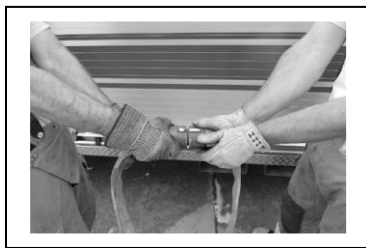
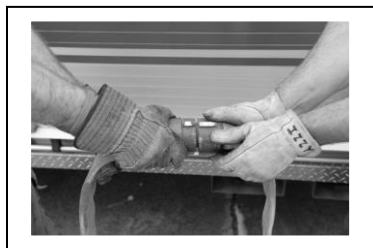
- With the connection on the ground, straddle the connection above the female coupling.
- Place one spanner wrench on the female coupling with the handle of the wrench to the left.
- Place the second spanner wrench on the male coupling with the handle of the wrench to the right.
- Push both spanner handles down toward the ground, loosening the connection.





Two-Fire Fighter Stiff-Arm Method of Uncoupling a Fire Hose

- Two fire fighters face each other and firmly grasp their respective coupling.
- With elbows locked straight, the fire fighters push toward each other.
- While pushing toward each other, the fire fighters turn the coupling counterclockwise, loosening the coupling.



Two-Fire Fighter Method of Coupling a Fire Hose

- The second fire fighter holds the female coupling firmly with both hands.
- The second fire fighter brings the female coupling to the male coupling.
- The second fire fighter aligns the female coupling with the male coupling, using the Higbee indicators for easy alignment.
- The second fire fighter turns the female coupling counterclockwise until it clicks, which indicates that the threads are aligned.
- Turn the female coupling clockwise to couple the hoses.





HOSE TEST PROCEDURE WHEN USING HYDROSTATIC TEST PUMP

The Rice Hydrostatic Test Pump is an electrically-powered hydrostatic pump designed to provide up to 500 psi of pressure.

Danger: The pump shall be operated from a 110-volt A.C., three-wire outlet that has been checked with a receptacle circuit tester and found to be properly wired.

Hooking up the Hydrostatic Test Pump

1. Connect inlet to suitable water supply with 1-1/2 inch or larger hose.
2. Connect fire hoses to be tested to suitable adaptors on manifold outlets. Hose should have nozzles on end to bleed air from lines at full flow.
3. **Connect Directly into a Pedestal Outlet**
Use a short 12 gauge, three-wire grounded electrical extension cord, if needed.
5. ASSURE PUMP IS "OFF."

Operating the Hydrostatic Test Pump

1. Close all ball valves.
2. Open inlet ball valve. Open one outlet ball valve at a time and allow hoses to fill, through manifold. Do not turn pump on at this time. If hose ruptures while filling, IMMEDIATELY close 1-1/2-inch outlet ball valve.
3. Five-inch Hose - Connect one or more lengths of 2-1/2-inch hose from the discharge outlet to a 2-1/2-inch by 4-1/2-inch adapter. Connect the LDH to adapter. A nozzle shutoff shall be connected to the end of the hose utilizing a 4-1/2-inch by 2-1/2-inch reducer.
4. To ensure air is bled from hoses safely, bleed air one outlet at a time with hydrant volume and pressure utilizing either a nozzle or 1/4 turn ball valve on end of line. **THIS IS VERY IMPORTANT!**
5. When each hose is filled and free of air, close ball valve at outlet to seal system. Complete filling and bleeding of all four outlets, bleed them with full hydrant flow. Air must be out of the system.
6. With hoses sealed, open ball valve at back bleed attached to garden hose. This will flush air out of the back of the manifold with hydrant volume and pressure.
7. With back bleed open, **TURN ON PUMP**. No pressure will build until inlet 1-1/2-inch ball valve is closed. Turning on the pump will bleed air from high pressure side of pump - out to the drain.
8. Close 1-1/2-inch ball valve at inlet of manifold, if present.
9. Begin closing 1/2-inch ball valve at back bleed. Watch gauge to see what pressure the relief valve is set at. Adjust to bypass at desired test pressure. Open each outlet ball valve. They will remain open during testing of the desired hose sections. There is a check valve in the high-pressure side of the pump that will allow testing multiple hoses as one test environment with the pump shut off. In the event that a coupling or hose leaks, the pump will have to remain running. If the pump is to remain running, a small amount of water must pass over the head to cool it. In this case, leave the 1/2-inch ball valve at the back bleed open a small amount and adjust the bypass valve to sustain the desired test pressure.
10. Based on the test method chosen in Step 8, the 1/2-inch ball valve will be closed or slightly open.
11. If the air has been bled as outlined, the pump will quickly and safely build to the desired pressure. The pump may be shut off during the test depending on test method chosen in Step 8.



12. If a hose ruptures, the only volume of water available is through a 3 gpm pump. NO SURGE OF VOLUME, NO WILD LINE.
13. It is very important to BLEED the air out of each line, the manifold, and the high-pressure side with as much volume at hydrant pressure as possible. This will ensure the most safety during testing.
14. It is impossible to ensure air is not caught behind couplings. Do not bend over the top of pump. Treat hoses and couplings under test pressure as dangerous; THEY ARE!
15. If any air is caught behind a coupling and the coupling fails, it could cause an explosive type of fragmentary effect. For this reason, the gauge is low and facing the rear, and the pump control is on the back of the unit.
16. To test hose on each outlet as a separate test environment, a gauge must be used on each line, as the line will be isolated from the gauge on the manifold when the outlet 1-1/2-inch ball valve is closed. If the gauges are available and the couplings do not leak, this is faster.
17. At completion of test, release pressure by shutting off water supply and slowly cracking nozzle at end of each line.

Cautions

1. Do not run pump dry.
2. Drain entire system after each use.
3. Protect from freezing in cold climate.

Note: Refer to manufacturer's trouble-shooting guide if pump fails to build pressure.

POSSIBLE CAUSE SOLUTION

Leaks Look for leaks in water supply hose and connection.

Kinked/Collapsed Hose Supply hose may be kinked or collapsed. Keep as short as possible.

Relief Valve Incorrectly Set Reset relief valve – **no higher than 500 psi.**

Pump Sucking Air Small holes in supply hose are hard to find because air is drawn inward.
Replace supply hose.

Air in Fire Hose Ensure air is bled from fire hose tested by using hydrant volume and pressure and bleeding at end of hose with a full flow nozzle.

Air in Pump After turning on pump, ensure air is bled from pump piping by opening 1/2-inch back bleed valve. Close back bleed valve.

Air Lock With pump running, open and close back bleed valve several times to remove air.

Inlet Ball Valve Open 1-1/2-inch ball valve on inlet side may be open. Ball valve must be CLOSED in order to build pressure.

Faulty Gauge Replace gauge.

Worn Seals in Piston Pump Replace with Part No. 3430-0009 (piston stack parts kit). **Note:** Cotter pin on pressure regulator is not to be removed. This is a safety device to protect the pump from excessive pressure and does not allow the user to set the pressure regulator above 500 psi. Pressure regulator is set at 300 psi at the factory.



Test-Procedure

Prior to testing, each section of hose shall be subjected to a physical inspection to determine whether it is free of debris, and damage from chemicals, burns, cuts, and abrasion. Any section of hose that fails the physical inspection shall immediately be placed out of service.

Hose shall be tested by using the CFA hose tester. The test area shall be relatively flat and free of any objects that might damage the hose.

- 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 of the hose with the tester behind you.
- When 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 (facing the free end) walk closer than 15 feet to the left side of the hoseline (facing the free end of the hose).

The service test for hose of less than five inches in diameter shall be conducted as follows:

- Connect the hose to a discharge.
 - The total length of any hose-line in the test layout shall not exceed 300 feet, except for LDH.
 - Hose that has been repaired or re-coupled shall be tested one section at a time.
 - Hose-lines shall be straight and without kinks.
- Connect a nozzle or shutoff device to the end of the hose.
 - The appliance should be secured to prevent an uncontrolled reaction in the event of a hose rupture.
- Slowly fill the hose-line to be tested with water and bleed off all air by lifting the nozzle above the height of the hose test and open until water is flowing.
- Close the nozzle and increase the pressure to 45-50 psi.
 - Check for leakage.
 - Tighten couplings as necessary, replace gasket when necessary.
 - If leaks are found, remove the hose from service if the leak is behind the couplings.
- Mark the location of the couplings with a suitable marker.
 - Diameter around coupling (separation).
 - Line across coupling and hose (spin).
- Clear the area and increase the pressure slowly until the required pressure.
 - Hose manufactured after July 1987 shall be tested to the pressure marked on the hose jacket.
 - Hose manufactured prior to July 1987, 300 psi for a service test or 400 psi for an acceptance test.
- Hold for five minutes.
 - Inspect for leaks or damage.
- Bleed off pressure.
- Record the test date, etc., on the permanent hose record.
- Hose that fails the test by bursting or leaking or because of coupling failure due to slippage or leakage shall be tagged and placed out of service.
- After the test, if needed, all hose shall be cleaned, drained, and dried before being placed in service or storage.

Consult NFPA 1962, *Standard for the Care, Use, and Service Testing of Fire Hose Including Couplings and Nozzles*, if you have any questions about this.



Replacing a Defective Hose Section

- Shut down or clamp off the damaged line.
- Remove the damaged section of the hose.
- Replace the damaged section with two new sections to ensure that the hose's length will be adequate. Restore the water flow.
- Restore the water flow.

Adding a Length of Hose

- Selects hose to be added to line and places it in position
- Opens gated wye or nozzle slightly
- Applies hose clamp or shuts off water at source
- Adds additional length of hose by using foot tilt, knee-press method
- Removes clamp slowly or turns water on at source

Controlling an Unattended Opened Nozzle

- Firefighter controls crowd/bystander/firefighters
- Assigns firefighter to close water supply
- Approaches bursted hose line from water supplied end
- Crawls over / with hose line between legs controlling hose line with hands
- Closes Bail of Nozzle