

## **Wet Barrel Fire Hydrants Operation and Maintenance**

### **Inspection Prior To Installation**

Hydrants should be inspected at time of delivery for damage in shipment and re-inspected just prior to installation. Initial inspection should verify compliance with specification: Direction to open, size and shape of operating nut, depth of bury, size and type of inlet connection, outlet nozzle sizes and configuration, and thread dimensions. All bolts and nuts should be checked for proper tightness after shipping, and prior to installation.

After inspection is performed, hydrant valves are to be placed in closed position and outlet nozzle caps screwed in place so as to protect the units from foreign matter prior to installation. Hydrants are to be stored away from weather elements whenever possible.

### **Installation**

Proper installation pays dividends in reduced cost of maintenance. The following few simple procedures are recommended:

Position hydrants away from the curb line a sufficient distance to avoid damage from or to overhanging vehicles. A setback of two feet from curb line to outlet nozzle facing the street is recommended. The pumper outlet nozzle should face the street. Make sure that the outlet nozzles are high enough above the ground line for hose attachment and that there are no obstructions to prevent operation.

Always install an auxiliary valve between hydrant and its supply main to permit isolation of the hydrant for maintenance purposes. Remove foreign matter from hydrant lateral before installing.

In setting a hydrant it is recommended that a firm footing be used, such as stone slabs or concrete base on firm ground, to prevent settling and strain on the lateral line joints. Provision should also be made to anchor the hydrant on the end its lateral by strapping, blocking or an approved restraining type of joint. A simple effective method is to wedge a stone slab or concrete block between firm ground and the back of the hydrant shoe or elbow. Check hydrant and auxiliary valve for perpendicular setting.

After installation and before filling, apply a pressure test to both the hydrant seat and barrel to make sure that all joints are pressure tight, operate to full open position and close to check operation. After back filling, operate the hydrant to flush out foreign material.

Tighten nozzle caps and back off on threads slightly so that the caps will not be excessively tight, but leave sufficient frictional resistance to prevent removal by hand.

For appearance of unit, after handling in installation, the portion of the hydrant above ground should receive a field coat of the preferred paint of the city or utility.

**Inspection and Maintenance Program**

Regularly scheduled inspection of hydrants is necessary to insure that they are in satisfactory condition for their intended use.

Each hydrant should be inspected at least twice a year.

Inspection and regular maintenance should be carried out concurrently if possible. This will avoid duplication of effort and reduce costs.

**Inspection & Maintenance Procedure**

The following are a list of recommended inspection and maintenance items:

Remove outlet nozzle caps and check for seat leakage visually at each valve on wet barrel hydrants.

Wet barrel hydrants require that each valve be so operated using a special test outlet nozzle cap. If stem action is tight, repeat operation several times until opening and closing action is smooth and free.

\*NOTE: Water conditions may be such as to cause 'hard water build-up' on stem threads. The above procedure usually is sufficient to remove this build-up by cleaning the threads through a series of opening and closing operations. If hard operation persists, remove valve stem, clean threads with wire brush and lubricate.

While under pressure check for leakage at joints, around outlet nozzles, at packing or seals and past outlet nozzle caps.

If leakage is observed, tighten outlet nozzles, replace o-rings or gaskets. If leakage cannot be corrected with the tools at hand, record the nature of the leakage for prompt attention by those responsible for repairs.

Remove nozzle cap and attach a section of hose if necessary to direct flow into the street. Open the hydrant and flush to remove foreign material from the interior and lateral piping.

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Remove all nozzle caps and inspect for thread damage from impact or cross threading. Clean and lubricate outlet nozzle threads and use caps to check for easy operation of threads.

Check nozzle cap chains for free action on each cap. If binding is observed, open the loop around the cap until the action is free enough to prevent kinking during removal of the cap under emergency conditions.

Replace caps, tighten with a spanner wrench, then back off on threads slightly so that the caps will not be excessively tight, but leave sufficient frictional resistance to prevent removal by hand.

Check for any exterior obstruction which may interfere with hydrant use in fire emergency.

Clean the exterior of the hydrant and repaint if deemed necessary.

Be sure auxiliary valve is in the wide open position.

If a hydrant is inoperable, tag it with a clearly visible marking to prevent loss of time by fire fighting crews if any emergency occurs before the hydrant is repaired. Report this condition to the fire department at once.

### **Repairs**

Any condition that cannot be corrected during the regular inspection should be recorded and reported for subsequent action by repair crews. Leakage, broken parts, hard operation, corrosion, and other major defects shall be corrected by a crew as soon as possible after the defect is reported.

If repairs are to be performed in the field, it is recommended that the repair crew take to the job site a full complement of spare parts.

Close the auxiliary valve ahead of the hydrant or otherwise make provisions to cut off flow and pressure to the hydrant.

Disassemble the hydrant. Replace damaged parts and also parts which indicate wear, corrosion, or show signs of incipient failure. Always replace gaskets, packing and seals.

Reassemble the hydrant and open the auxiliary valve or otherwise apply pressure. Test the seats for leakage.

Record the fact that the hydrant has been repaired and is in operable condition. Remove any marking indicating that the hydrant is inoperable, and notify the fire department that the hydrant has been repaired.

Be sure the auxiliary valve is in the full open position before leaving the location.

### **Records**

In order to carry out a meaningful inspection and maintenance program, it is essential that each hydrant be recorded as to location make, type, size, and date of installation. Other information may be entered depending upon the nature of the record keeping used.

When a hydrant is inspected, any entry should be made in the record indicating date of inspection and condition. If repair work is necessary, it should be indicated, and upon completion, the nature of the repairs and date should be recorded.

### **Disassembly and Reassembly**

Prior to any disassembly, shut gate valve or otherwise isolate hydrant from water source.

Open hydrant stem until valve rubber is completely disengaged.

Using appropriate wrench, loosen and remove outlet and gasket or o-ring.

Stem/disc assembly may now be screwed out of the body through the outlet port.

Remove cotter pin from stem/disc assembly and remove nut, retainer, valve rubber and carrier from stem (carrier to stem is an o-ring fit).

Inspect parts, especially o-rings or gaskets.

Secure necessary new parts. Clean all o-ring or gasket surfaces. Lubricate o-rings to facilitate ease of reassembly and use caution in order to not cut or otherwise damage o-rings during reassembly. Reassemble in reverse order from above procedures. It is advisable to use new valve rubber, cotter pin, o-rings and gaskets during reassembly to save on future maintenance problems.

Leave top outlet valve slightly open in order to bleed the air out of hydrant when water pressure is restored. When air has been bled out, close outlet valve and check for leaks.