

## Fire Hydrants for Dummies "Hydrants from a Dummy"



Instructor: Andy Kohler  
10/17/18

## Topics of Discussion

- Installation
- Operation
- Maintenance
- Troubleshooting Problems
- Application

## Inspection of Material

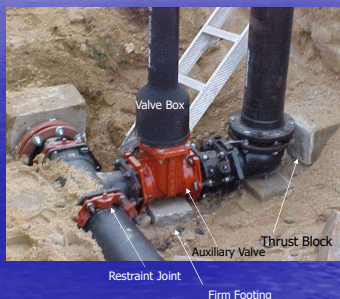
- At time of delivery
- Specifications
- Size and shape of operating nut
- Direction of opening
- Depth of bury
- Size and type of inlet connection
- Size of main valve

## More Inspection

- Nozzle sizes and configuration/Thread size
- Pressure bolting/Can loosen during shipping. Especially with SS N/B
  - Manufactured in Iowa, shipped by truck across country.
- Hydrants are made by humans
- Specs are written by humans
  - Mistakes can be made once in a while
  - Customer service and specific instructions are vital.

## Installation

- Auxiliary valve
  - Valve controlling flow from main line.
- Provide Thrust Block
  - Hard surface to stabilize shoe.
- Backfill with Gravel



## Proper Installation

- Proper thrust blocking should be in place.
  - This allows water to flow without any shifting of the piping.
- Hydrants should be 18" minimum from nozzles to ground.
  - Wrench must be able to move freely.



\* Note the lack of proper thrust blocking around the shoe.

## Improper Installation

- Without proper blocking and back fill, many problems can occur.
  - Shifting in the line.
  - Cracking in the line.
  - Extra strain placed on connections.
    - Fractured end connections.



## Proper Installation can Help Prevent Possible Damages from Automobiles.

- Hydrants should be a minimum of 2' off the face of the curb.
  - Allows for overcorrections from cars.
  - Ease of access for Firefighters.

Install Hydrant Guard Posts



## Improper Installation

- Depth of bury is very important.



## Extensions



## Test for Drainage

- Following the pressure test, close the hydrant main valve
- Remove the outlet nozzle cap and place the palm of the hand over the outlet nozzle opening
- Drainage should be sufficiently rapid to create a noticeable suction

## Maintenance

- Inspected regularly
- Fall and Spring Inspections
- Inspect after each use
- Check hydrants appearance
- Check hydrant to see if it needs to be raised
- Check for valve leakage





## Maintenance

- Check nozzle caps
- Lubricate threads and caps
- Check chains for free action
  - Protects against pressure blowing off the cap.
- Check for lubrication of operating nut threads
  - Allows for prolonged ease of use.

## Maintenance

- Open hydrant fully
- Check for leakage around flanges and seals
- As you begin to close the hydrant, the drain holes will be exposed
- Close hydrant completely, back off operating nut to take pressure off thrust bearing and packing



## The Problems with Over Torqueing.

- Over torqueing can:
  - Break the Coupling
  - Strip the threads in the Op Nut
  - Bend the Upper Stem
  - Crack the shoe
- DO NOT over torque in the open position!!
- Actually, either position.
- Upper Valve plate can break
- Stem can bend/twist.



Whew!! I need that cheater bar!!

## Maintenance

- Record Keeping
- Location
- Manufacturer [Model]
- Date of installation
- Forms are available



## Fire Hydrant Troubleshooting

Problem...Pulsation or chatter during operation

Cause Loose condition in stem at lower valve plate  
Repair Tighten lower valve plate

Cause Loose condition in stem caused by more than one extension being used  
Repair Replace extensions with single unit

Cause Excessively loose safety coupling from over tightening or open and close cycles  
Repair Replace safety coupling and pins



## Troubleshooting

- Problem....leakage into the upper barrel when hydrant is closed

Cause Damaged main valve  
Repair Replace main valve seat

Cause Incorrect extension stem  
Repair Replace with correct length stem



## Troubleshooting

- Problem.....Hydrant is open but will not close

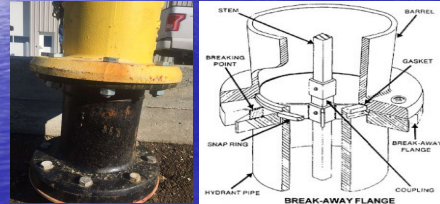
Repair Safety coupling is broken or loose. Remove bonnet and upper barrel and replace coupling.



## Troubleshooting

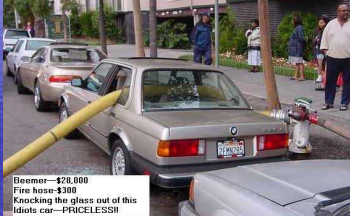
- Problem....Hydrant won't close after extension added

Repair Inspect for proper placement of extension and safety coupling. Relocate to correct position



## In relation to the street, what direction should the pumper nozzle be pointed?

- The pumper should always be pointed toward the street so that the firefighter(s) can connect to the pumper truck.



## Why is the speed at which hydrants are operated important?

- Hydrants should be opened and closed slowly in order to prevent pressure surges (water hammer) in the mains



## Let's Ask Questions

- Andy Kohler
- [Andy.kohler@clowvalve.com](mailto:Andy.kohler@clowvalve.com)
- 641-295-1345