



Operating Instructions for

MUELLER® SUPER CENTURION® FIRE HYDRANT



MAIN OFFICE and PLANT

500 West Eldorado Street

Decatur, Illinois 62522

www.muellercompany.com

! WARNING

Before removing any bolts(s) holding the hydrant together, shut off gate valve to isolate hydrant from main water source. Loosen (do not remove) one nozzle cap two turns and check for water under pressure inside hydrant - bleed off any pressure, then remove nozzle cap completely. Open hydrant main valve completely. A continuous flow of water, no matter how slight, indicates hydrant is not properly isolated from the main water supply, and that problem must be corrected before any hydrant disassembly can proceed. Disassembly of hydrant with pressurized water acting against the main valve could result in unexpected ejection of hydrant parts, debris or high-pressure water stream, which could cause serious bodily injury.

MUELLER® SUPER CENTURION® FIRE HYDRANT

Inspection and Maintenance

Beginning with the 1997 date codes, there are two styles of Super Centurion Fire Hydrants:

- 1) the Super Centurion 250™ Hydrant and
- 2) the Super Centurion 200™ Hydrant.

This manual applies to all Mueller Super Centurion Fire Hydrants with date codes 1997 or later. However, the 250 psig rated 3-way Hydrant, which has O-ring Seals at the Bonnet and Ground Line Flanges, is shown in all illustrations and O-rings are referred to in the instructions. When working on a 2-way or 1-way Hydrant, which is rated at 200 psig, the foregoing references to O-rings should be understood to mean the flat gaskets that are standard with 2-way and 1-way Hydrants.

NOTE: HYDRANTS MADE PRIOR TO 1997 WILL CONTINUE TO USE FLAT GASKETS WHEN REPLACING THESE GASKETS AT THE BONNET AND SAFETY FLANGES.

All Hydrants produced in 1997 and after have a stainless steel Safety Coupling, Reversible Main Valve (patent pending) and two Shoe Bolts used to retain the Drain Ring Housing.

The 1997 style stainless steel Safety Coupling is compatible with the Hydrants made prior to 1997.

Non-reversible Main Valves for pre-1997 Hydrants are available. To retrofit such a Hydrant with the 1997 style Reversible Main Valve, both the Main Valve and the Lower Valve Plate must be changed to the 1997 style part.

For Hydrants made prior to 1997, see the operating instructions for the Centurion® Fire Hydrant (Form 10492).

Inspection

To ensure their readiness for instantaneous use, it is recommended that Fire Hydrants be inspected and tested at six-month intervals.

Inspect visually for damaged or missing parts.

Loosen one Nozzle Cap slightly and tighten the others. Open Hydrant fully. Tighten loose Nozzle Cap when water starts to flow. Remove Oil Filler Plug to check oil level. If oil level is low, fill as shown on page 3. Check all flange connections for leaks. Turn Operating Nut to fully CLOSED position.

If water or oil overflowed from Oil Filler Hole, remove Bonnet and replace O-rings in both the Bonnet and the Hold Down Nut. Inspect and clean Stem, and replace it if corroded or pitted. Check oil level. Replace Bonnet and test for leaks.

Use A-367 Brass Sleeve when removing or replacing Bonnet or Hydrant Barrel to protect stem O-rings.

Remove one Nozzle Cap, stand on the side of Hydrant opposite the cap removed, open Hydrant fully, and flush Barrel and Hydrant Lateral. Turn Operating Nut to fully CLOSED position.

Remove all Nozzle Caps. Clean and lubricate threads.

Examine inside of Barrel to make certain Drain Valves have completely drained water from Barrel. If water fails to drain from Barrel, it may be caused by one or more of the following conditions:

1. Water Table in ground is higher than drains.
2. When Hydrant was installed, coarse gravel was not placed around Drains, in locations where ground has a make up such that it will not absorb water.
3. Drains are stopped by some foreign material.
4. Failure to leave Cap off of Hydrant to allow air to enter so Barrel will drain.

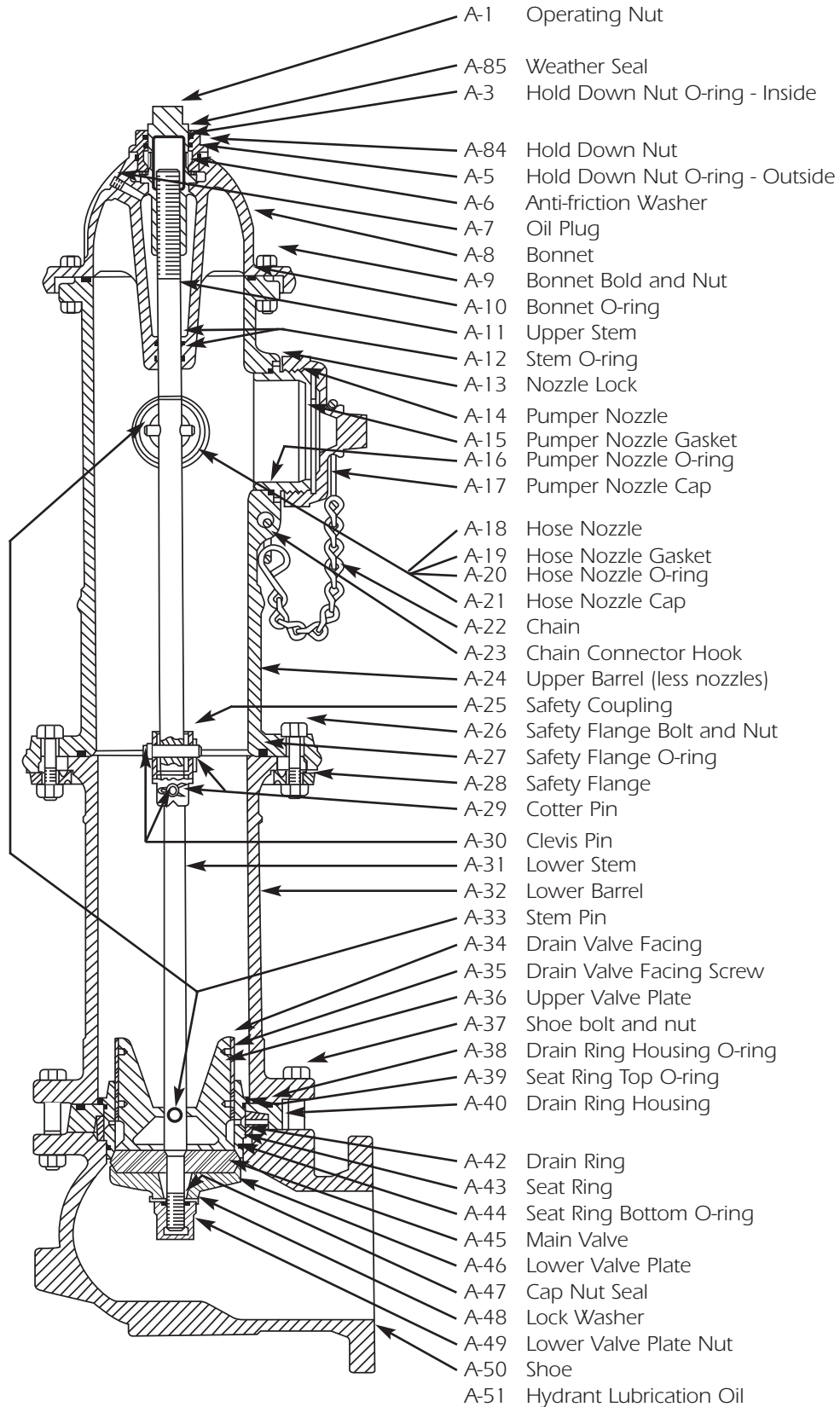
The foregoing procedure introduces full line pressure to Drain Valves. It provides the best method for cleaning Drain Valves using water pressure.

IMPORTANT - Initial installation of Hydrant MUST BE MADE PROPERLY so Safety Flange will function properly. Hydrant should be blocked at ground line and around Shoe using concrete or similar substance to prevent ground from giving way when Hydrant is struck.

For additional information on Hydrant anchorage, blocking, and drainage, see AWWA Standard C600 and Manual M17.

MUELLER® SUPER CENTURION® FIRE HYDRANT

Parts



MUELLER® SUPER CENTURION® FIRE HYDRANT

Filling Oil Reservoir

CAUTION: Always fill the oil reservoir with the bonnet installed, the hydrant in its normal upright position, and the main valve fully closed. If the hydrant is filled with lubricant under any other circumstances, excess lubricant can overflow the Bonnet and create a pressure lock. This could result in damage to the seals or Bonnet or prevent proper hydrant operation.



1. Remove Oil Filler Plug and check oil level. Oil should be level with Oil Filler Plug Hole.



2. If oil is low, use a small funnel to add MUELLER Hydrant Lubricant



3. When oil is level with Oil Filler Plug Hole, replace Oil Filler Plug.

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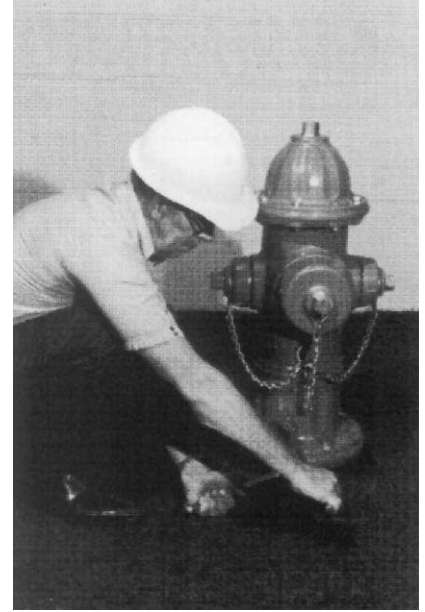
Facing of Hose Nozzles



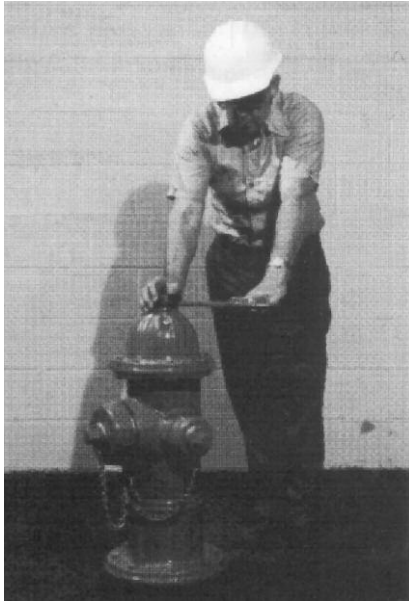
1. Loosen Nuts on Safety Flange Bolts.



3. Rotate Upper Barrel section as desired.



5. Tighten Safety Flange Bolts.



2. Turn Operating Nut slightly in the opening direction to relieve compression between Barrel sections.

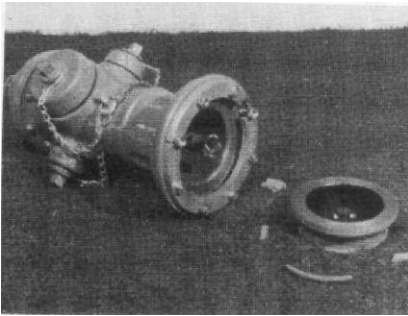


4. Tighten Operating Nut, turning in closing direction.

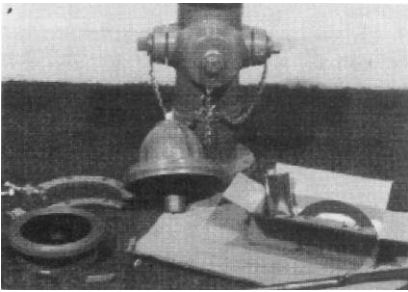
6. Turn Operating Nut in closing direction to make sure Main Valve is closed tightly, then turn in opening direction approximately 1/4 turn to relieve tension on operating mechanism.

MUELLER® SUPER CENTURION® FIRE HYDRANT

Replacing Safety Stem Flange and Safety Stem Coupling



1. Mueller Hydrant with Upper Barrel knocked over by truck. Note broken pieces of Safety Flange lying on ground.

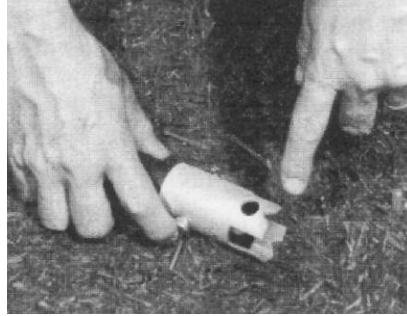


2. Remove stainless steel Cotter Pin from stainless steel Clevis Pin. Remove Clevis Pin and Safety Coupling from Upper Stem. Unbolt and remove broken Safety Flange from Upper Barrel. Remove Hold Down Nut, Anti-Friction Washer, and Operating Nut from Bonnet. Lubricate Brass Sleeve and slide over threaded Stem end to prevent O-ring damage. Unbolt Bonnet from Upper Barrel. Slide Upper Stem out of Bonnet and remove Brass Sleeve.



3. Remove stainless steel Cotter Pin from stainless steel Clevis Pin in Lower Stem (throw away the old Clevis Pin and Cotter Pin).

CAUTION: ALWAYS FILL THE OIL RESERVOIR WITH THE BONNET INSTALLED, THE HYDRANT IN ITS NORMAL UPRIGHT POSITION, AND THE MAIN VALVE FULLY CLOSED. IF THE HYDRANT IS FILLED WITH LUBRICANT UNDER ANY OTHER CIRCUMSTANCES, EXCESS LUBRICANT CAN OVERFILL THE BONNET AND CREATE A PRESSURE LOCK. THIS COULD RESULT IN DAMAGE TO THE SEALS OR BONNET, OR PREVENT PROPER HYDRANT OPERATION.



4. Assemble new Safety Stem Coupling to Upper Stem with new stainless steel Clevis Pin and new stainless steel Cotter Pin. Safety Stem Coupling should be installed with notches towards the Lower Stem.

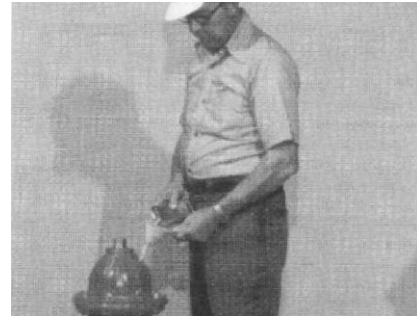
NOTE: "THIS END UP" STAMPED ON COUPLING.



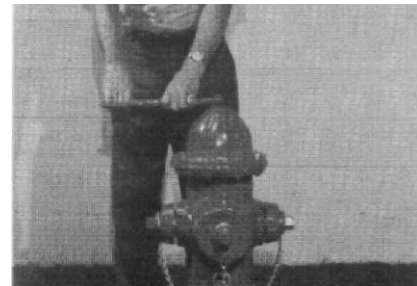
5. Assemble Upper Stem and new Safety Stem Coupling onto Lower Stem and retain it with the new stainless steel Clevis Pin and new stainless steel Cotter Pin furnished with Safety Stem Coupling.



6. Install O-ring** in groove in Ground Line Flange of Upper Barrel and place Upper Barrel carefully in position on Lower Barrel. Be sure that Upper Barrel is concentric with Lower Barrel. Bolt the two halves of Safety Flange into place (with bevel on outer edge downward) and with Safety Flange snugly fitting around Lower Barrel.



7. Check Bonnet O-ring** for proper position and condition. Attach Brass Sleeve to Upper Stem and lubricate outside to protect O-ring Seals from thread damage. Place Bonnet onto Upper Barrel and assemble Bonnet Bolts only hand-tight. Remove Brass Sleeve. Reassemble Operating Nut, Anti-Friction Washer, and Hold Down Nut*. Be sure O-ring Seals are in good condition at thread shoulder on outside of Hold Down Nut and on in side where contact is made with Operating Nut. Remove Oil Filler Plug in side of Bonnet. Pour MUELLER Hydrant Lubricant into Oil Reservoir until it is level with the Oil Filler Hole. Replace Oil Filler Plug.



8. Tighten Bonnet Bolts. Unscrew one Hose Nozzle Cap slightly to bleed air. Open Hydrant fully. Tighten the Hose Nozzle Cap when water starts flowing and check all flange connections for leaks. Turn Operating Nut to fully closed position and remove Hose Nozzle Cap to allow Barrel to drain. Replace Hose Nozzle Cap.

9. Turn Operating Nut in closing direction to make sure Main Valve is closed tightly, then turn in opening direction approximately 1/4 turn to relieve tension on operating mechanism.

*TIGHTEN HOLD DOWN NUT TO 200-300 FT-LBS OF TORQUE. IF TORQUE WRENCH IS NOT AVAILABLE, USE A 3 LB HAMMER TO STRIKE THE END OF THE A-311 WRENCH FIRMLY TWO TIMES TO ASSURE THE NUT IS PROPERLY TIGHTENED.

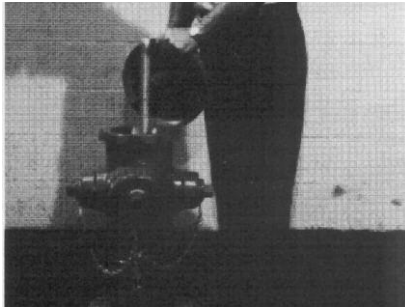
**TO DETERMINE CORRECT O-RINGS FOR BONNET AND GROUND LINE FLANGES, WHICH ARE SIMILAR IN APPEARANCE: SMALLER DIAMETER O-RING IS USED AT BONNET FLANGE; LARGER AT GROUND LINE FLANGE.

MUELLER® SUPER CENTURION® FIRE HYDRANT

Removing Main Valve From Bonnet Flange

! WARNING

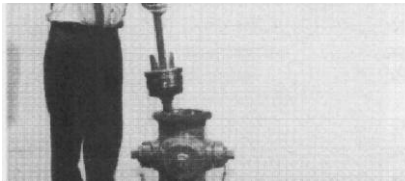
Before removing any bolt(s) holding the hydrant together, shut off gate valve to isolate hydrant from main water source. Loosen (do not remove) one nozzle cap two turns and check for water under pressure inside hydrant – bleed off any pressure, then remove nozzle cap completely. Open hydrant main valve completely. A continuous flow of water, no matter how slight, indicates hydrant is not properly isolated from the main water supply, and that problem must be corrected before any hydrant disassembly can proceed. Disassembly of hydrant with pressurized water acting against the main valve could result in unexpected ejection of hydrant parts, debris or high-pressure water stream, which could cause serious bodily injury.



1. Remove Hold Down Nut, Operating Nut, and Anti-Friction Washer from Bonnet. Lubricate Brass Sleeve and slide over threaded stem to prevent O-ring damage. Unbolt and remove Bonnet. Remove Brass Sleeve.



2. Slide slotted end of Wrench over top of Stem and engage the slot with Pin in Upper Stem. Thread Operating Nut onto stem and tighten against wrench to hold it securely. Lower support arm onto top flange of the Upper Barrel and tighten Thumb Screw to hold the Main Valve in the closed position. Shut off water at the Gate Valve. Remove Main Valve Assembly by turning Seat Wrench counter-clockwise.



3. Lift out Wrench, Lower Stem, Main Valve Assembly and Seat Ring from Hydrant Barrel as a unit.

CAUTION: ALWAYS FILL THE OIL RESERVOIR WITH THE BONNET INSTALLED, THE HYDRANT IN ITS NORMAL UPRIGHT POSITION, AND THE MAIN VALVE FULLY CLOSED. IF THE HYDRANT IS FILLED WITH LUBRICANT UNDER ANY OTHER CIRCUMSTANCES, EXCESS LUBRICANT CAN OVERFILL THE BONNET AND CREATE A PRESSURE LOCK. THIS COULD RESULT IN DAMAGE TO THE SEALS OR BONNET, OR PREVENT PROPER HYDRANT OPERATION.



4. Straighten stainless steel Lock Washer, unscrew Cap Nut and remove Washer, Stem Seal, Lower Valve Plate, Main Valve and Seat Ring. Clean, inspect and replace any damaged parts. (Main Valve can be reversed to provide new seal.) Replace Drain Ring Facings. Inspect and lubricate Top and Bottom Seat Ring O-rings (replace if necessary). Lubricate all threaded surfaces and reassemble.



5. With Cap Nut tightened to 100 ft-lbs on 5 1/4" Hydrant or 75 ft-lbs on 4 1/2" Hydrant, bend edges of stainless steel Lock Washer over one flat on the Lower Valve Plate and one flat on the Cap Nut.



6. Lower Main Valve, turn Seat Wrench clockwise, and carefully thread Main Valve and Seat Ring into the base of the Hydrant hand-tight. Raise the Main Valve leaving about 1/2" of play between the Main Valve and Seat. Lower Support Arm and tighten Thumb Screw.



7. Turn Seat Wrench clockwise to tighten Main Valve to 200 ft-lbs. Turn on water at the Gate Valve and remove Seat Wrench by removing operating nut.



8. Check Bonnet O-ring for proper position and condition. Attach Brass Sleeve to Upper Stem and lubricate outside to protect O-ring Seals from thread damage. Place Bonnet onto Upper Barrel and assemble Bonnet Bolts only hand-tight. Remove Brass Sleeve. Reassemble Operating Nut, Anti-Friction Washer, and Hold Down Nut*. Be sure O-ring Seals are in good condition at thread shoulder on outside of Hold Down Nut and on inside where contact is made with Operating Nut. Remove Oil Filler Plug in side of Bonnet. Pour MUELLER Hydrant Lubricant into Oil Reservoir until it is level with the Oil Filler Hole. Replace Oil Filler Plug.



9. Tighten Bonnet Bolts. Unscrew one Hose Nozzle Cap slightly to bleed air. Open hydrant fully. Tighten the Hose Nozzle Cap when water starts flowing and check all flange connections for leaks. Turn Operating Nut to fully closed position and remove Hose Nozzle Cap to allow Barrel to drain. Replace Nozzle Cap.

10. Turn Operating Nut in closing direction to make sure Main Valve is closed tightly, then turn in opening direction approximately 1/4 turn to relieve tension on operating mechanism.

***TIGHTEN HOLD DOWN NUT TO 200-300 FT-LBS OF TORQUE. IF TORQUE WRENCH IS NOT AVAILABLE, USE A 3 LB HAMMER TO STRIKE THE END OF THE A-311 WRENCH FIRMLY TWO TIMES TO ASSURE THE NUT IS PROPERLY TIGHTENED.**

MUELLER® SUPER CENTURION® FIRE HYDRANT

Remove Main Valve from Lower Barrel Flange

! WARNING

Before removing any bolt(s) holding the hydrant together, shut off gate valve to isolate hydrant from main water source. Loosen (do not remove) one nozzle cap two turns and check for water under pressure inside hydrant – bleed off any pressure, then remove nozzle cap completely. Open hydrant main valve completely. A continuous flow of water, no matter how slight, indicates hydrant is not properly isolated from the main water supply, and that problem must be corrected before any hydrant disassembly can proceed. Disassembly of hydrant with pressurized water acting against the main valve could result in unexpected ejection of hydrant parts, debris or high-pressure water stream, which could cause serious bodily injury.



1. Remove Hold Down Nut, Anti-Friction Washer, and Operating Nut from Bonnet. Lubricate Brass Sleeve and slide over threaded stem end to prevent O-ring damage. Unbolt and remove Bonnet. Remove Safety Flange Bolts and Safety Flange. Remove Upper Barrel. Remove Upper Stem and Stem Coupling from Lower Stem. Slide slotted end of Wrench over Lower Stem. Align holes in Wrench and Stem and attach Wrench to Stem with Clevis Pin. Lower Support Arm onto the Flange of Lower Barrel and tighten Thumb Screw (to hold Main Valve in closed position). Shut off water at Gate Valve.



2. Remove Main Valve Assembly by turning Wrench counter-clockwise and lift out Wrench, Lower Stem, Main Valve Assembly and Seat Ring from Hydrant Barrel as a unit.



3. Straighten stainless steel Lock Washer, unscrew Cap Nut and remove Washer, Stem Seal, Lower Valve Plate, Main Valve and Seat Ring. Clean, inspect and replace any damaged parts. (Main Valve can be reversed to provide new seal.) Replace Drain Valve Facings. Inspect and lubricate Top and Bottom Seat Ring O-rings (replace if necessary). Lubricate all threaded surfaces and reassemble. With Cap Nut tightened to 100 ft-lbs on 5 1/4" Hydrant, or 75 ft-lbs on 4 1/2" Hydrant, bend edges on stainless steel Lock Washer over one flat on the Lower Valve Plate and one flat on the Cap Nut.



4. Lower Main Valve Assembly and carefully thread Seat Ring into the base of the Hydrant hand-tight. Raise the Main Valve leaving about 1/2" of play between the Main Valve and Seat. Lower Support Arm onto Flange of Lower Barrel and tighten Thumb Screw.



5. Tighten Main Valve to 200 ft-lbs. Turn on water at the Gate Valve and remove Wrench from Stem by removing Clevis Pin.

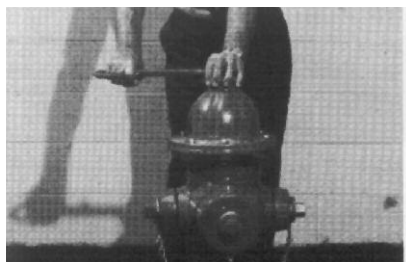


6. Reassemble Upper Stem to Lower Stem. Place Upper Barrel in place and reassemble Safety Flange.**

CAUTION: Always fill the oil reservoir with the bonnet installed, the hydrant in its normal upright position, and the main valve fully closed. If the hydrant is filled with lubricant under any other circumstances, excess lubricant can overflow the bonnet and create a pressure lock. This could result in damage to the seals or bonnet, or prevent proper hydrant operation.



7. Check Bonnet O-ring** for proper position and condition. Attach the Brass Sleeve to Upper Stem and lubricate outside to protect O-ring Seals from thread damage. Place Bonnet onto Upper Barrel and assemble Bonnet Bolts only hand-tight. Remove Brass Sleeve. Reassemble Operating Nut, Anti-Friction Washer, and Hold Down Nut*. Be sure O-ring Seals are in good condition at thread shoulder on outside of Hold Down Nut and on inside where contact is made with Operating Nut. Remove Oil Filler Plug in side of Bonnet. Pour MUELLER Hydrant Lubricant into Oil Reservoir until it is level with Oil Filler Plug Hole. Replace Oil Filler Plug.



8. Tighten Bonnet Bolts. Unscrew one Hose Nozzle Cap slightly to bleed air. Open Hydrant fully. Tighten the Hose Nozzle Cap when water starts flowing and check all flange connections for leaks. Turn Operating Nut to fully closed position and remove Hose Nozzle Cap to allow Barrel to drain. Replace Nozzle Cap.

9. Turn Operating Nut in closing direction to make sure Main Valve is closed tightly, then turn in opening direction approximately 1/4 turn to relieve tension on operating mechanism.

*TIGHTEN HOLD DOWN NUT TO 200-300 FT-LBS OF TORQUE. IF TORQUE WRENCH IS NOT AVAILABLE, USE A 3 LB HAMMER TO STRIKE THE END OF THE A-311 WRENCH FIRMLY TWO TIMES TO ASSURE THE NUT IS PROPERLY TIGHTENED.

**TO DETERMINE CORRECT O-RINGS FOR BONNET AND GROUND LINE FLANGES, WHICH ARE SIMILAR IN APPEARANCE: SMALLER DIAMETER O-RING IS USED AT BONNET FLANGE; LARGER AT GROUND LINE FLANGE.

MUELLER® SUPER CENTURION® FIRE HYDRANT

To Replace Nozzles



1. Remove Nozzle Cap.



2. Remove stainless steel Nozzle Lock by driving it out with a pointed tool and hammer.



3. Place Nozzle Wrench, A-316, on Nozzle with Wrench Forks facing toward Hydrant Barrel and locked onto Nozzle Drive Lugs. Replace Nozzle Cap and tighten until Cap rests loosely against backside of Wrench.



4. Remove Nozzle. The Nozzle Wrench may be struck with a heavy brass hammer or additional leverage may be obtained by placing a length of 2" schedule 40 steel pipe over the handle of the Nozzle Wrench.



5. Thread new Nozzle into Upper Barrel, attach A-316 Nozzle Wrench as described in Step 3, and tighten Nozzle to approximately 600 ft-lbs torque (100 lbs. pull on a 6' lever).



6. Remove Nozzle Cap and A-316 Nozzle Wrench. Place the Nozzle Lock (Part 143137), lengthwise in the slot formed by either of the Nozzle Drive Lugs and the Barrel Bore. Drive the Nozzle Lock in place by striking the Nozzle Lock Installation Tool (Part 143132) several times with a heavy brass hammer.

NOTE: Wear safety glasses when using a striking tool. The Nozzle Lock does not have to be completely seated into the slot, but it should be well engaged along the entire length of the Nozzle Drive Lug and Barrel Bore.



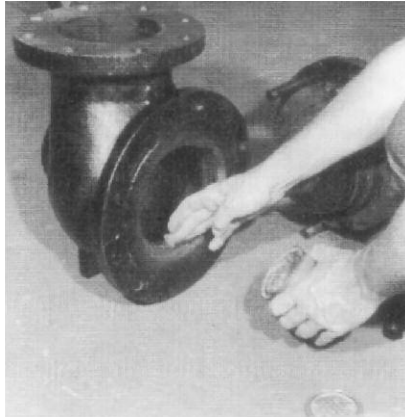
7. Replace and tighten Nozzle Cap.

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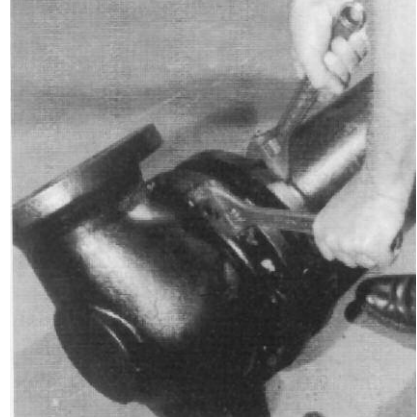
Changing Shoe



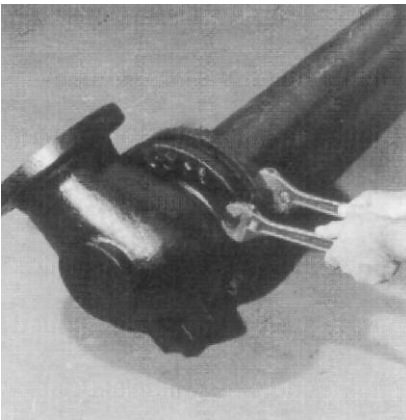
1. Tighten Operating Nut to be sure Main Valve is in the fully closed position.



4. Lubricate new Shoe and Bottom Seat Ring O-ring.



7. Replace Shoe Bolt Nuts. Tighten to approximately 1800 in-lbs.



2. Remove all 6 Shoe Bolt Nuts.



5. Position Shoe to slip in place.



3. Slip off Hydrant Shoe.



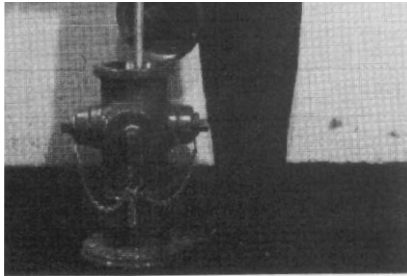
6. Slip new Shoe in place being careful not to damage Bottom Seat Ring O-ring.

MUELLER® SUPER CENTURION® FIRE HYDRANT

Inserting Extension Section

! WARNING

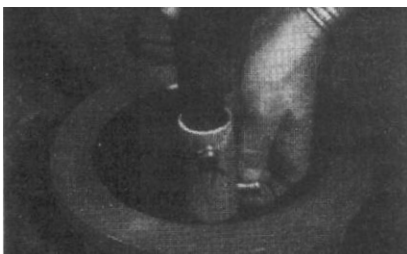
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1. Remove Hold Down Nut, Anti-Friction Washer and Operating Nut from Bonnet. Lubricate outside of Brass Sleeve and slide over threaded stem end to prevent O-ring damage. Unbolt Bonnet from Upper Barrel and remove. Remove Brass Sleeve.

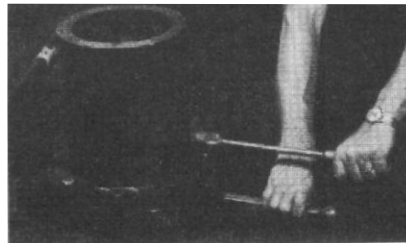


2. Unbolt Safety Flange. Remove Upper Barrel. Remove Upper Stem and Safety Stem Coupling by removing the lower stainless steel Cotter Pin and stainless steel Clevis Pin.

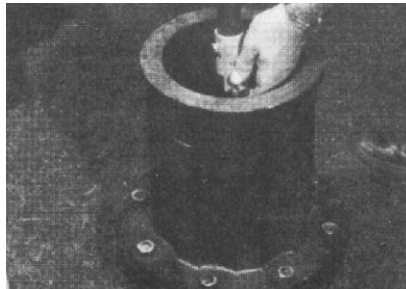


3. Place Extension Stem and Extension Coupling on Lower Stem and retain it with stainless steel Clevis Pin and stainless steel Cotter Pin.

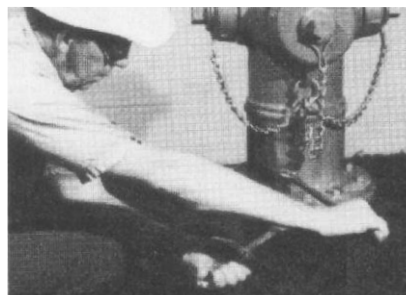
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4. Attach Extension Barrel to Lower Barrel with solid Flange halves (without groove) and Bolts, being sure Flange Gasket is in place.

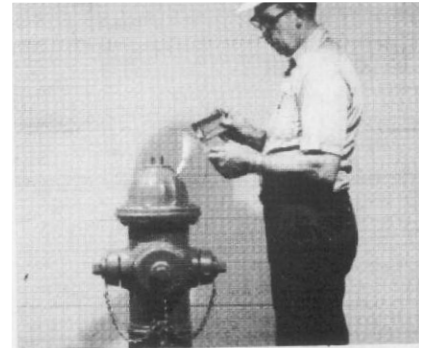


5. Assemble Upper Stem and Safety Stem Coupling on to Extension Stem and retain it with stainless steel Clevis Pin and stainless steel Cotter Pin. **MAKE SURE SAFETY STEM COUPLING IS INSTALLED WITH NOTCHES TOWARDS THE LOWER STEM. WORDS "THIS END UP" TOWARDS THE UPPER STEM.**

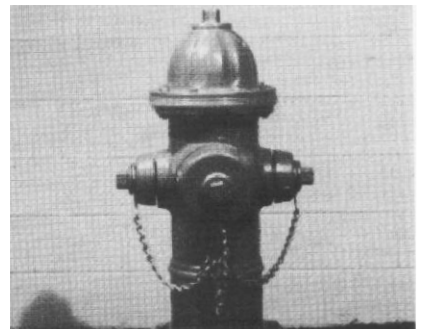


6. Attach Upper Barrel with Safety Flange Halves (with bevel on outer edge downward) and Bolts; being sure Safety Flange O-ring** is in groove in Upper Barrel.

*TIGHTEN HOLD DOWN NUT TO 200-300 FT-LBS OF TORQUE. IF TORQUE WRENCH IS NOT AVAILABLE, USE A 3 LB HAMMER TO STRIKE THE END OF THE A-311 WRENCH FIRMLY TWO TIMES TO ASSURE THE NUT IS PROPERLY TIGHTENED.



7. Check Bonnet O-ring** for proper position and condition. Attach Brass Sleeve to Upper Stem and lubricate outside to protect O-ring Seals from thread damage. Place Bonnet onto Upper Barrel and assemble Bonnet Bolts only hand-tight. Remove Brass Sleeve. Reassemble Operating Nut, Anti-Friction Washer, and Hold Down Nut*. Be sure O-ring Seals are in good condition at thread shoulder on outside of Hold Down Nut and on inside where contact is made with Operating Nut. Remove Oil Filler Plug in side of Bonnet. Pour MUELLER Hydrant Lubricant into Oil Reservoir until it is level with Oil Filler Plug Hole. Replace Oil Filler Plug.



8. Tighten Bonnet Bolts. Unscrew one Hose Nozzle Cap slightly to bleed air. Open Hydrant fully. Tighten Hose Nozzle Cap when water starts flowing and check all flange connections for leaks. Turn Operating Nut to fully closed position and remove Hose Nozzle Cap to allow Barrel to drain. Replace Hose Nozzle Cap.

9. Turn Operating Nut in closing direction to make sure Main Valve is closed tightly, then turn in opening direction approximately 1/4 turn to relieve tension on operating mechanism.

**TO DETERMINE CORRECT O-RINGS FOR BONNET AND GROUND LINE FLANGES, WHICH ARE SIMILAR IN APPEARANCE: SMALLER DIAMETER O-RING IS USED AT BONNET FLANGE; LARGER AT GROUND LINE FLANGE.

Mueller Co.