

## **Fire Hydrant Troubleshooting**

**Problem: Pulsation or chatter during opening and flow of water from hydrant.**

- Cause: Loose condition in stem at lower valve plate nut.
- Corrective Action: Tighten lower valve plate nut and secure with SS lock washer.
- Cause: Loose condition in stem caused by more than one extension being used.
- Corrective Action: Replace multiple extension stems with single extension stem.
- Cause: Excessive looseness at the safety coupling due to over tightening or high number of open/close cycles.
- Corrective Action: Replace safety coupling and pins.

**Problem: Hydrant slams shut while being closed.**

- Cause: Play in stem due to wear on stem couplings.
- Corrective Action: Inspect the safety/extension coupling for damage and assure couplings are installed with the correct end up.
- Cause: Loose main valve assembly.
- Corrective Action: Remove main valve assembly and tighten lower valve plate nut securing with SS lock washer.

**Problem: Hard turning of operating nut during operation of hydrant.**

- Cause: Debris or foreign material in operating mechanism of hydrant within the bonnet.
- Corrective Action: Disassemble operating nut, hold down nut, and anti-friction washer. Clean, lubricate, and assemble with new anti-friction washer (*assuring that the anti-friction washer is placed on the top surface of the operating nut*). Check for damaged o-rings at the bottom of the bonnet, which seal oil in the reservoir, replacing if necessary. Fill bonnet with fresh oil.
- Cause: Hydrant has been struck possibly bending stem.
- Corrective Action: Check upper stem and coupling(s) for damage. Replace if necessary.

**Problem: Internal leakage in the upper barrel when main valve is closed.**

- Cause: Damaged main valve or seat ring.
- Corrective Action: Replace main valve and/or seat ring.
- Cause: Leakage through center of main valve around stem due to loose lower valve plate nut.
- Corrective Action: Tighten lower valve plate nut and secure with SS lock washer
- Cause: Damage to copper sleeve on stem hitting bottom of bonnet preventing full main valve closure.
- Corrective Action: Inspect upper stem and replace if sleeve is damaged.
- Cause: O-rings on seat ring may be damaged.
- Corrective Action: Replace o-rings on seat ring.

**Problem: Excessive external leakage at the drain area of the hydrant when main valve is open.**

- Cause: Damaged or worn drain valve facings
- Corrective Action: Replace drain valve facings.
- Cause: Damaged upper seat ring o-ring.
- Corrective Action: Replace upper seat ring o-ring.

**Problem: External Leakage at the drain valve area when the main valve is closed and barrel has drained.**

- Cause: Damaged lower seat ring o-ring.
- Corrective Action: Replace lower seat ring o-ring.
- Cause: Damaged main valve or seat ring.
- Corrective Action: Replace main valve or seat ring.

**Problem: Loss of oil from the reservoir in the bonnet.**

- Cause: Leakage between bonnet o-ring and stem sleeve.
- Corrective Action: Replace o-ring in the bonnet and upper stem if the sleeve has been damaged. Fill bonnet with fresh oil.

**Problem: Unable to remove seat ring with Centurion hydrant seat removal tool.**

Cause: Unable to exert sufficient torque on seat ring.

Corrective Action: Try use of seat wrench attached to lower stem at safety coupling location. Be sure main valve is fully closed or damage to upper valve plate will occur. If this fails, use "Improved" hydrant seat removal wrench, which acts directly on the seat ring wrench flats.

**Problem: Opens hard in cycles.**

Corrective Action: Check for bent stem or operating nut drilled off center.

**Problem: Oil filler plug will not come out.**

Cause: Corroded or painted over.

Corrective Action: Clean paint from oil filler plug, lubricate, and use easy out to remove. **Do Not** use a torch to heat the bonnet and filler plug, this will only cause damage to the o-rings within the bonnet.

**Problem: Oil stain on bonnet.**

Corrective Action: Overfilled oil reservoir occurs when oil reservoir is filled when hydrant is in open position. Fill oil reservoir only when hydrant is in the closed position and fill until it overflows out of the oil filler hole. Wipe excess clean with rag.

**Problem: Nozzles facing in the wrong direction.**

Corrective Action: Loosen safety flanges, or breakaway bolts. Turn operating nut in the opening direction. Water pressure against the main valve will raise the upper barrel releasing the pressure from the o-ring or gasket. This will allow the workman to turn the upper barrel without damage to the flange gasket. Tighten bolts and pressurize the barrel checking for leaks.

**Problem: Hydrant opens but will not close.**

Cause: Safety coupling is broken or loose.

Corrective Action: Remove bonnet and upper barrel and replace safety coupling.

Cause: Cap nut on lower valve plate may be broken or loose.

Corrective Action: Remove main valve assemble and tighten or repair securing with SS lock washer.

**Problem: Drain holes leak when hydrant is fully open.**

- Cause: Drain valve facings are damaged.
- Corrective Action: Remove main valve assembly and replace drain valve facings.
- Cause: Top o-ring on seat ring may be damaged.
- Corrective Action: Remove main valve assembly and replace top o-ring.

**Problem: Drain holes leak when hydrant is fully closed.**

- Cause: Damaged main valve.
- Corrective Action: Remove main valve and replace if damaged.
- Cause: Bottom o-ring on seat ring may be damaged.
- Corrective Action: Remove main valve assembly and replace bottom o-ring.

**Problem: Hydrant will not drain.**

- Cause: Drain holes may be plugged with debris.
- Corrective Action: Loosen cap and open hydrants until cap squirts water from nozzle. Tighten cap back down and then leave hydrant open 2-3 turns to force flush drain holes. Allow this flushing for around 2-3 minutes or until holes are cleared and hydrant is draining properly.
- Cause: Not all hydrants are required to drain.
- Corrective Action: Assure that hydrant installed is a draining hydrant.

**Problem: Hydrant will not close after main valve replacement.**

- Cause: Seat ring not tightened properly.
- Corrective Action: Remove bonnet and retighten main valve assembly.
- Cause: Damaged seat ring or o-rings upon replacement.
- Corrective Action: Remove main valve assembly and check for damaged o-rings or seat rings.

**Problem: Hydrant will not close after hydrant extension put on.**

- Cause: Safety/extension coupling misplaced or upside down.
- Corrective Action: Check for placement of extension coupling and safety coupling. Relocate to correct position if misplaced. (*Safety coupling always goes on top.*)

**Problem: Hydrant will not open.**

Cause: Corrosion or paint has locked operating nut to bonnet, hold down nut, or upper stem.

Corrective Action: Disassemble, clean, lubricate, and reassemble.

Cause: Debris may have accumulated in shoe of hydrant.

Corrective Action: Remove main valve assembly and flush hydrant utilizing the isolation valve. Reassemble and test hydrant.

Cause: Hydrant opens opposite direction and paint has covered indication on bonnet or weather cap.

Corrective Action: Locate opening direction and attempt to open again.

**Problem: Flow from hydrant is low.**

Cause: Hydrant not fully open or isolation valve is not fully open.

Corrective Action: Check for number of turns when opening hydrant, 17-1/4 turns on all centurion hydrants. Also, assure that isolation valve is fully open utilizing the formula for amount of turns to open or close all gate valves:  $3 \times \text{nominal size of valve} + (2 \text{ or } 3) \text{ turns}$ .

**Problem: Operating nut turns but hydrant will not open.**

Cause: Operating nut is locked to upper stem and safety coupling is broken.

Corrective Action: Remove bonnet and upper barrel. Remove operating nut from upper stem, clean, lubricate, and reassemble. Replace safety coupling.

**Problem: How many turns to open a hydrant?**

17-1/4 turns on all Centurion hydrants.

**Problem: What parts are required to change Super Centurion 200 or Centurion operating nut from open left to open right or visa versa?**

- A-1 Operating nut (specify size, shape, and opening direction)
- A-2 Weather cap – Hydrants 1987 or earlier.
- A-4 Hold down nut – Hydrants 1987 or earlier.
- A-84 Hold down nut – 1988 or later.
- A-8 Bonnet (Prior to 1988 the Centurion Hydrants did not have a directional arrow cast on the bonnet to indicate the opening direction. Instead, it was indicated on the weather cap of the hydrant. On the Centurion 200 hydrants, the arrow is cast on the bonnet.)
- A-11 Upper Stem (Specify year and valve opening size.)

**Problem: What parts are required to change from one size operating nut to another?**

Specify thread gauge and order the following:

- A-15 Pumper Nozzle Gasket
- A-17 Pumper Nozzle Cap (Specify size and shape of operating nut.)
- A-19 Hose Nozzle Gasket
- A-21 Hose Nozzle Cap (Specify size and shape of operating nut.)
- A-1 Operating Nut (Specify size, shape, and opening direction.)
- A-311 Operating Wrench (Specify size and shape.)
- A-22 Cap Chain w/Ring
- A-23 Chain Hook(s)

**Problem: What parts are required to convert size of pumper nozzle?**

Specify size of pumper nozzle and thread gauge and order the following:

- A-13 Nozzle Lock
- A-14 Pumper Nozzle
- A-15 Pumper Nozzle Gasket
- A-16 Pumper Nozzle O-ring
- A-17 Pumper Cap (Specify size and shape of operating nut.)
- A-22 Cap Chain w/Ring
- A-23 Chain Hook(s)

**Problem: What parts are required to convert from one bury depth to another bury depth?**

- A-31 Lower Stem
- A-32 Lower Barrel
- A-27 Safety Flange Gasket
- A-38 Drain Ring Gasket

**Problem: How to read hydrant pumper/hose nozzle thread gauges?**

The first number in the code is the number of threads per inch. The last three digits are the pitch diameter as demonstrated in the example below:

Example: 60454 – 6 threads per inch with a pitch diameter of 4.54.