

# UNITED FIREFLO

DRY BARREL FIRE HYDRANT  
MODEL F-06

## INSPECTION, INSTALLATION & MAINTENANCE MANUAL

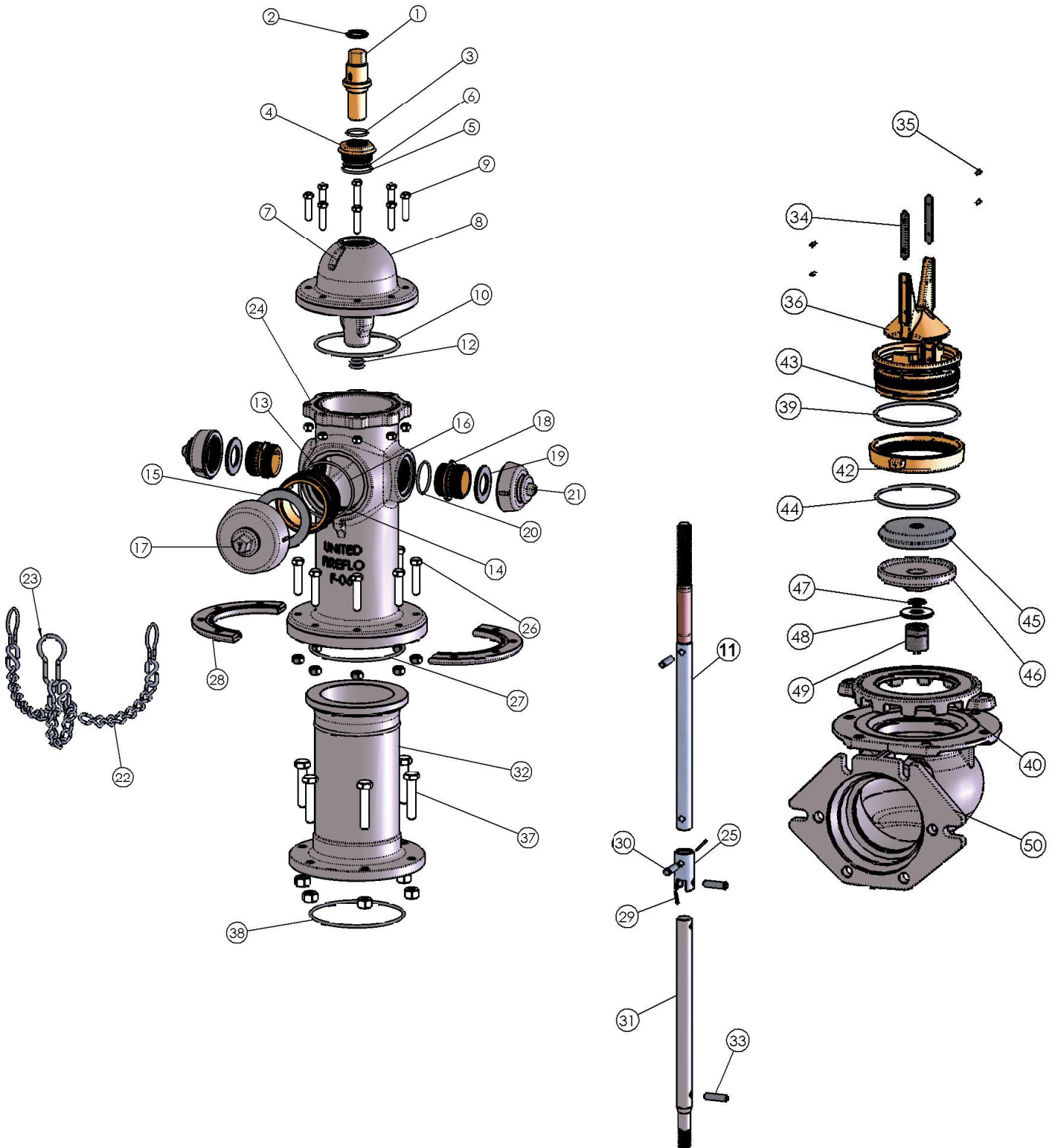


AWWA C-502  
250 PSI Operating Pressure  
500 PSI Test Pressure

**UNITED** Water Products 

# FIREFLO - MODEL F-06 INSPECTION, INSTALLATION & MAINTENANCE MANUAL

## Item No.s/Description



## HYDRANT

Item No.	Description	Material	Specification	Qty. Req'd	Item No.	Description	Material	Specification	Qty. Req'd
1	Operating Nut	Bronze	ASTM B584	1	26	Safety Flange Bolts & Nuts	Steel	ZPS, A307	8
2	Weather Seal	Rubber	ASTM D2000, BUNA N	1	27	Safety Flange O-Ring	Rubber	ASTM D2000, BUNA N	1
3	Hold Down Nut O-Ring	Rubber	ASTM D2000, BUNA N	1	28	Safety Flange	Cast Iron	ASTM A126, CL-B	2
4	Hold Down Nut	Bronze	ASTM B584	1	29	Cotter Pin	Stainless Stl.	ASTM A276	2
5	Bonnet O-Ring	Rubber	ASTM D2000, BUNA N	1	30	Clevis Pin	Stainless Stl.	ASTM A276	2
6	Anti-Friction Washer	Celcon	-	1	31	Lower Rod	Steel	ASTM A576 Gr-B	1
7	Oil Plug	Brass	ASTM B16	1	32	Standpipe Lower (Specify Bury)	Ductile Iron	ASTM A536	1
8	Bonnet	Cast Iron	ASTMA126, CL-B	1	33	Stem Pin	Stainless Stl.	ASTM A276	2
9	Bonnet Bolts & Nuts	Steel	ZPS, A307	8	34	Drain Valve Facing	HDPE	-	2
10	Bonnet O-Ring	Rubber	ASTM D2000, BUNA N	1	35	Drain Valve Screw	Stainless Stl.	ASTM A276	4
11	Upper Rod	Steel	ASTM A576, Gr-B	1	36	Valve Top Plate	Bronze	ASTM B584	1
12	Upper Rod O-Ring	Rubber	ASTM D2000, BUNA N	2	37	Elbow & D.R.H. Bolts & Nuts	Stainless Stl.	SS304	6
13	Nozzle Lock Key	Stainless Stl.	ASTM A276	6	38	Drain Ring Housing O-Ring	Rubber	ASTM D2000, BUNA N	1
14	Pumper Nozzle	Bronze	ASTM B584	1	39	Seat Ring O-Ring (Top)	Rubber	ASTM D2000, BUNA N	1
15	Pumper Nozzle Gasket	Rubber	ASTM D2000, BUNA N	1	40	Drain Ring Housing	Ductile Iron	ASTM A536	1
16	Pumper Nozzle O-Ring	Rubber	ASTM D2000, BUNA N	1	42	Drain Ring	Bronze	ASTM B584	1
17	Pumper Nozzle Cap	Cast Iron	ASTM A126, CL-B	1	43	Seat Ring	Bronze	ASTM B584	1
18	Hose Nozzle	Bronze	ASTM B584	2	44	Seat Ring O-Ring (Bottom)	Rubber	ASTM D2000, BUNA N	1
19	Hose Nozzle Gasket	Rubber	ASTM D2000, BUNA N	2	45	Main Valve	Rubber	ASTM D2000, BUNA N	1
20	Hose Nozzle O-Ring	Rubber	ASTM D2000, BUNA N	2	46	Valve Botton Plate	Ductile Iron	ASTM A536	1
21	Hose Nozzle Cap	Cast Iron	ASTM A126, CL-B	2	47	Cap Nut Seal	Rubber	ASTM D2000, BUNA N	1
22	Cap Chain	Steel	Plated	3	48	Lock Washer	Stainless Stl.	ASTM A276	1
23	Chain Ring	Steel	Plated	3	49	Valve Botton Plate Nut	Ductile Iron	ASTM A536	1
24	Standpipe Upper	Ductile Iron	ASTM A536	1	50	Elbow	Ductile Iron	ASTM A536	1
25	Safety Coupling	Stainless Stl.	ASTM A890	1	51	Lubricant (in Chamber)	Mineral Oil	Food Grade	1

Note: Part #'s 40, 46, 49 & 50 are Fusion Bonded Epoxy, inside and out, complying with AWWA C550.

### TRAFFIC REPAIR KIT

Item No.	Description	QTY. Required	Material
25	Rod Coupling	1	Stainless Steel
26	Safety Flange Bolts & Nuts	8	Steel
27	Safety Flange O-Ring	1	Rubber
28	Safety Flange	2	Cast Iron
29	Cotter Pin	2	Stainless Steel
30	Clevis Pin	2	Stainless Steel

### EXTENSION KIT

Item No.	Description	QTY. Required	Material
29	Cotter Pin	2	Stainless Steel
30	Clevis Pin	2	Stainless Steel
52	Extension Rod	1	Steel
53	Extension Gasket	1	Rubber
54	Extension Flange Coupling	2	Ductile Iron
55	Standpipe Extension	1	Cast Iron
56	Extension Bolts & Nuts	8	Steel
57	Extension Rod Coupling	1	Stainless Steel

## Inspection Upon Delivery

- Inspect hydrant prior to installation in order to check for damage during shipment.
- Hydrant should be operated to full open and close positions to ensure that it has not sustained any internal damage and that its components are intact.
- Hydrant should be pressure and leak tested before installation due to the tendency for nozzles and hardware to loosen during shipment.
- After pre-installation inspection and testing is completed, close the hydrant main valve and replace and tighten nozzle
- In the event that storage is necessary, the hydrant should be stored with the inlet face down. Reinspect just before installation.
- Refer to the "Hydrant Installation Detail) for an illustration of the completed procedure.

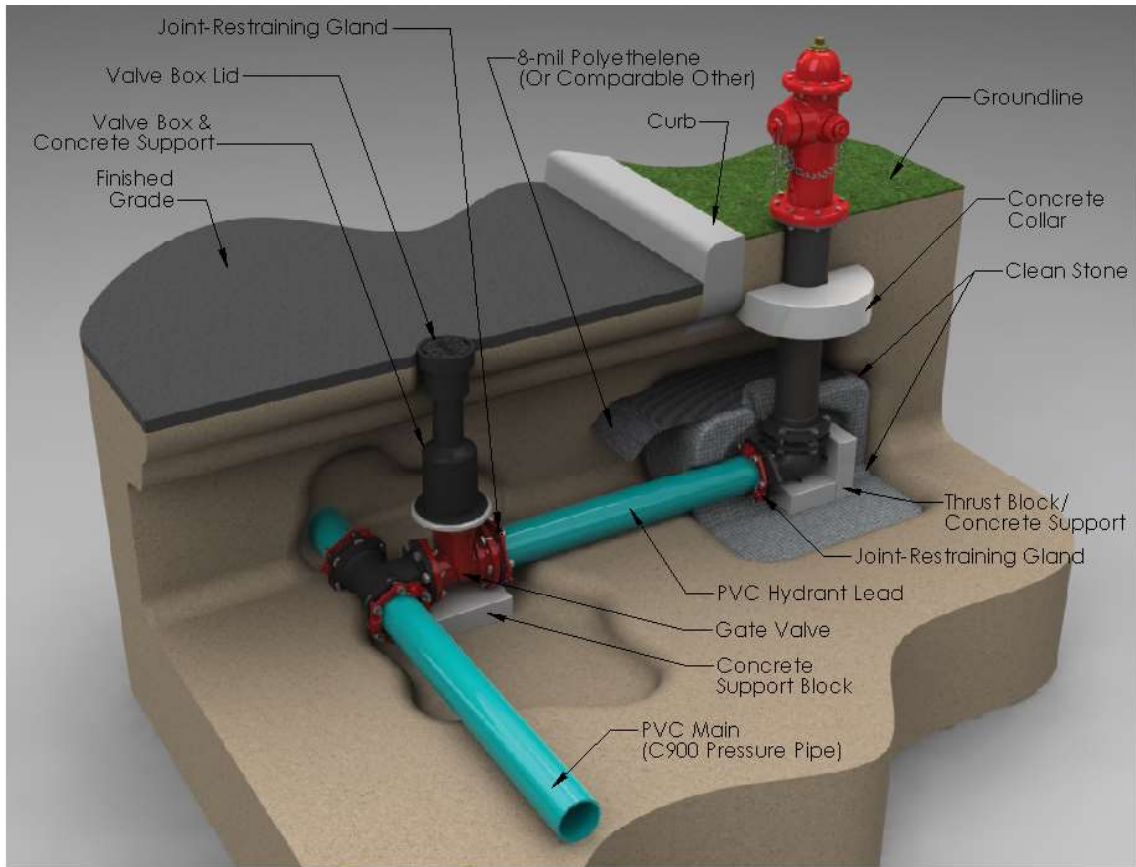


## Installation

- 1) Coordinate Hydrant installation with water mains appropriate for fire flows.
- 2) Hydrant must be installed as plumb as the conditions will allow.
- 3) Installation location must be in accordance with local fire code, fire authority, or municipal design standard.
- 4) Unless otherwise specified by local fire code, the recommended setback is a minimum of 2 ft. from the curb face to the nearest point on the hydrant.
- 5) Align the face of the pumper nozzle towards the street so that quick connection can be made to the fire pumper.
- 6) Outlet nozzles must be installed a minimum of 18 in. [46 cm] above the ground line for adequate operation of the hydrant wrench. No obstructions to the removal of nozzle caps or hydrant operation are permitted.
- 7) A hydrant gate valve (auxiliary valve) must be installed on the hydrant lead between the hydrant and the water main to permit isolation for maintenance and emergency shut-off purposes. A joint-restraining gland or other thrust restraint should be provided so that the hydrant can be sufficiently removed without shutting down the main.
- 8) Remove any loose or foreign matter from the hydrant lead before installing the hydrant gate valve and hydrant.
- 9) The hydrant gate valve should be installed as close to the main as possible.
- 10) Set the hydrant using a solid footing such as stone slabs or a concrete base in order to prevent settling and strain on the hydrant lead and water main. A joint-restraining gland or other thrust restraint should be provided.
- 11) When the thrust block is to be poured, do not to block the hydrant drain holes.
- 12) Install traffic hydrants according to local fire code and AWWA Manual M17 requirements; accounting for appropriate soil resistance, PVC mains, frost penetration, adequate drainage, high water table, etc.
- 13) The drain outlets must be plugged in areas where the water table is high, and the hydrant must be appropriately marked and pumped dry after each use to avoid freezing.
- 14) Do not connect drain outlets to sanitary or storm sewers.
- 15) Hydrants installed on an existing main should be disinfected before installation. Follow typical disinfection procedure, using AWWA Manual M17 as a reference.
- 16) If additional foreign material is a concern - before disinfection - remove the valve and valve seat from the hydrant and flush the main through the hydrant by means of the hydrant gate valve control.
- 17) Please refer to the AWWA Manual M17 and AWWA C600 for pressure testing requirements and further installation details.
- 18) For general Field Disassembly and Reassembly see instructions below.
- 19) For Safety Flange Repair please follow instructions below for Repair Kit #F-06-301.
- 20) For Hydrant Extension kit please follow instructions below for #F-06-320.



## Hydrant Illustration Detail



## Maintenance and Repair (Disassembly and Reassembly)

1) Close hydrant gate valve in order to stop water flow from water main to the hydrant.



2) In order to relieve any standing pressure, remove one of the hose nozzle caps (#21) and open the hydrant three full turns.



(3) Loosen and remove the hold down nut (#4) and operating nut (#1); do not misplace the anti-friction washer (#6).



(4) Using United FIREFLO Hydrant Lubricant #F-06-51, lubricate the external diameter of the brass sleeve and thread it onto the threads of the upper rod (#11). This procedure will protect the bonnet o-rings (#10) from damage from the threads of the upper rod while the bonnet (#8) is removed.





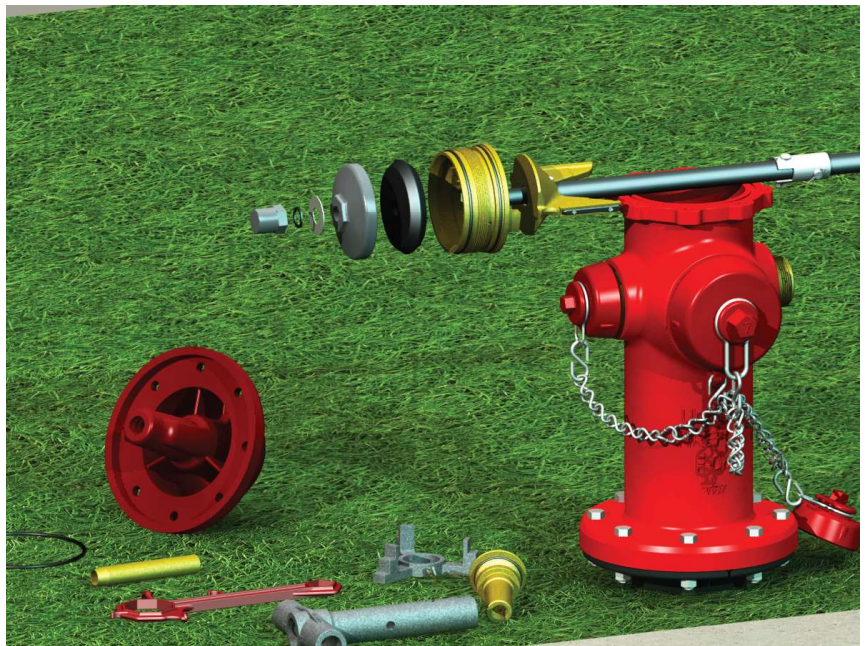
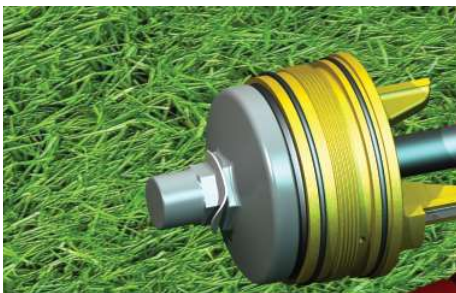
(5) Remove the bonnet (#8) by first removing the bolts & nuts (#9) and then gently lifting it off of the upper standpipe (#24). Remove bonnet o-ring (#10) from the upper standpipe flange groove.



(6) Unthread the brass sleeve from the upper rod. Place the seat wrench flange (3-branch centering device) over the stem and insert the seat wrench (T-handle) through the hole until the slots engage the stem pin (#33). Tighten the thumb screw and loosen the rod assembly by turning the seat wrench counter clockwise. Seven full turns should adequately disengage the assembly.



(7) Remove seat wrench and seat wrench flange. Carefully lift the rod assembly from the hydrant.

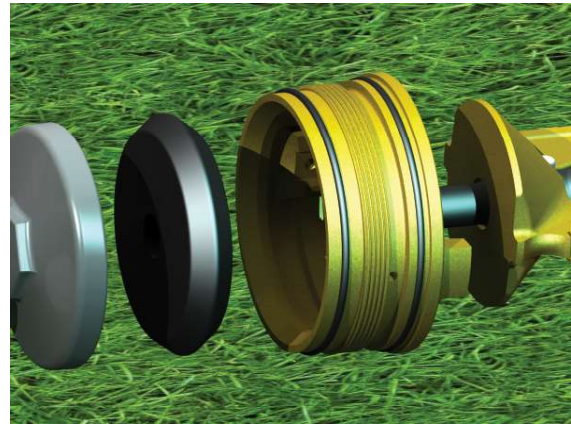


(8) Flatten the lock washer (#48) and remove the valve components: valve bottom plate (#49), cap nut seal (#47), valve bottom plate (#46), main valve (#45), and seat ring (#43). Clean, inspect, and replace any worn or damaged parts.





(9) Inspect the drain valve facings (#34) for wear or damage and replace if necessary.



(10) Inspect o-rings (#39 and #44) on the seat ring (#43) and replace if cracked or split. Before reassembly, lubricate the o-rings and threads with FIREFLO Lubricant.



(11) Reassemble the valve components according to the order in which they were disassembled. The valve bottom plate nut (#49) must be tightened to approx. 100 ft-lb. Bend the lock washer (#48) over one edge of the valve bottom plate and over an opposite edge of the valve bottom plate nut.



(12) After reassembling the valve components, replace the rod assembly by lowering it into the hydrant barrel. Take caution not to damage the o-rings while lowering the assembly. Use the seat wrench and seat wrench flange to tighten the rod assembly to 375 ft-lb.



(13) Apply some FIREFLO Lubricant to the bonnet o-ring and install it into the flange groove of the upper standpipe. Check for appropriate lubrication and thread the brass sleeve onto the upper rod and reinstall the bonnet and bonnet bolts without fully tightening.



(14) Unthread and remove the brass sleeve from the upper rod and bonnet.



(15) Reinstall the operating nut and anti-friction washer. Before installing the hold down nut, inspect the o-ring and replace if cracked or split. Apply some FIREFLO Lubricant to the o-ring and install the hold down nut. Tighten the hold down nut and the bonnet bolts and nuts.





(16) Unthread and remove the oil plug. With the hydrant in the fully closed position, fill the oil fill hole until the oil just begins to run over. Caution: do not insert oil unless the hydrant is in the fully closed position; otherwise, the chamber may become overfilled - resulting in a pressure lock which can damage the o-rings and other components.

## Nozzle Replacement



(17) Remove the hose nozzle cap (#21) from the nozzle to be replaced. Using the United Nozzle Lock Key (#13) Installation Tool and a standard claw hammer, remove the nozzle lock keys. Place the nozzle wrench over the nozzle so that the wrench slots and the nozzle lugs are properly aligned.



(18) Replace the nozzle cap and hand tighten to the face of the nozzle wrench. This will effectively hold the wrench in the proper position.



(19) Slide a 3-ft. piece of galvanized steel or black iron pipe (2" Schedule 40 min.) over the end of the nozzle wrench to gain enough leverage to loosen the nozzle. Loosen the nozzle in a clockwise direction (left-handed threads).





20) In a counter-clockwise direction, thread the new hose nozzle and o-ring (20) into the upper standpipe. Add the nozzle wrench and cap as specified above, and tighten the new nozzle to 600 ft-lb. Remove the wrench and cap.



21) Using the nozzle lock key installation tool and a standard claw hammer, drive the nozzle lock keys between the lugs and the inside diameter of the nozzle recesses. Ensure that the nozzle lock keys are centered lengthwise with the nozzle lugs. Conduct standard leak test procedure.

## **INSTALLATION INSTRUCTIONS FOR SAFETY FLANGE REPAIR KIT (#F-06-301)**

**For Use with UNITED F06 – 5 ¼" Hydrant,  
U.S. Pipe Metroflow™ /M-03 – 5 ¼" Hydrant, and Mueller® Super Centurion 250™ - 5 ¼" Hydrant**

### **STEP 1 : Disassemble the Upper Barrel of the Fire Hydrant**

- 1) From the bonnet, remove the combination weather cap/hold-down nut, anti-friction washer and operating nut. The hold-down nut unscrews in the opposite direction of "OPEN".
- 2) Lubricate the outside of the brass sleeve and slide it over the upper stem threads until it stops. Then thread the sleeve onto the remaining threads until it bottoms out. The brass sleeve will protect the stem o-rings when removing the bonnet.
- 3) Remove the bolts securing the bonnet and the upper barrel and then remove the bonnet.
- 4) Remove the safety flange bolts and broken safety flanges from the upper barrel.
- 5) Remove the cotter and clevis pins from the broken safety stem coupling and then remove the safety stem coupling from the upper stem. Throw away the used cotter and clevis pins.

### **STEP 2 : Prepare the Lower Barrel of the Fire Hydrant**

- 1) Remove the cotter pin and clevis pin from the lower stem. Throw away the used cotter and clevis pins.
- 2) Remove any broken coupling pieces or other loose pieces of material that may have fallen down into the lower barrel.

### **STEP 3 : Reassemble the Upper Barrel of the Fire Hydrant (Depending on the model of Fire Hydrant some gaskets/o-rings will not be used.)**

- 1) Attach the upper stem to the safety stem coupling using the supplied clevis and cotter pins. The safety stem coupling must be oriented with the arrow ↑ pointing UP.
- 2) Attach the upper stem assembly to the lower stem using the lower set of holes in the safety stem coupling with the supplied clevis and cotter pins.
- 3) Remove any dirt or debris from the machined surface of the lower barrel before placing the flange gasket/o-ring in place.
- 4) Place the upper barrel on top of the lower barrel. Ensure that the flange gasket/o-ring is positioned properly.
- 5) Position the grooved safety flange halves in place and bolt the upper barrel to the lower barrel.
- 6) Remove any dirt or debris from the upper barrel before placing the bonnet gasket/o-ring in place.
- 7) Place the lubricated brass sleeve over the upper stem threads to protect the stem o-rings when installing the bonnet.
- 8) Place the bonnet on the upper barrel and hand tighten the bolts.
- 9) Remove the brass sleeve and then assemble the operating nut, anti-friction washer and combination hold-down nut/weather cap. Ensure that the o-ring seals are at the thread shoulder on the outside of the hold-down nut and on the inside when contacting the operating nut.
- 10) Remove the oil plug from the bonnet and fill the chamber with the supplied oil (10.5 oz). Fill to the bottom of the oil fill hole. Replace the oil plug.
- 11) Tighten the bonnet bolts.
- 12) Bleed any air by slightly unscrewing one hose nozzle cap. Check for gasket leaks by opening the hydrant until the water starts to flow. Tighten the hose nozzle cap and close the hydrant. Remove one hose nozzle cap until the barrel is drained and then replace the hose nozzle cap.
- 13) The hydrant is now ready for service.



## **INSTALLATION INSTRUCTIONS FOR 5 1/4" HYDRANT EXTENSION KIT (#F-06-320)**

For Use with UNITED F06 – 5 1/4" Hydrant,  
U.S. Pipe Metroflow™ /M-03 – 5 1/4" Hydrant, and Mueller® Super Centurion 250™ - 5 1/4" Hydrant

### **STEP 1 : Disassemble the Upper Barrel of the Fire Hydrant**

- 1) From the bonnet, remove the combination weather cap/hold-down nut, anti-friction washer and operating nut. The hold-down nut unscrews in the opposite direction of "OPEN".
- 2) Lubricate the outside of the brass sleeve and slide it over the upper stem threads until it stops. Then thread the sleeve onto the remaining threads until it bottoms out. The brass sleeve will protect the stem o-rings when removing the bonnet.
- 3) Remove the bolts securing the bonnet and the upper barrel and then remove the bonnet.
- 4) Remove the safety flange bolts between the upper and lower barrels and then remove the upper barrel and safety flanges.
- 5) Remove the lower cotter and clevis pins from the safety stem coupling and then remove the safety stem coupling and upper stem assembly (do not disassemble).

### **STEP 2 : Install the Extension in the Fire Hydrant (Depending on the model of Fire Hydrant some gaskets/o-rings will not be used.)**

- 1) Attach the extension stem to the extension coupling through the upper set of holes using the supplied clevis and cotter pins.
- 2) Attach the extension stem assembly to the lower stem using the lower set of holes in the extension coupling with the supplied clevis and cotter pins.
- 3) Remove any dirt or debris from the machined surface of the lower barrel before placing the flange gasket/o-ring in place.
- 4) Place the extension barrel (Flanged End) on top of the lower barrel. Ensure that the flange gasket/o-ring is positioned properly.
- 5) Position the flange halves (NOT Grooved) in place and bolt the extension barrel to the lower barrel.

### **STEP 3 : Reassemble the Upper Barrel of the Fire Hydrant**

- 1) Attach the upper stem assembly to the extension stem through the lower set of holes of the safety stem coupling using the clevis and cotter pins that were removed (see STEP 1 #5).
- 2) Remove any dirt or debris from the machined surface of the lower barrel before placing the flange gasket/o-ring in place.
- 3) Place the upper barrel on top of the extension barrel. Ensure that the flange gasket/o-ring is positioned properly.
- 4) Position the grooved safety flange halves in place and bolt the upper barrel to the extension barrel.
- 5) Remove any dirt or debris from the upper barrel before placing the bonnet gasket/o-ring in place.
- 6) Place the lubricated brass sleeve over the upper stem threads to protect the stem o-rings when installing the bonnet.
- 7) Place the bonnet on the upper barrel and hand tighten the bolts.
- 8) Remove the brass sleeve and then assemble the operating nut, anti-friction washer and combination hold-down nut/weather cap. Ensure that the o-ring seals are at the thread shoulder on the outside of the hold-down nut and on the inside when contacting the operating nut.
- 9) Remove the oil plug from the bonnet and fill the chamber with the supplied oil (10.5 oz). Fill to the bottom of the oil fill hole. Replace the oil plug.
- 10) Tighten the bonnet bolts.
- 11) Bleed any air by slightly unscrewing one hose nozzle cap. Check for gasket leaks by opening the hydrant until the water starts to flow. Now tighten the hose nozzle cap and close the hydrant. Remove one hose nozzle cap until the barrel is drained and then replace the hose nozzle cap.
- 12) The hydrant is now ready for service.



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