

**CLOW**

**F2500 FIRE HYDRANT**

**Inspection  
Operation  
Maintenance**



**MEETS OR EXCEEDS AWWA STANDARD C502**



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## **CLOW F2500 Fire Hydrant**

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Fire hydrants should be flushed, inspected and tested twice a year (spring and fall), to ensure satisfactory operating condition.

Visually inspect for damaged, loose or missing parts.

With main valve fully closed, remove nozzle caps and check for water in the barrel. The presence of water indicates one of the following:

- A. Leakage of the main valve.
- B. Drains are below ground water table level.
- C. Drains obstructed by soil or other foreign material.

D. Nozzle caps replaced prior to allowing barrel to drain.

While nozzle caps are removed, check for thread damage. Wire brush nozzle and cap threads and apply antiseizing lubricant.

Replace nozzle caps and check for free action of cap chains. If chains bind, open cap loop until rotating action is free.

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## **INSPECTION, TESTING AND MAINTENANCE**

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Tighten all caps except one for venting air. Turn the main valve to fully open. After all air has escaped and water appears, tighten cap and check nozzles, flange connections and seals for leakage.

Fully close the main valve and remove one hose nozzle cap. Place palm of hand firmly over the 2½" nozzle opening. A strong suction will indicate hydrant is draining properly.

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### **Suggested Installation Practice for "Break-Flange" Hydrant Styles**

For hydrants intended to fail at the groundline joint on vehicle impact, it is good practice to install with extra care to ensure that there is adequate soil resistance. In loose or poor load-bearing soil, it is suggested that concrete blocking be installed around the hydrant barrel at or near the ground line.



# F2500 Fire Hydrant Features

**Bearings**

Above and below stem collar assure low torque operation

**Stop Nut**

Limits travel and prevents possible stem overload

**Stem Coupling**

Square shape allows use of short/light seat removal wrench

**Ductile Standpipe**

Offers insurance against traffic impact damage because it is unbreakable

**Bronze Drain Ring**

360° channel ensures drainage thru two  $\frac{3}{8}$ " bronze outlets

**Sweep Type Bottom**

Minimizes head loss

**Weather Cap (Optional)**

**Bronze Operating Nut and Thrust Nut**

Resists corrosion, easy operation

**Lubricant Reservoir**

Sealed for permanent lubrication

**Bronze Nozzles**

Threaded in and replaceable if damaged

**Split Safety Flange**

Breaks clean on impact. Easy to repair or extend

**Main Valve Stem**

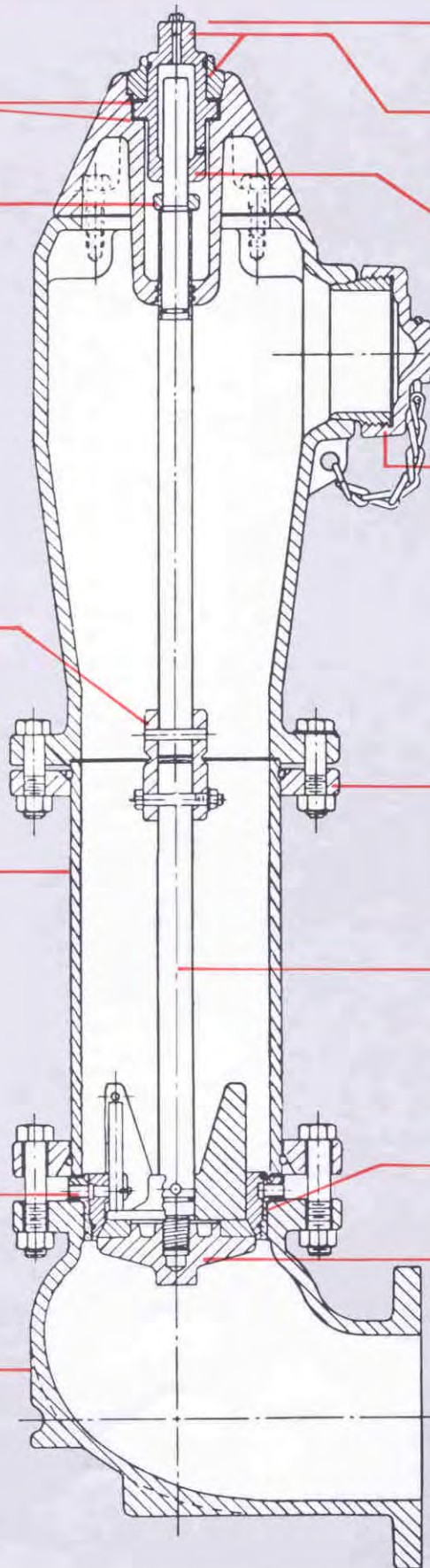
Main Valve stem, seat and other parts are removable thru top of hydrant—without excavating

**Bronze Seat and Drain Ring**

Bronze seat ring threaded into bronze drain ring

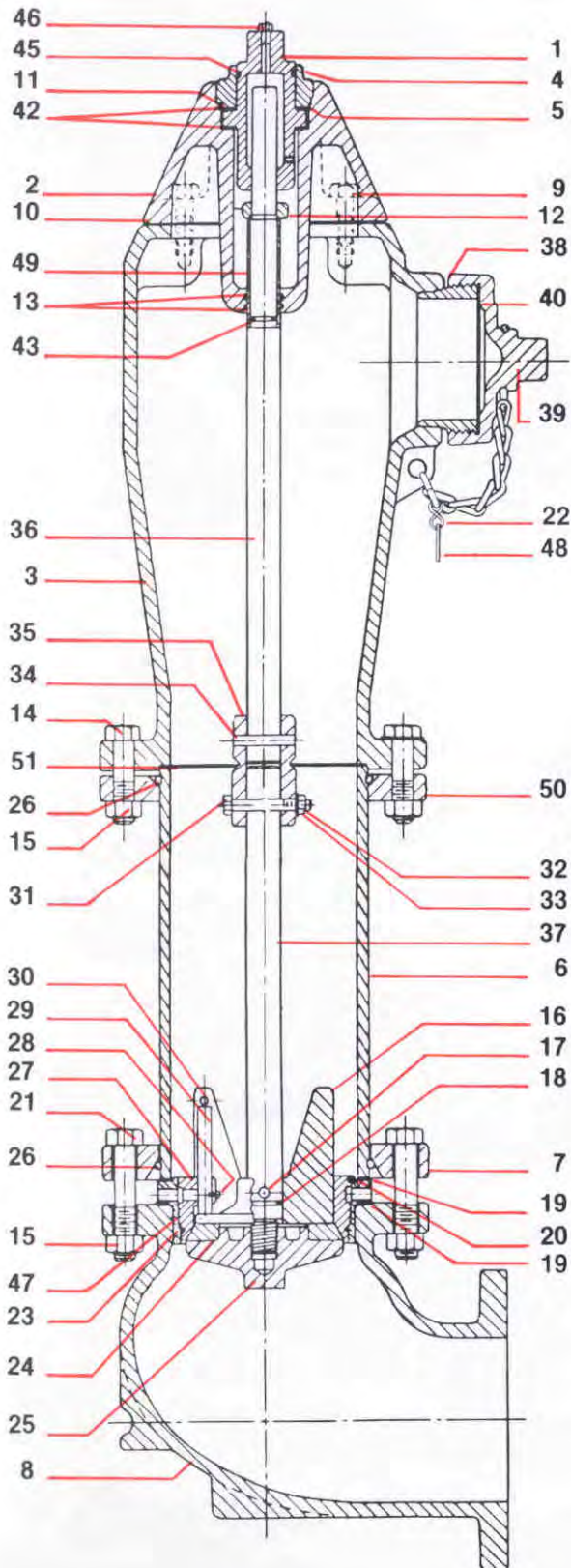
**Main Valve Seat**

Opens against and closes with the pressure.  $4\frac{1}{2}$ " and  $5\frac{1}{4}$ " valve openings available





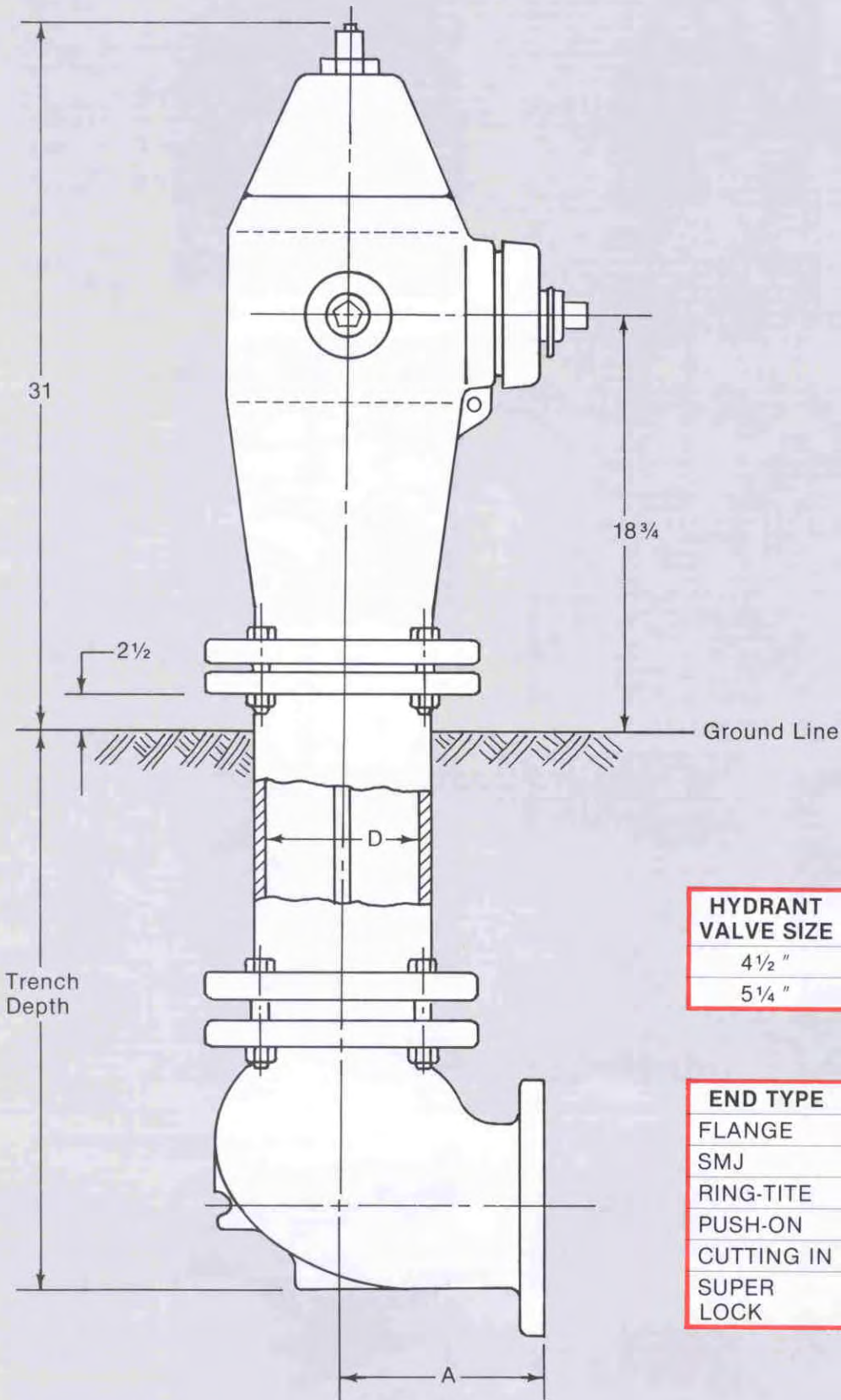
# CLOW Hydrant Parts and Material Listing



Part No.	Qty.	Description	Material
1	1	Operating Nut	Manganese Bronze ASTM B-584
2	1	Cover	Cast Iron ASTM A-126 Class B
3	1	Nozzle Section (2 Nozzle)	Cast Iron ASTM A-126 Class B
4	1	Nozzle Section (3 Nozzle)	Cast Iron ASTM A-126 Class B
4	1	Thrust Nut	Bronze
5	2	Thrust Bearing Race	Hardened Steel
6	1	Standpipe	Ductile Iron ANSI A21.50, A21.51
7	1	Lower Flange	Cast Iron ASTM A-126 Class B
8	1	Bottom	Cast Iron ASTM A-126 Class B
		Bottom (Drain Ring Option)	Cast Iron ASTM A-126 Class B
9	4	Hex Hd. Capscrew $\frac{5}{8}$ -11 NC x $1\frac{1}{4}$	Zinc Plated Steel
10	1	Cover Gasket	Neoprene
11	1	O-ring-152	Buna -N-
12	1	Hex Stop Nut 1"-8 NC	Steel
13	2	O-ring-218	Buna -N-
14	4	Hex Hd. Bolt $\frac{3}{4}$ -10 NC x $3\frac{3}{4}$	Zinc Plated Steel
15	8	Hex Nut $\frac{3}{4}$ -10 NC	Zinc Plated Steel
16	1	Upper Valve Plate	Cast Iron ASTM A-126 Class B
17	1	Hex Head Bolt $\frac{7}{16}$ -14NX $2\frac{1}{2}$ with nut	18-8SS
18	1	O-ring-214	Buna -N-
19	2	Standpipe Gasket	Accopac
20	1	O-ring-259	Buna -N-
21	4	Hex Hd. Bolt $\frac{3}{4}$ -10 NC x $4\frac{1}{2}$	Zinc Plated Steel
22	1	S-Hook 13 Ga. x 1"	Zinc Plated Steel
23	1	O-ring-258	Buna -N-
24	1	Valve Seat Rubber	ASTM D2000 AA915 A13 B13
25	1	Lower Valve Plate	Cast Iron ASTM A-126 Class B
26	2	Retaining Ring	300 Series SS
27	1	Valve Seat Ring	Bronze AWWA C502-80
28	1	Driv-Lok Stud #6 x $\frac{7}{8}$	Brass Plated Steel
29	1	Drain Tube	Brass Tubing
30	1	Driv-Lok Pin $\frac{1}{4}$ x $1\frac{1}{4}$ Type C	303 SS
31	1	Hex Hd. Bolt $\frac{7}{16}$ -14 NC x 3	18-8 SS
32	1	Hex Nut $\frac{7}{16}$ -14 NC	18-8 SS
33	1	Lock Washer $\frac{7}{16}$	18-8 SS
34	1	Pin $\frac{7}{16}$ x $2\frac{1}{4}$ Type E	303 SS
35	1	Stem Coupling	Cast Iron ASTM A-126 Class B
36	1	Upper Stem OL	1018 CRS
	1	Upper Stem OR	1018 CRS
37	1	Lower Stem	1018 CRS
38	1	Steamer Nozzle	Bronze AWWA C502-80
	2	Hose Nozzle	Bronze AWWA C502-80
39	1	Steamer Nozzle Cap	Cast Iron ASTM A-126 Class B
	2	Hose Nozzle Cap	Cast Iron ASTM A-126 Class B
40	1	Steamer Nozzle Gasket	Compressed Asbestos
	2	Hose Nozzle Gasket	Compressed Asbestos
41	3	Nozzle Cap Chain	Zinc Plated Steel
42	2	Bearing	Delrin or Celcon Acetal
43	1	O-ring-117	Buna -N-
45	1	O-ring-226	Buna -N-
46	1	Hex Hd. Capscrew $\frac{3}{8}$ -16 NC x $\frac{1}{2}$ LG	Zinc Plated Steel
47	1	Drain Ring	Bronze AWWA C502-80
48	1	Trench Depth Tag	Cast Aluminum
49	1	Upper Stem Sleeve	Brass Tubing ASTM B-135 Alloy 3
50	1	Safety Flange (One piece or Split)	Cast iron ASTM A-126 Class B
51	1	Standpipe Gasket-Upper	Nigolet #225



# Dimension Data



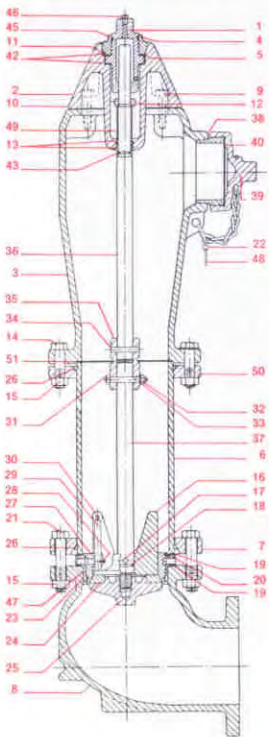
HYDRANT VALVE SIZE	D
4½"	6.16
5¼"	7.04

END TYPE	A
FLANGE	9
SMJ	10½
RING-TITE	10½
PUSH-ON	10½
CUTTING IN	10½
SUPER LOCK	10½



# Directions for Removal and Reassembly of CLOW

## Procedure for Removing Valve



Part No.	Qty	Description	Material
1	1	Operating Nut	Manganese Bronze ASTM B 584
2	1	Cover	Cast Iron ASTM A-126 Class B
3	1	Nozzle Section (2 Nozzles)	Cast Iron ASTM A-126 Class B
4	1	Nozzle Section (3 Nozzles)	Cast Iron ASTM A-126 Class B
5	2	Thrust Bearing Race	Hardened Steel
6	1	Standpipe	Delrin Iron AKS/ A11 50, 921-51
7	1	Lower Flange	Cast Iron ASTM A-126 Class B
8	1	Bottom (Stand Ring Valves)	Cast Iron ASTM A-126 Class B
9	4	Hex Hd. Cap Screw 1/2"-11 NC x 1 1/2"	Zinc Plated Steel
10	1	Cover Gasket	Nitrile
11	1	O-ring-152	Rubber-N
12	1	Hex Stop Nut 1/2"-8 NC	Steel
13	2	O-ring-218	Rubber-N
14	4	Hex Hd. Bolt 1/2"-10 NC x 3 1/2"	Zinc Plated Steel
15	8	Hex Nut 1/2"-10 NC	Zinc Plated Steel
16	1	Upper Valve Plate	Cast Iron ASTM A-126 Class B
17	1	Hex Head Bolt 1/2"-14NC 2 1/2" with nut	18-8 SS
18	1	O-ring-218	Rubber-N
19	2	Standpipe Gasket	Acrylic
20	1	O-ring-208	Rubber-N
21	4	Hex Hd. Bolt 1/2"-10 NC x 4 1/2"	Zinc Plated Steel
22	1	5-Hook 1/2 Gal. x 1"	Zinc Plated Steel
23	1	O-ring-218	Rubber-N
24	1	Valve Seat Rubber	ASTM D2000 A815 A13 B13
25	1	Lower Valve Plate	Cast Iron ASTM A-126 Class B
26	2	Retaining Ring	300 Series SS
27	1	Valve Seal Ring	Brass AWWA C502-80
28	1	Non-Lok Stud 1/2" x 1/2"	Brass Plated Steel
29	1	Drain Tube	Brass Tubing
30	1	Drive Pin 5/8 x 1 1/2, Type C	303 SS
31	1	Hex Hd. Bolt 1/2"-14 NC x 2"	18-8 SS
32	1	Hex Nut 1/2"-14 NC	18-8 SS
33	1	Lock Washer 1/2"	18-8 SS
34	1	Pin 1/2" x 2 1/2, Type B	303 SS
35	1	Stem Gasket	Cast Iron ASTM A-126 Class B
36	1	Upper Stem O-Ring	1818 CRS
37	1	Lower Stem O-Ring	1818 CRS
38	1	Lower Stem	1818 CRS
39	1	Steamer Nozzle	Brass AWWA C502-80
40	1	Steamer Nozzle Cap	Cast Iron ASTM A-126 Class B
41	1	Steamer Nozzle Gasket	Compressed Air/Oil
42	2	Delrin Bearing	Delrin or Calcium Acrylate
43	1	O-ring-117	Rubber-N
44	1	O-ring-228	Rubber-N
45	1	Hex Hd. Cap Screw 1/2"-10 NC x 1 1/2"	Zinc Plated Steel
46	1	Drain Ring	Brass AWWA C502-80
47	1	French Depth Tag	Cast Aluminum
48	1	Upper Stem Sleeve	Brass Tubing ASTM B-129 Alloy 2
49	1	Safety Flange (One piece or Split)	Cast Iron ASTM A-126 Class B
50	1	Standpipe Gasket-Upper	Niplet #225

See page four for enlarged drawing.



Before commencing disassembly procedure, shut off water in main controlling flow to hydrant inlet.

- 1 Remove a nozzle cap and open hydrant completely.
- 2 Remove thrust nut (4) by turning clockwise.
- 3 Remove operating nut (1) by rotating counterclockwise on OL hydrants, clockwise on OR hydrants.



- 7 Unscrew seat ring by turning counterclockwise approximately six full turns.

## Reassembly



All gaskets and o-rings should be replaced when reassembling hydrant. Any other damaged or worn parts should be replaced as required.

- 1 Slide upper valve plate (16) onto lower stem (37) far enough so that o-ring groove is exposed. Lubricate and install o-ring (18). Slide upper valve plate down until holes are aligned and install bolt and nut (17).



- 2 Install seat rubber (24) in place and screw lower valve plate (25) onto lower stem (37). Tighten with approximately 50 ft-lbs torque.



- 7 Install hex stop nut (12) and tighten with combination tool.



- 8 Screw operating nut (1) onto upper stem with Delrin bearing (42) in place. Install another Delrin bearing (42) between two races (5) on operating nut.



# F2500 Fire Hydrant Internal Parts.



- 4** Insert unthreaded end of hydrant wrench combination tool over stem and lower into hydrant until socket engages hex stop nut (12). Unscrew and remove nut by turning in the same direction as operating nut in Step 3.



- 5** Remove cover bolts (9) and lift off cover (2).



- ◀ Valve assembly can now be lifted out of hydrant.



- 8** Remove pin (30) from upper valve plate (16) and slide seat ring (27) off upper valve plate.  
**9** Pull drain tube (29) out of seat ring.



- 3** Insert drain tube (29) in seat ring (27) and slide seat ring over upper valve plate. Replace pin (30).  
**4** Lubricate and install o-rings (20) and (23) in grooves in valve seat ring (27). Cover o-rings and threads with grease and carefully lower valve assembly into hydrant.



- ◀ Slowly rotate clockwise until threads engage, then rotate approximately six full turns and tighten securely. Tightening torque must be at least 100 ft-lbs, but should not exceed 150 ft-lbs. Remove combination tool and hydrant wrench from upper stem.



- 9** Lubricate and install o-ring (45) in groove in operating nut. Slide thrust nut (4) over operating nut and thread into cover.



- ◀ Tighten to approximately 150 ft-lbs torque.

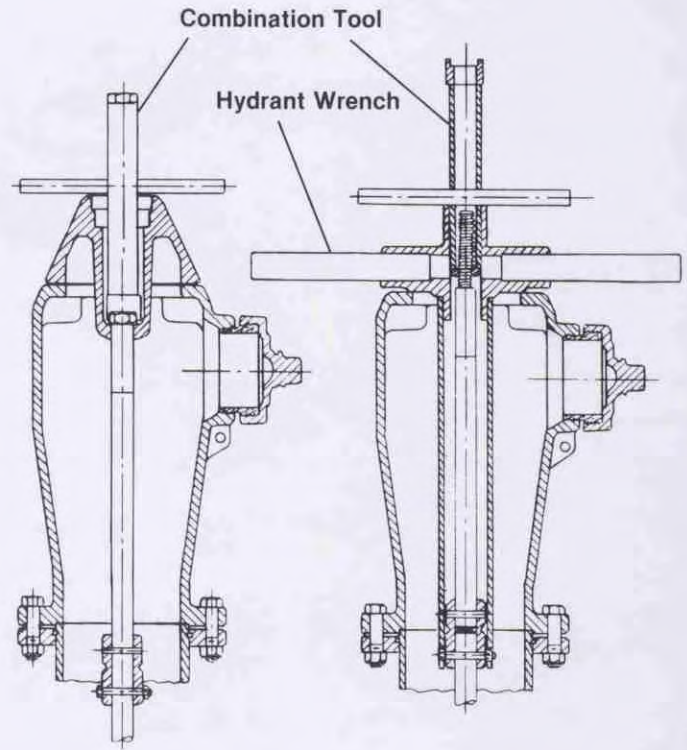




- 6** Lower hydrant wrench over stem. Insert threaded end of combination tool into top of hydrant wrench and thread it onto stem. Tighten combination tool stem until hydrant is pulled into closed position.



- 10** Unscrew lower valve plate (25) by turning counterclockwise and remove seat rubber (24).  
**11** If upper valve plate (16) is to be removed from stem (37), remove bolt (17) and slide valve plate off end of stem.



- 5** Lubricate and install o-ring (43) in groove in upper stem (36)



- 6** Thoroughly clean gasket surfaces on nozzle section (3) and cover (2). Lubricate and install o-rings (13) in grooves in cover. Slide upper stem sleeve (49) in cover. Place gasket (10) on top of nozzle section and carefully lower cover into place. Install cover bolts (9) and tighten securely.



- 10** Open and close hydrant valve to make sure that it operates smoothly and easily. Turn on water in main and check hydrant valve for leakage by listening at open nozzle.



- 11** To test drain valve, remove one hose nozzle cap and open hydrant five turns. Allow water to rise to level of nozzle. Close hydrant and place hand over nozzle opening. Suction should be felt which indicates drain is working properly.

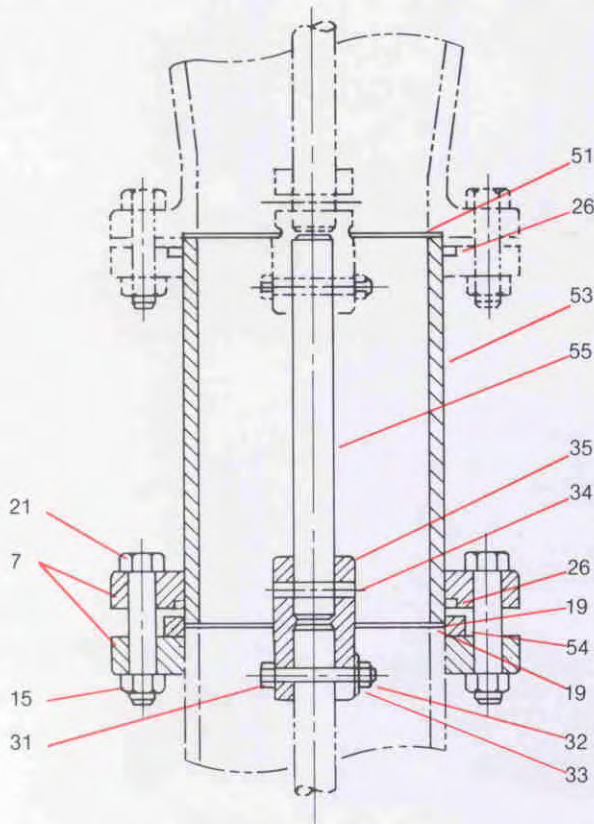


# Procedure for Extending CLOW Fire Hydrant

Hydrant can be extended in closed position. However, for extra safety, water should be shut off at main. Be certain that hydrant valve is closed before proceeding.



- 1** Remove thrust nut (4) by turning C.W.



Standpipe Extension Assembly

## CLOW Hydrant Standpipe Extension Parts Lists

Part	Qty	Description	Part	Qty	Description
7	2	Lower Flange	33	1	Lock Washer
15	4	Hex Nut	34	1	Pin
19	1	Standpipe Gasket	35	1	Stem Coupling
21	4	Hex Head Bolt	51	1	Standpipe Gasket-Upper
26	2	Retaining Ring	53	1	Standpipe Extension
31	1	Hex Head Bolt	54	1	Standpipe Ext. Collar
32	1	Hex Nut	55	1	Stem Extension



- 6** Remove retaining ring (26) and break flange (50).



- 14** For one piece break flange: place break flange (50) with beveled portion up, over extension and place retaining ring (26) in upper groove of extension. For split break flange: install retaining ring (26) first. Break flange will be installed later.



- 17** Check o-rings (13) and (43). Replace if worn or damaged. Install upper stem sleeve (49) in cover.
- 18** Clean gasket surfaces of nozzle section and cover. Place new gasket (10) on top of nozzle section. Slide cover (2) over stem and bolt in place.





- 2** Remove operating nut (1) by rotating C.C.W. on O.L. hydrants, C.W. on O.R. Hydrants.



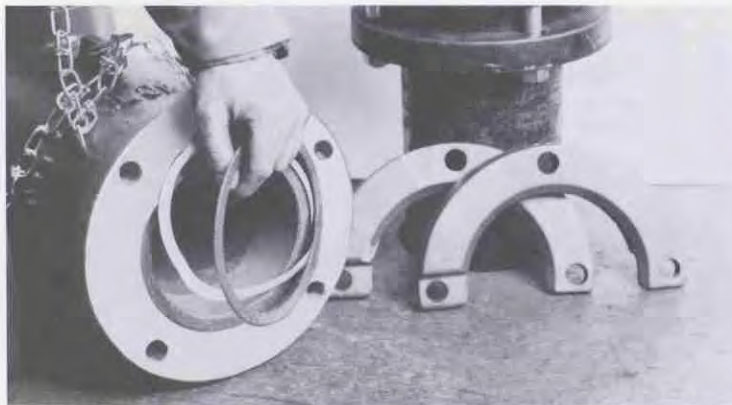
- 3** Insert unthreaded end of hydrant wrench combination tool over stem and lower into hydrant until socket engages hex stop nut (12). Unthread and remove nut by turning in same direction as operating nut in Step 2.



- 7** Remove hex nut (32) and bolt (31) from stem coupling (35). Lift off upper stem (36) and coupling.



- 8** Assemble new round barrel stem coupling (35) to the lower stem (37).  
**9** Bolt upper stem and existing break coupling (35) to top of extension stem (55). This completes the stem extension.



- 15** Thoroughly clean machined recess in bottom of nozzle section. Remove adhesive backing on new gasket (51) and insert into recess in bottom of nozzle section. Lubricate gasket which will allow nozzle section to be rotated to desired position before flange bolts are tightened.



- 19** Install hex stop nut (12) and tighten securely with combination tool.



- 20** Screw operating nut (1) onto upper stem with one Delrin bearing (42) in place. Install remaining Delrin bearing (42) between two races (5) on operating nut.  
**21** Slide thrust nut (4) over operating nut and tighten with 150 ft. lbs torque.





- 4** Remove cover bolts (9) and cover (2). Upper stem sleeve may or may not come off with cover.



- 5** Remove four hex nuts (15) and (14). Lift nozzle section over stem and lay aside.



- 10** Place one lower flange (7) over standpipe, making sure that beveled portion is facing up. Replace retaining ring (26) in standpipe groove.

- 11** Place standpipe extension collar (54) over standpipe. Place new gasket (19) on standpipe. (Make sure old gasket material is removed.)



- 12** Place retaining ring (26) in lower groove of standpipe extension (53) (lower groove 1 1/4" from end of extension), and place extension on standpipe. (Make sure gasket remains in place).

- 13** Place remaining lower flange (7) over standpipe extension with beveled portion facing down. Line up holes in flanges and bolt together. Make sure that flanges are drawn together evenly and torque bolts uniformly to 120 ft. lbs.



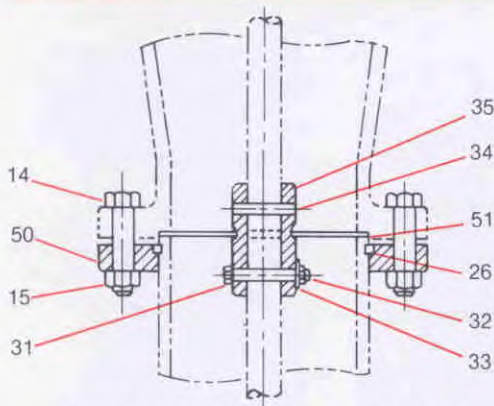
- 16** Set nozzle section in place on extension. Rotate break flange to line up holes and bolt in place. Torque bolts to 120 ft. lbs. keeping a uniform space between flanges. Note: For two piece break flange: Install break flange (beveled side up) at this time—tighten bolts at overlap of ring first.



Open hydrant to test joints for leaks.



# Procedure for Installing Break Flange Repair Kit



Break Flange Repair Kit Assembly

## Break Flange Repair Kit Parts List

Part	Qty	Description
14	4	Hex Hd. Bolt
15	4	Hex nut
26	1	Retaining Ring
31	1	Hex Hd. Bolt
32	1	Hex Nut
33	1	Lock Washer
34	1	Pin
35	1	Stem Coupling
50	1	Break Flange
51	1	Standpipe Gasket-Upper



**3** Insert unthreaded end of hydrant wrench combination tool over stem and lower into hydrant until socket engages hex stop nut (12). Unthread and remove nut by turning in same direction as operating nut in step 2. Lower portion of stem must be held with a pipe wrench or other means to keep from turning. Pull upper stem out of cover.



**4** Drive out pin (34) and remove broken piece of coupling (35) from upper stem. Remove nut (32) and bolt (31). Pull broken coupling from lower stem.



**6** Remove cover bolts (9) and remove cover (2) from nozzle section (3).



**7** Clean and lubricate gasket recess in nozzle section and position nozzle section on standpipe. Install split break flange (beveled side up). Rotate break flange to line up holes and bolt in place. Torque bolts to 120 ft. lbs. Tighten bolts at overlap of ring first. Uniform space between flanges should be maintained.



**10** Thread hex stop nut (12) onto upper stem and tighten securely with combination tool.



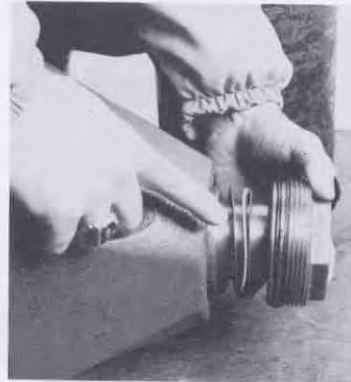
**11** Screw operating nut (1) onto upper stem with lower Delrin bearing (42) in place. Install remaining Delrin bearing (42) between two races (5) on operating nut.



# on CLOW F2500 Fire Hydrant



- 1 Remove retaining ring (26) from groove in standpipe. Place new retaining ring (26) in standpipe groove.



- 2 Remove thrust nut (4) by turning C.W. Remove operating nut (1) by turning C.C.W. on O.L. hydrants. C.W. on O.R. hydrants.



- 4 Pin new coupling (35) to upper stem and bolt to lower stem. Square portion of stem coupling goes down.



- 5 Clean top surface of standpipe (6) remove adhesive backing on new gasket (51) and insert into recess in bottom of nozzle section.



- 8 Check o-rings (13) and (43). Replace if worn or damaged. Install upper stem sleeve (49).



- 9 Place gasket (10) on top of nozzle section. Slide cover (2) over stem and bolt in place.



- 12 Slide thrust nut (4) over operating nut and tighten with 150 ft. lbs. torque.



- 13 Open hydrant to test joints for leaks.



# CLOW F2500 Fire Hydrant

## Sample Specification

Fire hydrant shall be manufactured in accordance with AWWA Standard C502, be of the break flange traffic model type, and present a low profile with a modern design exterior.

Hydrant shall be designed for 150 PSI working pressure, and tested to 300 PSI hydrostatic pressure.

Hydrant shall be of dry top center stem construction with the main valve opening against the pressure. The operating nut and thrust nut shall be made from bronze. Thrust bearings shall be used to absorb thrust in opening and closing the hydrant. Bearings shall be located both above and below thrust collar.

The "split break-away" safety flange and stainless steel snap-on ring at the groundline shall allow 360° rotation of the standpipe for positioning purposes.

The flanges on the nozzle section and shoe shall connect to a ductile iron barrel which utilizes grooves cut into the barrel in conjunction with a stainless steel snap-in ring, and safety flange components for retention.

Hydrant shall be provided with a bronze drain tube that permits draining into a 360° drain channel with a minimum of two  $\frac{3}{8}$ " outlets.

Main valve seat ring removal and extension of the hydrant shall be accomplished without digging. A short compact wrench shall be used to assist in these efforts.

A stop nut shall be provided to prevent overtravel and compression of the stem.

The main valve seat ring shall be bronze and screw into the bronze drain ring.

Hydrant shall have a minimum main valve opening of (4½" or 5¼").

Inlet connection shall be \_\_\_\_\_ inches (mechanical joint, flanged, ring-tite or push-on for cast iron, cutting in or super lock).

Hydrant shall have two 2½" hose nozzles (and one pumper nozzle). Nozzle threads to be National Standard (or conform to present Town of \_\_\_\_\_ Standard). Operating nuts shall be National Standard, pentagon shape, 1½" point to flat, (or conform to present Town of \_\_\_\_\_ Standard).

Hydrant shall be suitable for installation in \_\_\_\_\_ ft. depth of trench (or as indicated in plans).

Hydrant shall turn (counter-clockwise or clockwise) to open, and they shall be painted \_\_\_\_\_.

Hydrant shall be the Clow model F2500 as manufactured by the Valve Division of the Clow Corporation, Oskaloosa, Iowa or approved equal.

## Ordering Information

When placing orders or making inquiries, please furnish the following information. This information will enable us to answer your questions, prepare quotations, and fill your order promptly. Lack of essential information is almost sure to cause delays.

Use Figure Number where possible to identify the product wanted

### ORDERING INFORMATION—HYDRANTS

- Quantity
- Size of main valve opening: 4½ or 5¼-inch.
- Number of 2½" hose nozzles.
- Number and size of pumper nozzles.
- Type of inlet connection: Hub, flanged, mechanical joint, etc.
- Size of inlet connection: 4- or 6-inch.
- Depth of trench or bury: Distance from ground line to bottom of connecting pipe.
- Direction of opening: Usually open to left (counterclockwise); open right (clockwise), when specified.
- Size and shape of operating nut: National Standard is 1½-inch pentagon measured from point to opposite flat at base of nut.
- Hose and pumper nozzle threads: If other than National Standard, thread specification and nut size must be furnished in the following manner:
  - (a) Send sample nozzle or male hose coupling; or
  - (b) Send drawing giving complete thread specification; or
  - (c) Refer us to previous hydrant order. Complete records are kept of all installations.
- Color: Specify color of paint wanted.



**F-2750 Hose and Hydrant Wrench**

Adjustable Hydrant Wrench with Spanner  
Fits both Pin type and Rocker type hose couplings.



**CLOW Corporation**  
Valve Division  
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