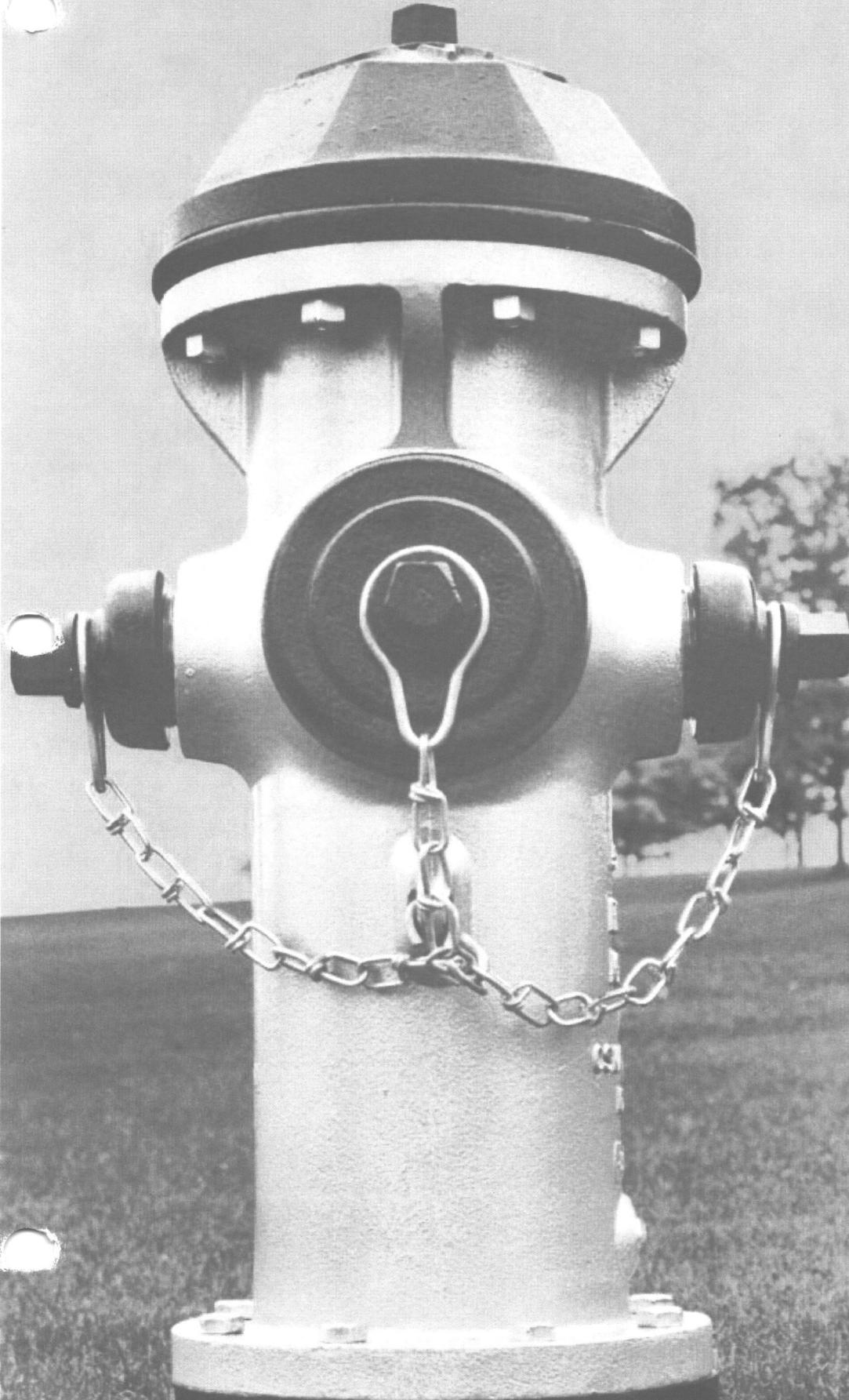


IOWA FIRE HYDRANTS

INSPECTION
AND
MAINTENANCE
MANUAL



AWWA

COMPRESSION TYPE

... MODERN ...

EFFICIENT ...

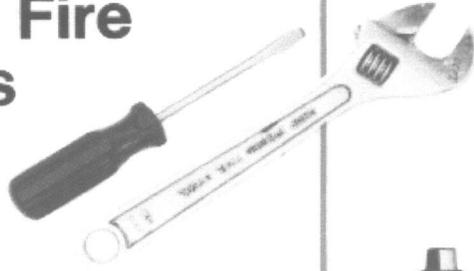
DEPENDABLE

plus simplicity
in maintenance

CLOW

Water Systems Group
Clow Corporation

Inspection and maintenance of IOWA Fire Hydrants

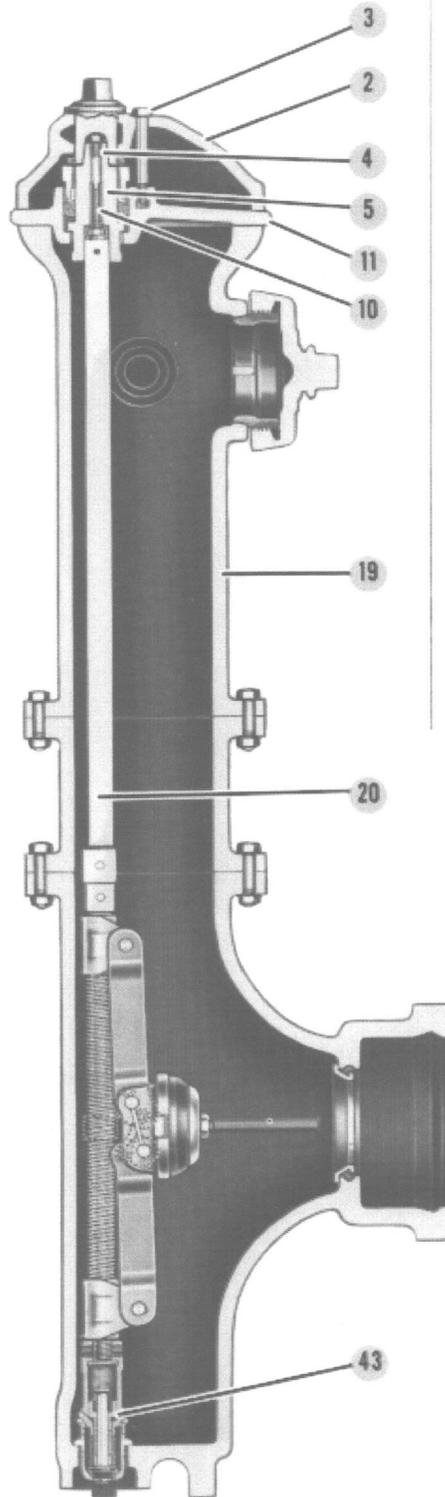


Only two handtools are needed for the complete removal and reassembly of working parts in the Iowa Fire Hydrant—an ordinary adjustable wrench and a standard screwdriver.

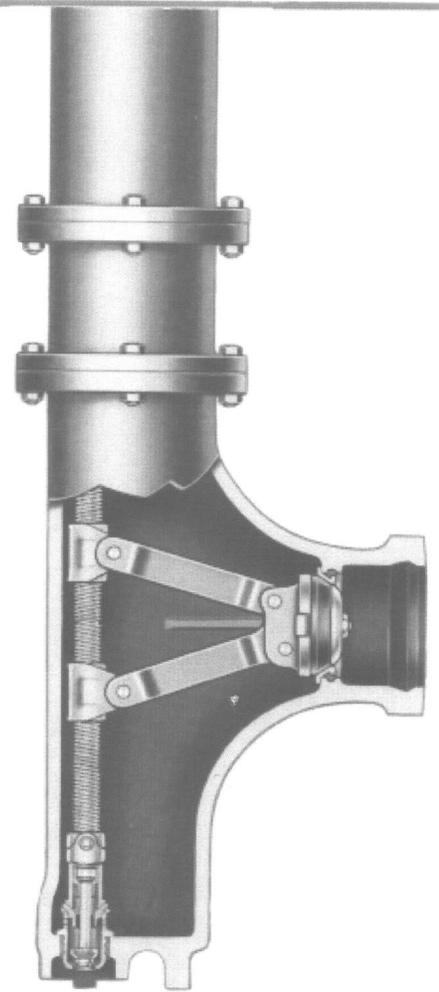
All parts are easily removed and replaced from the top, eliminating any need for special tools or heavy, cumbersome wrenches.

The advanced design of the Iowa hydrant provides minimum friction losses, maximum water delivery. Superior engineering, construction and materials assure operational dependability through the years and when maintained by regular periodic inspection of internal working parts, continued efficiency is sustained.

Ease of maintenance is one of the many advantages of the Iowa Fire Hydrant—systematic inspections, following the simple procedures outlined here, will assure its dependability for generations.



MAIN VALVE OPEN Drain Valve Closed



MAIN VALVE CLOSED Drain Valve Open

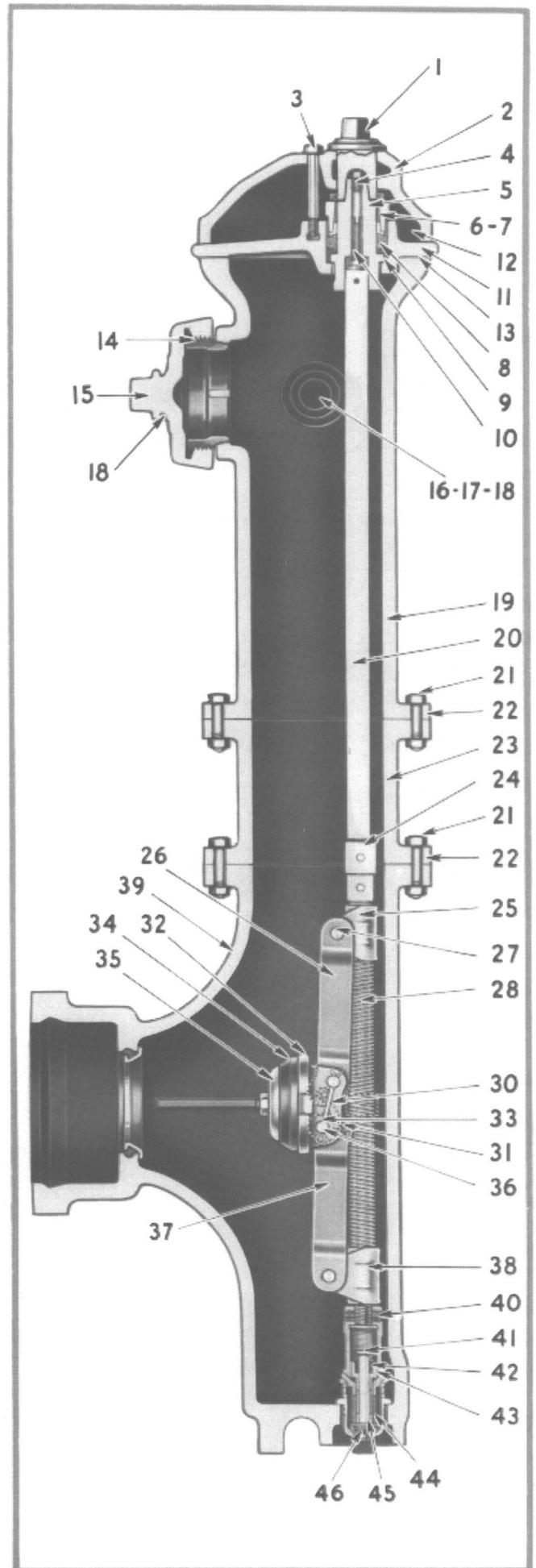
Iowa Fire Hydrants Parts List

| Part No. | Part | Number Required | Material |
|----------|-------------------------------------|-----------------|--------------------------|
| 1 | Operating nut and retaining ring | 1 | Cast iron and bronze |
| 2 | Dome | 1 | Cast iron |
| 3 | Dome bolt | 1 | Steel |
| 4 | Cap screw | 1 | Bronze |
| 5 | Operating sleeve | 1 | Cast iron |
| 6 | Stuffing box follower and gland | 1 | Cast iron, bronze bushed |
| 7 | Follower bolts | 2 | Steel—nuts bronze |
| 8 | Stuffing box packing | | Lubricated |
| 9 | Stuffing box packing ring | 1 | Bronze |
| 10 | Adjusting screw | 1 | Bronze |
| 11 | Head | 1 | Cast iron |
| 12 | Head bolts and nuts | 8* | Steel |
| 13 | Head gasket | 1 | |
| 14 | Pumper nozzle | 1 | Bronze |
| 15 | Pumper nozzle cap | 1 | Cast iron |
| 16 | Hose nozzle | 1 | Bronze |
| 17 | Hose nozzle cap | 1 | Cast iron |
| 18 | Nozzle chain | 1 Set | Steel |
| 19 | Stand pipe | 1 | Cast iron |
| 20 | Square operating rod | 1 | Steel |
| 21 | Flange bolts and nuts | 8* | Steel |
| 22 | Flange gasket | 2 | |
| 23 | Extension piece | 1 | Cast iron |
| 24 | Coupling and pin | 1 | Bronze |
| 25 | Top stem nut | 1 | Bronze |
| 26 | Upper operating arm | 1 | Cast iron |
| 27 | Operating arm pins and cotter pins | 2 | Everdur bronze |
| 28 | Threaded stem | 1 | Bronze or Stainless |
| 30 | Connecting link | 1 | Bronze |
| 31 | Connecting link pins | 2 | Everdur bronze |
| 32 | Gate, cap screw and nut | 1 | Cast iron—stainless |
| 33 | Gate pins | 2 | Everdur bronze |
| 34 | Main valve | 1 | Rubber |
| 35 | Gate washer | 1 | Cast iron |
| 36 | Cotter pins for gate | 2 | Brass |
| 37 | Lower operating arm | 1 | Cast iron |
| 38 | Bottom stem nut | 1 | Bronze |
| 39 | Bottom, seat ring, and drain barrel | 1 | Cast iron—bronze |
| 40 | Drain valve holder | 1 | Bronze |
| 41 | Drain valve lifter stem | 1 | Bronze |
| 42 | Drain valve lifter | 1 | Bronze |
| 43 | Drain valve lifter guide | 1 | Bronze |
| 44 | Drain valve washer | 1 | Bronze |
| 45 | Drain rubber valve | 1 | Rubber |
| 46 | Drain valve lifter washer nut | 1 | Bronze |

*4¼" hydrant requires 4.

Specify both part number and size of main valve opening when ordering.

CLOW



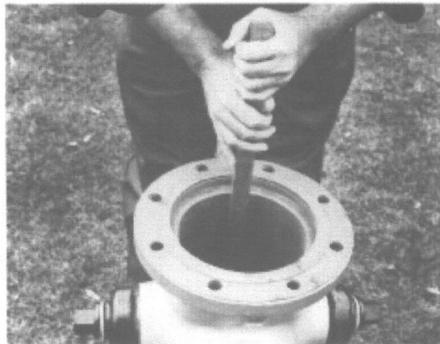
Directions for Removal and Reassembly of Iowa Fire Hydrant Internal Parts

Circled part numbers at left and right are keyed to instructions below.

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



Unscrew single dome bolt 3 and lift off dome 2. Unscrew series of head bolts 12 and remove head 11.

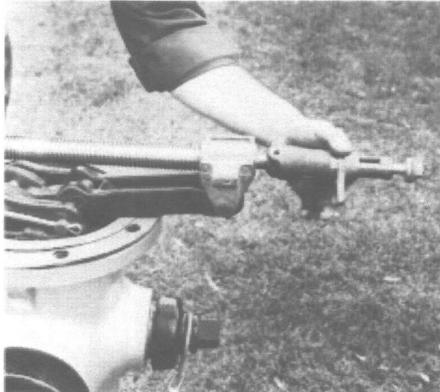


Grasp square operating rod 20 and lift to remove working parts from hydrant barrel. Note position of all parts before disturbing.



Examine parts carefully to see that they are in good working condition.

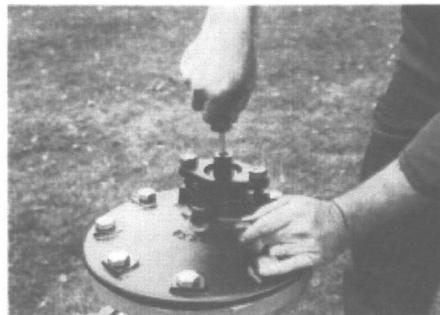
Although seldom necessary, it is a wise practice while the hydrant is apart to make certain the drain is clear by driving a 5/8" dia. steel rod down through the drain barrel opening. The ability to clear the drain without digging is one of the superior features of the Iowa hydrant design.



Unscrew lifter guide 43 to attain full open position of the drain valve assembly, then turn guide back one full turn. Adjust to position it in line with the assembly.



With drain lifter guide 43 in line with the assembly, lower and insert into channel at hydrant bottom, taking care to hold drain valve snugly against back of the hydrant during lowering. If guide 43 is not in line, it will not enter the channel located at the back of the hydrant bottom and the assembly will not slide into proper position.



Replace complete head assembly 11 over operating rod 20 and bolt to standpipe 19 in original position. Unscrew bronze cap screw 4 from 5, insert screwdriver and turn adjusting screw 10 down against top of operating rod 20, then back off one-half turn. Replace cap screw 4. Examine packing 8 and replace if necessary.



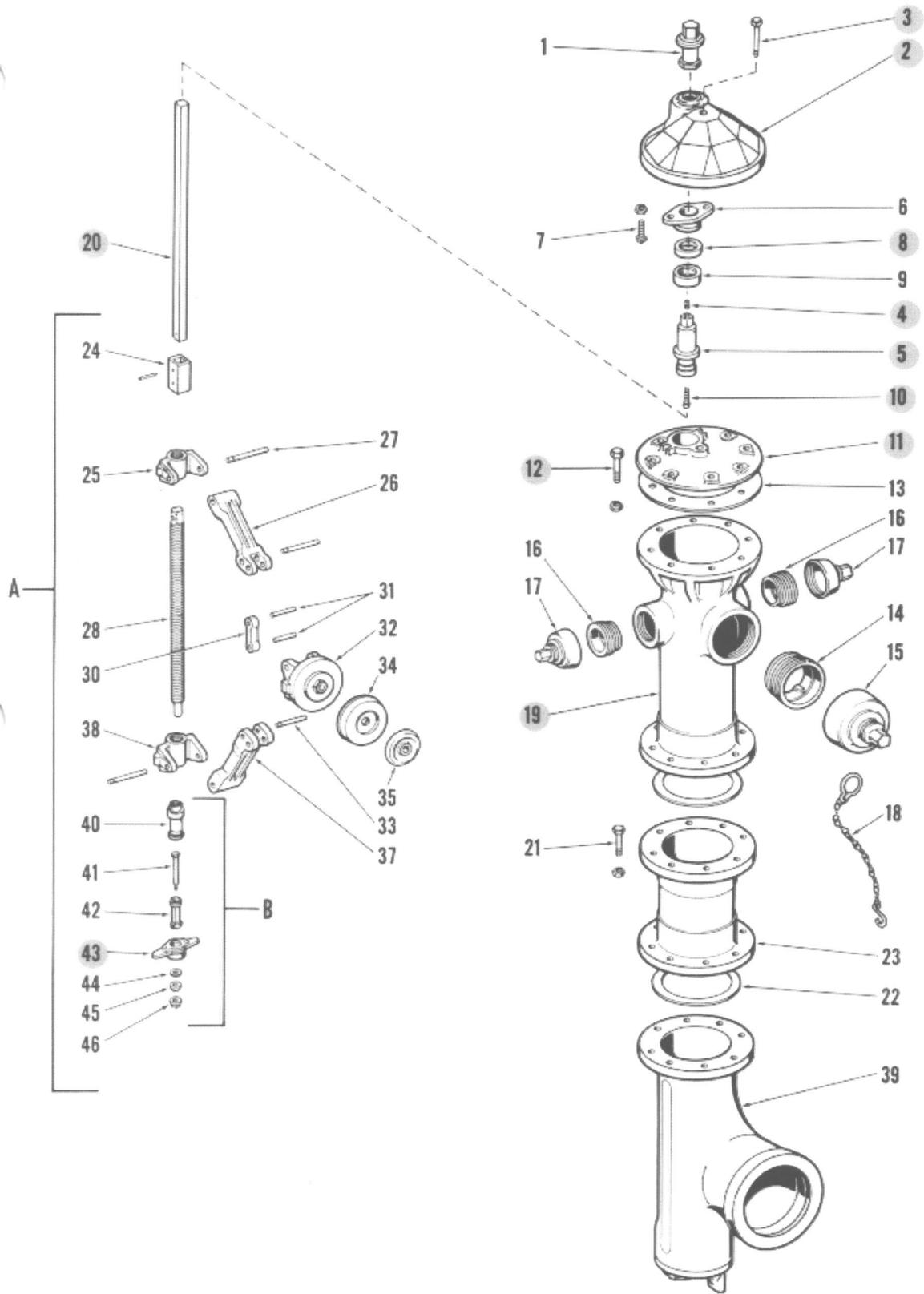
Replace hydrant dome 2, tighten bolt 3.



Close hydrant valve, open valve in the main controlling flow to the hydrant.

To test drain valve, remove one hose nozzle cap and open hydrant three turns. Allow water to rise to level of nozzle, then close hydrant. Place palm of hand firmly over the 2 1/2" nozzle opening. A strong suction will indicate hydrant is draining properly. If the water does not recede or suction cannot be felt, the drain needs to be unplugged as mentioned in step 3, or reassembly operations 4 and 5 have not been followed correctly. With drain functioning properly, replace nozzle cap, and open hydrant fully to test gaskets and packing for leaks.

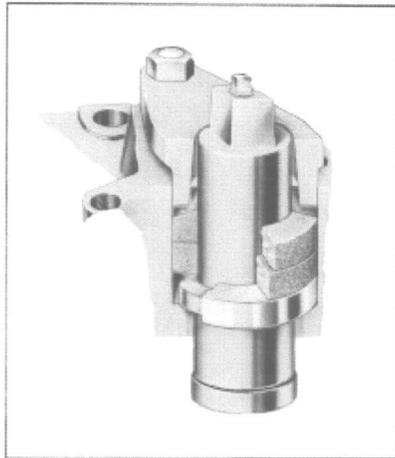
Close hydrant—with inspection and tests now completed, the Iowa hydrant is again ready to continue protection of home, life and property, fulfilling the purpose for which it was designed and sold.



Hydrant Repair Assemblies

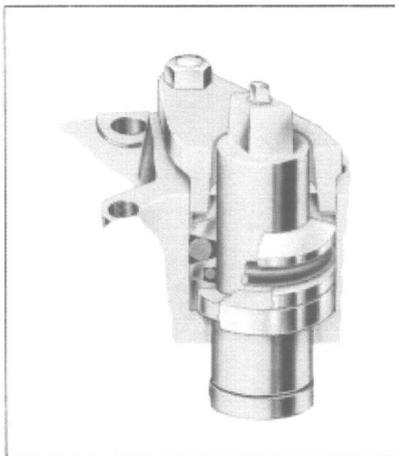
| Assembly | Parts |
|--|-----------------------------|
| A Complete Hydrant Valve Assembly Including Drain | 24 thru 46, but not Part 39 |
| B Drain Valve Assembly | 40 thru 46 |

Parts and Accessories



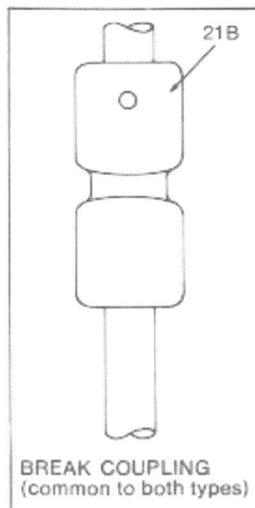
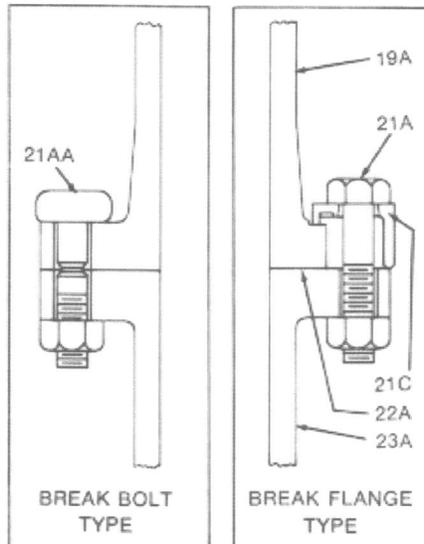
CONVENTIONAL STUFFING BOX CONSTRUCTION

Iowa hydrants, unless otherwise specified, are furnished with the conventional braided, graphited, asbestos packing—quickly and easily replaced whenever necessary.



O-RING SEAL STUFFING BOX

The O-Ring packing incorporates two specially designed O-Ring seals. This construction provides an excellent seal, and can be made part of any Iowa hydrant no matter when it was installed.

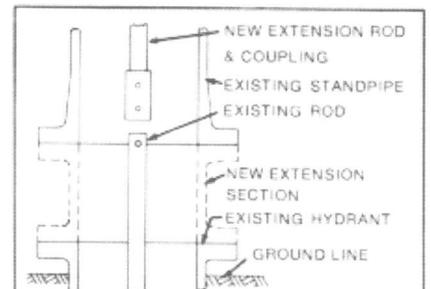


BREAK BOLT AND BREAK FLANGE HYDRANTS

| Part No. | Part | Number Required |
|--------------------------|---|-----------------|
| Break Bolt Type | | |
| 21AA | Break bolts, cast iron | 8* |
| 21B | Break coupling, cast iron | 1 |
| Break Flange Type | | |
| 19A | Standpipe, Break Flange, cast iron | 1 |
| 21A | Break Flange Bolts and Nuts, steel | 8 |
| 21B | Break Coupling, cast iron | 1 |
| 21C | Break Flange, cast iron | 1 |
| 22A | Break Flange Gaskets | 1 |
| 23A | Break Flange Extension Piece, cast iron | 1 |

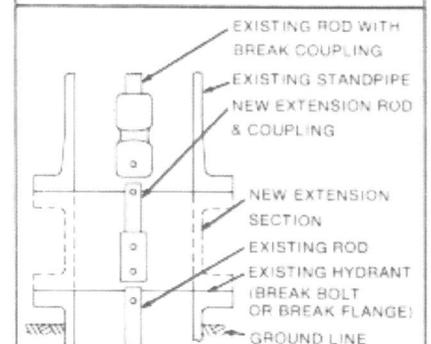
TO EXTEND INSTALLED IOWA HYDRANTS—(NO DIGGING OR WATER SHUT-OFF REQUIRED).

Iowa fire hydrants can be extended, without water shut-off and digging, by the use of an intermediate extension section. Available in lengths from 6" to 60" in 6" increments, sections are flanged at both ends and furnished with gaskets, bolts and nuts, extension rod, coupling and pins.



Procedure For Extending Ground Line Hydrants

1. Remove dome, head and standpipe.
2. Attach new rod with coupling to top of existing lower square operating rod.
3. Mount and bolt new extension section to existing pipe.
4. Replace standpipe and bolt to extension. Reassemble head and dome of hydrant as outlined under Inspection and General Maintenance Instructions steps 6 and 7.



Procedure For Extending Break Flange Type Hydrants

1. Remove dome, head and standpipe.
2. Disconnect existing break coupling from lower square operating rod.
3. Attach new extension rod with standard coupling to lower existing rod.
4. Mount and bolt new extension section to existing pipe.
5. Attach existing upper rod with break coupling, to top of new extension rod.
6. Replace standpipe and bolt to extension. Reassemble head and dome of hydrant as outlined under Inspection and General Maintenance Instructions steps 6 and 7.

CLOW

VALVE COMPANY

A Division of McWane, Incorporated

CLOW VALVE CO.
902 South 2nd Street
Oskaloosa, Iowa 52577
Phone 515-673-8611
FAX 515-673-8269

INSPECTION AND MAINTENANCE OF IOWA FIRE HYDRANTS

Only two hand tools are needed for the complete removal and reassembly of working parts in the Iowa Fire Hydrant – an ordinary adjustable wrench and a standard screwdriver.

All parts are easily removed and replaced from the top, eliminating any need for special tools or heavy, cumbersome wrenches.

The advanced design of the Iowa hydrant provides minimum friction losses and maximum water delivery. Superior engineering, construction, and materials assure operational dependability through the years, and when maintained by regular, periodic inspection of internal parts, continued efficiency is sustained.

Ease of maintenance is one of the many advantages of the Iowa Fire Hydrant – systematic inspections, following the simple procedures outlined here, will assure its dependability for generations.

DIRECTIONS FOR REMOVAL AND REASSEMBLY OF INTERNAL PARTS

***Before commencing disassembly procedure, shut off water valve in main controlling flow to hydrant inlet, and open hydrant valve completely.**

- 1.) Unscrew single dome bolt (item #3) and lift off dome (#2). Unscrew series of head bolts (#12) and remove head (#11).
- 2.) Grasp square operating rod (#20) and lift to remove working parts from hydrant barrel. Note position of all parts before disturbing. Examine parts carefully to see that they are in good working condition.

*Although seldom necessary, it is a wise practice while the hydrant is apart to make certain the drain is clear by driving a 5/8" diameter steel rod down through the drain barrel opening. The ability to clear the drain without digging is one of the superior features of the Iowa hydrant design.

- 3.) Unscrew lifter guide (#43) to attain full open position of the drain valve assembly, then turn guide back one full turn. Adjust to position it in line with the assembly.

4.) With drain lifter guide (#43) in line with the assembly, lower and insert into channel at hydrant bottom, taking care to hold drain valve snugly against back of the hydrant during lowering. If guide (#43) is not in line, it will not enter the channel located at the back of the hydrant bottom and the assembly will not slide into proper position.

5.) Replace complete head assembly (#11) over operating rod (#20) and bolt to standpipe (#19) in original position. Unscrew bronze cap screw (#4) from operating sleeve (#5), insert screwdriver and turn adjusting screw (#10) down against top of operating rod (#20), then back off one-half turn. Replace capscrew (#4). Examine packing (#8) and replace if necessary.

6.) Replace hydrant dome (#2) and tighten bolt (#3). Close hydrant valve and open main controlling valve to restore flow to the hydrant.

To test drain valve, remove one hose nozzle cap and open hydrant 3 turns. Allow water to rise to level of nozzle, then close hydrant. Place palm of hand firmly over the 2 1/2" nozzle opening. A strong suction will indicate hydrant is draining properly. If the water does not recede or suction cannot be felt, the drain needs to be unplugged as mentioned in step 3, or reassembly operations 4 and 5 have not been followed correctly. With drain functioning properly, replace nozzle cap and open hydrant fully to test gaskets and packing for leaks.

Close hydrant – with inspection and tests now completed, the Iowa hydrant is again ready to continue protection of home, life and property, fulfilling the purpose for which it was designed and sold.

DIRECTIONS FOR EXTENDING INSTALLED HYDRANT

Iowa Fire Hydrants can be extended, without water shut-off and digging, by the use of an intermediate extension section. Available in lengths from 6" to 60" in 6" increments, sections are flanged at both ends and furnished with gaskets, bolts and nuts, extension rod, coupling and pins.

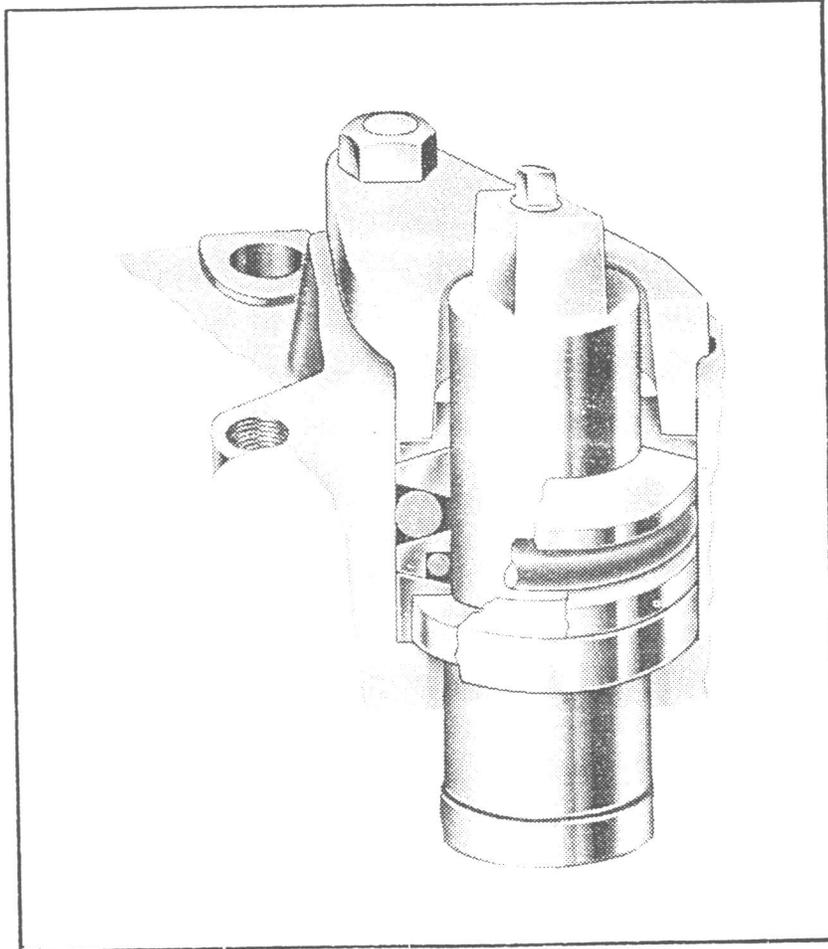
To extend Break Flange type hydrants:

- 1.) Remove dome, head and standpipe.
- 2.) Disconnect existing break coupling from lower square operating rod.
- 3.) Attach new extension rod with standard coupling to lower existing rod.
- 4.) Mount and bolt new extension section to existing pipe.
- 5.) Attach existing upper rod with break coupling to top of new extension rod.
- 6.) Replace standpipe and bolt to extension. Reassemble head and dome of hydrant.

To extend Ground Line type hydrants:

- 1.) Remove dome, head and standpipe.
- 2.) Attach new rod with coupling to top of existing lower square operating rod.
- 3.) Mount and bolt new extension section to existing pipe.
- 4.) Replace standpipe and bolt to extension. Reassemble head and dome.

specified, are furnished with the conventional braided, graphited, asbestos packing—quickly and easily replaced whenever necessary.



**O-RING SEAL
STUFFING BOX**

The O-Ring packing incorporates two specially designed O-Ring seals. This construction provides an excellent seal, and can be made part of any Iowa hydrant no matter when it was installed.

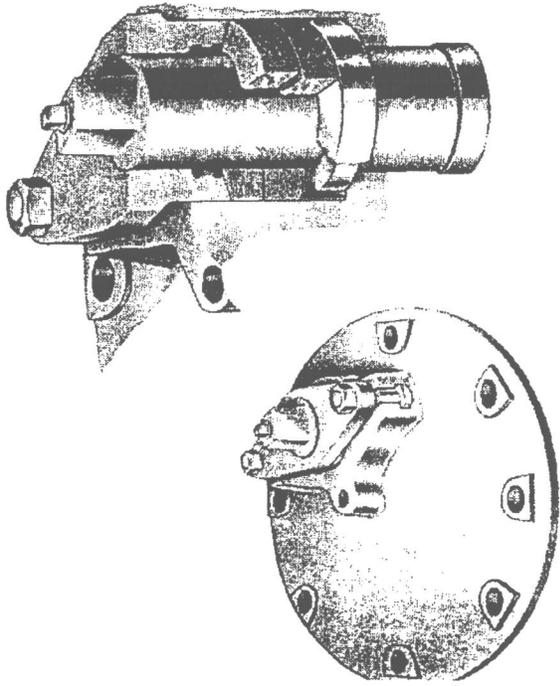
BREA
(com

**BREAK BOL
BREAK FLA**

Part No.

| | |
|------|-------------------------|
| 21AA | Brea |
| 21B | Brea * 4 1/4 four |
| 19A | Stand cast |
| 21A | Brea Nuts |
| 21B | Brea |
| 21C | Brea |
| 22A | Brea |
| 23A | Brea Piec |

Standard Stuffing Box



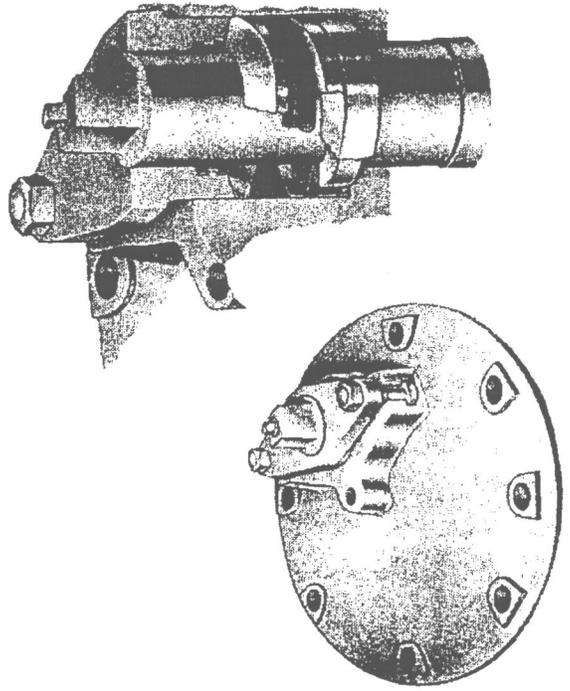
Iowa Fire Hydrants are normally furnished with standard stuffing boxes of high strength cast iron made with ample space for packing.

The follower is of cast iron with a bronze bushing. Follower bolts are made of rust-proofed steel. Follower nuts are made of solid bronze.

Iowa Fire Hydrants normally come packed with a braided, graphited, asbestos packing which gives years of trouble-free service. When required, various other packing materials can be provided.

Iowa Fire Hydrants equipped with standard stuffing boxes can be easily and quickly repacked in accordance with the servicing instructions on page 16.

O-Ring Stuffing Boxes



Iowa Fire Hydrants can be furnished with the Iowa O-Ring Stuffing Box, which incorporates two specially designed O-rings. The top ring is the dirt seal and the bottom ring the pressure seal.

O-ring stuffing boxes are designed and manufactured to the highest standards and to very close tolerances which provide positive protection against leakage.

The O-ring stuffing box makes a perfect seal, assures easy hydrant operation, and prevents any binding of the operating sleeve.

The O-ring stuffing box assembly can be incorporated on any IOWA Fire Hydrant, no matter when it was installed.

To assemble o-ring pack 4 $\frac{1}{4}$ " or 5 $\frac{1}{4}$ " heads the proper procedure is as follows:

1. Obtain head from tub and place onto ring fixtures.
2. Obtain operating sleeve from rack, obtain adjusting screw and dip into grease-next start adjusting screw into sleeve with slotted end towards the top of sleeve. Turn sleeve over and insert screw driver from top end turning screw up into sleeve flush with inside of sleeve. Insert sleeve into head.
3. Obtain stuffing box packing ring (F-240-⁰³⁷⁷0547) from rack. Slide ring over the top of sleeve.
4. Obtain 2" hydrostatic o-ring (T-240-0060) and dip in grease placing over operating sleeve, slide it down into head.
5. Obtain o-ring spacer (F-020-0035) and place it onto sleeve.
4. Obtain o-ring collar (F-020-0499) and insert o-ring #327 (T-240-0114) into retainer. Next place it onto sleeve.
7. Obtain stuffing box follower ring (F-240-0112) and place it on-sleeve.
8. Obtain two 1/2" x 2" square head cap screw (T-040-0061) and insert into slots cast into head.
9. Obtain stuffing box follower (I-240-0085) and place onto head fitting the two bolts through the two holes in follower.
10. Obtain two 1/2" brass nuts and start on bolts. Tighten down and 1/2" drive impact wrench.
11. Write onto head with grease marker "O" standing for o-ring head.

CLOW

F2500 FIRE HYDRANT

**Inspection
Operation
Maintenance**



MEETS OR EXCEEDS AWWA STANDARD C502

CLOW F2500 Fire Hydrant

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.

INSPECTION, TESTING AND MAINTENANCE

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.

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

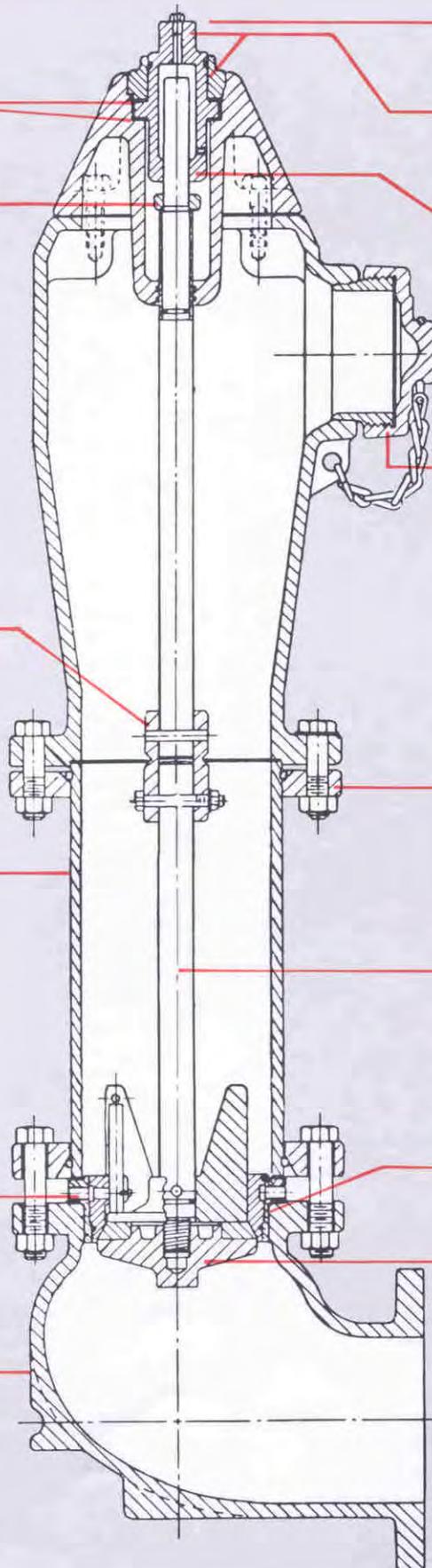
Main Valve stem, seat and other parts are removable thru top of hydrant—without excavating

Bronze Seat and Drain Ring

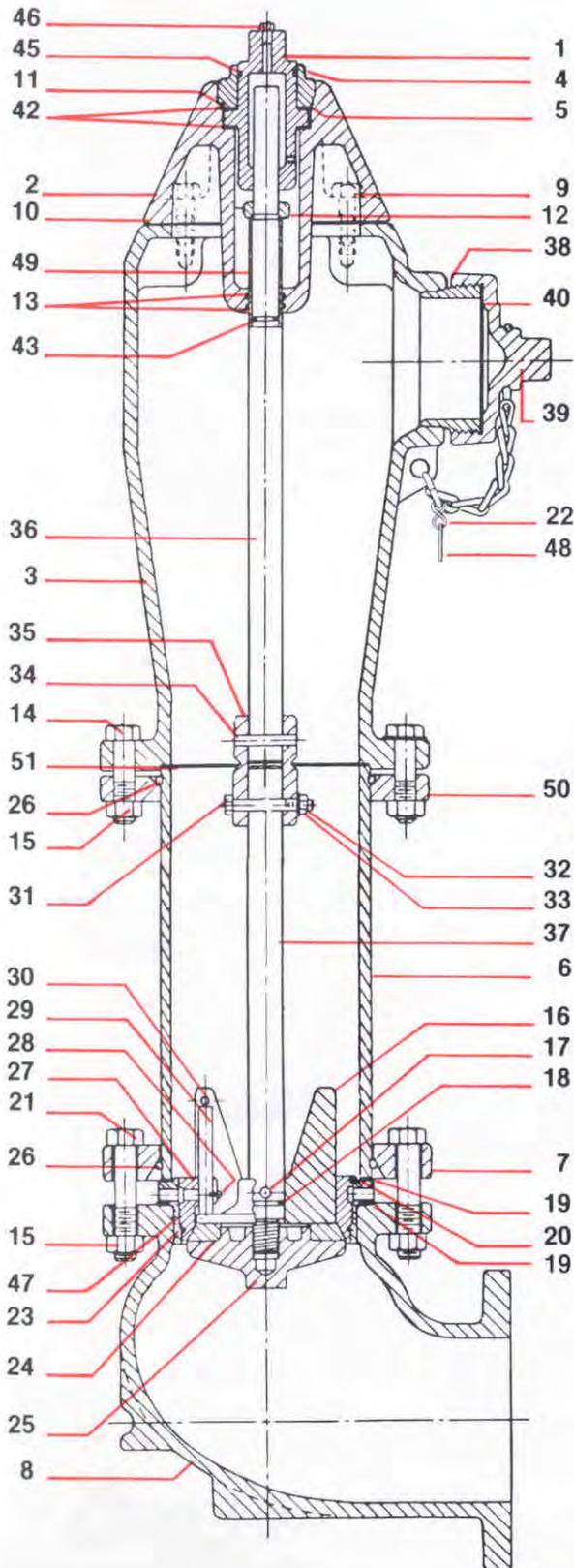
Bronze seat ring threaded into bronze drain ring

Main Valve Seat

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

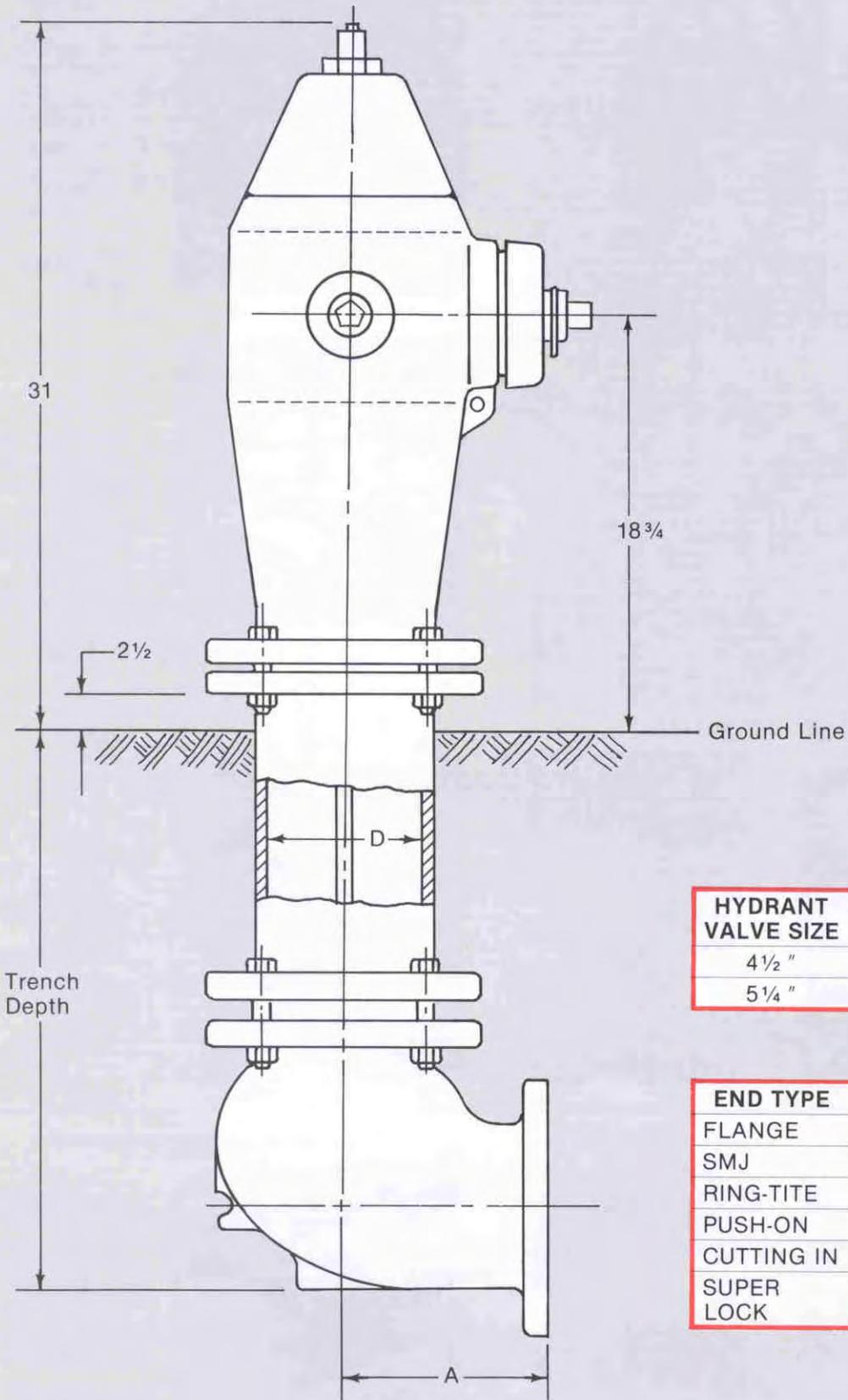


CLOW Hydrant Parts and Material Listing



| 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 $3\frac{1}{4}$ | 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

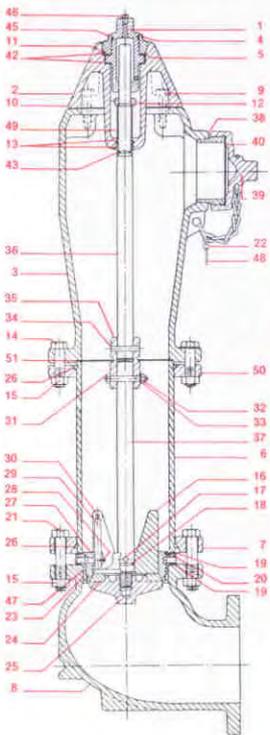


| HYDRANT VALVE SIZE | D |
|--------------------|------|
| 4 1/2 " | 6.16 |
| 5 1/4 " | 7.04 |

| END TYPE | A |
|------------|--------|
| FLANGE | 9 |
| SMJ | 10 1/2 |
| RING-TITE | 10 1/2 |
| PUSH-ON | 10 1/2 |
| CUTTING IN | 10 1/2 |
| SUPER LOCK | 10 1/2 |

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 3/4" | 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 | Acroac |
| 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-Lock 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 Carbon Acetal |
| 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.



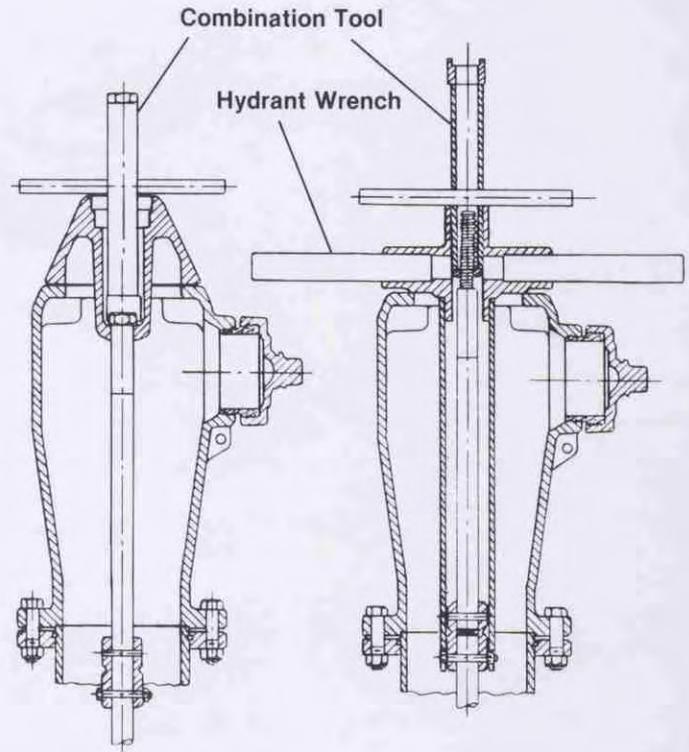
- ◀ Tighten to approximately 150 ft-lbs torque.



- 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.



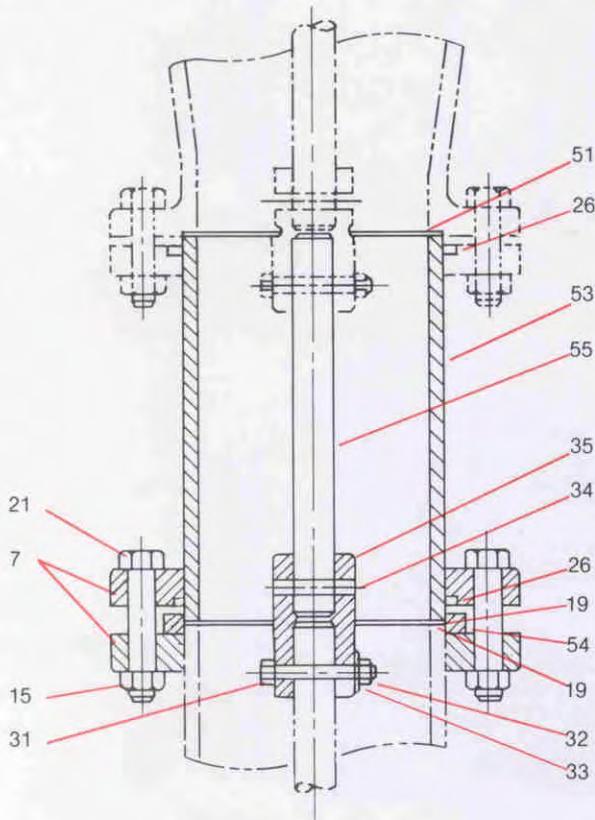
- 11** To test drain valve, remove one hose nozzle cap and open hydrant five turns. Allow water to rise to level of nozzle. Close hydrant and place hand over nozzle opening. Suction should be felt which indicates drain is working properly.

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.



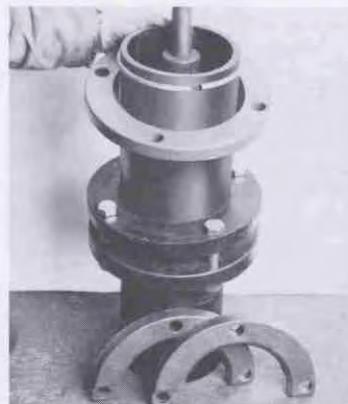
Standpipe Extension Assembly

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.

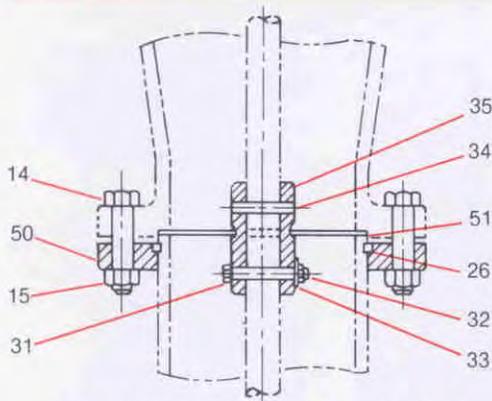


- 16** Set nozzle section in place on extension. Rotate break flange to line up holes and bolt in place. Torque bolts to 120 ft. lbs. keeping a uniform space between flanges. Note: For two piece break flange: Install break flange (beveled side up) at this time—tighten bolts at overlap of ring first.

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.

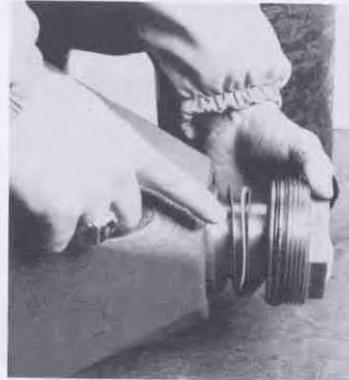


11 Screw operating nut (1) onto upper stem with lower Delrin bearing (42) in place. Install remaining Delrin bearing (42) between two races (5) on operating nut.

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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