



WATER PIPE TAPPING & HYDRA-STOPPING™

Models:

4120 THS/HS

4120-12 THS/HS

4120-8 THS/HS

LD4120 THS/HS

LD4120-12 THS

LD4120-8 THS

800 THS/HS

Operating Instructions

144 Tower Drive, Suite A 60527

800-538-STOP (7867)

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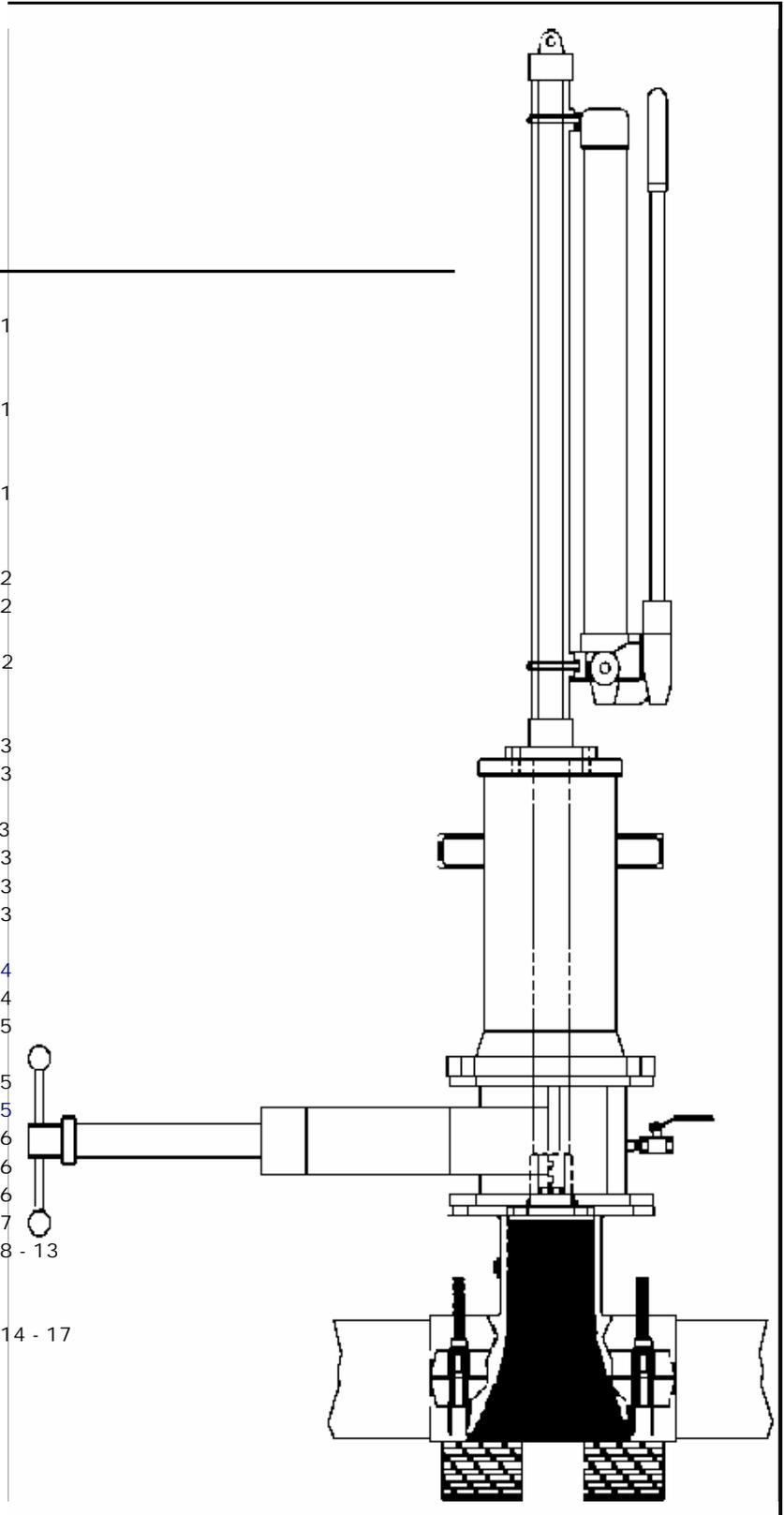
NOTICE

Before doing any pressure installations, thrust restraint must be addressed.

In case of doubt contact Hydra-Stop.

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Hydra-Stopping System™ Operating Instructions
Models 4120-12 THS/HS, 4120-8 THS/HS, 800 THS/HS
4” through 8” and 10” and 12” (100mm
– 200mm) (250mm – 300mm)

INSTALLATION OF HYDRA-STOP® FITTING

A. SIZES 4”, 6”, 8” (100, 150, and 200mm)

1. Remove 1-1/16” stainless steel nuts and Teflon washers from the studs of the HYDRA-STOP FITTING (H.S.F.). Place upper half of H.S.F. onto clean pipe. Install lower half of H.S.F. by sliding studs up through metal fingers of upper H.S.F. Make sure that the gasket is not pinched or buckled by lower H.S.F. **(See Fig. 1, Page 8)**
 2. Slide Metal Arbors over studs with the lip pointing down, and in, so that the lip will hook over the stud support bar.
 3. Install Teflon washers and 1 1/16” nuts starting in the middle and working out. Keep the gap between upper and lower halves as even as possible.
- *NOTE: ONLY SNUG UP NUTS.**
4. Remove the blind flange. **Fully tighten H.S.F nuts 75 foot-pounds.**
 5. Install O-Ring into O-Ring groove; you are now ready to install the temporary valve.

B. SIZES 10” and 12” (250 and 300mm)

1. Install upper half of Hydra-Stop Fitting (H.S.F.) on pipe.
2. Insert bolts on the lower half of the H.S.F. from the bottom up. Bolt to upper half of the H.S.F. starting in the middle and working out. Keep the gap between the upper and lower halves as even as possible.
3. Install gasket on face of the H.S.F. **(See Fig. 2 Page 9)**

TEMPORARY VALVE INSTALLATION

A. SIZES 4”, 6”, 8” (100, 150, and 200mm)

1. Bolt Temporary Valve onto the face of the Flange with the o-ring side facing up and using an alternate tightening pattern (as shown below) to ensure that the O-RING IS PROPERLY SEALED. **(See Fig 3. Page 10)**
2. With the Temporary Valve installed open by turning handle counter- clockwise 75-77 turns.
Note: Valves should always be transported in the closed position.

B. TEMPORARY VALVE INSTALLATION SIZES 10” and 12” (250 and 300mm)

1. Install the temporary valve with the word SEAT facing up. Bolt on 1-7/16” nuts onto the studs using the alternate tightening pattern to ensure a proper seal.
2. Open Temporary Valve.
Note: The 3/4” nuts, two (2) on each side of the valve bonnet, may be tightened or loosened to allow the valve packing to seal or loosen.
3. Place gasket on face of Temporary Valve. **(See Fig. 4 Page 11)**

COMPLETION PLUG

1. Slide Completion Plug Mandrel into Hydra-Tapper® and tighten thumb screw. **(See Fig. 5 Page 12)**
2. Bolt Hydra-Tapper to valve and loosen thumb screw. Slide the Plug Inserter down to the Completion Plug in the H.S.F. Attach square nut wrench and rotate until drive pins fall into drive holes on sizes 6” through 12” and into rectangle slot on 4”. Turn rotating handle on the Plug Inserter until snug, then back off ½ turn.
3. Measure from the top of the square nut wrench to the top of the Hydra-Tapper. This is the factory sealed measurement. This is also your completed measurement.
4. Unscrew the Completion Plug and remove by sliding the Completion Plug Mandrel and plug assembly up. Next slide the Completion Plug Mandrel and plug assembly down and rotate the wrench counter-clockwise until the plug drops into the lead thread. Take another measurement from the top of the handle of the wrench to the top of the Hydra-Tapper. This is your starting measurement.

***Note: The 8” and 12” plugs may need to be rotated while they are inserted through the close tolerance valves. Testing the Completion Plug is an important step and should never be omitted!**

5. Unscrew the Completion Plug and slide the Completion Plug assembly back into the Hydra-Tapper housing. Turn the thumb screw to hold the Completion Plug assembly in the Hydra-Tapper. Remove the Hydra-Tapper from the valve. Remove the Completion Plug assembly from the Hydra-Tapper and set the plug into the H.S.F. blind flange to keep it clean.

***Note: The valve may remain open, unless you are performing a Re-stop.**

*****TROUBLESHOOTING*****

Problems with the Completion Plug

- a. The H.S.F. has been installed improperly. i.e.; one side is tighter than the other.
- b. The plug has dirt in the thread.

TAPPING MACHINE 4”, 6”, 8” (100, 150, and 200mm)

A. CUTTER AND PILOT DRILL INSTALLATION

PILOT DRILL SIZE REFERENCE

Tap Size	Drill Size
4” and 6” (100mm and 150mm)	½” x 6” (25mmØ x 150mm)
8” (200mm)	½” x 7 ¼” (25mmØ x 184mm)

1. Thread appropriate cutter (hole saw) into the Saw Mandrel. Once tight, back the Cutter off until the first set of drive holes line up. Thread the drive screws into the drive holes in the cutter. Insert the Saw Mandrel into the Hydra-Tapper and tighten the thumb screw.
2. Tighten Drive Pins.
3. Locate and remove the set screw on the Collar at the base of the Saw Mandrel.
4. Insert appropriate Pilot Drill into center hole of the bottom of the Saw Mandrel.
5. Install the Pilot Drill into the center hole at the base of the Saw Mandrel. Visually align the flat on the Pilot Drill through the setscrew hole and install the setscrew.

B. SETTING THE STOP COLLAR 4”, 6”, 8” (100, 150, and 200mm)

1. With Saw Mandrel installed into the Hydra-Tapper and the thumb screw locked, slide the Stop Collar onto the Saw Mandrel and locate the “Notch” in the upper middle of the Saw Mandrel. Set the Stop Collar on the “Notch” for 6” below the “Notch” for 4” and above the “Notch”

for 8” taps.

STOP COLLAR REFERENCE

Tap Size	Notch Position
8” (200mm)	Above
6” (150mm)	On
4” (100mm)	Below

HYDRA-TAPPER® 10” AND 12” (250 and 300mm)

A. CUTTER AND PILOT DRILL INSTALLATION

1. Remove the three (3) ½” socket head cap screws and nylock nuts from the 10” and 12” Saw Mandrel. Thread the appropriate Cutter (hole saw) onto the Saw Mandrel. Retract the Cutter until the first set of holes in the Cutter and the first set of drive holes in the Saw Mandrel line up. Install the three (3) ½” socket head cap screws through the Cutter and into the Saw Mandrel (from the bottom up). Attach the three (3) nylock nuts to the ½” socket head cap screws and tighten them against the top of the base of the Saw Mandrel.
2. Remove the set screw from the Collar at the base of the Saw Mandrel. Install the 1/2” x 10” Pilot Drill into the center of the Saw Mandrel. Visually align the “flat” on the Pilot Drill with the set screw hole and install the set screw onto the “flat” of the Pilot Drill.

B. SETTING THE STOP COLLAR 10” AND 12” (250 and 300mm)

1. There is no notch in the 10” and 12” Saw Mandrel. Insert the Saw Mandrel into the Hydra-Tapper and lock the thumb screw. Attach the Hydra-Tapper to the Temporary Valve using the alternating pattern to tighten and insure a seal of the gasket. Lower the cutter assembly to the top of the pipe. (Care should be taken to avoid dropping the Pilot Drill onto the top of the pipe.) Install the Stop Collar onto the Saw Mandrel. Insert the Depth Gauge between the top of the packing nut and the Stop Collar and lock the Stop Collar in place.

C. MOUNTING THE TAPPING MACHINE

1. Bolt the Hydra-Tapper to the Temporary Valve and use the alternating pattern to tighten and insure a proper seal. Loosen thumb screw on packing nut assembly and lower Saw Mandrel onto the pipe. (Care should be taken not to drop the saw onto the top of the pipe and break or crack the Pilot Drill.) Lower the Saw Mandrel and lock the thumb screw.
2. Attach the tee handle to the Feed Screw. Thread the Feed Screw onto the brass plate at the top of the Hydra-Tapper and advance until 3” protrude below the brass plate.

D. DRIVE UNIT

1. Loosen the thumb screw, if necessary, to turn the Saw Mandrel and align the male hex end of the Saw Mandrel to the female hex end of the Drive Unit.
***NOTE: VALVE MUST BE OPEN.**
 2. Tighten the thumb screw, if necessary, and advance the Feed Screw onto the pin at the top of the Drive Unit.
 3. Loosen the thumb screw and advance the Feed Screw until tight. Then retract 1/2 turn, connect power supply, and start Drive Unit clockwise.
***NOTE: Never operate the Drive Unit in reverse (counter-clockwise).**
-

E. TAPPING (4", 6", 8", 10" and 12")

1. Advance the Feed Screw by placing two (2) fingers on each end of the tee handle and applying steady equal clockwise pressure.

***NOTE: Saw Mandrel should rotate at 90 to 120 R.P.M. If Cutter jams, move the Drive Unit to neutral and back the Feed Screw up ½ turn and restart Drive Unit.**

2. Continue tapping until the Stop Collar is ½" to 1" from the top of the Packing Nut.

F. CHECKING THE COUPON

1. With the Stop Collar ½" – 1" from the top of the packing unit, stop the Drive Unit, tighten the thumb screw and remove the Drive Unit.
2. With one hand firmly placed over the Saw Mandrel, loosen the thumb screw and allow the water pressure to push the Saw Mandrel up until the Pilot Drills coupon retention clip is caught.
3. The Saw Mandrel will raise approximately ½" and stop when the Pilot Drills coupon retention clip is caught.
4. After checking the coupon, move the Stop Collar up 1" and complete the tap.
5. After completing the tap, tighten the thumb screw, remove the Feed Screw and Drive Unit. Loosen the thumb screw with one hand firmly placed over the Saw Mandrel. Let the water pressure slowly push the Saw Mandrel up.
***NOTE: If the Saw Mandrel does not fully retract, push down and turn 180°.**
6. Close the Temporary Valve (75 to 77 turns) and remove the Hydra-Tapper.
*** Note: If the valve fails to close after 10 to 20 turns, check to see if the Saw Mandrel is fully retracted and the Drive Unit is removed.**
7. Open Hydra-Tapper Petcock and bleed off pressure.

*****TROUBLESHOOTING*****

IF THE PILOT DRILL DOESN'T CATCH

- a. Push down on the Saw Mandrel and turn.
- b. Reattach the Drive Unit and tap ½" farther and recheck the coupon.
- c. Retract the Saw Mandrel, close the Temporary Valve, remove the Hydra-Tapper, and inspect the Pilot Drill and coupon retention wire.

COMPLETION OF THE TAP

- a. If the Saw Mandrel does not fully retract, push down on the saw Mandrel and turn 180°.
- b. If the Tapping Valve fails to close after 10 to 20 turns, make sure the Drive unit and Feed Screw have been removed.

HYDRA-STOPPING™

A. INSTALLATION OF 4" THROUGH 12" LINE STOP EQUIPMENT
(Figures 3 & 4 pgs. 10 & 11)

1. Turn the Hydra-Stop® unit actuator switch to the right (down arrow) and pump out the ram. Attach the appropriate Stopper Rubber and apply a liberal amount of PRIMOLUBE. Continue to pump the ram all the way out. Switch the actuator to the left and pump the ram all the way back in. This will bleed the air out of the system.

***NOTE: FAILURE TO GREASE THE HYDRA-STOP RUBBER WILL RESULT IN A POOR HYDRA-STOP.**

2. Install the Hydra-Stop unit using the alternate tightening pattern to ensure a proper seal.
3. Open the Temporary Valve.

4. Turn Hydraulic actuator switch to the RIGHT (down position) and pump the handle until the Gauge has the appropriate reading.

Pipe Size	Gauge Reading Rubber Stoppers (approximate)	Gauge Reading Bullet Stoppers (approximate)
4"	1,200 PSI	800 PSI
6"	2,200 PSI	1,200 PSI
8"	3,200 PSI	1,600 PSI
10"	4,200 PSI	2,000 PSI
12"	5,000 PSI	2,400 PSI

B. REMOVAL OF 4" THROUGH 12" HYDRA-STOP EQUIPMENT

1. Slowly remove the Hydraulic actuator lever to the middle position to reduce the pressure and refill the line. Open the Temporary Valve Petcock, switch the Hydraulic actuator to the left (up position), and pump the handle until it becomes hard to pump.
2. Close the Temporary Valve (75 to 77 turn's 8" valve) and bleed off the pressure.
***Note: If the valve stops turning after 10 or 20 turns, the Hydra-Stop Rubber is insufficiently retracted.**
3. Remove the Hydra-Stop unit.

INSTALLATION OF THE COMPLETION PLUG

A. INSERTING THE PLUG

1. With the Completion Plug Mandrel installed into the Hydra-Tapper, mount the Hydra-Tapper on the Valve, again using the alternate tightening pattern.
***NOTE: DO NOT LEAVE THE PETCOCK OPEN**
2. Loosen the Thumb Screw and lower the Completion Plug to the top of the valve gate. Retract the Completion Plug 1/2" and tighten the Thumb Screw.
3. Open the Valve very slowly so the Tapping Machine housing can fill with water.
4. Attach the square nut wrench to the Completion Plug Mandrel. While pushing down, turn the Completion Plug counter-clockwise until the Completion Plug drops into the lead thread of the line stop fitting. Reverse the square nut wrench and thread the Completion Plug into the fitting. Insert the Completion Plug until you are at the factory set measurement.
5. Unscrew Completion Plug Mandrel from Completion Plug, slide Completion Plug Mandrel into Hydra-Tapper, tighten thumb screw, and open Petcock.
6. Remove Hydra-Tapper.
7. Close and remove the Temporary Valve.
***Note: Always store Temporary Valves in the closed position.**
8. Install cap blind flange (10"-12"). (See Fig. 6. Page 13)

*****TROUBLESHOOTING*****

If the plug becomes difficult to thread into the fitting:

- a. Wait and let pressure equalize.
- b. Connect a line of equal pressure from a corporation stop to the petcock

Storage

A. VALVES

1. Close, wipe clean, and sanitize.
2. 10" and 12" when removing valve place both sets of nuts onto the top set of studs.

B. HYDRA-TAPPER

1. Remove Saw or Completion Mandrel from Hydra-Tapper housing.
2. Remove saw and Pilot Drill from Saw Mandrel, remove pins from Saw Mandrel, and clean out threads and lubricate.
3. Remove Feed Screw and lubricate.
4. Check condition of Cutters.

***Note: Cutters are available for re-tipping.**

5. Check condition of the Pilot Drill. Replace coupon retention wire after every five (5) taps.
6. Check Completion Plug threaded rod O-Ring by grasping handle pulling threaded rod out of Mandrel and checking the O-Ring at the end of the rod 4" only. For 6"-12" remove roll-pin at the base of the rotating handle. Then follow 4" steps.

***Note: Check O-Ring only if the Completion Plug Mandrel leaks under pressure.**

C. HYDRA-STOPPING UNIT

1. Remove Stopper Rubber from Hydra-Stop unit, wipe off excess grease and wash with warm soap and water.
2. Lube female-threaded end of the Stopper Rubber holder.
3. Pump the ram all the way out and all the way in to bleed out any air.
4. If the unit was used on a contaminated line, wash and rinse, then swab with chlorine bleach.
5. With ram in up position, remove 1/2" nut at the top of the Hydraulic Pump. Remove the dipstick. The dipstick should have oil on just the very tip without threading it into the pump reservoir.

CHANGING THE RAM 4" – 8" to 10" – 12" or 10" – 12" to 4" – 8"

1. Remove attached Hydra-Stop rubber and holder. Pump ram all the way in.
2. Remove eight (8) 1/2" socket head cap screws from the base of the ram at the top of the Hydra-Stop housing.
3. Remove ram from housing.
4. Apply a liberal amount of Hydra-Stop Felco bond in a square, following the bolt pattern and a circle following the center ram hole.
5. Attach the ram to the Hydra-Stop housing using the eight (8) 1/2" socket head cap screws.
6. Tighten to 75-foot pounds torque.

GENERAL MAINTENANCE

1. Apply a thin coat of lubricant to all external parts.
 2. Check the handles and joints on the carrying case.
 3. Our bullet stoppers retain water after use, if the 3/4" allen head bolt (that holds the paddle in) is not removed to allow the water to drain out, the water will freeze in cold weather and break the aluminum bullets.
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CUTTER CARE

Hydra-Stop® carbide-tipped cutters can be used on a wide range of pipe materials, including: Iron (Cast & Ductile, Carbon Steel, and Asbestos Cement & PVC). Hydra-Stop cutters can easily be re-sharpened. The high-quality carbide inserts are replaceable, allowing for complete rebuilding of the cutter. Contact the Hydrs-Stop factory in Alsip, Illinois, for more information on the re-sharpening or rebuilding of your cutter.

Please observe the following care and use instructions to achieve the longest life out of your Hydra-Stop cutter:

- Be sure to thread the cutter onto the Saw Mandrel and tightly, back off until the first set of drive holes line up. Thread the drive screws into the drive holes in the cutter and tighten. If the cutter is not tightly in place, vibration may damage the cutter.
 - Apply adequate, steady & equal pressure when advancing the drive unit through the tap. Allowing the cutter points to contact the work without applying adequate pressure or by applying too much pressure may cause the cutter points to dull earlier than normal.
 - Always wear safety glasses and use ear protection while making a tap. Keep fingers and hands away from the Saw Mandrel and drive unit chuck while it is in operation. Don't wear loose clothing while operating the tap machine.
 - Always clean and dry cutters after use. Store cutters in a humidity free environment to ensure against premature rusting. Never lay cutter down on the carbide tips as this can damage the teeth. When transporting, make sure cutter is secure and stable.
-

NOTES

FIGURES

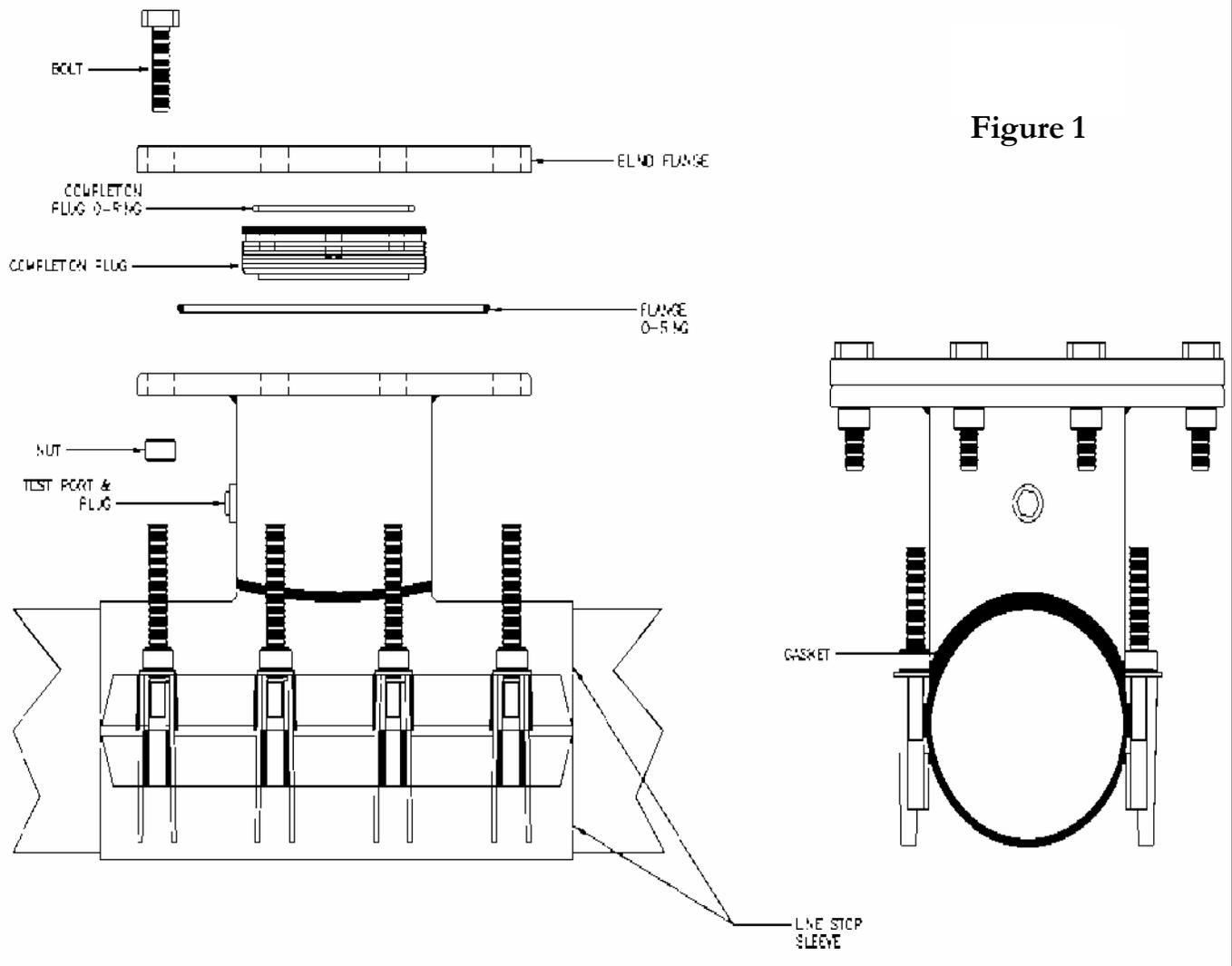


Figure 1

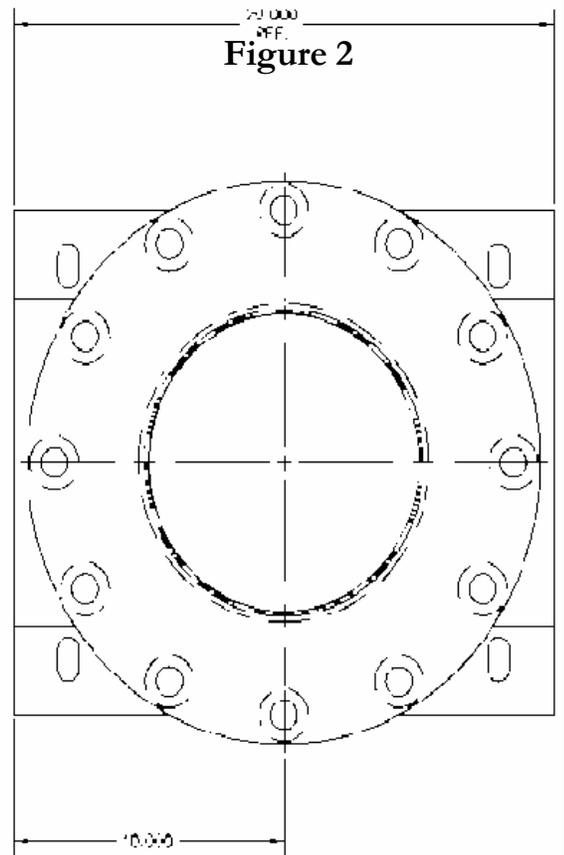
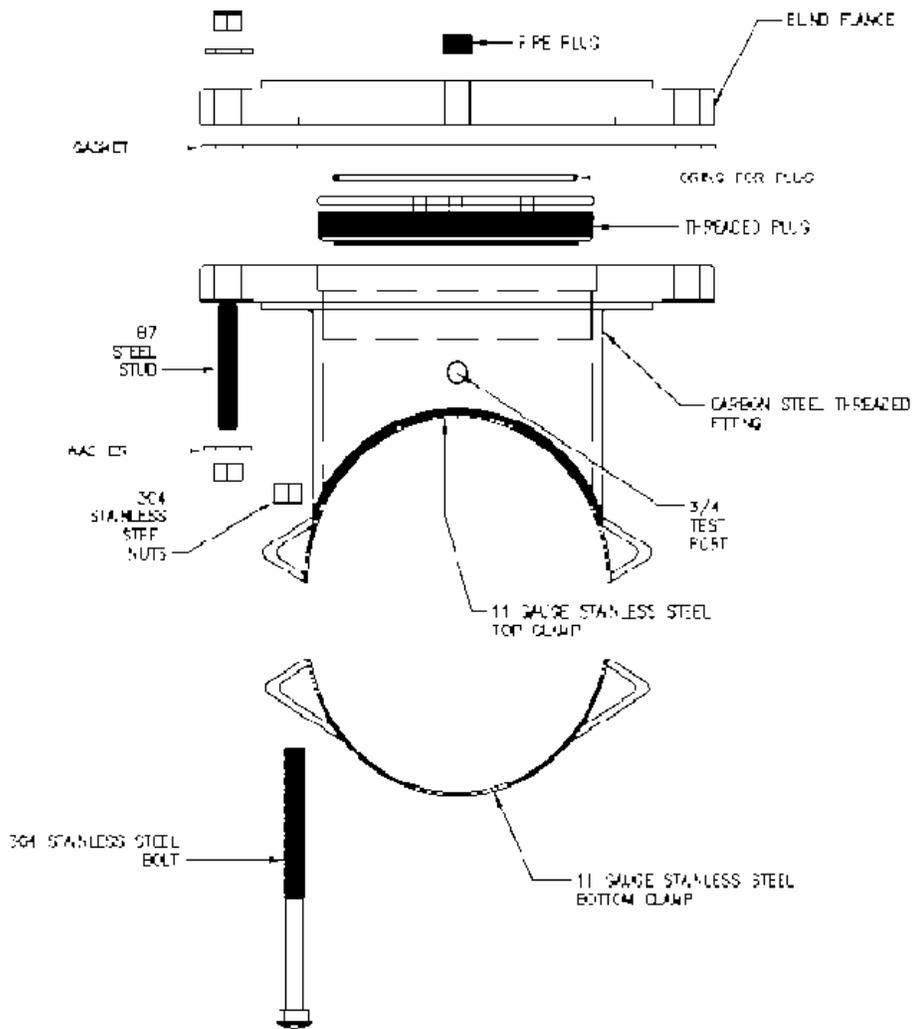


Figure 3

O-RING

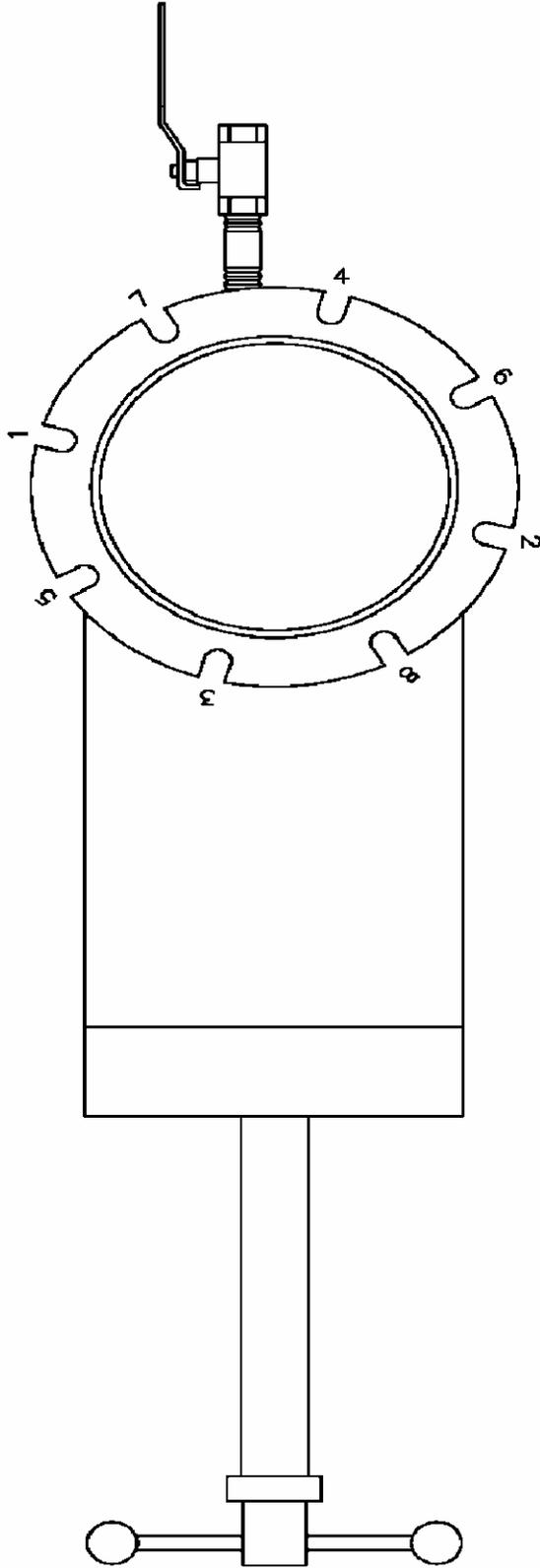
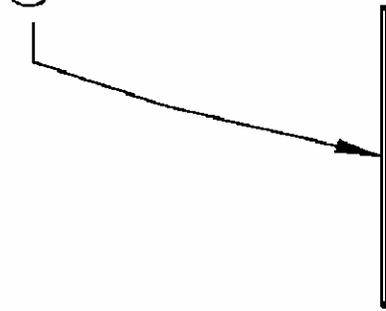


Figure 4

CA311

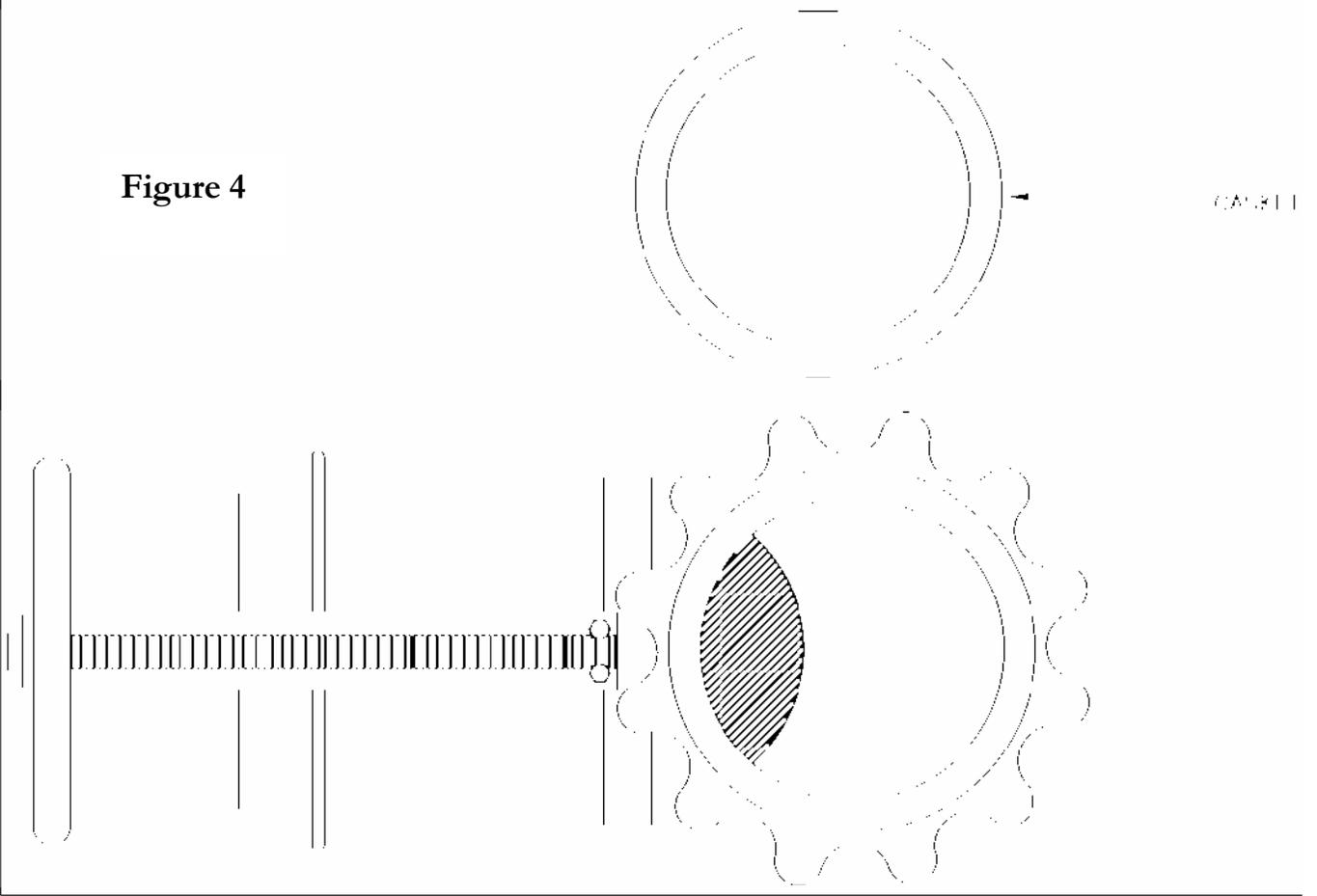


Figure 5

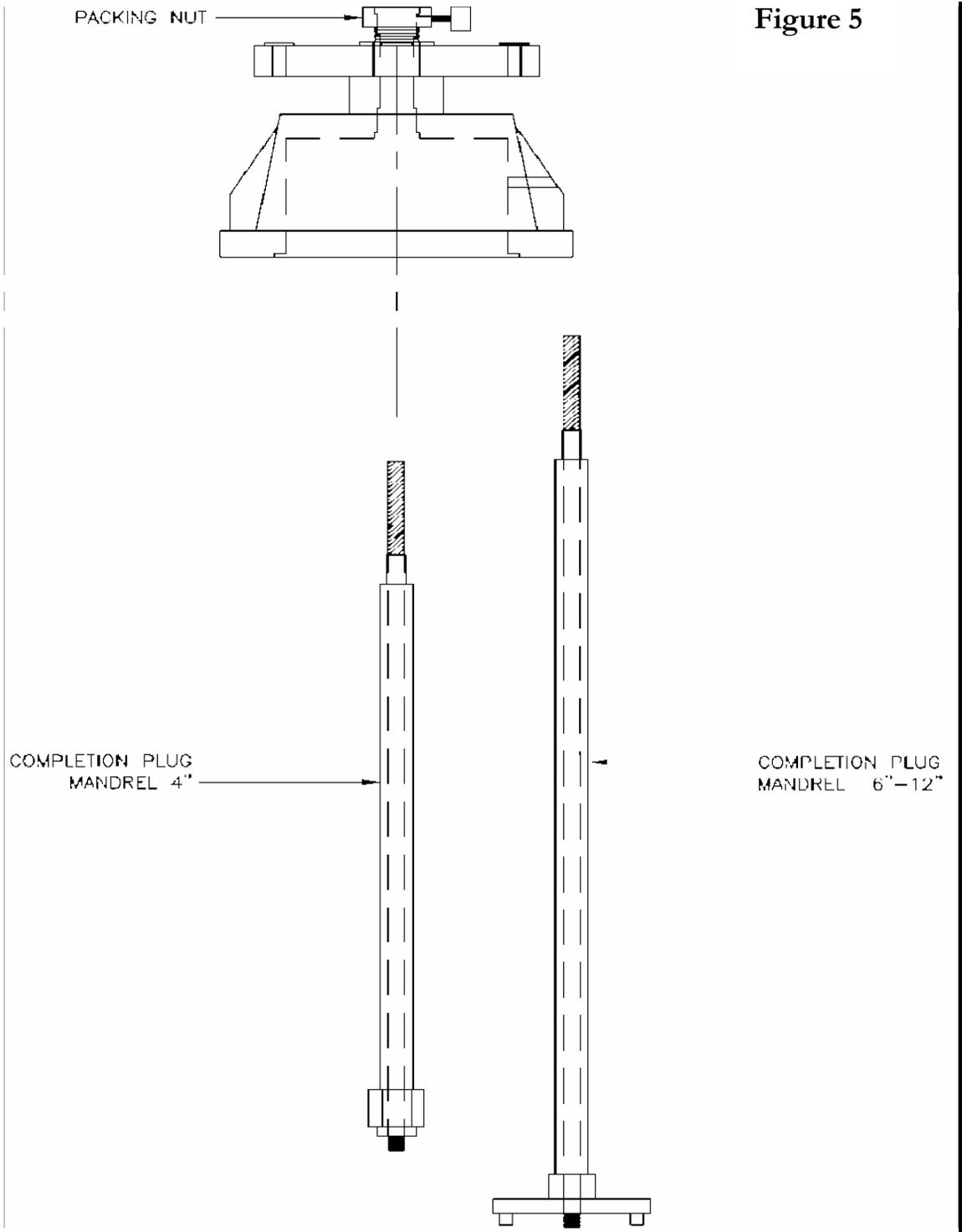
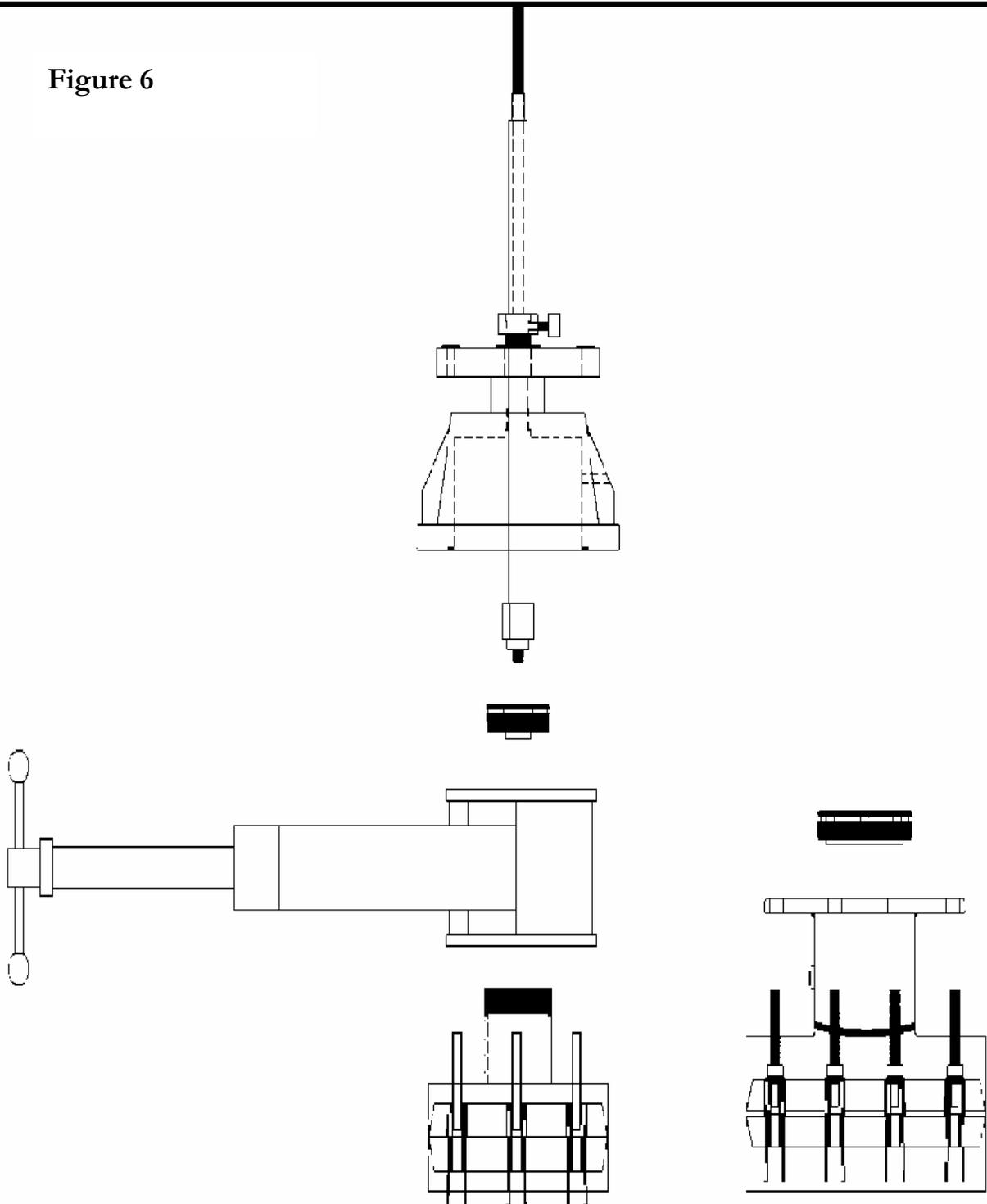
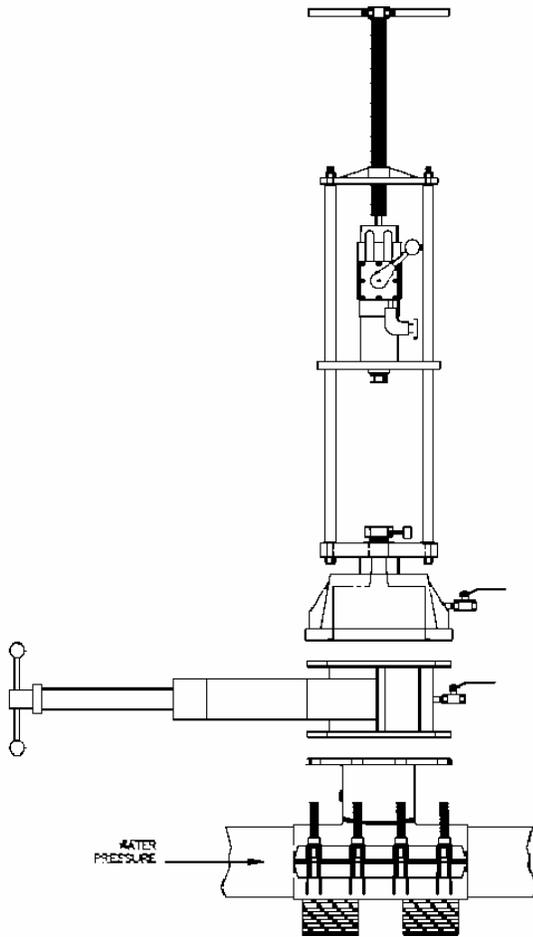


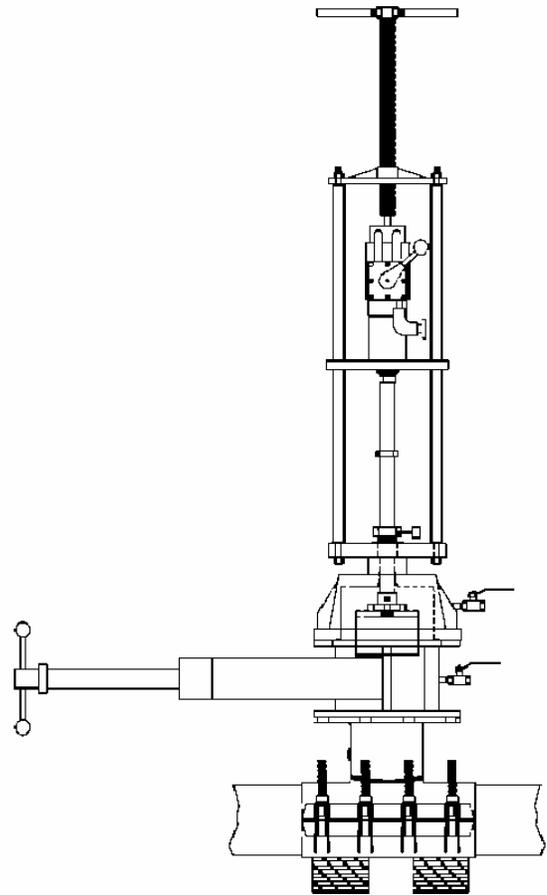
Figure 6



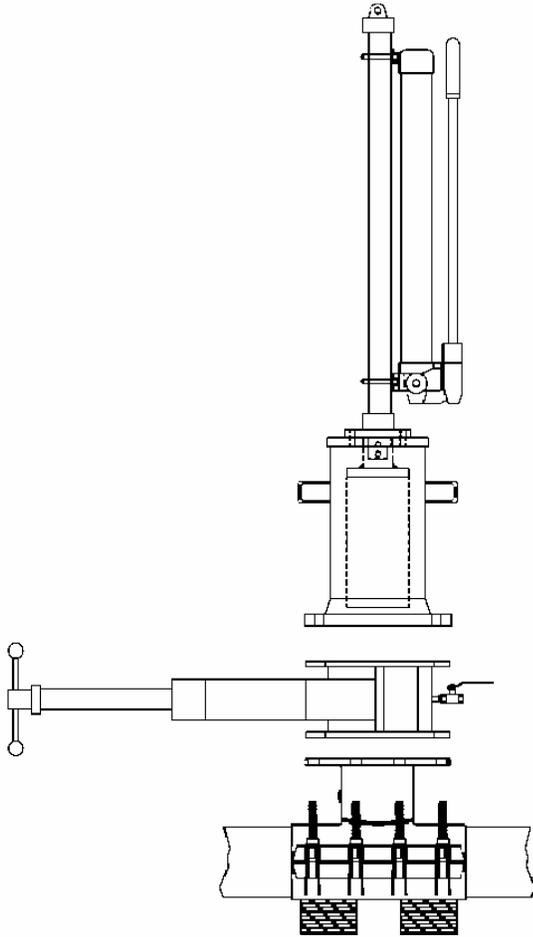
STEP-BY-STEP INSTRUCTIONAL DIAGRAMS



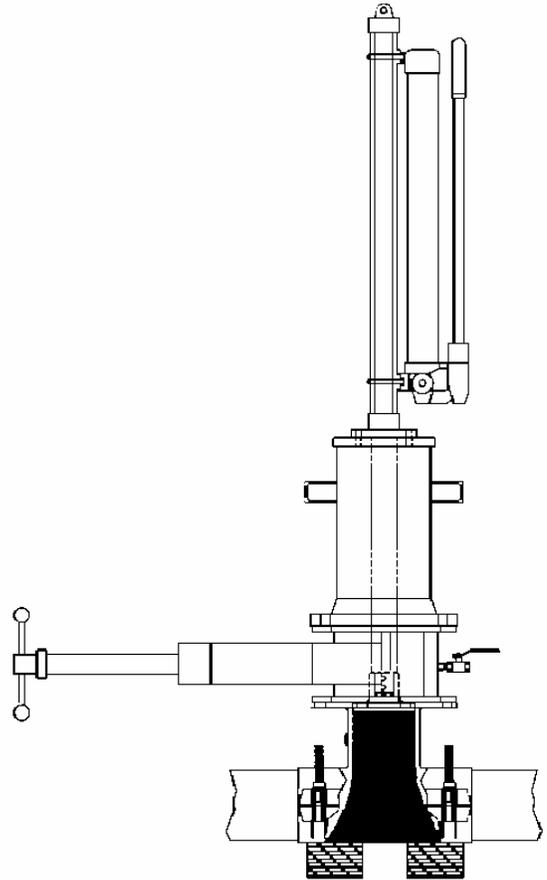
1. *Line stop fitting bolted or welded to pipe, support blocking placed under fitting. Tapping gate valve and tapping machine bolted to fitting



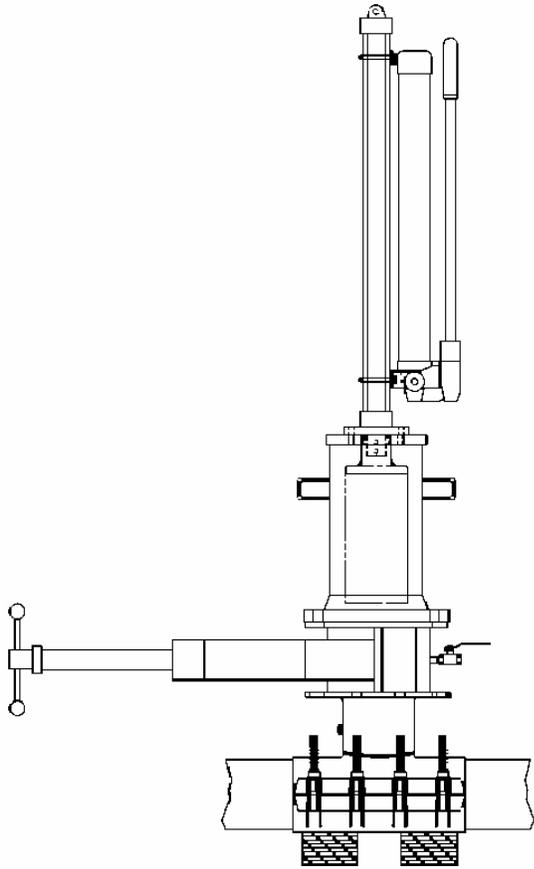
2. Gate valve opened. Shell cutter taps (cuts) hole in pipe. Cutter retracted with pipe coupon.
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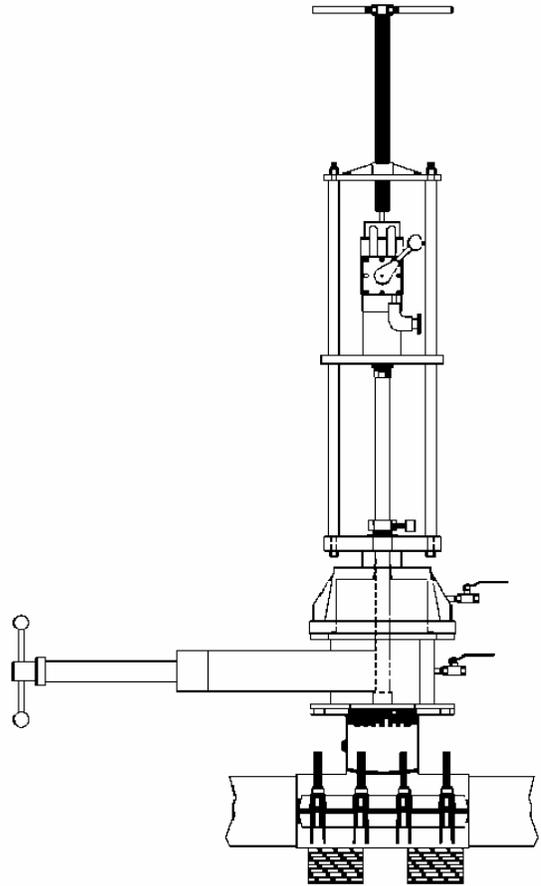
3. Gate valve closed and Hydra-Tapper[®] removed. Line stopping machine bolted to gate.



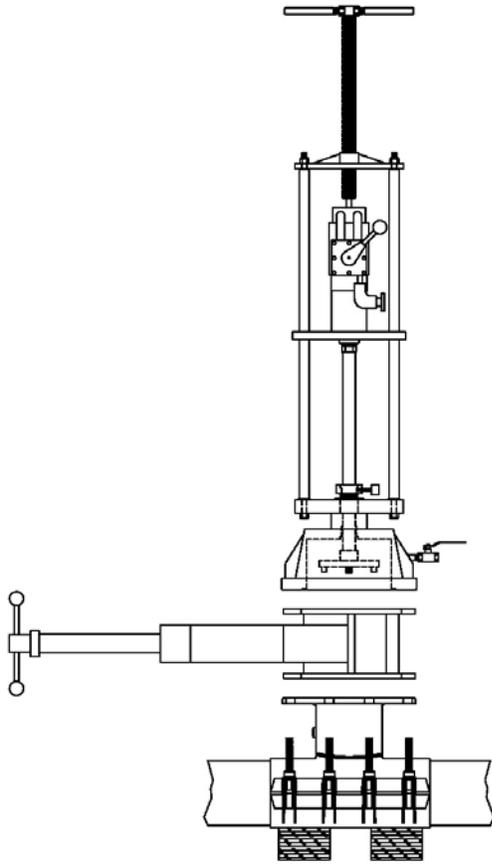
4. Gate opened, plugging head inserted into pipe and flow stopped. Pipe work accomplished on isolated section.



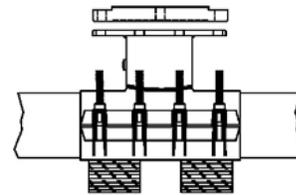
5. Plugging head retracted, gate valve closed and line-stopping machine removed.



6. Hydra-Tapper[®], with plug installed, bolted to gate valve. Gate opened. Plug threaded into fitting and tightened.



7. Plug inserting shaft retracted, gate valve closed. Valve and machine removed



8. Blind completion flange bolted to fitting which remains on pipe. It can be re-used at any time if future line stop is required.