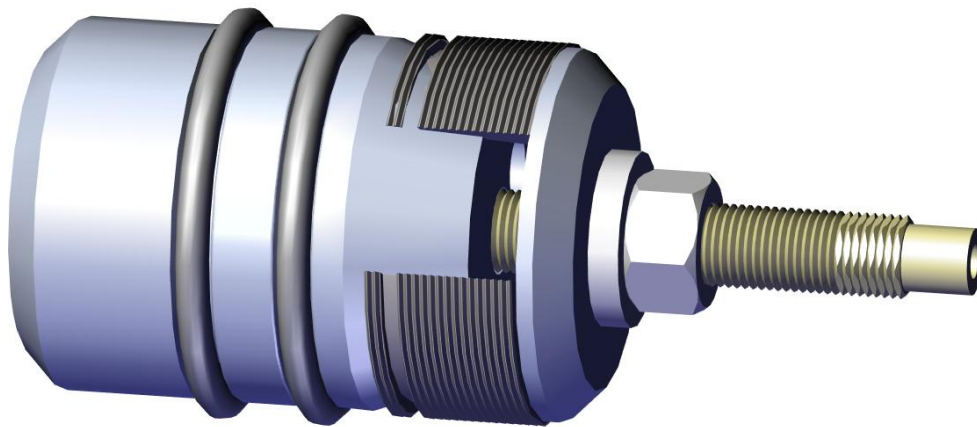




Petersen Products Company

Mechanical Double Block Isolation Plugs



147-9 Series Instruction Manual

Petersen Pipe Plugs

www.PetersenProducts.com

421 Wheeler Avenue, PO Box 340, Fredonia, Wisconsin 53201-0340, USA

Phone: (262) 692-3100 or 1-800-926-1926

Fax: (262) 692-2418 or 1-800-669-1434

Email: sales@petersenproducts.com



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1. Safety is Everyone's Responsibility

READ AND UNDERSTAND BEFORE USING PETERSEN® PIPE PLUGS!

FAILURE TO COMPLY MAY RESULT IN PROPERTY DAMAGE, SERIOUS INJURY OR DEATH!



WARNING

- Very high forces are involved in many pipeline plugging situations that may cause injury or even death.
- Forces increase dramatically as pressure and pipe diameter increase.
- Take extreme care to assure the safe use of any Pipe plug.
- Keep personnel out of line with plug ends, unsupported areas of plug, open plugged pipelines, or manholes. This is any area near a line of sight to any part of the plug.
- Maximum rated backpressures assume plugs are inserted into clean dry pipes. Dirt in pipes (algae, grease, detergents, mildew, sand, etc.) can considerably decrease the backpressure values.
- Interior welds need to be ground flush with the pipe.
- Pipelines made of materials with lower coefficient of friction, e.g. polyethylene or new pipelines with remains of grease or agents directly decrease the coefficient of friction as well as the backpressure values.
- Never use when failure may result in injury or significant property damage.
- For safety, an incompressible liquid such as water should be used as the test medium. Any residual gas or air must be removed from the pipe prior to testing.
- Constantly monitor upstream pipeline pressure. Stop work immediately if any unexpected increase in upstream pressure occurs.

Due to the many possible variables these general instructions must be adapted by a competent professional Engineer for each specific project. Instructions and training must be provided to all plug users and workers on the job. Refer to website.

2. Personal Safety



CAUTION

Keep all personnel out of the plug end area.

- PPC recommends adequate Personal Protective Equipment (PPE) to be used per operator policy and procedure.
- PPC recommends the operator determine if the area is considered a Confined Space and to refer to Occupational Safety and Health Administration (OSHA) (29CFR 1910.146), Safe Confined Space Entry. Follow all federal, local and site specific codes, standards and regulations.

3. Test Preparation

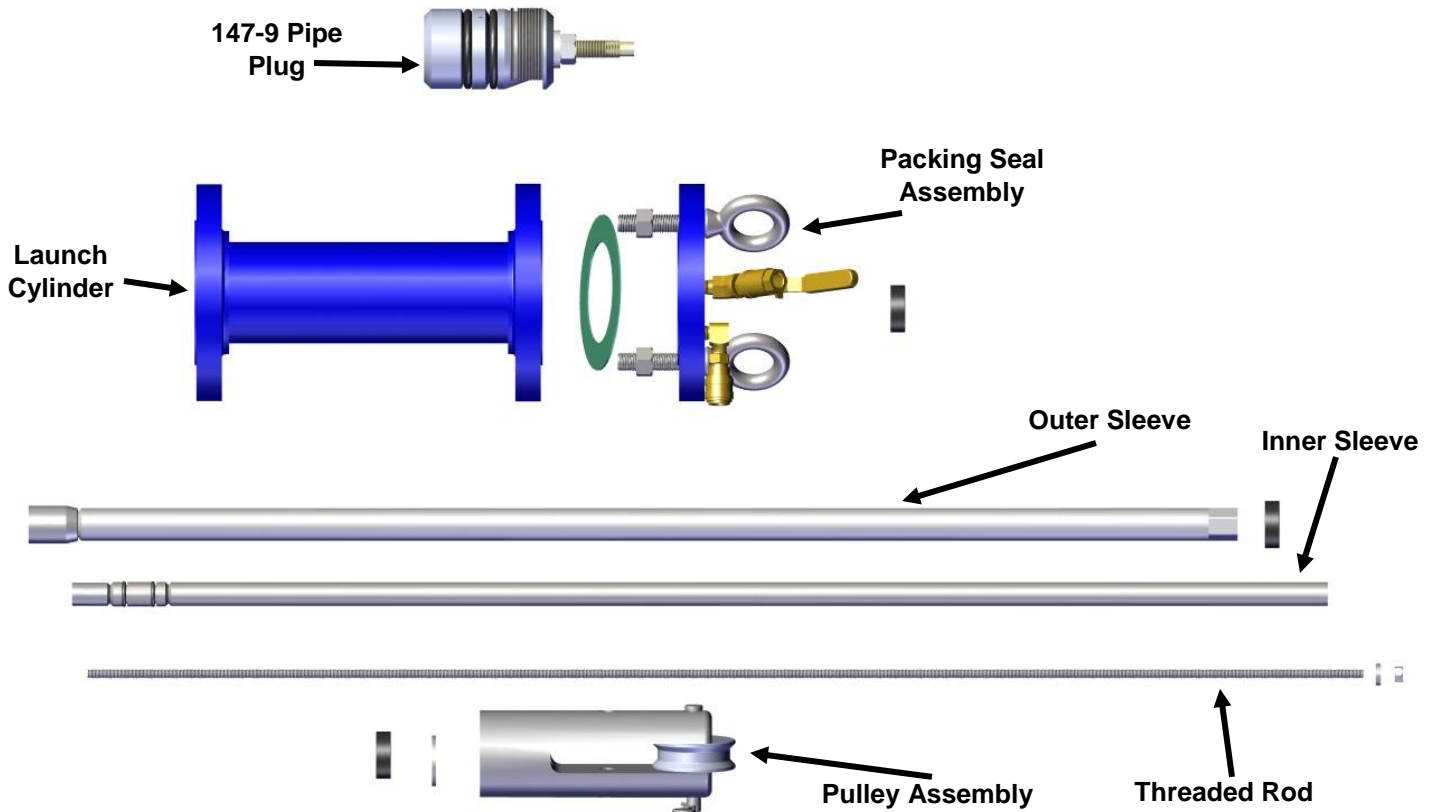


SAFETY

Perform the steps outlined below prior to performing your pressure test.

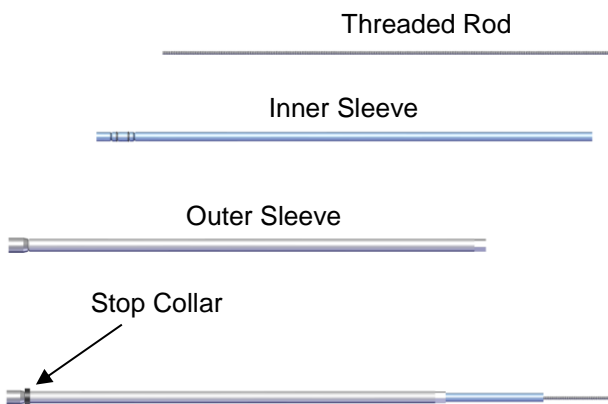
1. The Mechanical Double Block Isolation Plug requires periodic inspection of the O-Rings and Seals prior to testing. The compression shaft should be inspected, and anti-seize should be applied as needed. After a test has been completed, the compression nut should be retracted so the seals can fully relax, allowing the Nitrile Buna-n Seals to return to their original size, preventing any permanent swelling and/or deformation.
2. Visually inspect the plug for worn or damaged components including any cuts, scores and deformations.
3. Verify that the pipe size and schedule of the plug is equivalent to pipe size you are testing.
4. Clean and dry the pipe ID. All moisture, debris, weld beads and excessive scale must be removed from the pipe ID to ensure proper seal is established during the pressure test.
5. Liberally spread anti-seize over both sides of the Hardened Washer and threads of the Shaft. Doing this ensures that installation torque is transmitted to the Seal.
Note: The lubricant must not come in contact with the seals or tube ID. Failure to properly use anti-seize on the Shaft threads and Hardened Washer may cause an incomplete torque transmittal resulting in a decrease in pressure holding capability.
6. Complete site safety standard checklist.

4. Components

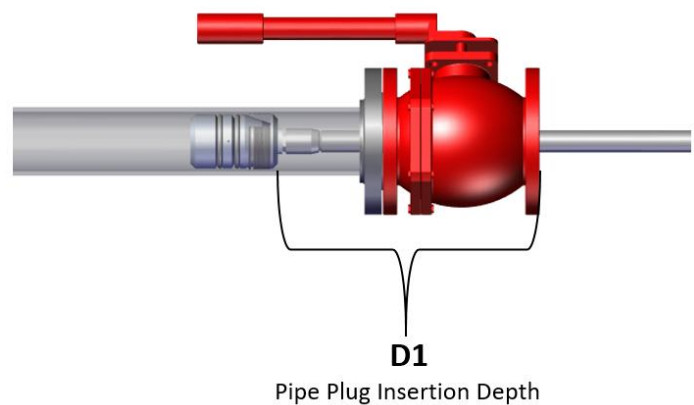


5. Pipe Plug Installation

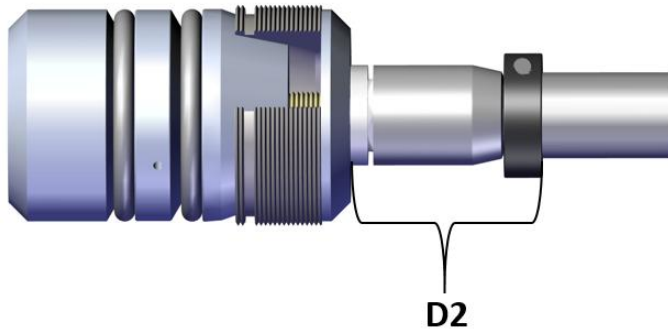
1. Insert threaded rod into the inner sleeve into the outer sleeve. Place Stop Collar on Outer Sleeve as low on the stem as it will slide and tighten.



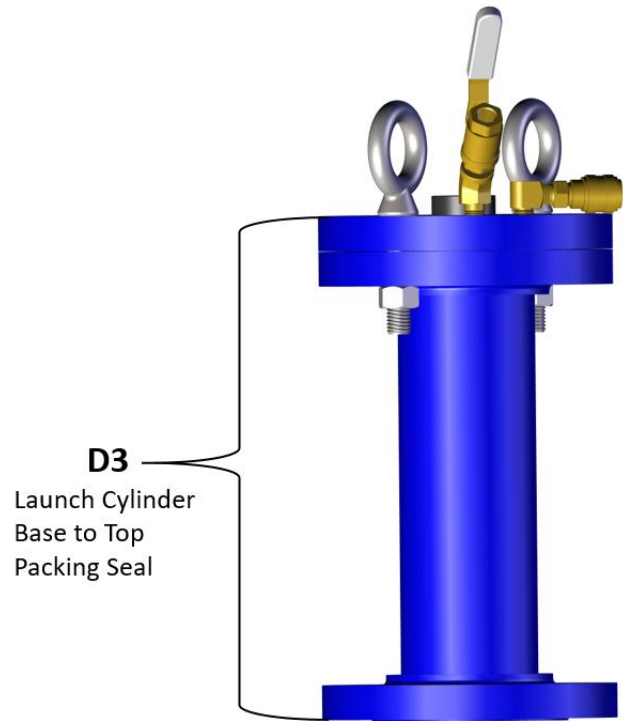
2. Measure from desired pipe plug insertion depth to the top of the valve flange. This is D1. Plug will protrude its length past this point.



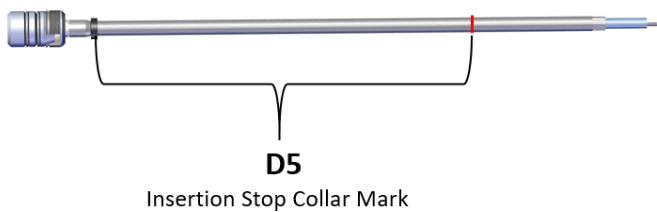
3. Measure from the front edge of the plug, underneath the washer, to the top side of the stop collar. This is D2.



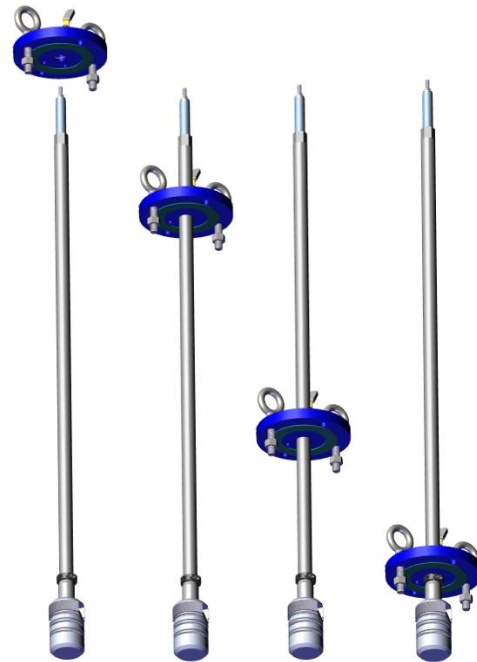
4. Measure from the base of the launch cylinder to the top of the Packing Seal. This is D3.



5. Add D1 and D3. This is D4 or your total insertion distance. D4-D2 is D5. This is how far from the Stop collar you will make a mark for the insertion stop collar.



6. Slide packing seal over the Outer/Inner sleeves and threaded rod. Place temporary stop collar on the Outer Sleeve next to Packing Seal to secure.



7. Place the assembly onto the launch cylinder and torque the flange bolts in the prescribed torque pattern.



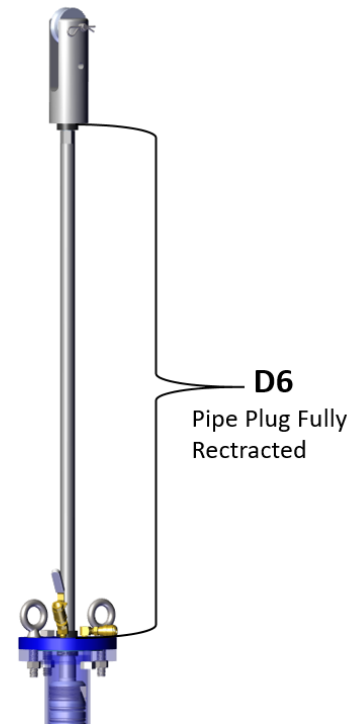
8. Attach the Inflation Ram Pulley Assembly to the end of the Torque Ram. Torque all setscrews.



9. Verify that the Gasket is between Launch Cylinder and tapping valve. Bolt the Launch Cylinder to the Tapping Valve Flange. Use a star pattern for balanced torque. Complete the pattern three times 30%, 70%, 100% to the torquing sequence.



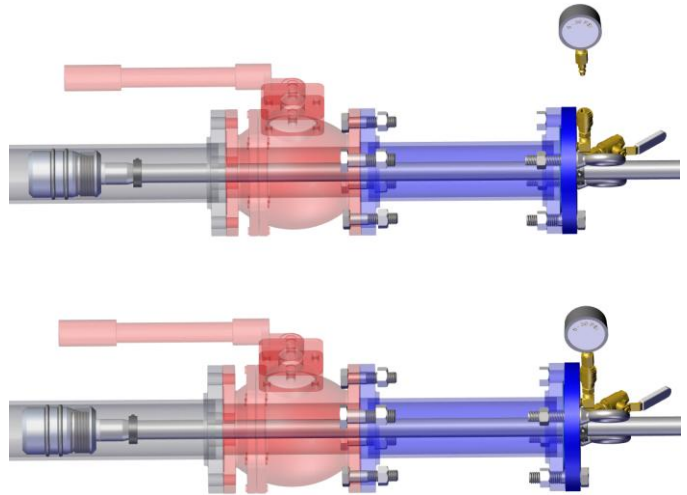
10. Measure the height from the top of the packing seal to the bottom of the pulley assembly. This is D6. The dimension is required to verify that the plug is fully retracted, when removing the plug.



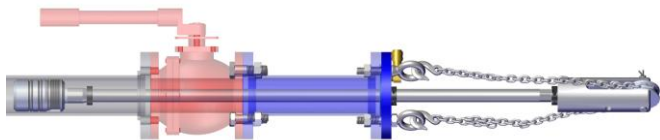
11. Attach the Ratchet Puller to the Eye Bolts and over the Torque Ram End Pulley.



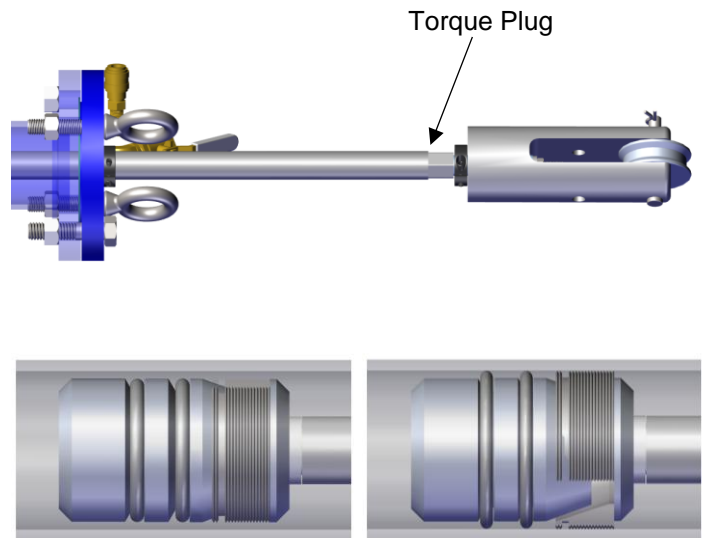
12. Attach Pressure Gauge to Packing Seal. Open the Tapping Valve. Check the pipeline pressure. Fix any possible leaks. Verify that the pipeline pressure is not greater than the plug rated inflation pressure.



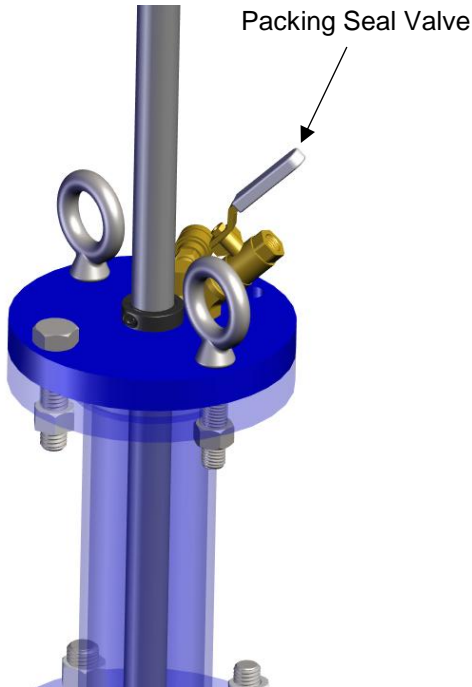
13. Remove the temporary Stop Collar on the Packing Seal. Lower the Plug. Lower the Ram until the Stop Collar on the Ram is touching the Packing Seal. Use the Ratchet Puller as needed to insert the plug.



14. Anchor the plug by torquing on the outer sleeve to the prescribed torque.



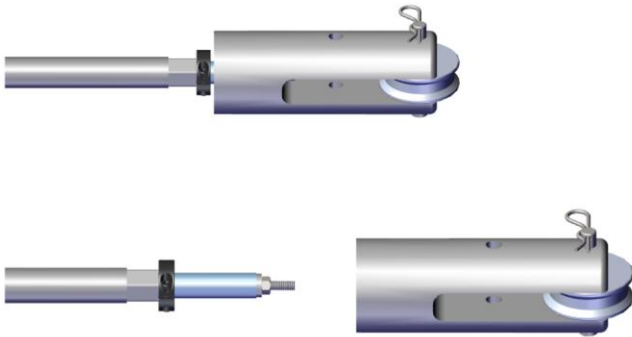
15. Verify the seal by slowly bleeding the pressure behind the plug using the valves on the packing seal or launch cylinder.



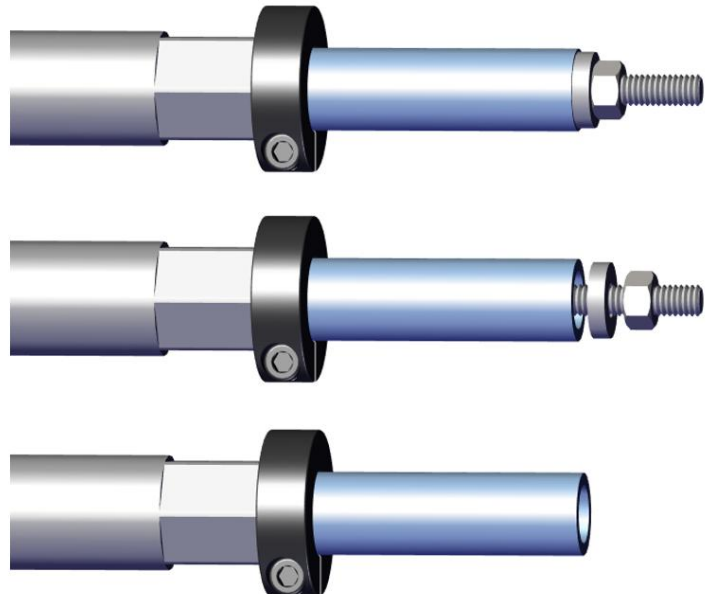
16. Once seal is verified, slowly back off the ratchet puller and verify that the plug is properly anchored. Remove ratchet puller.



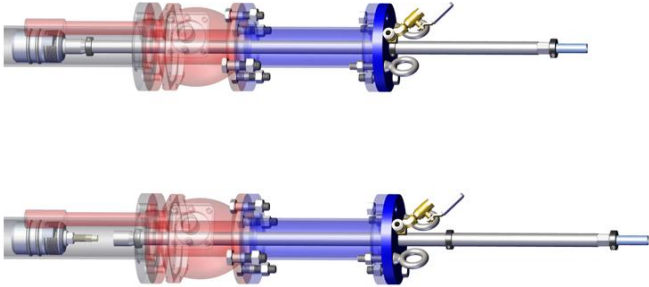
17. The insertion system can now be disassembled. Remove the Pulley Assembly.



18. Loosen the nut on the threaded rod, unthread the threaded rod from the plug. Retract the threaded rod.



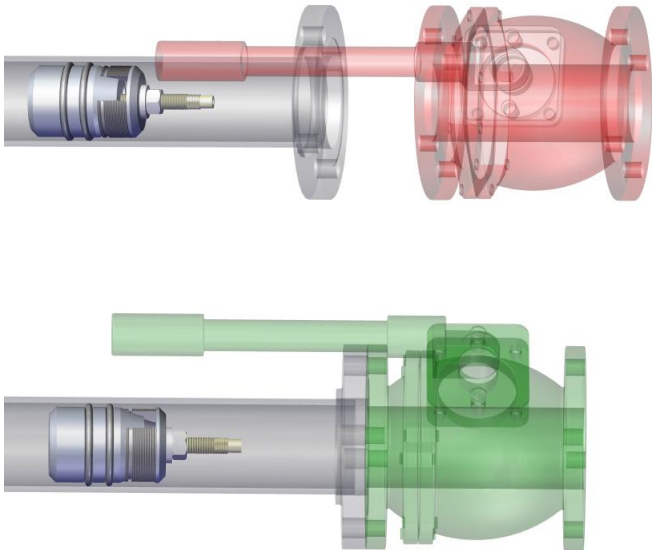
19. Retract the Outer and Inner sleeve from the pipe plug by pulling away from the valve.



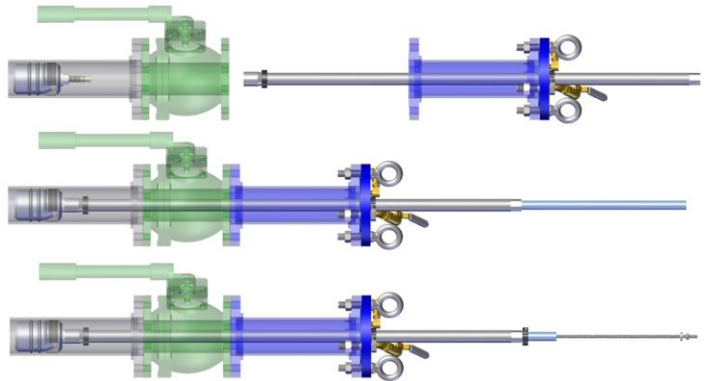
20. Unbolt the launch system fully and detach from the valve.

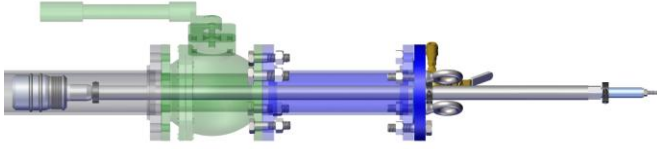
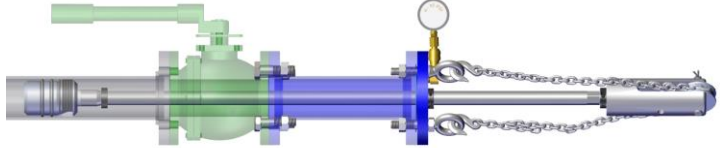
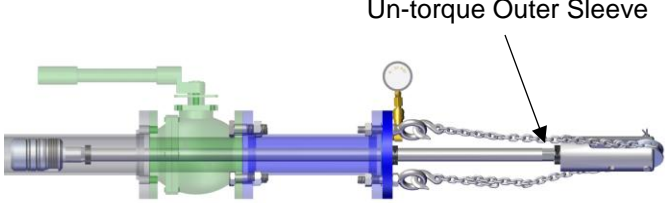



21. The faulty Valve can now be replaced.



22. Slide the launch assembly onto the plug – Outer Sleeve first, then Inner Sleeve. Insert threaded rod into Inner Sleeve and thread onto plug. Install washer and nut on threaded rod.



<p>23. Bolt the Launch Cylinder with Gasket to New Valve.</p> 	<p>24. Attach Pulley Assembly and ratchet puller. Tighten ratchet puller so there is tension on the chains. Add Pressure Gauge to Packing Seal.</p> 
<p>25. Un-torque the Outer Sleeve. The Pressure Gauge will increase in pressure as the pipe plug releases.</p> <p style="text-align: center;">Un-torque Outer Sleeve</p> 	<p>26. retract the full length. Use the measurement from D6 to verify that the ram is fully retracted.</p> 
<p>27. Close the New Valve. Drain the Launch Cylinder. Disassemble in the reverse order it was assembled.</p>	<p>28. Before each use, clean the plug and inspect for damage paying close attention to the teeth and o-ring. Clean with mild soap and water.</p>

6. Storage

Prior to storing, clean and dry the plug. Re-lubricate the shaft threads and between the hex nut and mating surface as previously described. Store plug in an area out of direct exposure to sun, UV light or temperature extremes. Excessive heat or UV light will damage and prematurely degrade the seal elements. Store these instructions with the plug.