

Petersen® 150-Series Completion Plug Installation Instructions

WARNING SAFETY IS EVERYONE'S RESPONSIBILITY!

Read and understand before using Petersen® Plugs. Failure to comply may result in property damage, serious injury or death! Very high forces are involved in many pipeline-plugging situations. Forces increase dramatically as pressure and pipe diameter increase. Extreme care must be taken to assure the safe use of any Pipe Plug. If you do not understand these instructions or how to calculate the forces involved, consult a qualified professional engineer to advise you. These instructions must be available to all Petersen® Completion Plug users. All workers on the job must be trained for proper use.

1. Completion Plug Body Installation: (Install between hot tap sleeve and tapping valve.)

- 1.1. **Bolt the Completion Plug Body** to the hot tap sleeve using a ring gasket. Ensure the recessed groove on the Body ID faces upward. Verify that the Completion Plug Body ID is aligned with the hot tap sleeve. Secure with stud bolts and hex nuts provided.
- 1.2. **Place the notched Ring Gasket and Spacer Ring** on top of the Completion Plug Body. Be sure the lip on the Spacer Ring seats into the Body groove.
- 1.3. **Attach the tapping valve** onto the Spacer Ring using ring gasket and hex nuts provided. Do not tighten.
- 1.4. Insert the Alignment Tool to align the tapping valve and the Completion Plug Body before tightening the nuts. After alignment, tighten the nuts and remove the Alignment Tool.
- 1.5. **Advance the Lock Pins** into the Body ID opening until they stop.
- 1.6. **Screw the Positioning Ram into the Completion Plug Disc without the O-ring installed.**
- 1.7. **Slip the Packing Seal onto the Positioning Ram.**
- 1.8. **Attach the Pulley Assembly to the Positioning Ram.**
- 1.9. **Put the Ratchet Puller chain through the Pulley Assembly** and secure to one Anchor Lug. Connect the hook on the body of the Ratchet Puller to the other Anchor Lug.
- 1.10. **Secure Completion Plug near Packing Seal Flange with Ratchet Puller.**
- 1.11. **Open the tapping valve completely.**
- 1.12. **Place the Ring Gasket and the Completion Plug with Packing Seal** onto the tapping valve.
- 1.13. **Using the Ratchet Puller insert the Completion Plug Disc into the Completion Plug Body** until it stops against the Lock Pins, thereby validating that the Disc inserts properly.
- 1.14. **Secure the Packing Seal** to the tapping valve with three hex bolts and nuts on three sides.
- 1.15. **Position the Stop Collar on the Positioning Ram** 1-1/2" (38mm) [or for 150-024-X1 600mm plug, 1-5/8" (42mm)] above the Packing Seal and tighten.
- 1.16. **Retract the Lock Pins** until they stop.
- 1.17. **Continue inserting the Completion Plug Disc into the Completion Plug Body until the Stop Collar rests against the Packing Seal.**
- 1.18. **Advance the Lock Pins inward** to ensure they engage the groove in the Completion Plug. If necessary adjust the Stop Collar to allow the Lock Pins to engage the groove smoothly.
- 1.19. **Position the Stop Collar directly on top of the Packing Seal and tighten securely.**
- 1.20. **Retract the Lock Pins** until they stop, then with the Ratchet Puller pull the Completion Plug Disc out of the Completion Plug Body.
- 1.21. **Remove the bolts holding the Packing Seal to the tapping valve** and remove the Packing Seal, Positioning Ram, and the Completion Plug Disc from the tapping valve.
- 1.22. **Attach the tapping machine** to the valve and make the hot tap per tapping instructions.

2. Completion Plug Installation:

- 2.1. **Install the O-ring on the Completion Plug Disc.**
- 2.2. **Install the Completion Plug Disc, Positioning Ram, and the Packing Seal** onto the tapping valve using the ring gasket, then secure with hex bolts, Anchor Lugs and nuts provided.
- 2.3. **Put the Ratchet Puller chain through the Pulley Assembly** and secure to one Anchor Lug. Connect the hook on the body of the Ratchet Puller to the other Anchor Lug.
- 2.4. **Secure Completion Plug Disc near Packing Seal Flange with Ratchet Puller.**

- 2.5. **Equalize the pressure by closing the Packing Seal Drain Valve** and then opening the tapping valve completely while holding the Completion Plug Disc off the valve gate.
 - 2.6. **Make sure the Completion Plug Lock Pins are fully retracted.**
 - 2.7. **Push the Completion Plug Disc into the Completion Plug Body** until the O-ring starts to seal against the Completion Plug Body. The Stop Collar will be approximately 1-1/2" (38mm) [or 1-5/8" (42mm)] from the Packing Seal.
 - 2.8. **Use one of the below two methods to push the Completion Plug Disc into position.**
 - 2.9. **Alternative One:** Apply pressure to the top of the Completion Plug Disc by connecting an external air or water source through the Drain Valve on the Packing Seal. Slowly increase pressure until the Completion Plug Disc is in position and the Stop Collar is against the Packing Seal.
 - 2.10. **Alternative Two:** Connect a hose from the drain valve on the hot tap sleeve to the Drain Valve on the Packing Seal to equalize the pressure above and below the Completion Plug Disc. Manually or with the Ratchet Puller push the Completion Plug Disc into place with the Stop Collar against the Packing Seal.
 - 2.11. **With the Completion Plug Disc in place, advance all Lock Pins** until they stop, completely engaging the groove in the Completion Plug Disc. Adjust the Packing Seal pressure if necessary for smooth adjustment of the Lock Pins.
 - 2.12. **Release the pressure** on the Completion Plug Disc by opening the Drain Valve or removing the hot tap sleeve hose.
 - 2.13. **Unscrew the Positioning Ram from the Completion Plug Disc.**
 - 2.14. **Remove the Packing Seal** and Positioning Ram from the tapping valve.
 - 2.15. **Re-torque all the hex nuts** that hold the Completion Plug Body to the hot tap sleeve.
 - 2.16. **Remove the tapping valve.** Loosen the hex nuts on the valve while holding the nut on the opposite end of the stud bolt. Be sure not to turn studs or the Completion Plug Body may leak.
 - 2.17. **Clean the top of the Completion Plug Disc** and coat with a silicone spray lubricant.
 - 2.18. **Insert the Debris Plug** into the Completion Plug Disc hand tight after applying grease to the threads.
 - 2.19. **Install a blind flange** on the Completion Plug Body over the Spacer Ring using the ring gasket and proper bolt torque.
- 3. Completion Plug Removal:**
- 3.1. **Remove the blind flange** from the Completion Plug Spacer Ring.
 - 3.2. **Inspect the gasket** and replace if necessary.
 - 3.3. **Clean the top of the Completion Plug Disc** and remove the debris plug from center.
 - 3.4. **Install a full port valve onto the Completion Plug Body over the Spacer Ring** with hex nuts. Open the valve completely.
 - 3.5. **Screw the Positioning Ram into the Completion Plug Disc.**
 - 3.6. **Slip the Ring Gasket and Packing Seal** onto the Positioning Ram then onto the full port valve.
 - 3.7. **Insert bolts and 2 Anchor Lugs** on opposite sides thru Packing Seal and valve flanges, secure with nuts.
 - 3.8. **Position the Stop Collar on the Positioning Ram** against the Packing Seal to prevent the Completion Plug Disc from inadvertently moving inward during removal.
 - 3.9. **Install the Pulley Assembly** onto the Positioning Ram and tighten the setscrews.
 - 3.10. **Thread the Ratchet Puller chain through the Pulley Assembly and connect each end to the Anchor Lugs. Remove slack in chain.**
 - 3.11. **Equalize the pressure** above and below the Completion Plug Disc by connecting the Drain Valve on the Completion Plug **Packing Seal** to the hot tap sleeve port or an external pressure source.
 - 3.12. **When pressure is equalized** the Completion Plug Locking Pins should turn easily. Retract the Locking Pins to release the Completion Plug Disc.
 - 3.13. **Slowly release pressure** from above the Completion Plug Disc and allow the pipeline pressure to push it out, controlling the movement with the Ratchet Puller.
 - 3.14. **When the Completion Plug Disc clears** the full port valve, close the valve.
 - 3.15. **Release the pressure** on the Completion Plug Drain Valve.
 - 3.16. **Remove the Packing Seal, Positioning Ram, and Completion Plug Disc** from the full port valve.
 - 3.17. **Re-torque all the nuts on the valve flange.**

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