In-Field P-seal Activation

INDEX

PRINT

UNIVERSAL WELLHEAD SERVICES HOLDINGS, LLC.

Installation Procedure for P-Seal

LICENSED UNDER API 6A

Required Forms:

1. **DELIVERY TICKET**
2. **FIELD SERVICE ORDER**
3. **JSA**

P-SEAL

Product Description

The P-seal is an elastomeric seal with two metal non-extrusion rings – housed in a machined groove in the wellhead. The seal is energized in the field by means of injecting plastic packing behind the seal, creating a positive seal on the casing. The P-seal is rated to 15,000 psi.

There are a total of 8 ports in the wellhead:

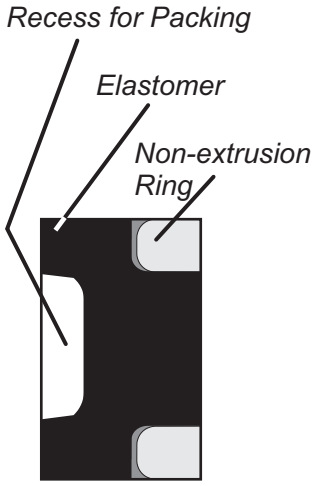
- ☐ 2 ports for packing injection – these ports will have internal check valves pre-installed and have 1” NPT pipe plugs in the ends.
- ☐ 2 ports for packing bleed – these ports will have 1/2” NPT pipe plugs in the ends.
- ☐ 2 ports for testing the lowermost seal against the primary wellhead seal – (one port is to bleed air).
- ☐ 2 ports for testing in between the P-seals – (one port is to bleed air).

PURPOSE

The P-seal provides a seal around casing and/or hanger necks. These procedures are in place for field service technicians to ***energize the packing, and test the P-seals***.

SCOPE

UWS P-seal Installation occurs “in shop”. Use these procedures with TCM Casing Spool Installation Procedures.



Cross Sectional View

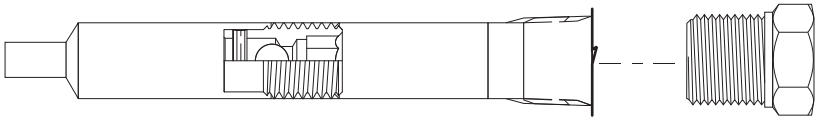
Required Equipment:

MAIN EQUIPMENT

- Service Truck with Tools
- Hand Test Pump, 10,000 psi

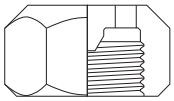
FITTINGS

- Vented Cap Body Grease Fittings (”TEST” Port Fitting)
- Lube Adapter Fitting (for Hand Test Pump)
- Single Ball Check (pre-installed inside “INJ” port)
- Solid Cavity Pipe Plugs, 1/2” NPT and 1” NPT

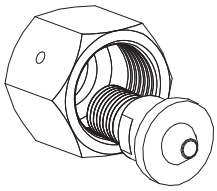


Single Ball Check (Floating)
Shown Inside “INJ” Port

1” NPT Plug

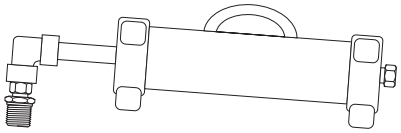


Vented Cap Body Grease Fitting



Grease Gun Lube Adapter

PACKING INJECTION GUN



Packing Gun

PLASTIC PACKING STICKS — Temperature Range

- **Grade:** Chemola Arctic Grade Injectable Packing
- Plastic Packing Sticks, J-style, 1-7/8” x 8-1/2” Long

-70 deg. F
to
600 deg. F

FLUIDS — Units

Hydraulic Test Fluid	1 Gallon
Light Oil	1 Gallon

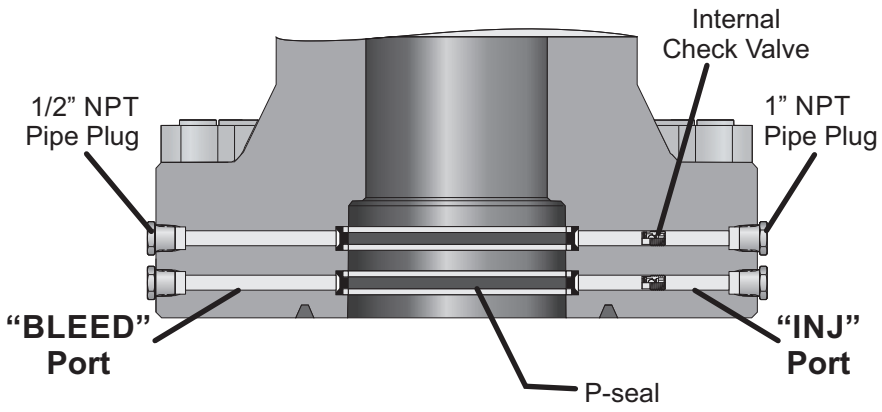
A. Pre-Installation Procedure:

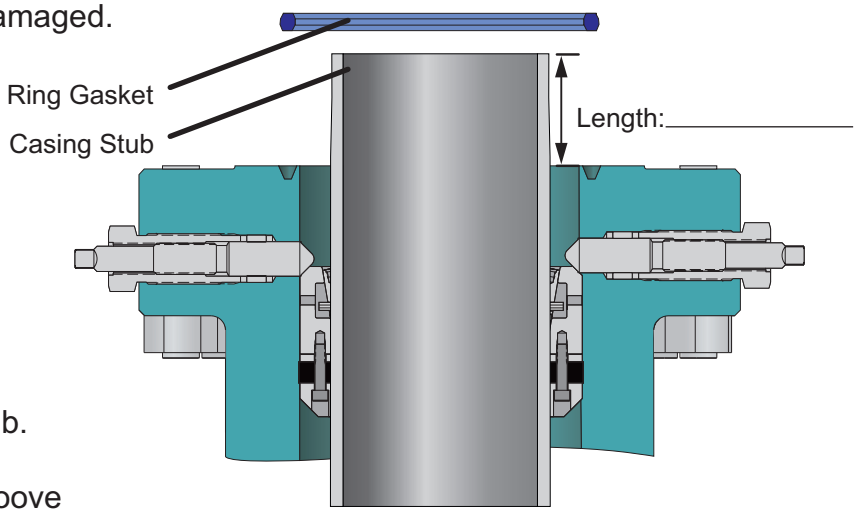
1 ☐ Examine the P-Seal and verify the following:

- Bore is clean, free of debris.
- P-seals are clean, undamaged and properly installed.

- **If installing new seals,** the groove must be clean. Remove any packing material and inspect for damage.
- All test fittings and injection fittings are properly installed and undamaged.
- Both mating ring grooves are clean and undamaged.

Visual Inspection





2 ☐ Verify the casing stub is cut to the proper length and is clean and undamaged.

3 ☐ The P-seal should be relaxed and centered in the groove so it will accept the casing stub.

4 ☐ Thoroughly clean the ring groove on the wellhead you are installing. Install the appropriate ring gasket in the groove.

a. ■ Verify the injection ("INJ") ports on the wellhead have internal check valves and outer pipe plugs installed.

b. ■ Verify the packing relief ("BLEED") ports have pipe plugs installed.

REQUIRED SPARE PARTS

☐	Packing Material	(one box)
☐	Spare P-seals	(Qty. 4)
☐	Pipe Plugs, 1/2" NPT	(Qty. 2)
☐	Pipe Plugs, 1" NPT	(Qty. 2)
☐	Test Port Fittings, 1/2" NPT	(Qty. 4)
☐	Single Ball Check Valve	(Qty. 2)

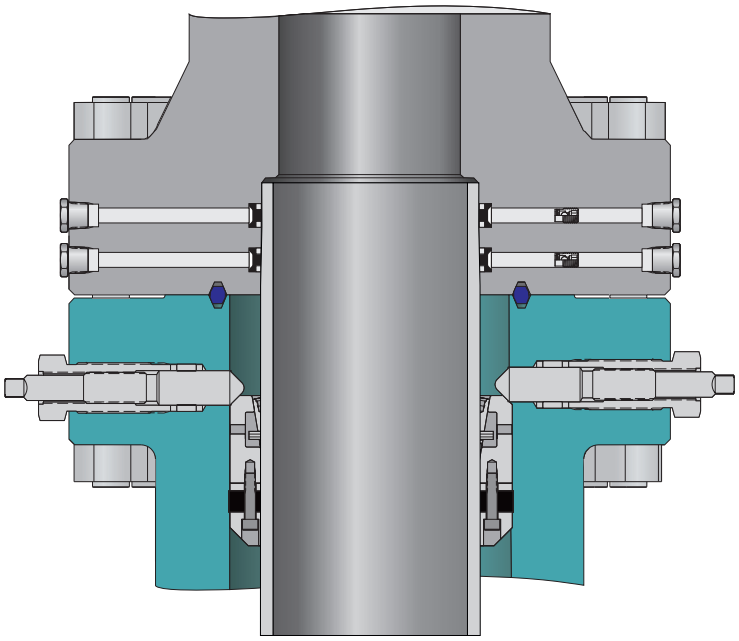
B. Lower the Wellhead Assembly

1 ☐ Verify there is a proper OD bevel on the top of the casing stub. Ensure it is smooth and burr-free. Use a rag or cloth and verify that it does not snag or hang up on the bevel.

2 ☐ Oil the casing stub OD and the ID of the seal area and fill the void in the wellhead with clean oil. Take care not to allow oil into the ring groove.

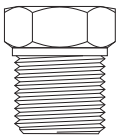
3 ☐ Carefully lower the wellhead assembly with the P-seal installed onto the wellhead flange ensuring the flanges are two-holed and the valve is in the proper position.

4 ☐ Tighten the connection using an alternating cross pattern and torque to the recommended API specs.



C. Pack-off Procedure:

Remove 1" NPT Plug (2 - both plugs) *180° opposite on the flange*

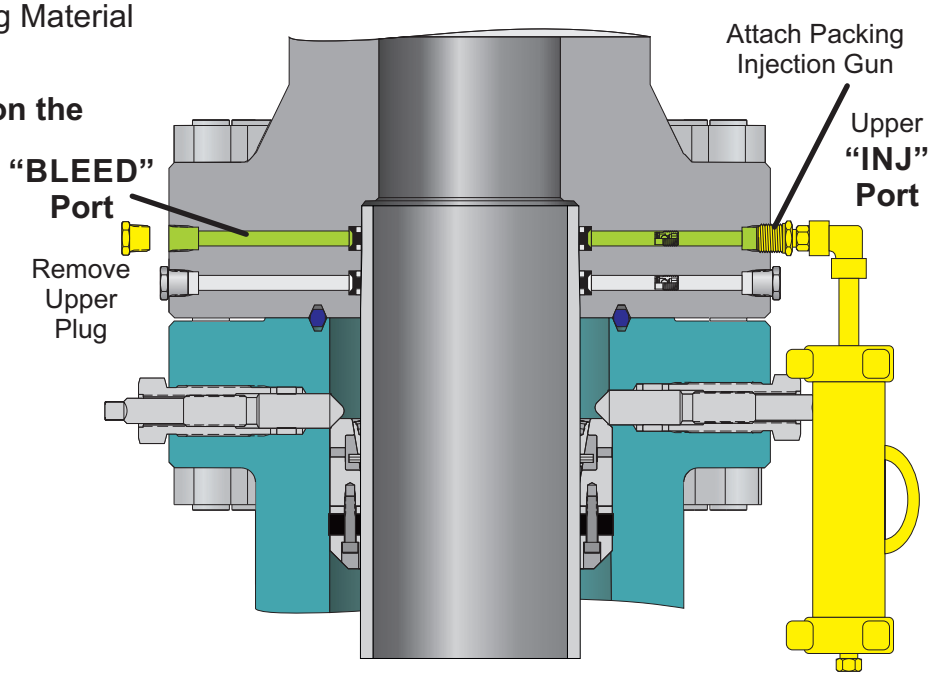


Pre-Pack the Void with Packing Material

1 ☐ **Install your packing gun on the upper P-seal "INJ" port.**

2 ☐ Remove the opposing bleed port plug.

3 ☐ Pump plastic packing until a continuous stream of packing flows from the bleed port indicating all air has been bled from packing the seal.



Energize the Seal

4 ☐ Re-install the bleed port plug and continue to inject packing to the **maximum working pressure of the flange or 80% of the casing collapse, whichever is less.**

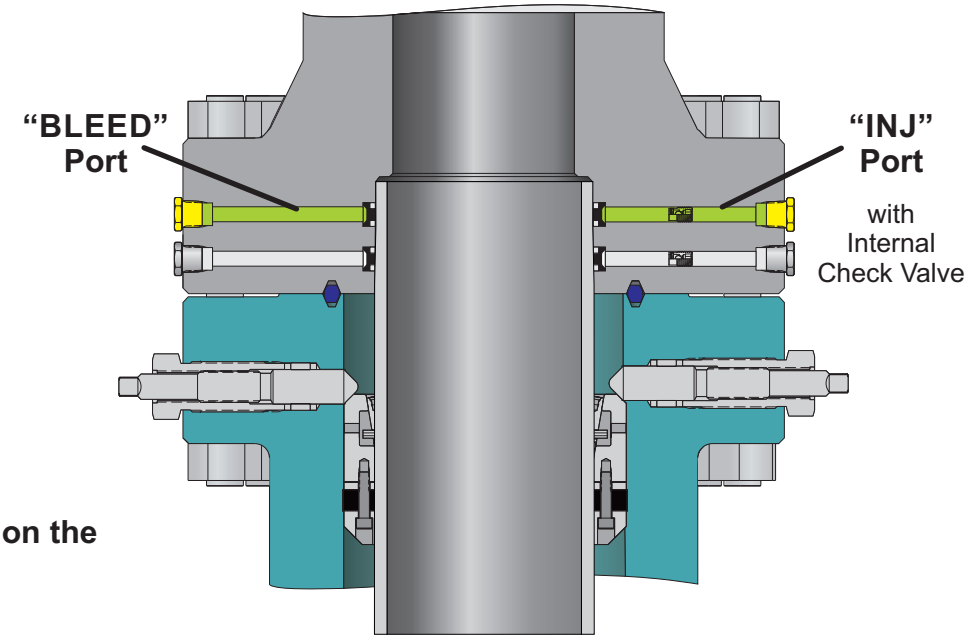
5 ☐ Hold and monitor this pressure until it has stabilized for 15 minutes.

6 ☐ Once it has stabilized, bleed off the test pump pressure and remove the packing gun.

7 ☐ Re-install the pipe plug in the injection port.

8 ☐ **Install your packing gun on the lower P-seal "INJ" port.**

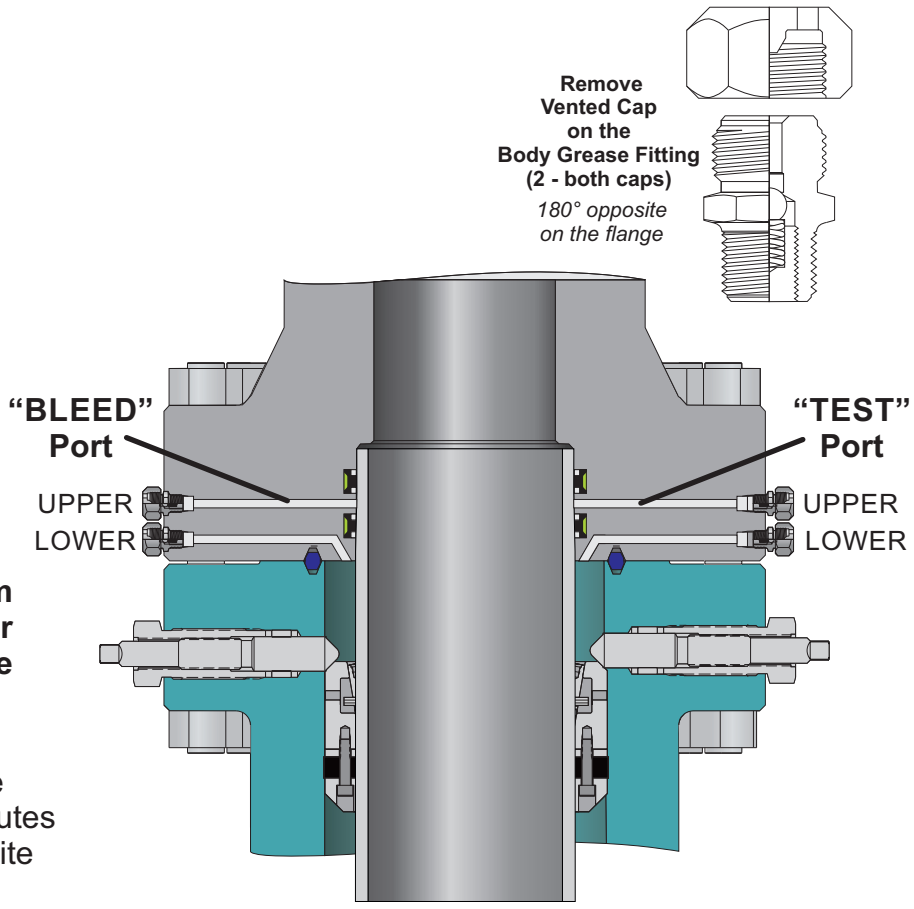
9 ☐ **Repeat Steps 2 thru 7 Above.**



D. Testing Procedure:

Test ports enable testing:

- ☐ *below the lower P-seal*
- ☐ *between the P-seals*



To test the lowermost seal:

1 ☐ Install your test pump on the lower port labeled "TEST".

2 ☐ **Test to the maximum pressure of the flange or 80% of the casing collapse – whichever is less.**

3 ☐ Monitor test pressure on the test pump gauge for 15 minutes or as required by the Well Site Supervisor.

If there is a leak, determine which seal is leaking and Repeat the Pack-Off Procedure.

4 ☐ Once a satisfactory test is achieved, bleed off all pressure and remove the test pump.

5 ☐ Bleed off the internal test pressure with your bleeder tool.

6 ☐ Re-install the caps on the test port, and bleed port fittings.

To test between the seals:

1 ☐ Install your test pump on the upper port labeled "TEST".

2 ☐ **Repeat Steps 2 thru 6 Above.**

Revision Log

Revision	Date	Details
0	January 9, 2015	Field Procedure

ENGINEERING

Approval Log

Approved By: _____ *SIGNATURE*

_____ *PRINT NAME*

Revision	*REVIEWER* NAME	*REVIEWER* TITLE	DATE
0	Bob Allen	VP Operations	January 9, 2015

FIELD

Date of Printing ***11:23 am, 01/09/2015*** *Please ensure the latest revision is in use.*

INDEX

PRINT