



ONE PIECE KELLY VALVES OPERATION AND MAINTENANCE PROCEDURE REV 2 –

09/09

ASSEMBLY PROCEDURE FOR THE PACKARD ONE PIECE KELLY VALVE

1.0 SCOPE

- 1.1 This procedure will provide general instructions regarding assembling the Packard One Piece Kelly Valve (KV-1) with ID sizes:
- 1-1/4",
 - 1-3/4",
 - 2-1/4",
 - 2-13/16",
 - 3-1/16"

2.0 REFERENCES

- 2.1 The latest revision of the following specifications may be used to obtain additional information regarding this procedure.
- API Specification 7-1.
 - Bill of Materials.

3.0 ASSEMBLY PROCEDURE

- 3.1 Thoroughly clean the Valve Body and all the internal components.
- 3.2 Visually inspect the end connections, the shoulder surfaces areas, the Seat seal surfaces, and the Seat outer seal areas for signs of damage or wear.
- 3.3 Fit the Operator (Stem), the Lower Seat, and the Upper Seat, with unused O-Rings. The O-Ring compound must be compatible with drilling environment. Lubricate all O-Rings and the Back-Up Rings with Liquid O-Ring Military Grease PM600 prior to installation in their respective grooves.
- 3.4 Install the Wave Spring into the Valve.
- 3.5 Insert the feet of the Assembly/Disassembly tool into the groove in the Lower Seat ID from the lower end of the Lower Seat and tighten snugly. Insert the Assembly/Disassembly tool and Lower Seat through the box end of the valve.
- 3.6 Place the Brace Plate over the Threaded Rod and against the pin face and tighten the nut until the Wave Spring is compressed.

- 3.7 Insert Operator into the Valve Body with the key aligned with the centerline of the Valve Body's bore.
- 3.8 Lubricate the Ball with Liquid O-Ring Valve Life 600/1 and install in the closed position.
- 3.9 Use the Operating Wrench to rotate the Ball to its ½ open position.
- 3.10 Insert the sections of the Lower Split Retainer Ring into its groove on the ID of the Valve Body. One of the shorter pieces must be installed last.
- 3.11 Use the Operating Wrench to rotate the Ball to its full open position.
- 3.12 Loosen the nut from the Brace Plate, remove the feet from the groove in the Lower Seat and remove the Assembly/Disassembly tool from the Valve.
- 3.13 Insert the feet of the Assembly/Disassembly tool into the groove in the Upper Seat ID from its lower end and tighten snugly. Insert it through the box end of the Valve.
- 3.14 Place the Brace Plate against the pin face and tighten the nut until there is clearance to install the Upper Split Retainer Ring in its groove in the Valve Body ID.
- 3.15 Insert the sections of the Upper Split Retainer Ring into its groove on the ID of the Valve Body. One of the shorter pieces must be installed last.
- 3.16 Insert the Solid Retainer Ring into the ID of the Upper Split Retainer Ring.
- 3.17 Install the Snap Ring.
- 3.18 Remove the Assembly/Disassembly tool.
- 3.19 Liberally lubricate the threads with Liquid O-Ring Zinc Based Thread Compound ZN-50. Install the thread protectors and store the assembled Valve in a controlled environment until required for use.

4.0 HYDROSTATIC TEST VALVE

- 4.1 Hydrostatic testing of the Valve shall be performed as per the test pressure and procedures outlined in API Specification 7-1 latest edition.



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Note: test pressure shall be stabilized prior to the timing start for holding pressure

- 4.2 Remove the thread protectors and install the test plug and the test cap on the box and pin connections of the Valve assembly to be tested.
- 4.3 Install the pressure line to the bottom (pin) connection of the Valve.
- 4.4 With the Valve held in the vertical position (pin down), a bleed valve shall be installed on the top of the test plug in the open position. Fill the Valve Body with water until it exits through the bleed valve. Actuate the Operator several times to eliminate any trapped air in the Valve Body.
- 4.5 Close the bleed valve.
- 4.6 Use the Operating Wrench to rotate the Operator to set the Ball in the ½ open position.
- 4.7 Conduct the Hydrostatic Test per the lasted revision of API Specification 7-1.
 - 4.7.1 Engage the pump to increase the pressure to the Working Pressure from the Hydrostatic Testing Pressures Table and allow the pressure to stabilize. Once the pressure is stabilized, the pressure shall be held for three (3) minutes minimum during which there shall be no detectable leak or pressure drop.
 - 4.7.2 At the elapse of three minutes of stabilized pressure, the pressure shall be reduced to zero.
 - 4.7.3 Engage pump a second time to increase the pressure to the same Working Pressure and hold at the stabilized pressure for a minimum of 10 minutes.
 - 4.7.4 At the end of the ten minutes, release the pressure on the assembly, and remove the test plug and the test cap.
- 4.8 Liberally lubricate the threads with Liquid O-Ring Zinc Based Thread Compound ZN-50. Install the thread protectors and store the assembled Valve in a controlled environment until required for use.

HYDROSTATIC TESTING PRESSURES			
(Shell Test used for New Valves, Final Acceptance Test only)			
WORKING PRESSURE		SHELL TEST PRESSURE	
psi	MPa	psi	MPa
5000	34.5	10,000	68.9
10,000	68.9	15,000	103.4
15,000	103.4	22,500	155.1

DISASSEMBLY INSTRUCTIONS FOR THE PACKARD ONE PIECE KELLY VALVE

1.0 SCOPE

- 1.1. This procedure will provide general instructions regarding disassembly of the Packard One Piece Kelly Valve (KV-1).

2.0 REFERENCES

- 2.1. The latest revision of the following specifications may be used to obtain additional information regarding this procedure.
 - API Specification 7-1 latest edition.
 - Bill of materials.

3.0 DISASSEMBLY PROCEDURE

- 3.1. Clean the assembled Valve thoroughly.
- 3.2. Use the Operating Wrench to rotate the Operator to set the Ball in the full open position, insert the Assembly / Disassembly Tool through the pin end and insert the feet into the groove in the ID of the Upper Seat and tighten snugly.
- 3.3. Place the Brace Plate over the Threaded Rod and against the pin face and tighten the nut to pull the Upper Seat away from the Upper Split Retainer Ring.
- 3.4. Remove the Snap Ring.
- 3.5. Remove the sections of the Upper Split Retainer Ring.
- 3.6. Loosen the nut and remove the Assembly/ Disassembly Tool.



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- 3.7. Insert the Assembly/Disassembly Tool into the box end and insert the feet into the groove in the ID of the Upper Seat and tighten snugly.
- 3.8. Place the Brace Plate over the Threaded Rod and against the box face and tighten the nut until the Upper Seat is removed.
- 3.9. Use the Operating Wrench to rotate the Ball to the ½ open position.
- 3.10. Remove the sections of the Lower Split Retainer Ring (remove one of the shorter sections first).
- 3.11. Use the Operating Wrench to rotate the Ball to the closed position.
- 3.12. Remove the Ball.
- 3.13. Insert the Assembly/Disassembly Tool through the pin end, and insert the feet of the pulling tool into the groove in the Lower Seat ID and tighten snugly.
- 3.14. Place the Brace Plate over the Threaded Rod and against the pin face and tighten the nut to compress the Wave Spring.
- 3.15. Remove Operating Stem.
- 3.16. Remove the Assembly/Disassembly Tool and insert it through box end into the groove in the Lower Seat ID.
- 3.17. Place the Brace Plate over the Threaded Rod and against the pin face and tighten the nut until the Lower Seat is removed.
- 3.18. Remove the Assembly/Disassembly Tool.
- 3.19. Thoroughly clean all parts and Valve Body.
- 3.20. Visually inspect all parts for damage or wear except O-rings and Back-Up Rings; discard all the used O-rings and Back-Up Rings.
- 3.21. Discard worn or damaged parts.
- 3.22. Liberally lubricate end connections and Valve Body ID with rust preventative. Install the thread protectors and store the disassembled Valve Body and useable internal components in a controlled environment until assembly.

**PREPARING THE ONE PIECE KELLY VALVE FOR
INSTALLATION**

1.0 SCOPE

1.1 This procedure will provide general instructions regarding installation of the Packard One Piece Kelly Valve (KV-1).

2.0 REFERENCES

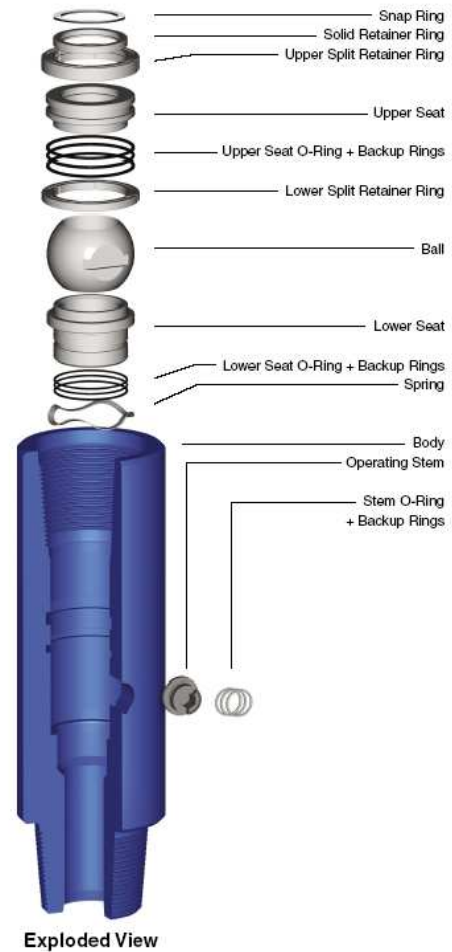
2.1 The latest revision of the following specifications may be used to obtain additional information regarding this procedure.

- API Specification 7-1 latest edition.
- Bill of materials.

3.0 INSTALLATION PROCEDURE

- 3.1 Clean the shipping thread compound from the threaded connections and liberally lubricate the threads with Liquid O-Ring Zinc Based Thread Compound ZN-50.
- 3.2 API Specification RP7G recommends that the Thread Compound base to include 40% to 60% (by weight) finely powdered zinc with a maximum content of active sulfur to be 0.3%.
- 3.3 Assemble the Valve in its place in the drillstring and apply make-up torque to the value printed in the Data Book supplied, or the make-up torque for the connection it will be attached to, whichever is lower.

NOTE: Failure to follow the above procedure explicitly may result in damage and subsequent premature valve failure.



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