ASSEMBLY PROCEDURE FOR THE DROP IN CHECK VALVE

1.0 SCOPE

1.1 This procedure will provide general instructions regarding assembling the Drop In Check Valve.

2.0 REFERENCES

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

- Packard Quality Procedures Manual.
- API Specification 7 latest edition.
- Bill of materials.

3.0 ASSEMBLY PROCEDURE

3.1 Clean all metal parts with paint thinner, acetone, or by steam cleaning.

3.2 Visually Inspect for sign of damage or wear.

3.3 Clean V-Packing rings with mild detergent and water

3.4 Check for cracking or embrittlement.

3.5 Replace V-Packing as required.

3.6 Install V-Packing rings on the Packing Mandrel.

3.7 Before assembling, grease Ball and threads with a light coat of Texaco Marfax Heavy Duty 2 or an equivalent API grade.

3.8 Assemble Cage, with Ball and Spring inside, to Seal Sub.

3.9 Screw Cage and Seal Sub assembly into Packing Mandrel and tighten until snug

3.10 Store the Check Valve in an area protected from elemental conditions

4.0 HYDROSTATIC TEST VALVE

4.1 Testing shall be performed in accordance with the test pressure and procedures outlined in API Specification 7 latest edition.

HYDROSTATIC TESTING PRESSURES

MINIMUM PRESSURE WORKING RATING		MAXIMUM HYDROSTATIC 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

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

4.2 Shell test on Landing Sub Only

4.2.1 Install the test plugs and cap on both box and pin connections of the Landing Sub to be tested.

4.2.2 Install the pressure line to the bottom (Pin) connection of the valve.

4.2.3 With bleed valve on the top of the test plug in the open position, fill the body with water until it bleeds through the open valve. Actuate the valve several times to eliminate any trapped air in the valve body.

4.2.4 Close the bleed valve.

4.2.5 Conduct the Hydrostatic test per the lasted revision of API Specification 7.

4.2.5.1 Engage pump and increase pressure to test pressure from Table above and stabilize. After stabilization of pressure, the valve will be held at pressure for three (3) minutes minimum with no detectable pressure drop or leakage.

4.2.5.2 At the elapse of three minutes, the pressure will be reduced to zero.

4.2.5.3 Engage pump a second time to increase the pressure to the test pressure per Table 1.1 and hold for a minimum of 10 minutes.

4.2.6 Release the pressure on the assembly, assign the serial number, and complete the test chart

4.3 Seat test on complete assembly.

4.3.1.1 Push the Check Valve inside the Landing Sub

4.3.1.2 Repeat steps 4.2.1 through 4.2.6

DISASSEMBLY INSTRUCTIONS FOR THE DROP IN CHECK VALVE

1.0 SCOPE

1.1. This procedure will provide general instructions regarding disassembly of the Drop In Check Valve.

2.0 REFERENCES

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

- Packard Quality Procedures Manual.
- API Specification 7 latest edition.
- Bill of materials.

3.0 DISASSEMBLY PROCEDURE

3.1. Disassembly Procedure of the DICV Assembly.

3.1.1. Screw an API sucker rod to the Retrieval Tool

3.1.2. Push the Retrieval Tool inside the Landing Sub to lock to the Check Valve.

3.1.3. Pull the Check Valve and Retrieval tool from Landing Sub.

3.1.4. Clean thoroughly all parts and inspect for wear or damage.

3.1.5. Treat the Landing Sub as any other tool joint.

3.1.6. Thread protectors should be used when available, in order to protect the tool joint shoulders of the Landing Sub.

3.2. Disassembly Procedure of the Check Valve.

3.2.1. Secure the top of the Packing Mandrel in a table vise or use a ¼" rod through the 4 holes in the packing mandrel and a screw driver through the cage.

3.2.2. Unscrew the Cage from the Seal Sub by turning the Cage counter clockwise.

3.2.3. Remove the Spring and Ball that are now loose out of the Cage.

3.2.4. Clean and inspect Ball for wear.

3.2.5. Use a strap wrench to remove the Seal Sub.

3.2.6. Clean and inspect Seal Sub for wear or damage.

3.2.7. Gently remove V-Packing and Seal Rings from Packing Mandrel.

3.2.8. Clean and inspect V Packing rings for wear or damage / embrittlement.

3.2.9. Thoroughly clean the remaining parts.

3.3. Do not attempt further disassembly.

PREPARING THE DROP IN CHECK VALVE FOR INSTALLATION

1.0 SCOPE

1.1 This procedure will provide general instructions regarding installation of the Drop In Check Valve.

2.0 REFERENCES

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

- Packard Quality Procedures Manual.
- API Specification 7 latest edition.
- Bill of materials.

3.0 INSTALLATION PROCEDURE

3.1 Clean shipping thread dope from threaded connections and apply thread dope suitable for drill string use.

3.2 Recommended: Dope base to include 40% to 60% (by weight) finely powdered zinc or lead.

3.3 Install the landing sub in the lower end of the drill string while tripping into the hole.

3.4 Install the Check Valve by dropping it into an open tool joint.

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

ISO9001:2000 # 0163 API # 7-0207