



Drop-In Inside Blowout Preventer Valve

Disassembly and Assembly Procedures

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**Disassembly and Assembly Procedures for
Global Manufacturing, Inc. Drop-In Inside Blowout Preventer Valves**

SAFETY CONSIDERATIONS

- Safety glasses should be worn along with other protective clothing as required.
- Proper tools and restraining devices (vises, clamps, etc.) should be used to secure the valve in a safe manner.
- Valve maintenance should be performed in a safe and suitable work area as designated by your supervisor.
- Personnel performing these operations should be familiar with Global drop-in inside blowout preventer valves and their uses.
- If unsure of any part of the operation, check with the valve manufacturer before proceeding.

These instructions are intended for disassembly and assembly of Global Manufacturing, Inc. Drop-In Inside Blowout Preventer Valves only.

**Disassembly and Assembly Procedures for
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VALVE DISASSEMBLY

Figure 1

1. Remove valve from the drill string. Clean the outside and inside in preparation for disassembly.

Dart Removal and Disassembly

2. Using the retrieval tool, depress the slip in order to remove the body assembly from the landing sleeve.
3. Unscrew the nut from the body and remove it. Slide the slip and valve spring off of the body.

Figure 2

4. Line up the retainer ring ears with the access groove in the body.
5. Squeeze the retainer ring and separate the body from the ball seat.
6. Remove the retainer ring, outer back-up ring, inner back-up ring and packer.
7. Unscrew and remove the ball cage from the ball seat. Then remove the ball and ball spring.

Figure 3

Landing Sleeve Removal

8. Remove the spiral retainer ring and the solid retainer through the box end of the valve.
9. Slide the four segments of the split ring toward the valve bore and remove them from the valve.
10. Remove the landing sleeve assembly through the box end of the valve.
11. Remove all seals and o-rings.

Figure 4

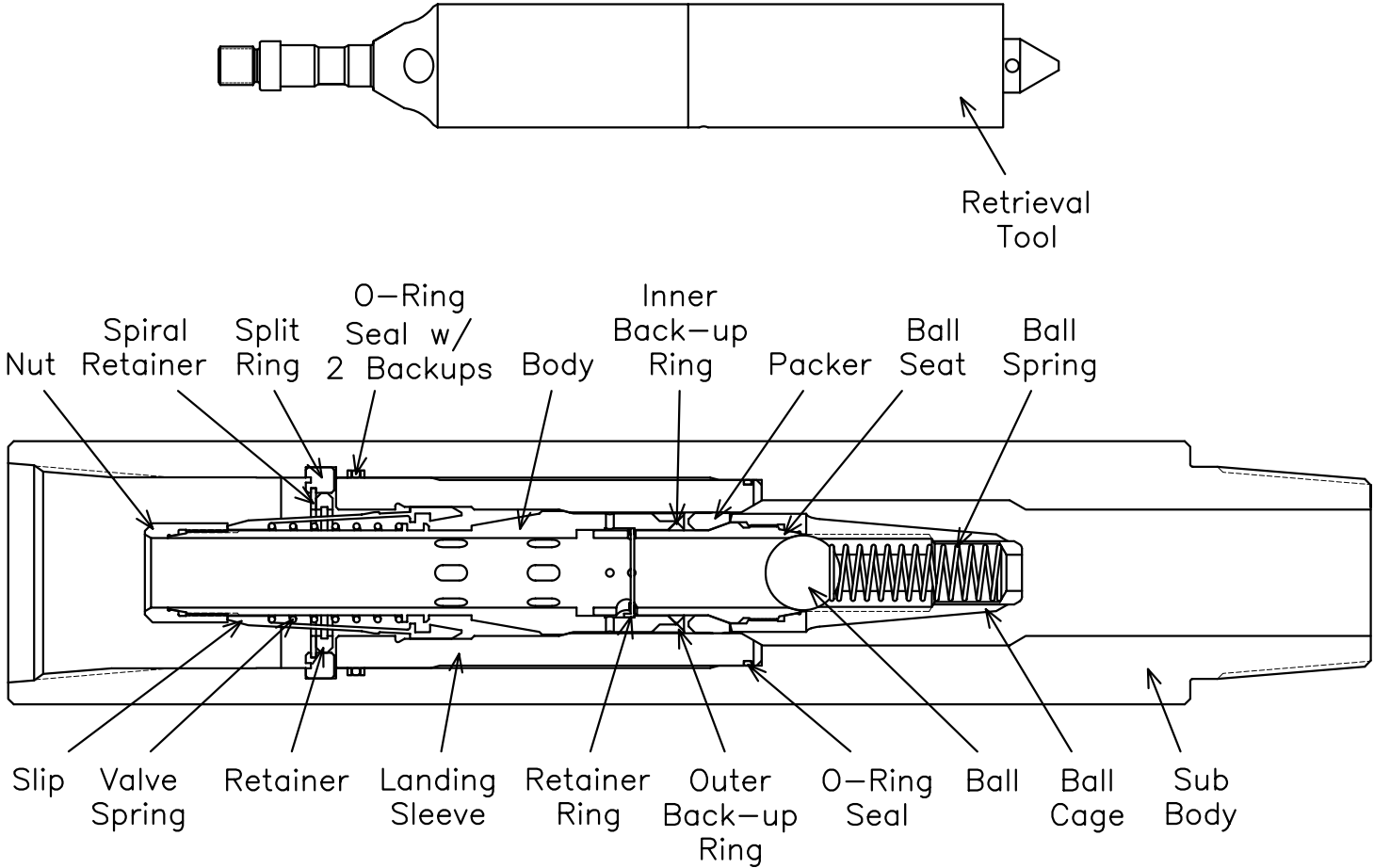
12. Inspect all internal parts, particularly the o-ring grooves and seal surfaces, to ensure that there are no burrs, scratches, excessive wear, pitting (or other forms of corrosion damage), washing, rounded corners or mechanical damage. Any parts found with damage shall be replaced or sent to Global Manufacturing for repair.

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13. Inspect the body to ensure that there are no burrs, scratches, excessive wear, pitting (or other forms of corrosion damage), washing, rounded corners or mechanical damage. Any parts found with damage shall be replaced or sent to Global Manufacturing for repair.

14. Inspect the box and pin threaded connections for excessive wear, galling damage and shoulder damage. Any valves with connection damage shall be sent to Global Manufacturing for repair.

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Drop-In Inside Blowout Preventer Valve

Figure 1

Disassembly and Assembly Procedures for
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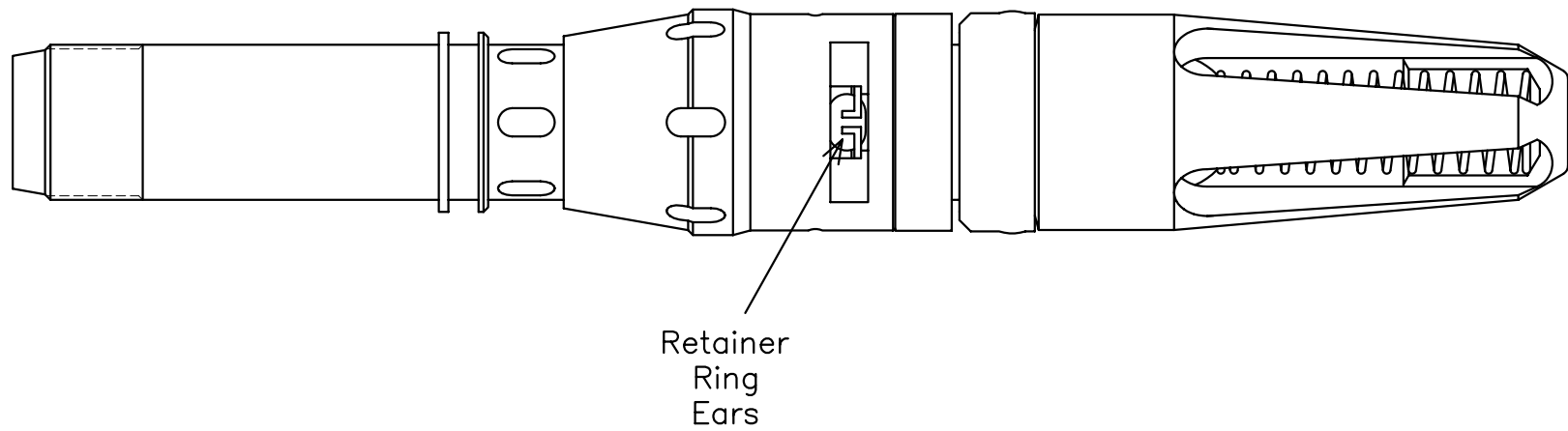


Figure 2

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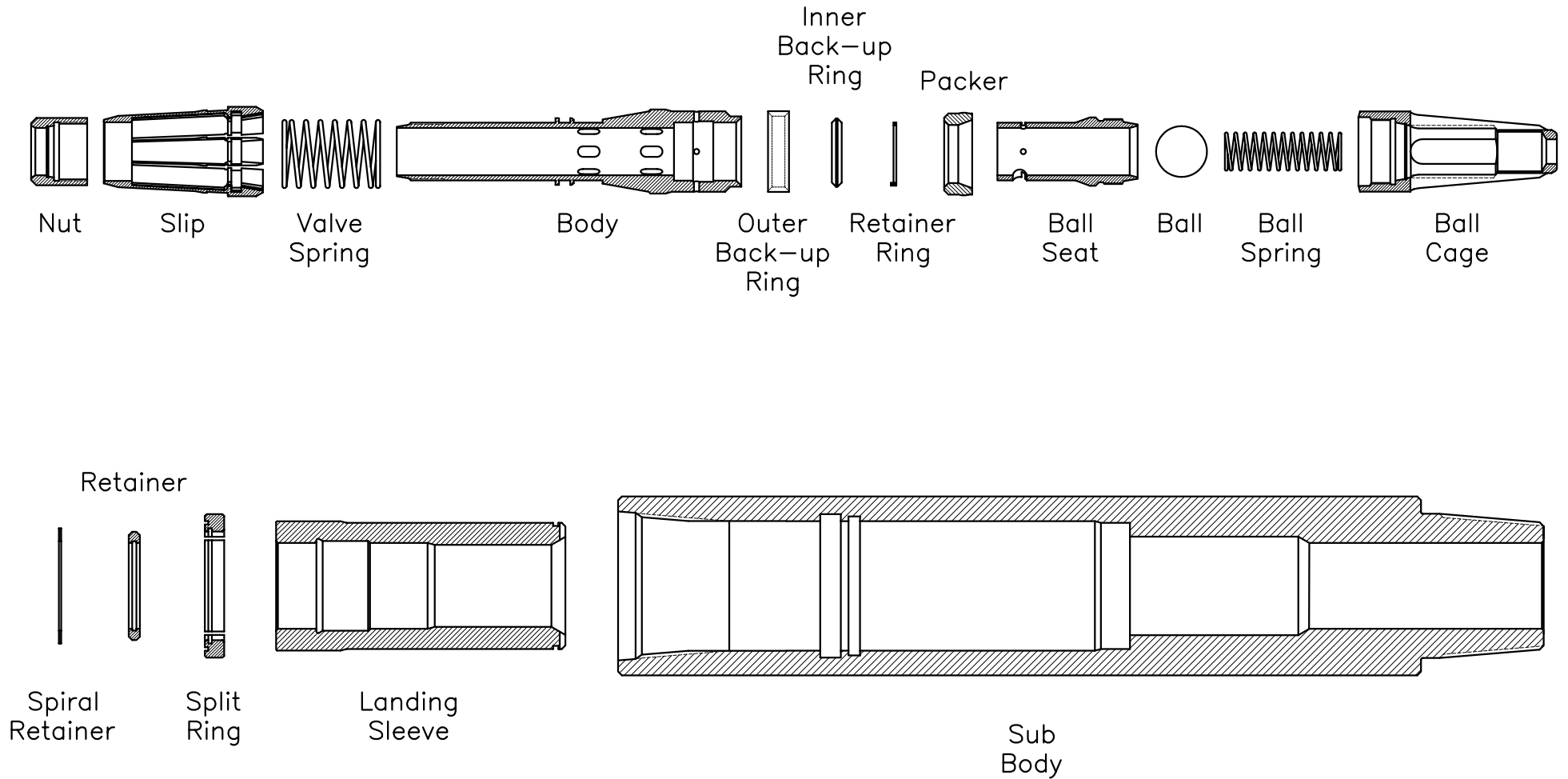
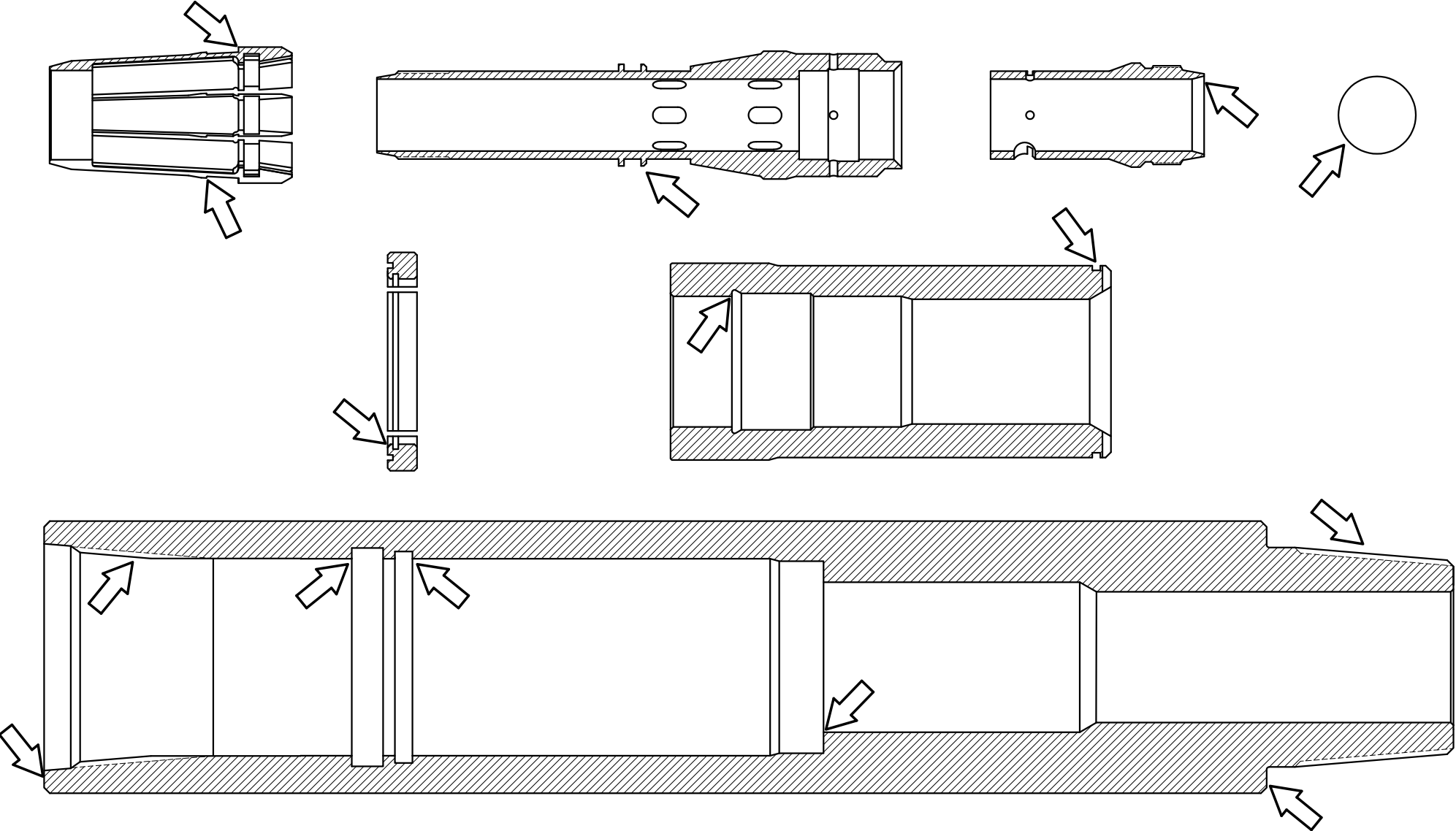


Figure 3

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Critical Inspection Locations

Figure 4

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VALVE ASSEMBLY

1. Replace all o-rings, packer, retainer ring and any worn or damaged parts (ball, ball seat, slip, back-up rings, etc.).

Figure 5

2. Apply high grade lithium based grease to all internal parts (except packer) and the bore of the body. Do not apply lithium grease to the rotary shouldered end connections or packer.

Figure 6

3. Place the ball and ball spring into the ball cage.
4. Tighten the ball cage (containing the ball and ball spring) onto the ball seat.

Figure 7

5. Install the packer onto the ball seat with the tapered shoulder positioned away from the ball as shown. Grease or oil should not be applied to the packer.
6. Place the inner back-up ring into position on the ball seat.
7. Install the retainer ring into the groove of the ball seat and position the ears of the retainer ring in the hole of the ball seat. Make sure the ears of the retainer ring are pointing away from the ball.
8. Place the outer back-up ring into position on the body.
9. Slide the ball seat assembly into the body by hand and make sure that the retainer ring snaps into place.
10. Rotate the ball seat assembly in the body by hand to verify that the ears of the retainer ring do not catch on the body. If any of the ears of the retainer ring catch on the body, bend the ear into the slot so that it clears the body and the ball seat assembly can turn smoothly in the body.

Figure 8

11. Slide the valve spring over the threaded end of the body, followed by the slip as shown.
12. Replace and tighten the nut onto the body.

Figure 9

13. Install a new o-ring seal into the o-ring groove of the landing sleeve.
14. Insert a new o-ring seal and two backups into the o-ring groove of the sub body.

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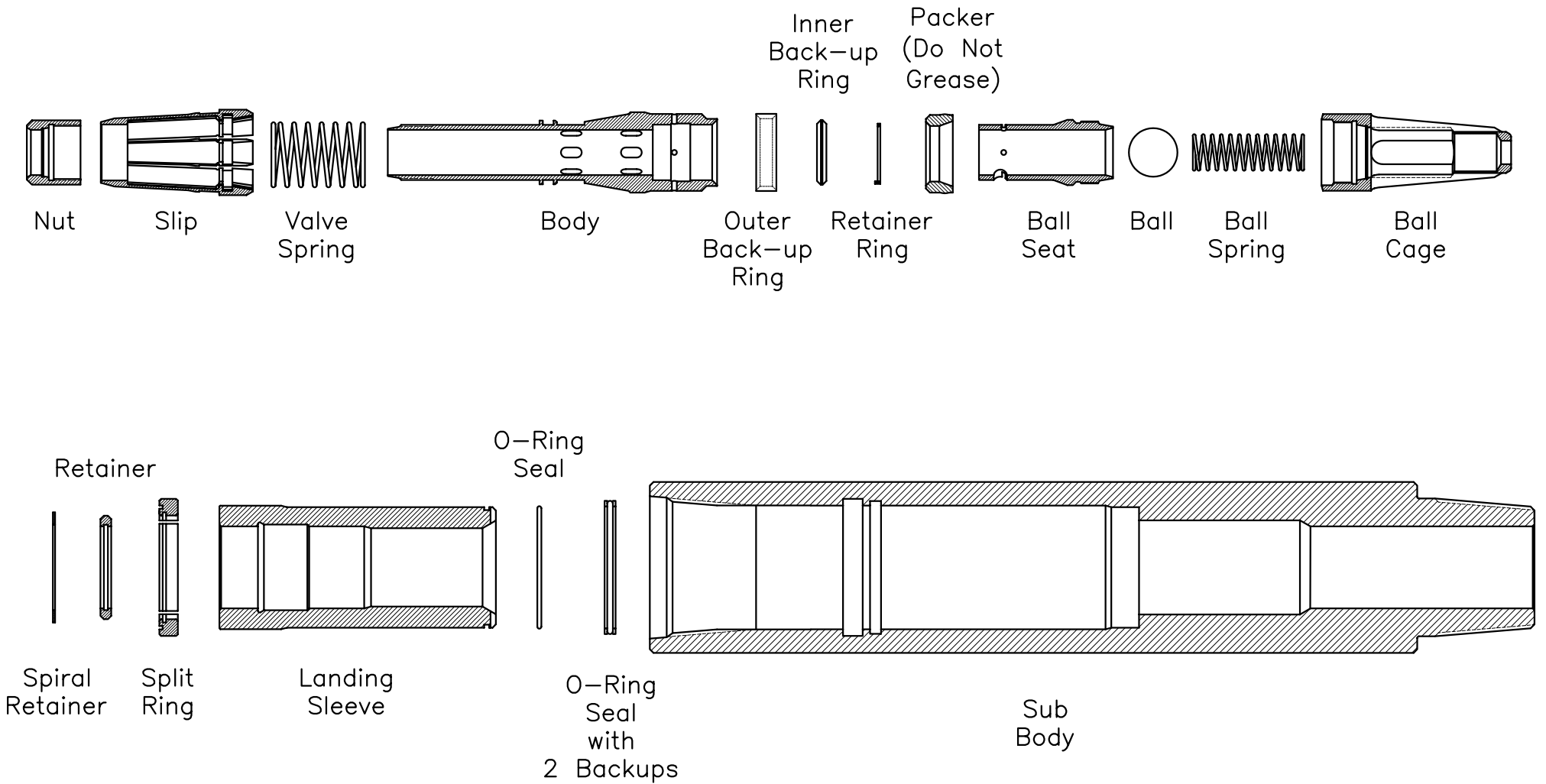


Figure 5

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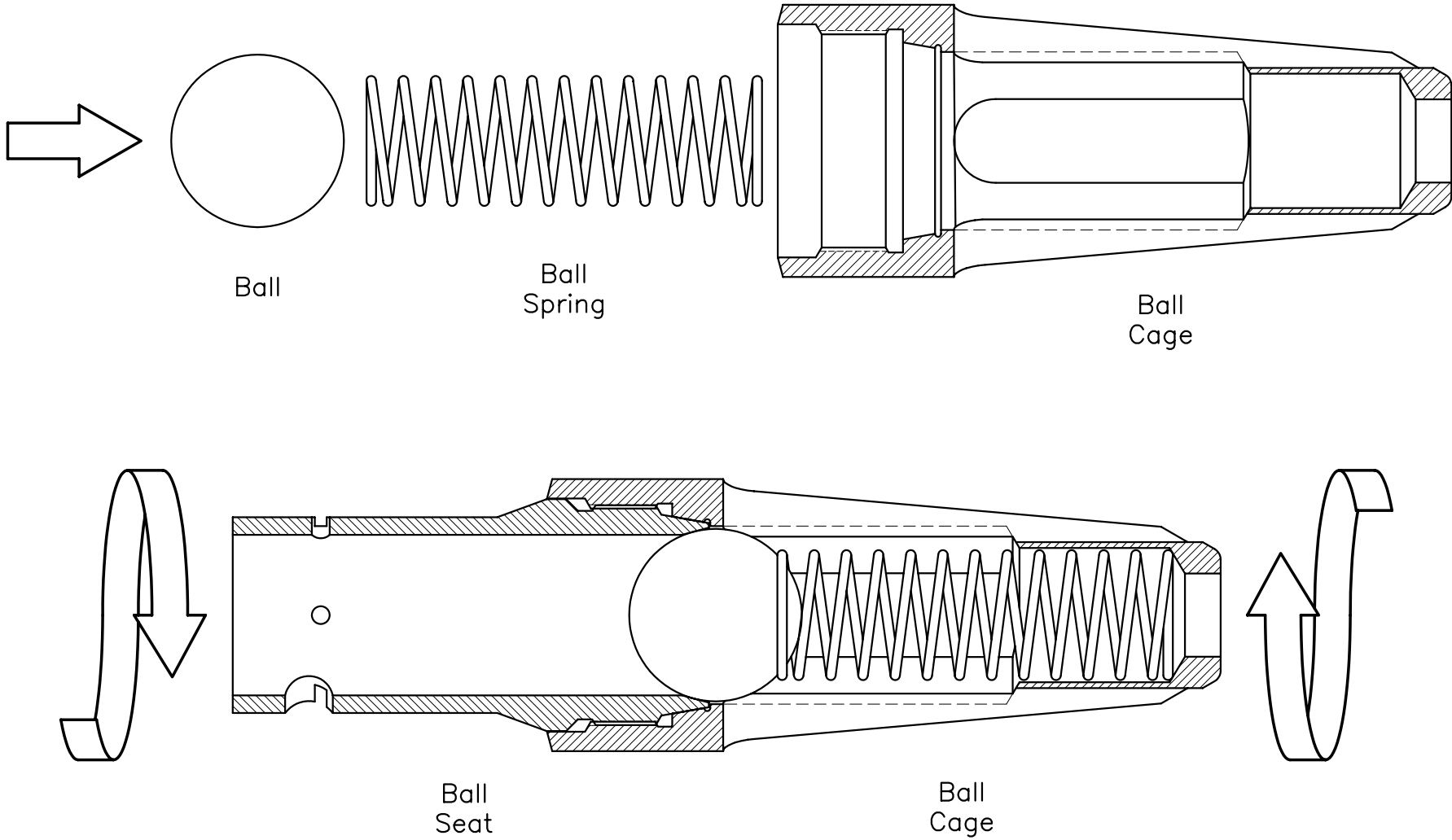


Figure 6

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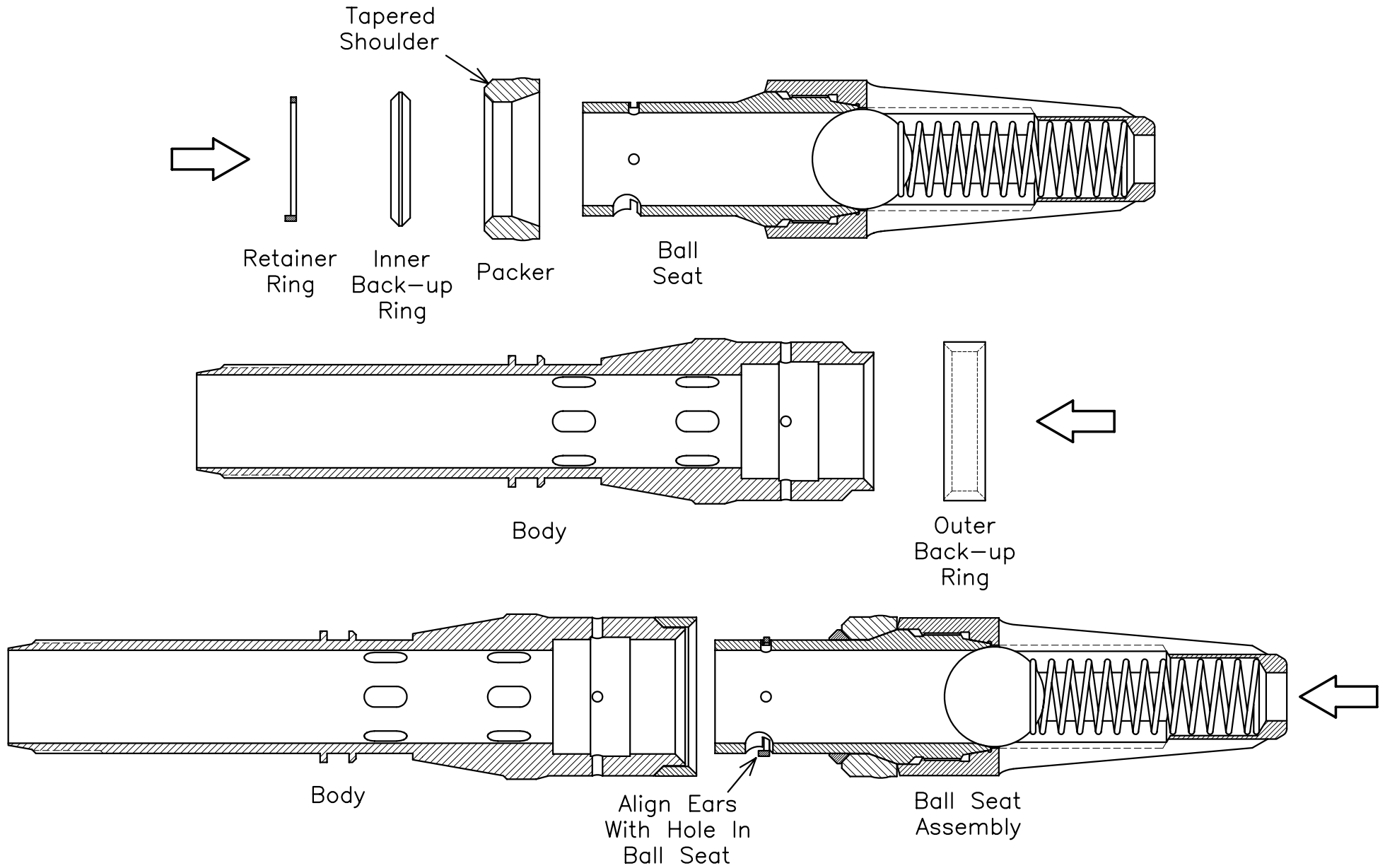


Figure 7

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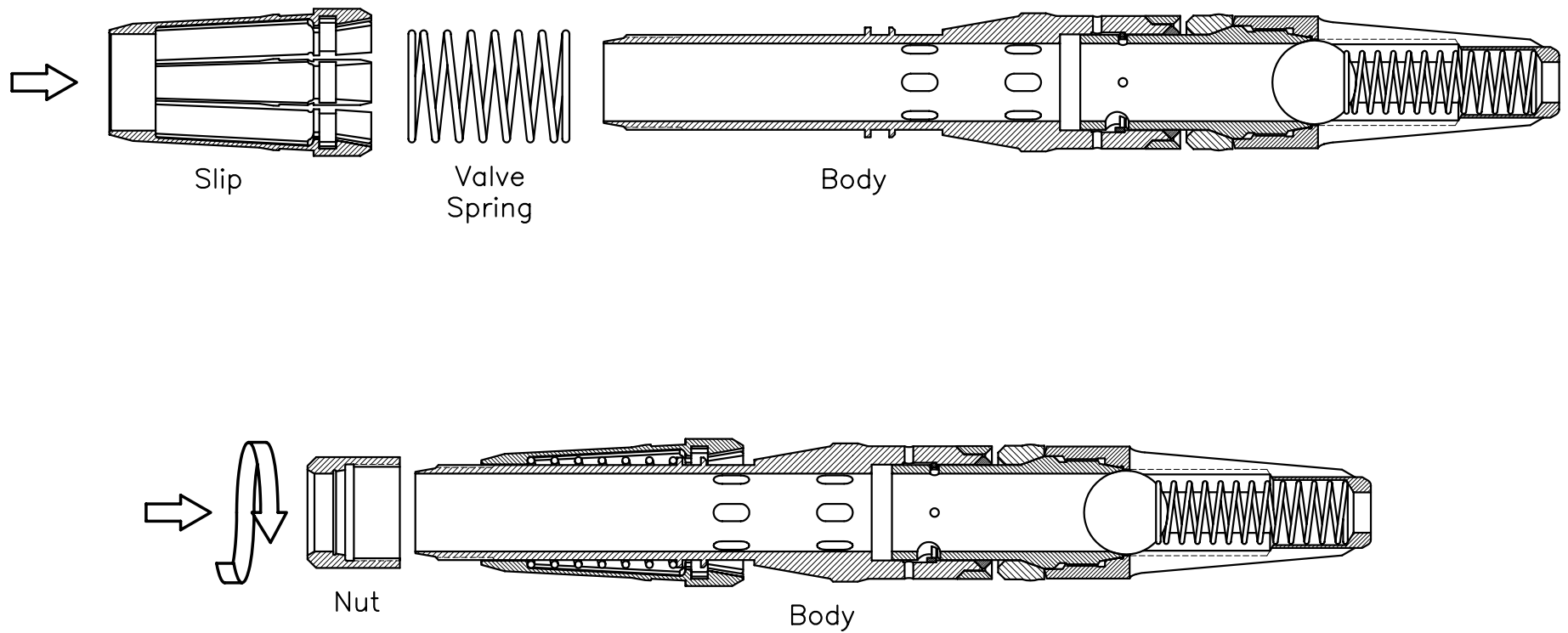


Figure 8

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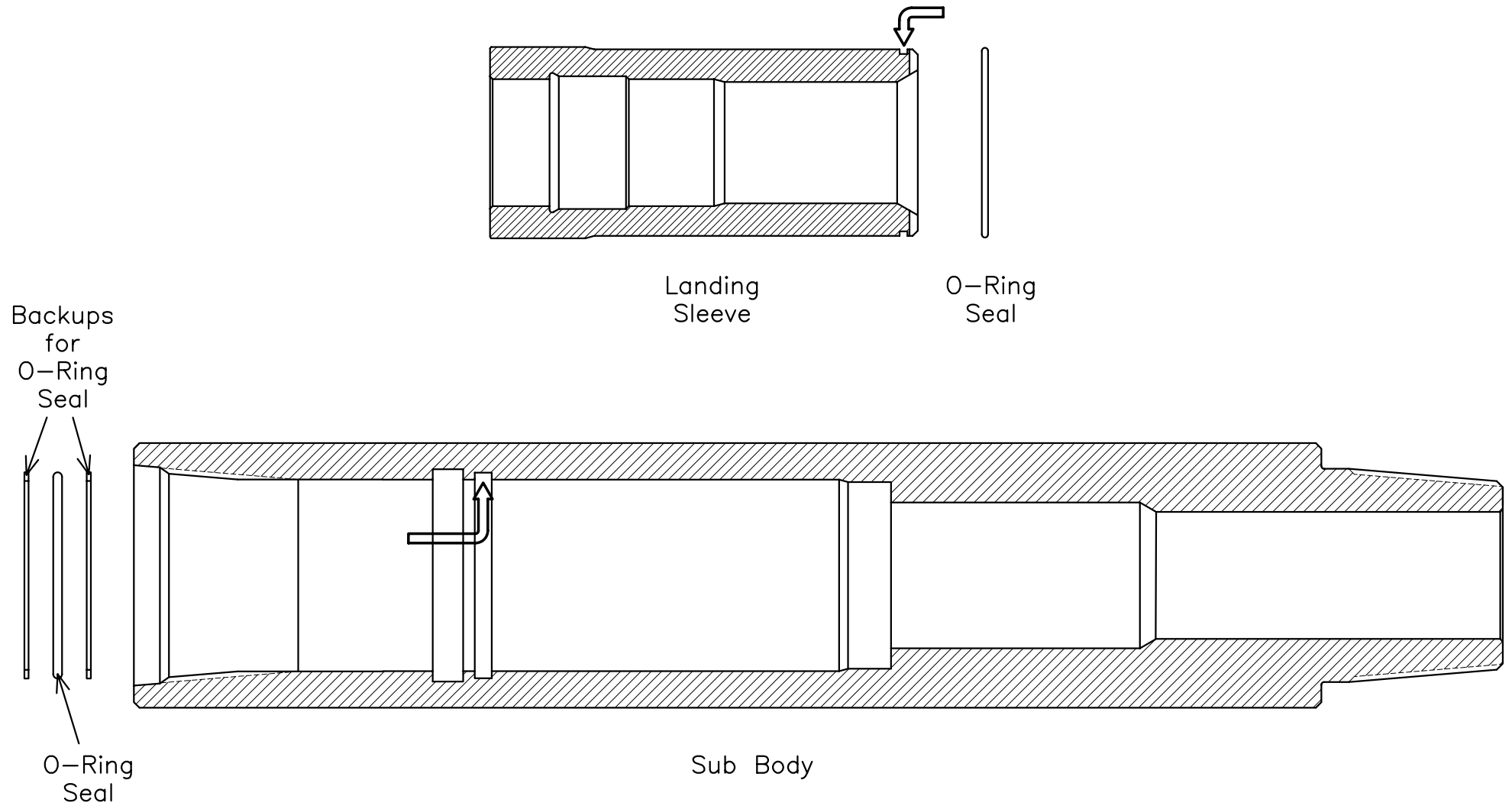


Figure 9

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Figure 10

15. Install the landing sleeve into the box end of the sub body (o-ring end first).
16. Install the two longest pieces (from opposing sides) of the split ring into opposite sides of the split ring groove.
17. Insert the remaining two pieces of the split ring into the split ring groove.

Figure 11

18. Install the solid retainer ring into the bore of the split ring.
19. Install the spiral retainer ring into the groove of the split ring.

Figure 12

20. Install the dart assembly into the landing sleeve, ensuring that the slip is locked into position.
21. Test the valve to the manufacturer's specifications to ensure no leakage.
22. Store the valve in the position required by rig floor operations.

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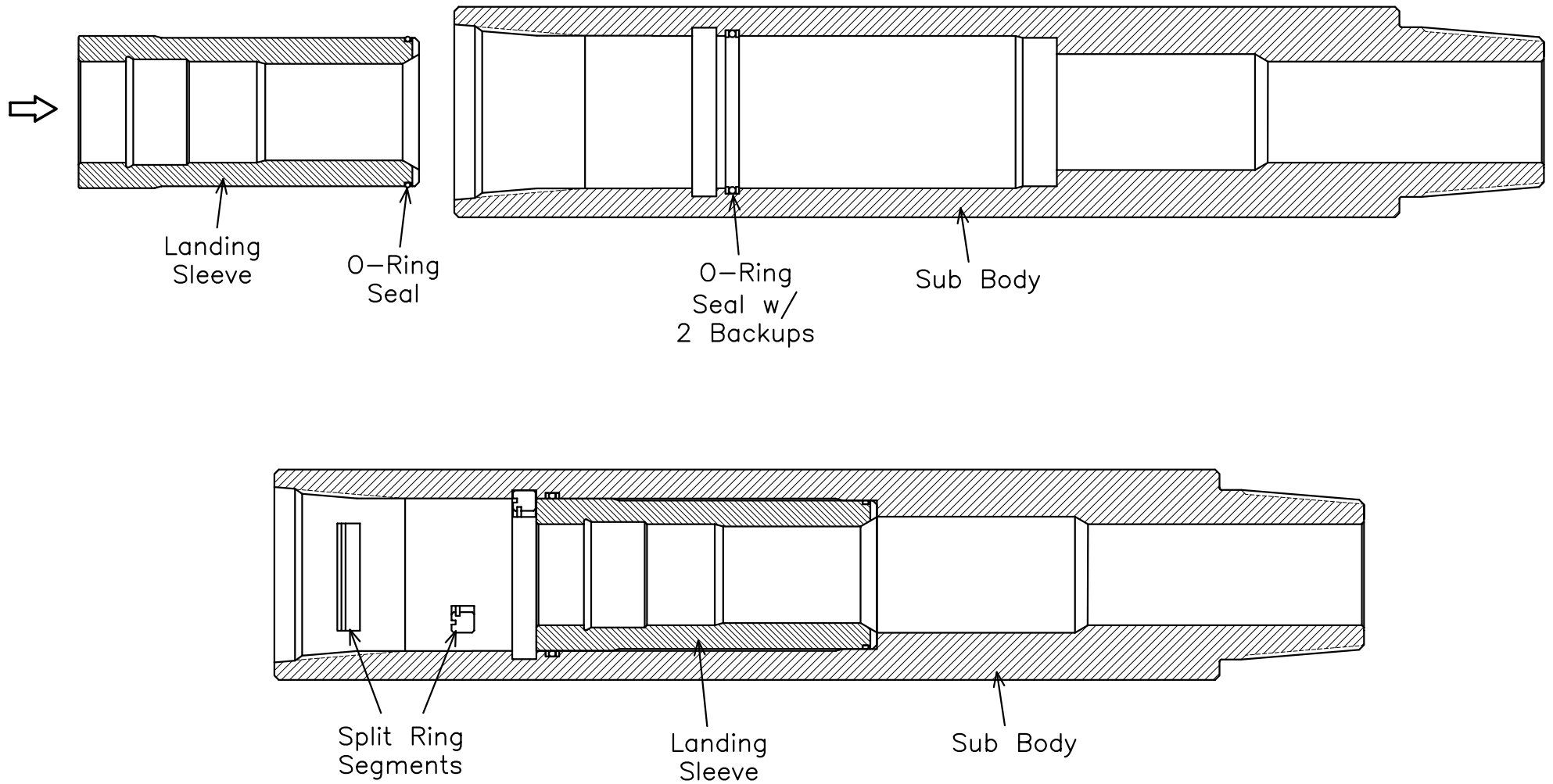


Figure 10

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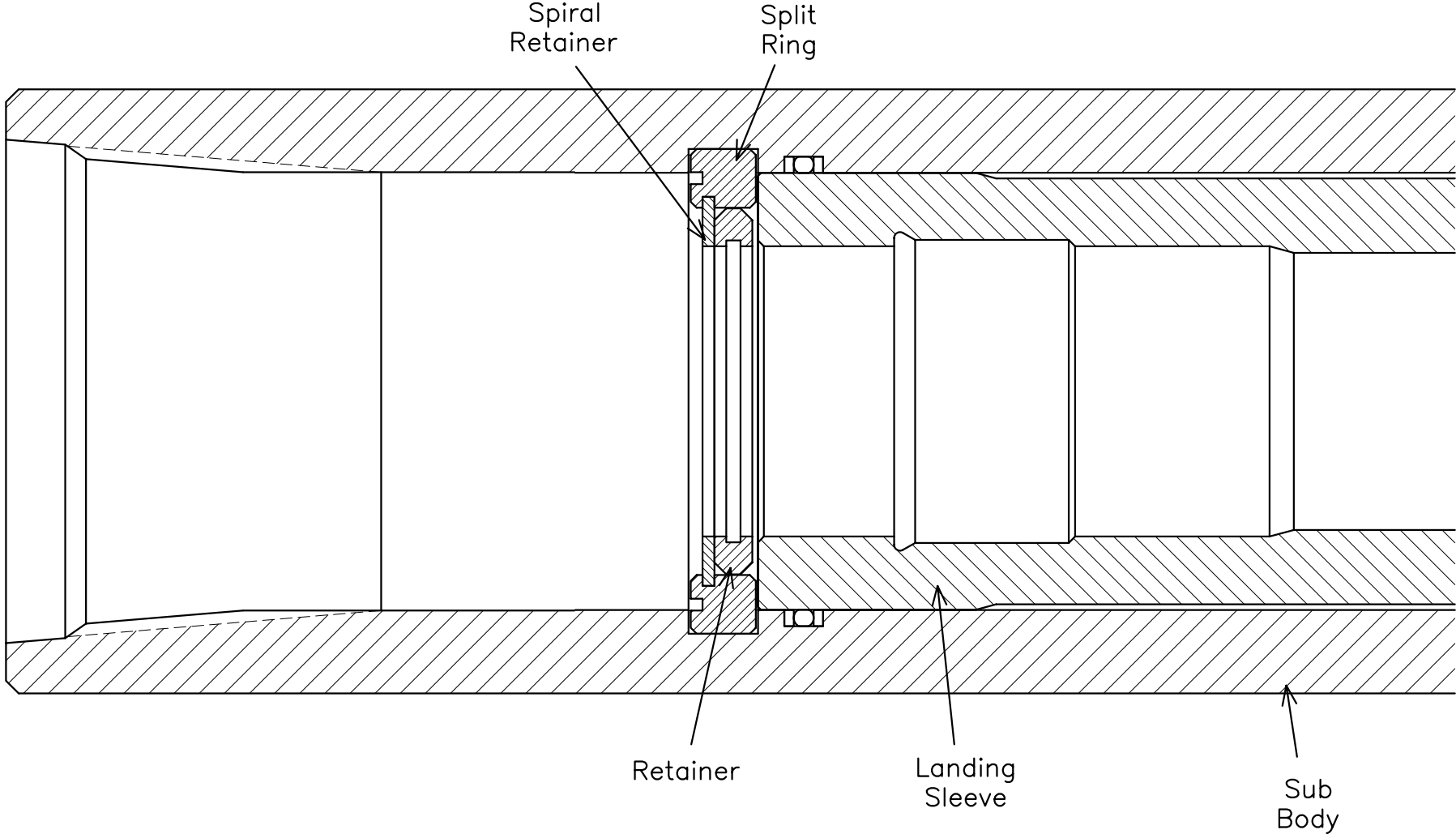


Figure 11

Disassembly and Assembly Procedures for Global Manufacturing, Inc. Drop-In Inside Blowout Preventer Valves

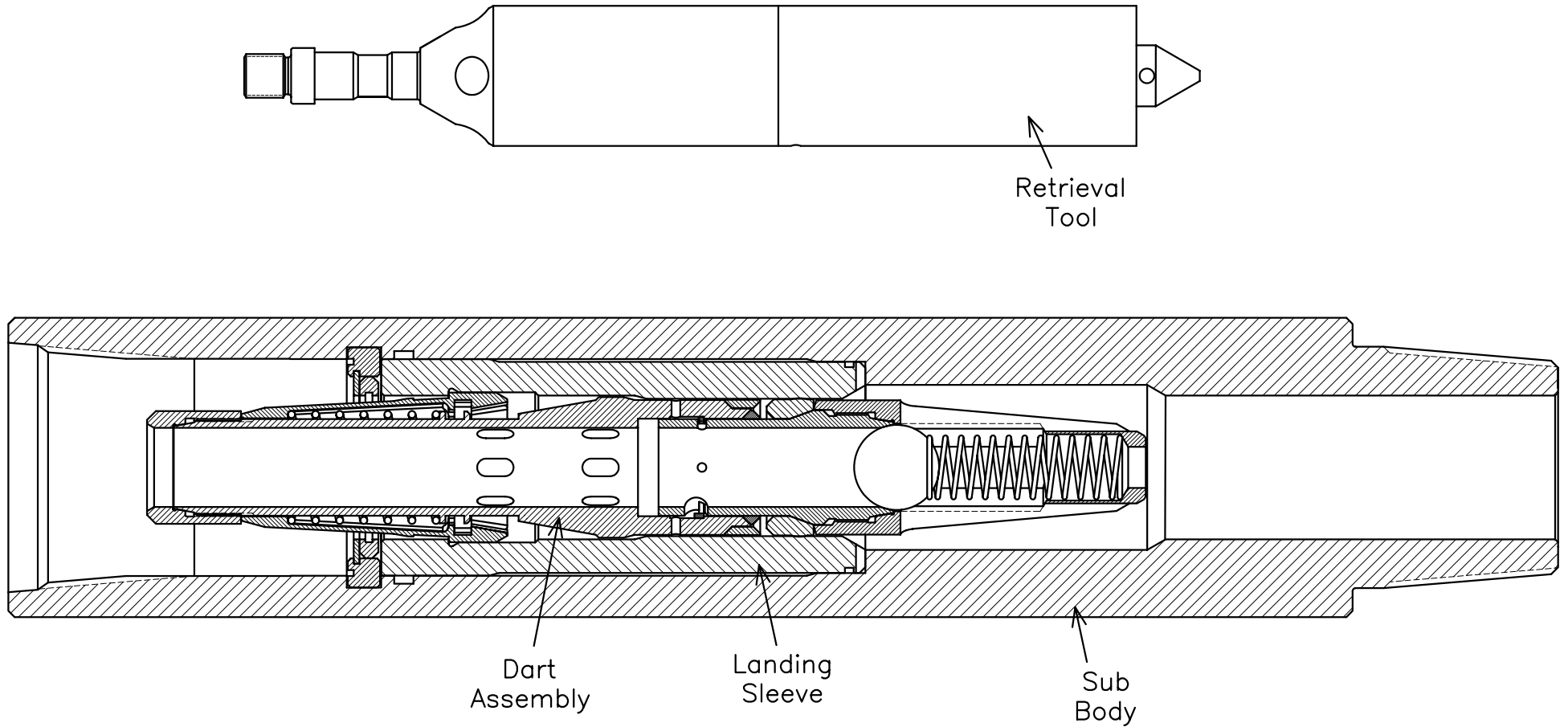


Figure 12