



Overseas Technical Services Kish



Reel Swivel

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Maintenance Instructions

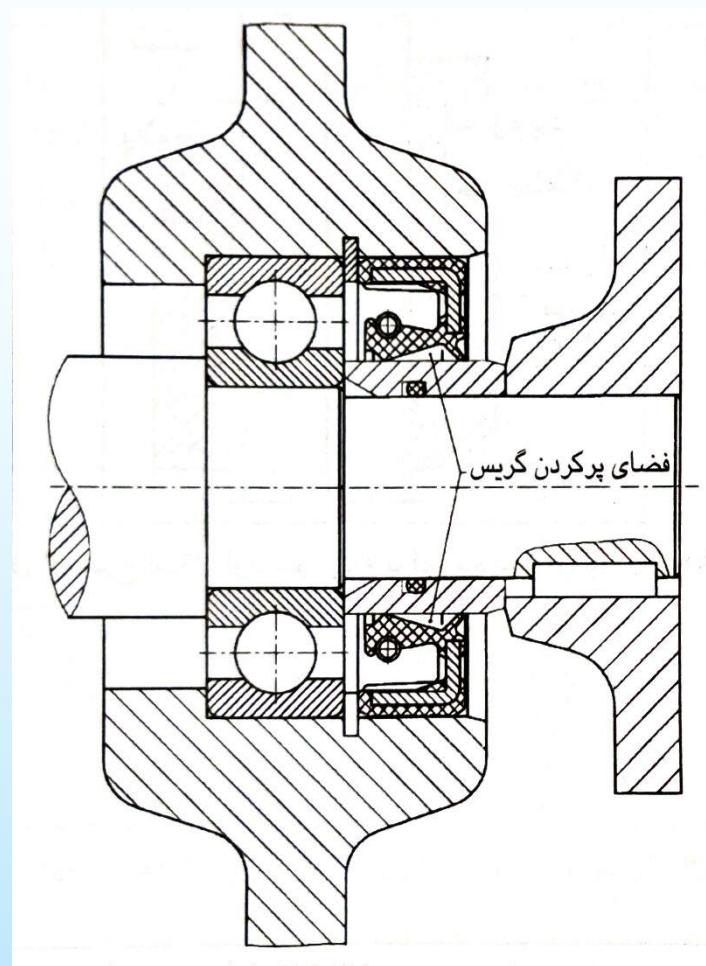


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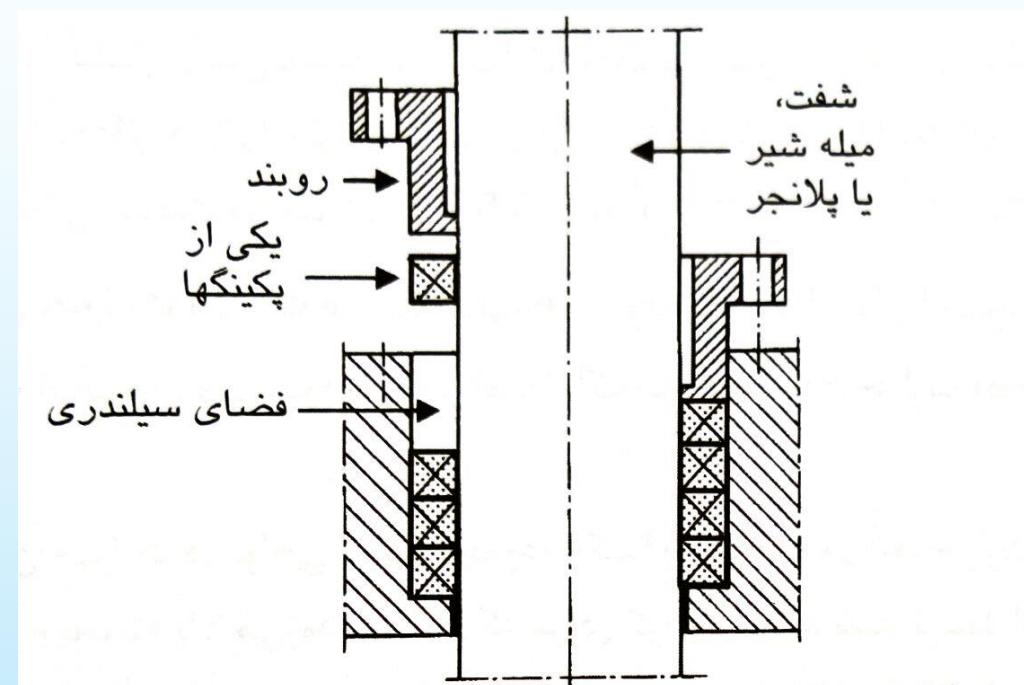


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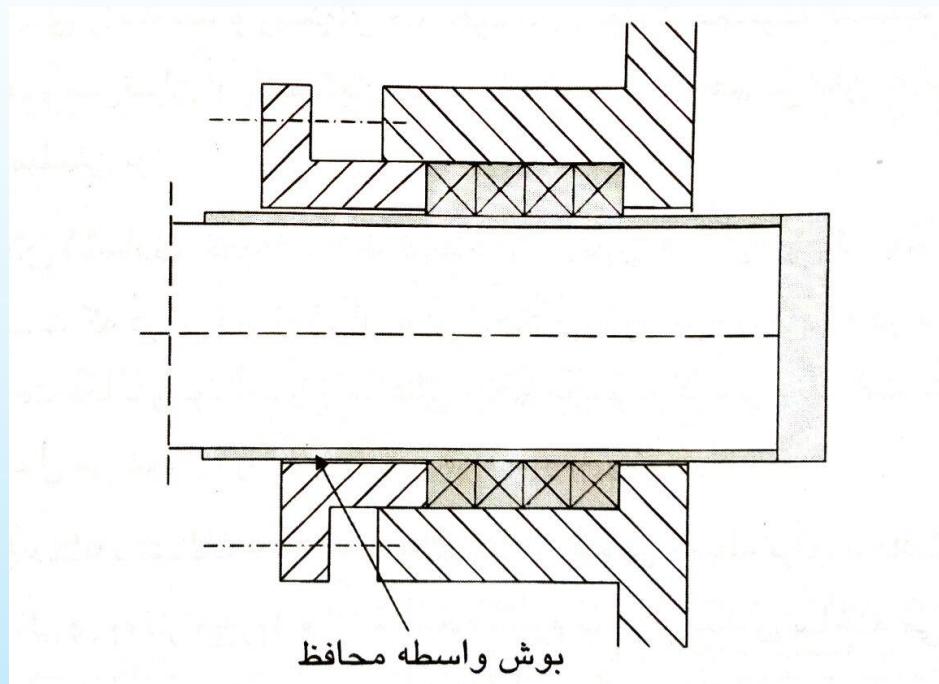


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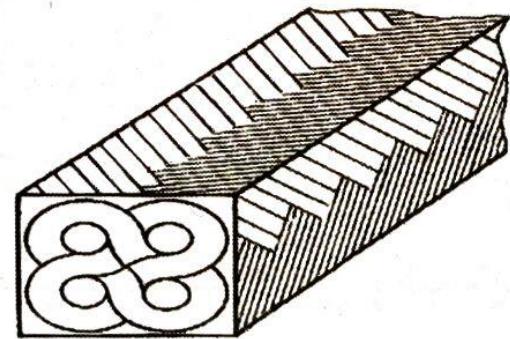


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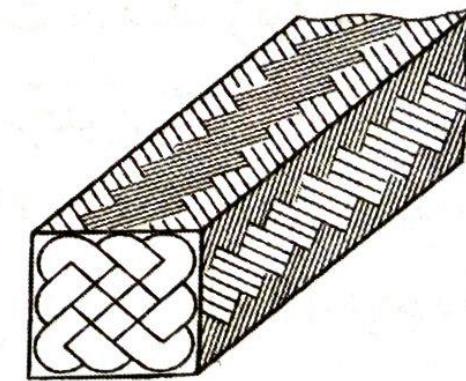




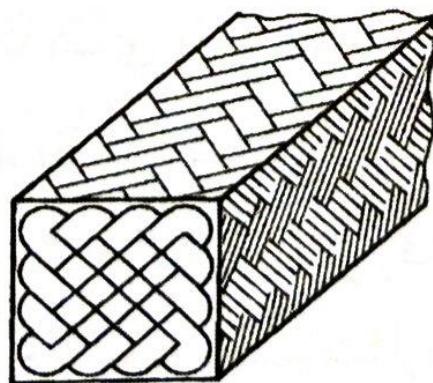
Overseas Technical Services Kish



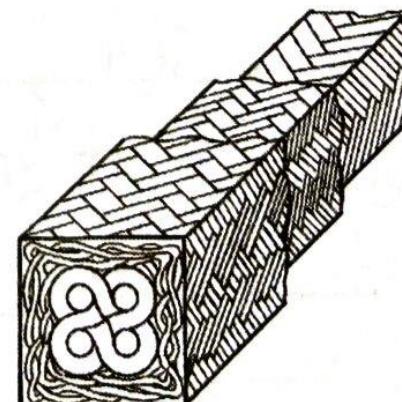
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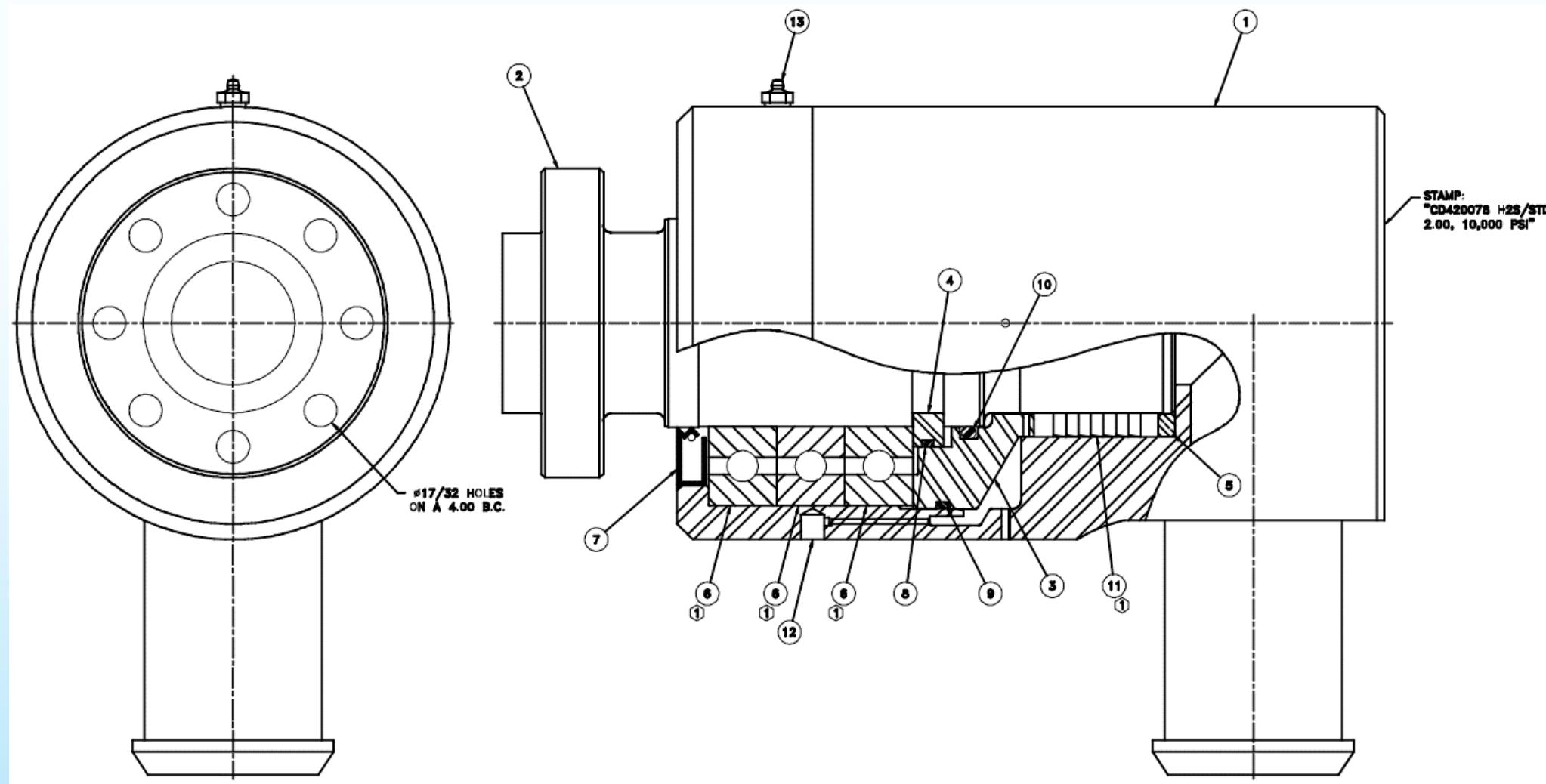


CONTENT

- ◆Introduction of Reel Swivel
- ◆Disassembly
- ◆Assembly

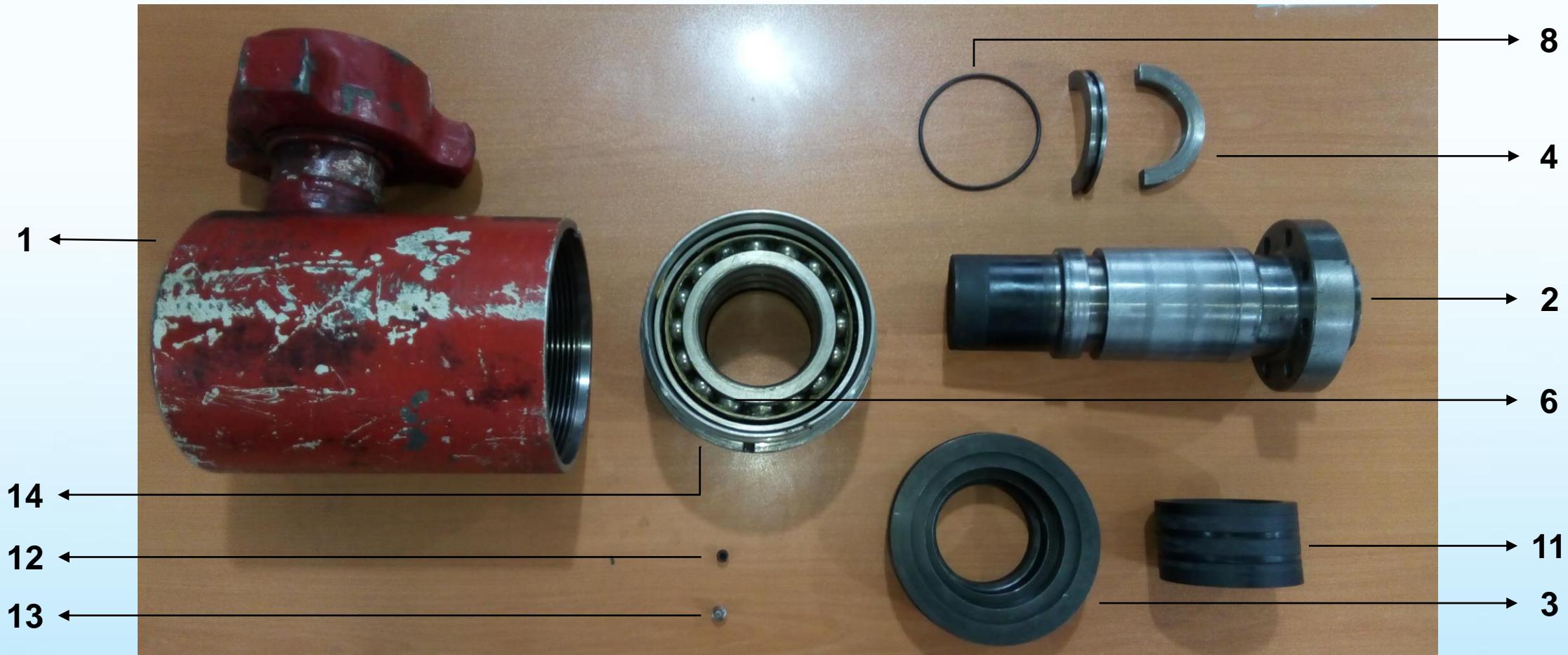


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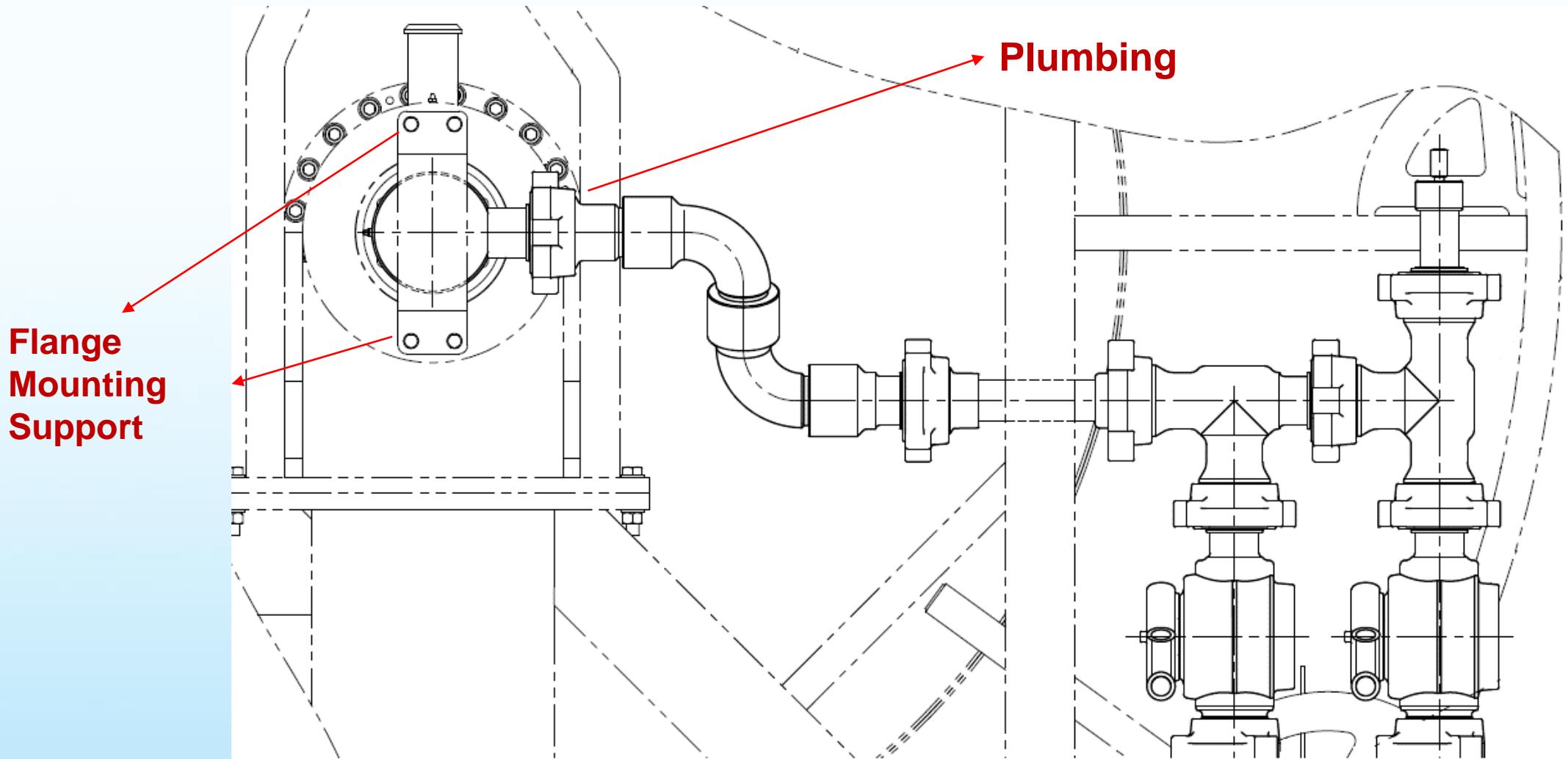


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Item No.	Description	QTY
1	Packing Housing	1
2	Mandrel	1
3	Extrusion Ring	1
4	Mandrel Retainer	1
5	Back-Up Ring	1
6	Ball Bearing Assembly	3
7	Shaft Oil Seal	1
8	O-ring	1
9	O-ring	1
10	O-ring	1
11	Packing Seal	1
12	Set Screw	1
13	Grease Zerk	1
14	Bearing Housing	



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Introduction:





➤ Required hand tools

- Pipe Wrench 60"
- Allen Key 3/16"
- Rubber Mallet
- Bowl
- Flat (Brass) Bar
- Spanner 19 mm, 11 mm



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Disassembly





Removal of Swivel from Coiled Tubing Reel

➤ First, ensure of all below steps:

- Ensure all system pressure has been bled to zero before attempting removal of Swivel.
- All hydraulic power to the Reel is shut off
- Reel brake is “ON”
- Reel drive circuit valve is in the “Center (Neutral)” position
- Install Spool Tie-Down chains



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➤ Put reel drive circuit valve is in the “Center (Neutral)” position.

A



**Neutral
Position**



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➤ Remove plumbing from input side of Swivel

A



B





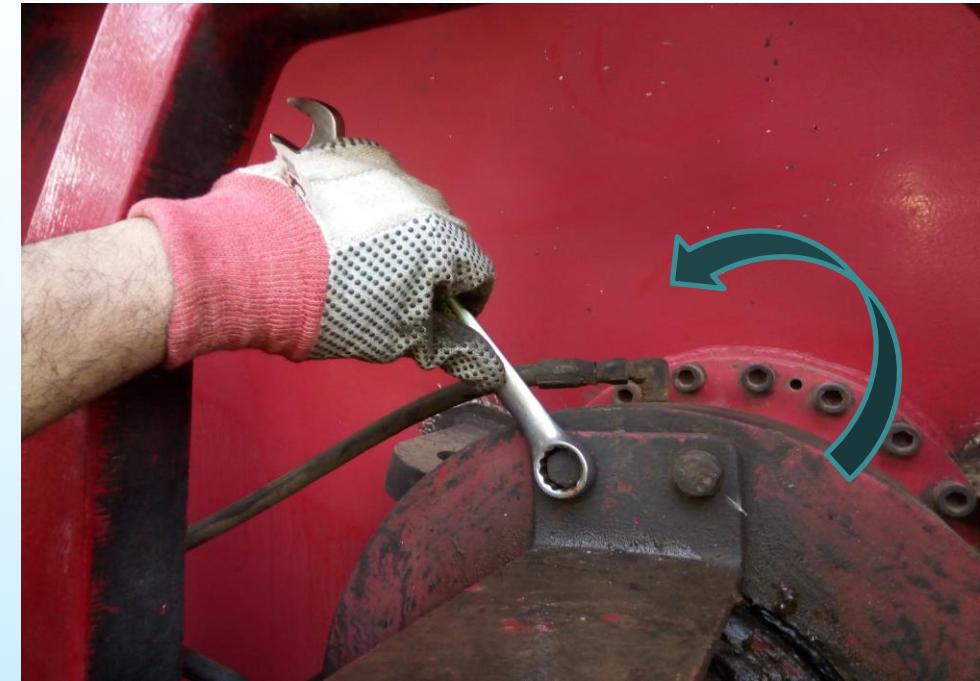
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➤ Remove Flange Mounting Support from output of Swivel.

A



B





Overseas Technical Services Kish

- Remove Flange Mounting Support from output of Swivel.

C



D





Overseas Technical Services Kish

➤ Remove Flange Mounting Support from output of Swivel.

E



F

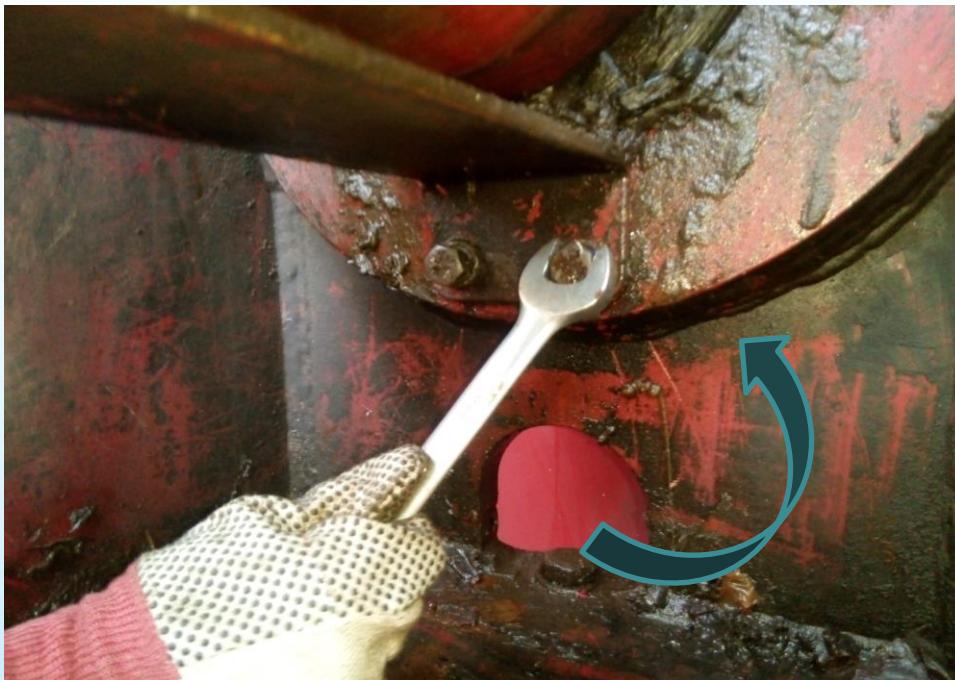




Overseas Technical Services Kish

➤ Remove Flange Mounting Support from output of Swivel.

G



H





Overseas Technical Services Kish

➤ Remove Flange Mounting Support from output of Swivel.



I



J



Overseas Technical Services Kish

➤ Remove Swivel from Reel

A



B





Overseas Technical Services Kish

➤ Remove Swivel from Reel

C



D





Overseas Technical Services Kish

➤ Remove Swivel from Reel



E

F

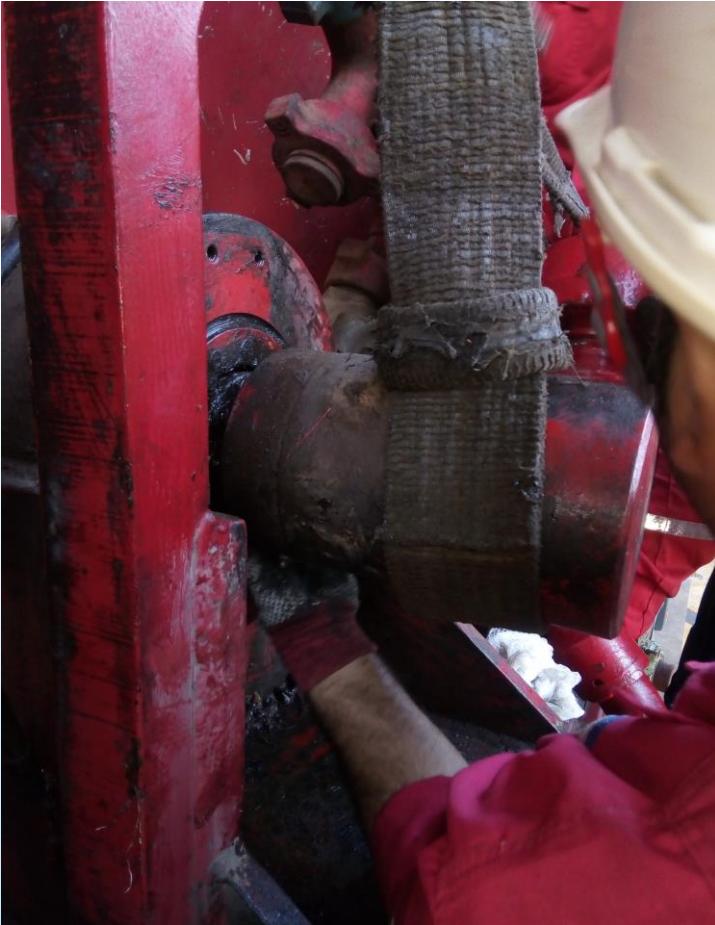




Overseas Technical Services Kish

➤ Remove Swivel from Reel

G





Overseas Technical Services Kish

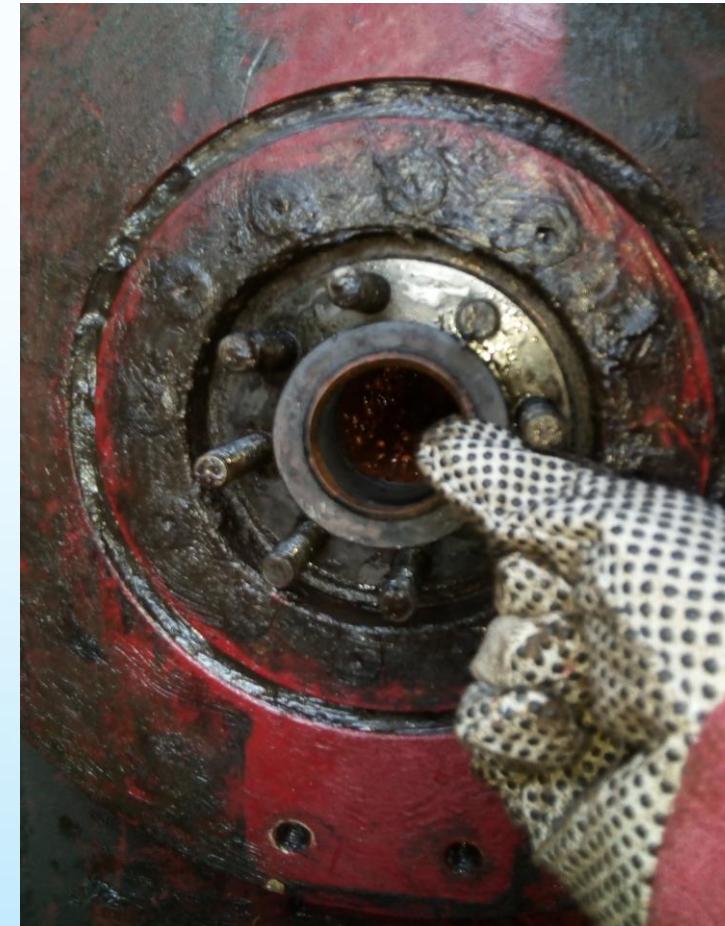
➤ Discard face seal installed in Shaft of Tubing Reel

Face Seal

A



B





Overseas Technical Services Kish

➤ Discard face seal installed in Shaft of Tubing Reel

A



B





Disassembly of Swivel

➤ Clamp Swivel body in a vice.

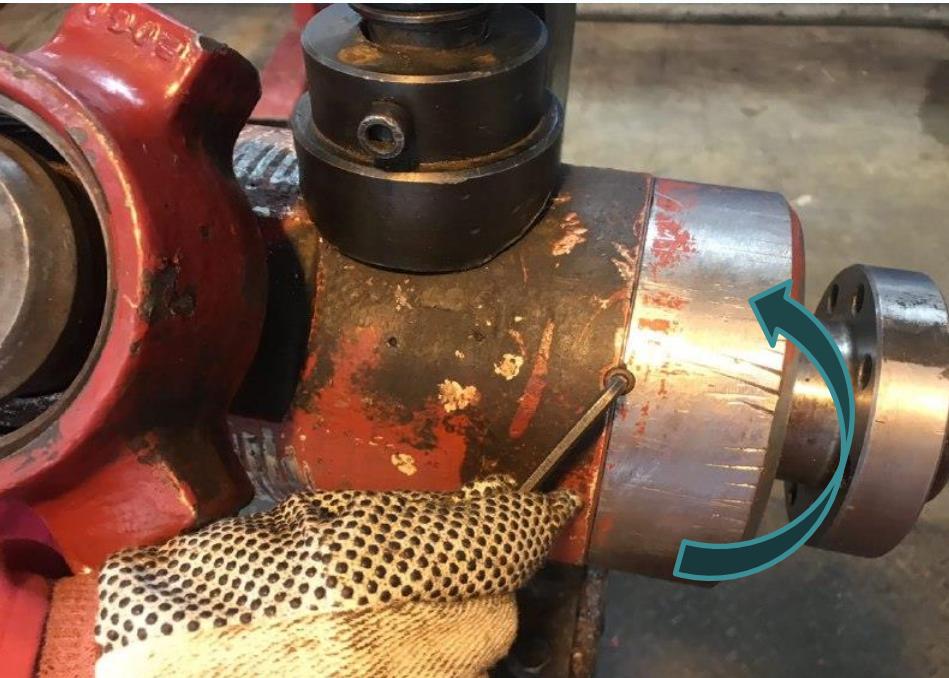




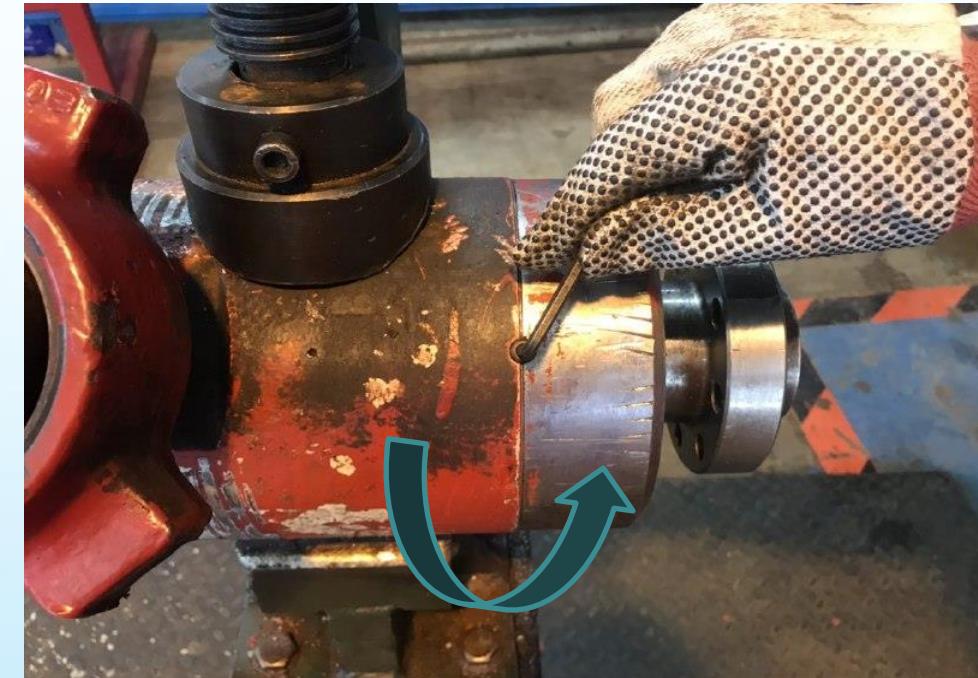
Overseas Technical Services Kish

➤ Remove Setscrew (12) from body of Swivel.

A



B





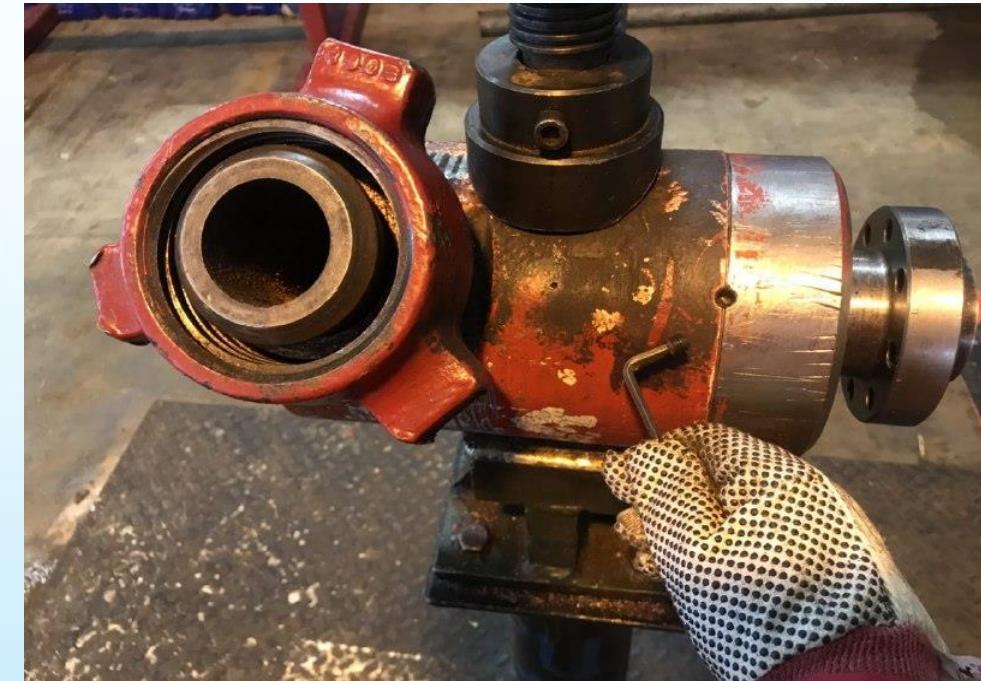
Overseas Technical Services Kish

- Remove Setscrew (12) from body of Swivel.

C



D

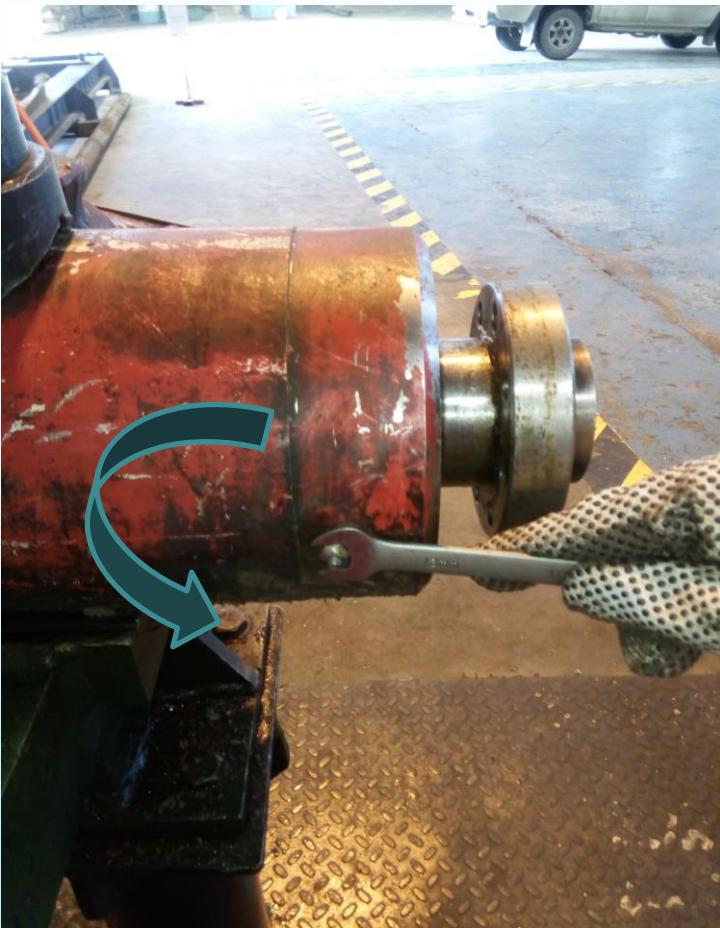




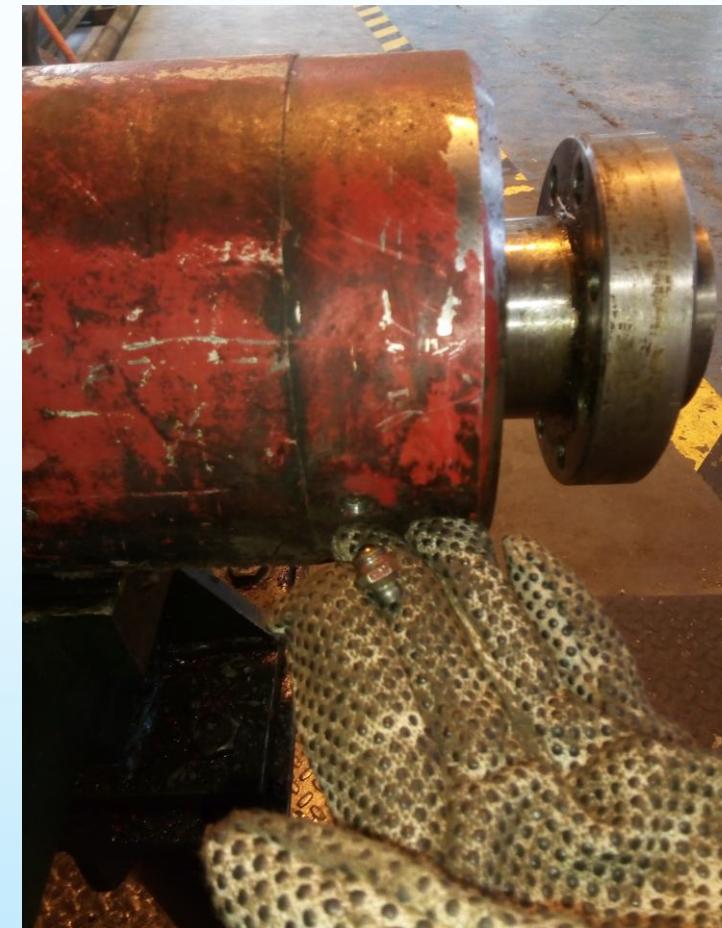
Overseas Technical Services Kish

➤ Remove grease zerk (13).

A



B





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➤ Remove "Bearing Housing" from Swivel "Packing Housing" by turning counter-clockwise

A



B

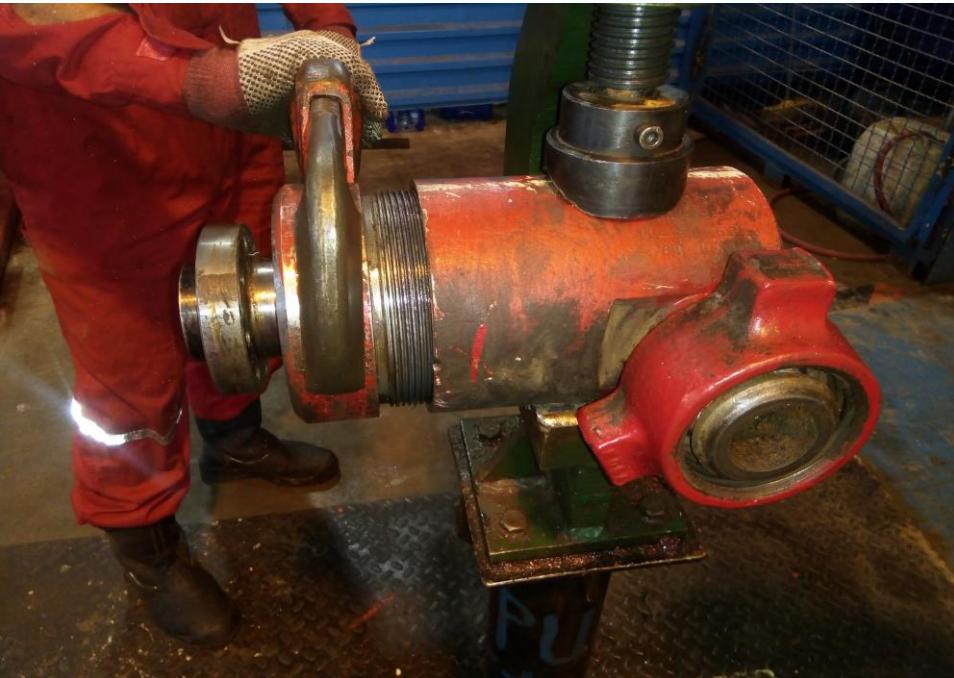




Overseas Technical Services Kish

- Remove "Bearing Housing" from Swivel "Packing Housing" by turning counter-clockwise

C



D





Overseas Technical Services Kish

➤ Remove "Bearing Housing" from Swivel "Packing Housing" by turning counter-clockwise

E



F





Overseas Technical Services Kish

➤ Remove O-ring (9) from Extrusion Ring (3).



A



B



Overseas Technical Services Kish

➤ Remove O-ring (9) from Extrusion Ring (3).

C



D





Overseas Technical Services Kish

➤ Remove O-ring (8) from Extrusion Ring (3).



A



B



Overseas Technical Services Kish

➤ Remove O-ring (8) from Extrusion Ring (3).

C



D





Overseas Technical Services Kish

➤ Remove O-ring (8) from Extrusion Ring (3).

E



F



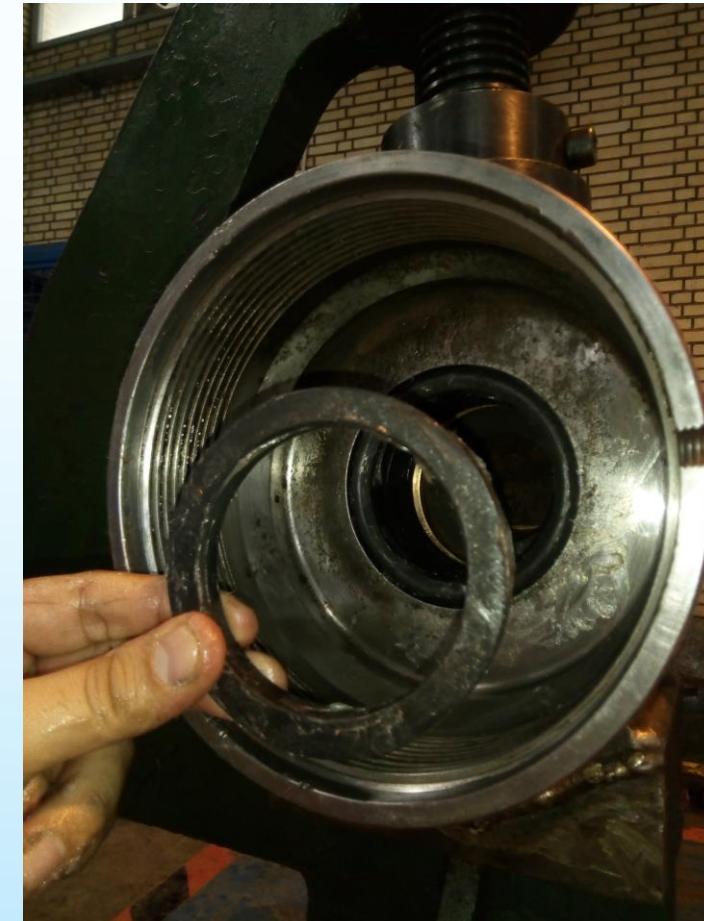


Overseas Technical Services Kish

➤ Remove Back-Up Ring (5) and Packing (11) from "Packing Housing (1)."



A



B

* Note: Ensure all system pressure has been bled to zero before attempting removal of Swivel.



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- Remove Back-Up Ring (5) and Packing (11) from "Packing Housing (1)."

C



D



* Note: Ensure all system pressure has been bled to zero before attempting removal of Swivel.



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➤ Remove Extension (3) Ring from Mandrel (2)

A



B





Overseas Technical Services Kish

➤ Remove Extension (3) Ring from Mandrel (2)

C



D





Overseas Technical Services Kish

➤ Remove O-ring (8) from Mandrel Retainer (4).



A



B



Overseas Technical Services Kish

➤ Remove Mandrel Retainer (4) two pieces from Mandrel (2).

A



B





Overseas Technical Services Kish

➤ Remove Mandrel Retainer (4) two pieces from Mandrel (2).



C



D



Overseas Technical Services Kish

➤ Remove Mandrel (2) from Bearing Housing (14).

A



B





Overseas Technical Services Kish

➤ Remove Mandrel (2) from Bearing Housing (14).

C



D





Overseas Technical Services Kish

➤ Remove Bearings (6) from Bearing Housing (14)

A



B





Overseas Technical Services Kish

➤ Remove Bearings (6) from Bearing Housing (14)



C



D



Overseas Technical Services Kish

➤ Remove Bearings (6) from Bearing Housing (14)

E



F





Overseas Technical Services Kish

➤ Remove Shaft Oil Seal (7) from Bearing Housing (14).



B





Overseas Technical Services Kish

➤ Remove Shaft Oil Seal (7) from Bearing Housing (14).

C



D





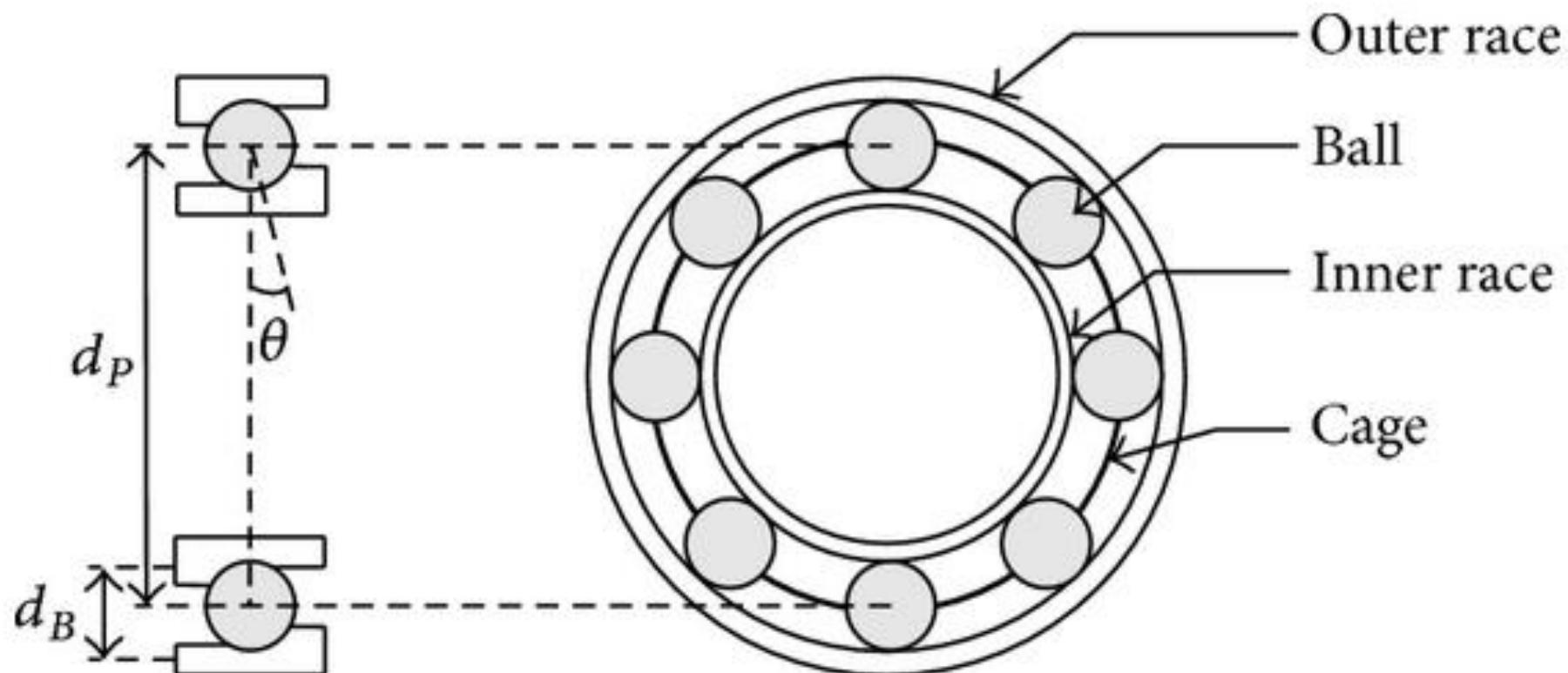
Assembly

- Ball Bearing Assembly
- Assembly of Swivel
- Bearing Housing Assembly Test
- Assembly of Swivel to Coiled Tubing Reel



Ball Bearing Assembly

- It is a “Ball Retaining” ball bearing type.
- The bearings position inside Bearing Housing (14) is according to “Tandem Mount” configuration.
- Two bearings resist the downward thrust and one bearing resist the upward thrust.





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Item No.	Description	QTY
6-a	Outer Race	1
6-b	Inner Race	1
6-c	Cage	1
6-d	Ball (Roller)	16



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➤ Put Balls (6-d) into the Cage (6-c) and grease them carefully.

A



B





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➤ Put Inner Race (6-b) into Cage assembly and rotate it to check for smooth rotation.

A



B





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➤ Put Inner Race (6-b) into Cage assembly and rotate it to check for smooth rotation.

C



D





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➤ Put the whole assembly into Outer Race (6-a), then tighten and grease it.

A



B





Assembly of Swivel

➤ First, ensure of all below steps:

- Once all replacement parts are obtained and before reassembly, use a light film of multi-purpose grease to lubricate all internal parts before assembly.
- Use a light coat of grease between each piece of Packing before installation and ensure that you restack the Packing in the proper order.
- Be sure the packing stacks in the following order with the point of the "V" Packing pointing up.
- The male adapter always goes into the bottom of the Packing House, and sits on the Back-Up Ring.
- After cleaning and inspection of the Swivel and all bad parts have been replaced, use the following steps to reassemble the Swivel.



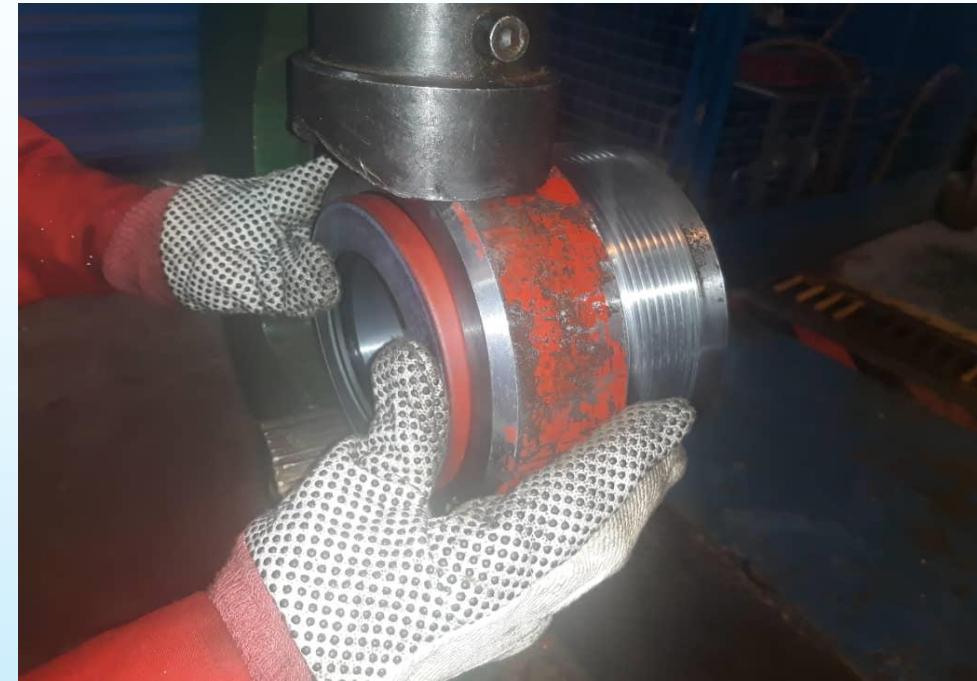
Overseas Technical Services Kish

➤ Insert grease “Oil Shaft Seal” into “Bearing Housing”

A



B





Overseas Technical Services Kish

➤ Insert grease “Oil Shaft Seal” into “Bearing Housing”

C



D





Overseas Technical Services Kish

➤ Insert Bearings (6) into Bearing Housing (14).





Overseas Technical Services Kish

➤ Insert Bearings (6) into Bearing Housing (14).

C



D





Overseas Technical Services Kish

➤ Insert Bearings (6) into Bearing Housing (14).

E



F





Overseas Technical Services Kish

➤ Insert Bearings (6) into Bearing Housing (14).

G



H





Overseas Technical Services Kish

➤ Insert Bearings (6) into Bearing Housing (14).



I



J



Overseas Technical Services Kish

➤ Insert Mandrel (2) into Bearing Housing (14).

A



B





Overseas Technical Services Kish

➤ Insert Mandrel (2) into Bearing Housing (14).

C



D





Overseas Technical Services Kish

➤ Install Mandrel Retainer (4) onto Mandrel (2) and install O-ring (8) onto it to hold it in place.

A



B





Overseas Technical Services Kish

➤ Install Mandrel Retainer (4) onto Mandrel (2) and install O-ring (8) onto it to hold it in place.

C



D





Overseas Technical Services Kish

➤ Install Mandrel Retainer (4) onto Mandrel (2) and install O-ring (8) onto it to hold it in place.

E



F





Overseas Technical Services Kish

➤ Install Mandrel Retainer (4) onto Mandrel (2) and install O-ring (8) onto it to hold it in place.

G



H





Overseas Technical Services Kish

➤ Install O-ring (8) onto Extrusion Ring (3).



B





Overseas Technical Services Kish

➤ Install O-ring (8) onto Extrusion Ring (3).

C



D





Overseas Technical Services Kish

- Install O-ring (8) onto Extrusion Ring (3).

E





Overseas Technical Services Kish

➤ Install O-ring (9) onto Extrusion Ring (3).

A



B





Overseas Technical Services Kish

➤ Install O-ring (9) onto Extrusion Ring (3).

C



D





Overseas Technical Services Kish

➤ Grease and install Extrusion Ring (3) onto Mandrel (2).

A



B





Overseas Technical Services Kish

➤ Install Extrusion Ring (3) onto Mandrel (2).

C



D





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Bearing Housing Assembly Test





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➤ Install Back-Up Ring (5) into Packing Housing (1) and ensure it has gone all the way to the bottom by tapping it down gently.

A

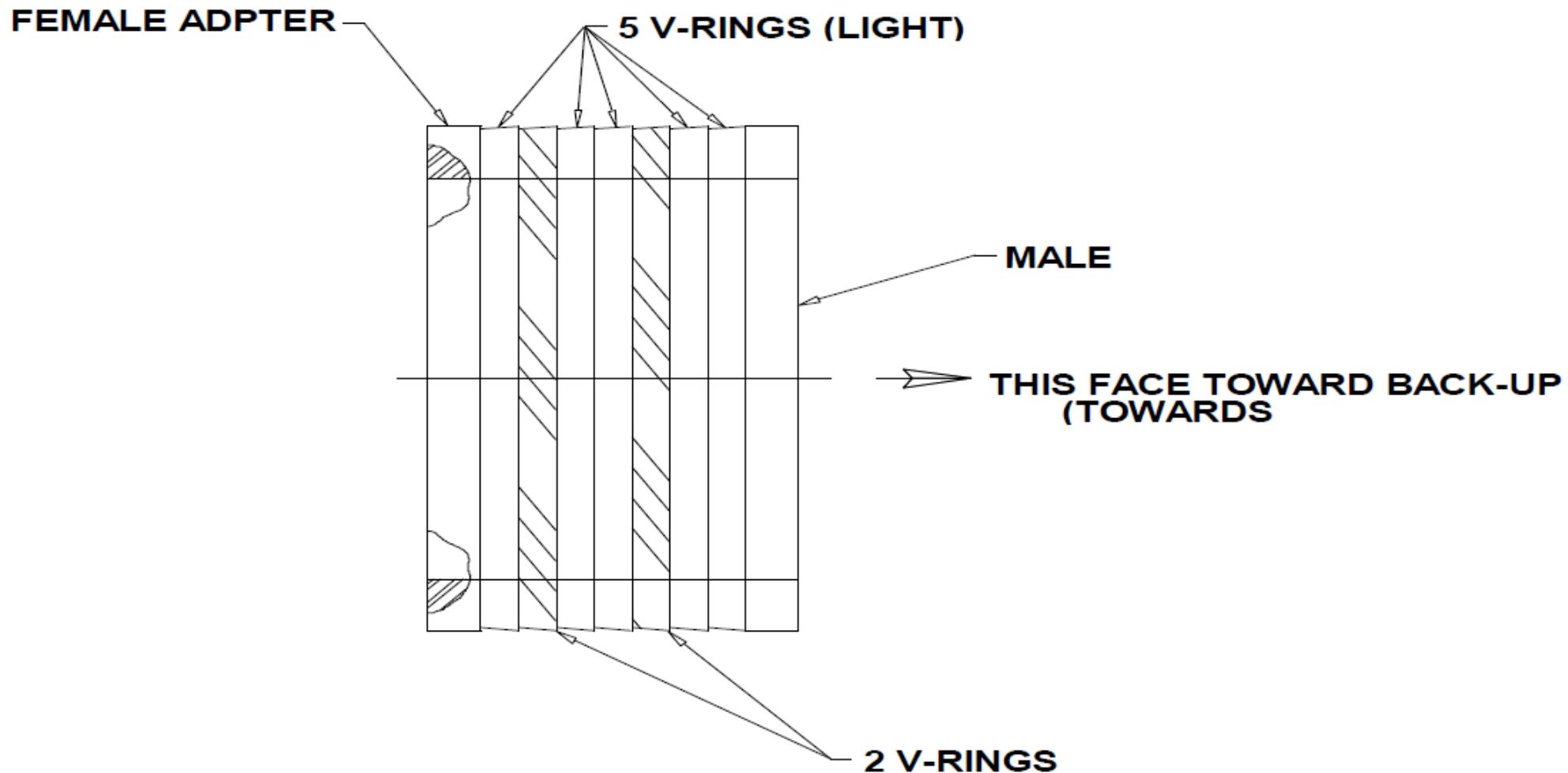


B





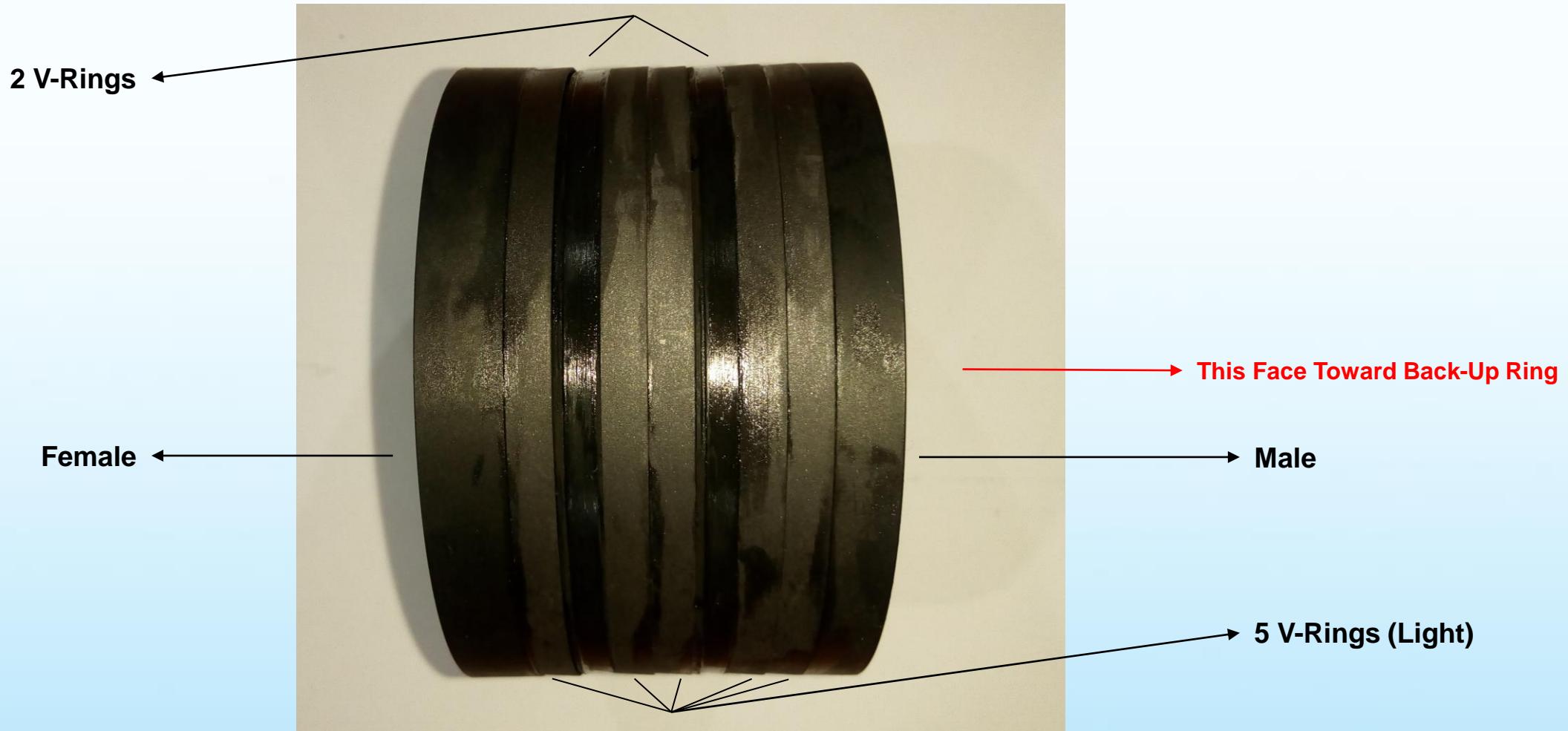
Overseas Technical Services Kish





Overseas Technical Services Kish

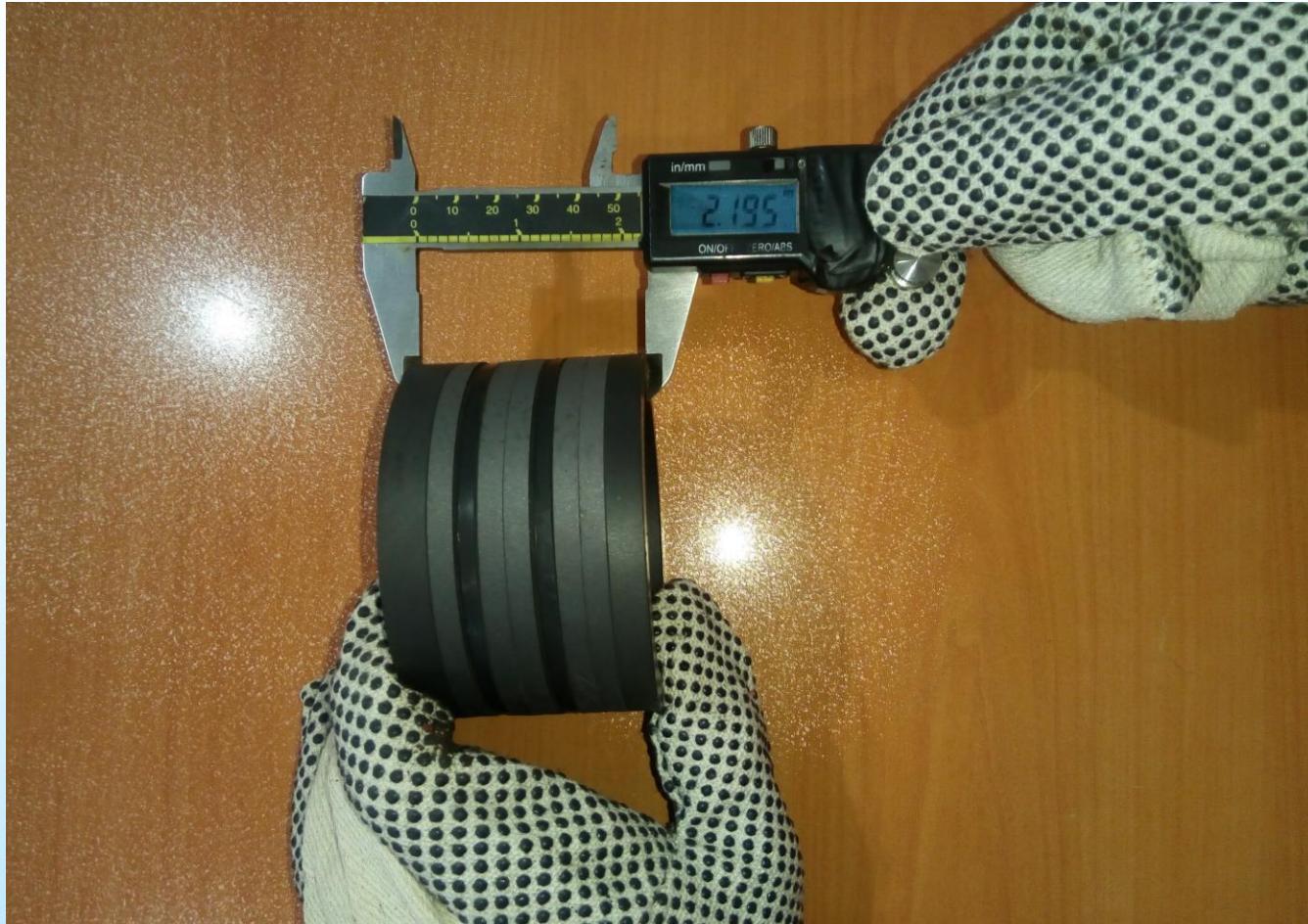
➤ Install Back-Up Ring into "Swivel Housing" and ensure it has gone all the way to the bottom by tapping it down gently





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➤ Before Installing The Packing Into The Housing, Measure The Stack-Up And Ensure The Dimension Is 2.187 ± 0.01 Inch.





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➤ Grease Packings before installation into Packing Housing (1).

A



B





Overseas Technical Services Kish

- Install seal kit (11) into Packing Housing (1) ensuring it has bottomed out completely.

A



B



Note: the temperature rating of the swivel packing is 350° F



Overseas Technical Services Kish

- Install seal kit (11) into Packing Housing (1) ensuring it has bottomed out completely.

C



D



Note: the temperature rating of the swivel packing is 350° F



Overseas Technical Services Kish

- Install seal kit (11) into Packing Housing (1) ensuring it has bottomed out completely.



E



F

Note: the temperature rating of the swivel packing is 350° F



Overseas Technical Services Kish

- Install seal kit (11) into Packing Housing (1) ensuring it has bottomed out completely.

G



H



Note: the temperature rating of the swivel packing is 350° F



Overseas Technical Services Kish

- Install seal kit (11) into Packing Housing (1) ensuring it has bottomed out completely.





Overseas Technical Services Kish

➤ Install Bearing Assembly onto Packing Housing (1) and Turn this assembly clockwise by hand until it stops.

A



B





Overseas Technical Services Kish

➤ Install Bearing Assembly onto Packing Housing (1) and Turn this assembly clockwise by hand until it stops.

C



D





Overseas Technical Services Kish

➤ Continue turning Bearing Assembly onto Packing Housing (1) clockwise by pipe wrench until it stops.

A



B





Overseas Technical Services Kish

➤ Measure the gap between the two mating surfaces.

A



B



* Note: This gap should be between 0/150" and 0/197" to ensure the Packing compression is correct.



Overseas Technical Services Kish

➤ Complete reassembly by turning Bearing Housing (14) until the Setscrew (12) hold is aligned for Setscrew installation.



A

B





Overseas Technical Services Kish

➤ Install Setscrew (12) into Item 12.

A



B



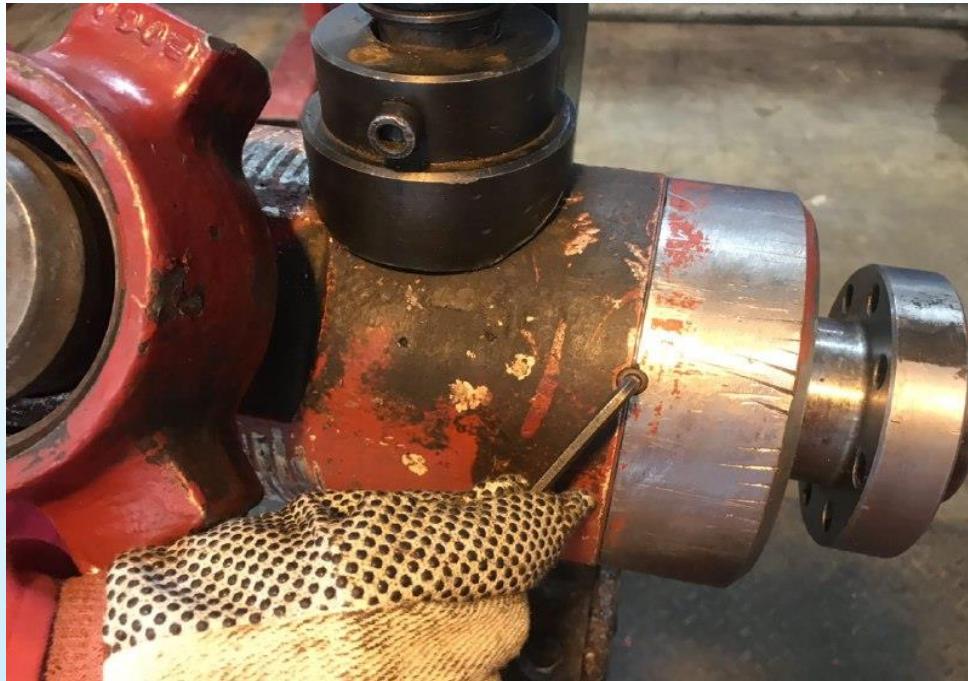
* **Note:** Fill with grease until grease starts to come through grease seal.



Overseas Technical Services Kish

➤ Install Setscrew (12) into Item 12.

C



D



* **Note:** Fill with grease until grease starts to come through grease seal.



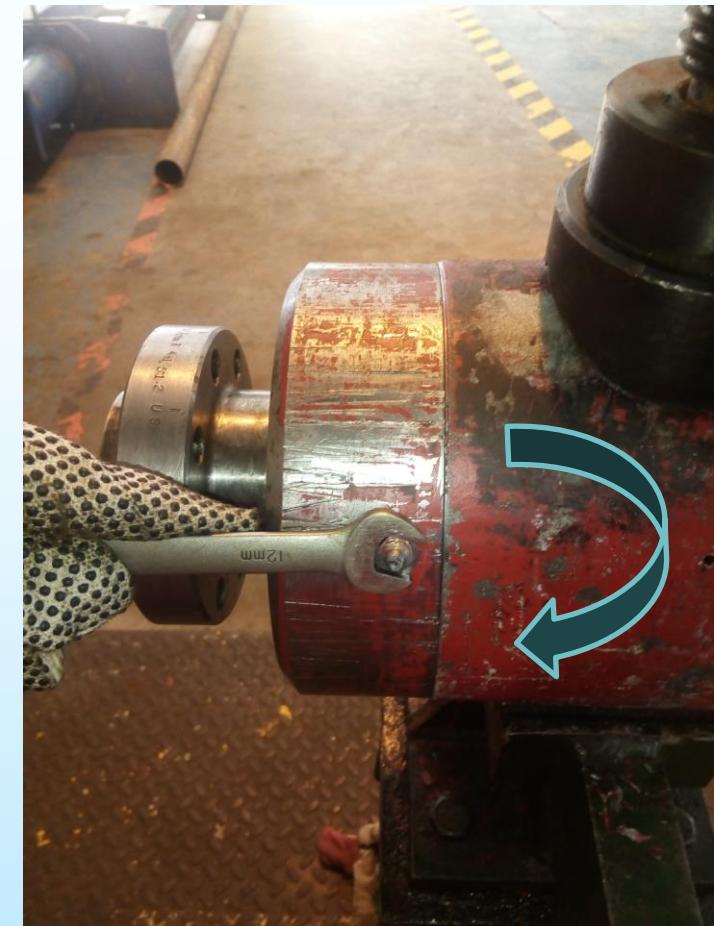
Overseas Technical Services Kish

➤ Install grease zerk (13) into Item 13.

A



B



* Note: Fill with grease until grease starts to come through grease seal.



Overseas Technical Services Kish

➤ Install grease zerk (13) into Item 13.

C



D



* Note: Fill with grease until grease starts to come through grease seal.



Assembly of Swivel to Coiled Tubing Reel

➤ First, ensure of all below steps:

- Ensure all system pressure has been bled to zero before attempting removal of Swivel.
- All hydraulic power to the Reel is shut off
- Reel brake is “ON”
- Reel drive circuit valve is in the “Center (Neutral)” position
- Install Spool Tie-Down chains



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➤ Discard face seal installed in Shaft of Tubing Reel

A



B





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➤ Screw Mandrel bolts into the Reel.

A



B





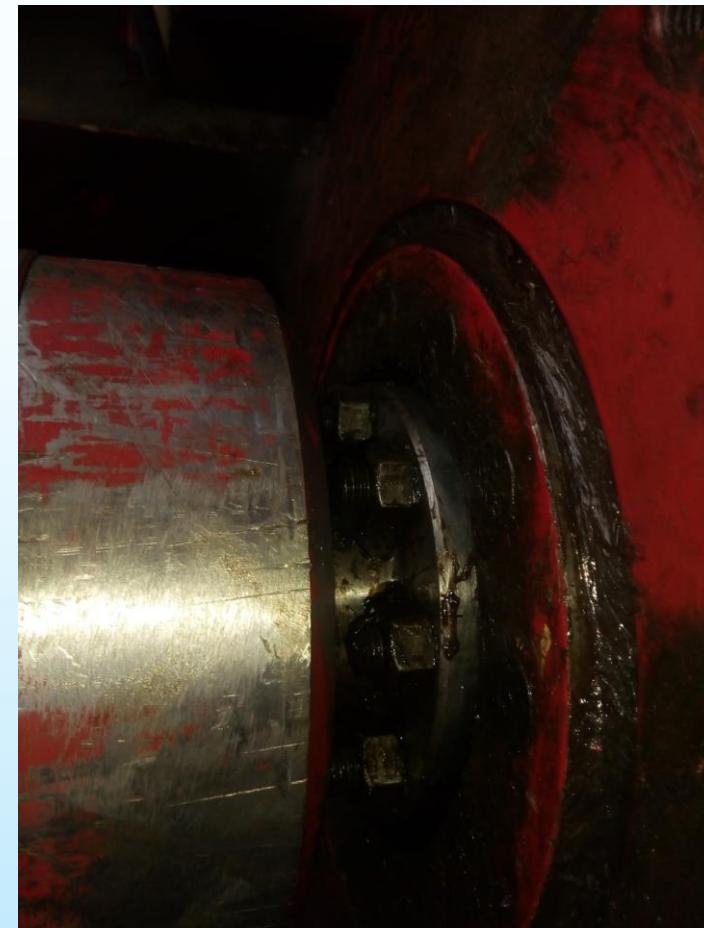
Overseas Technical Services Kish

➤ Screw Mandrel bolts into the Reel.

C



D





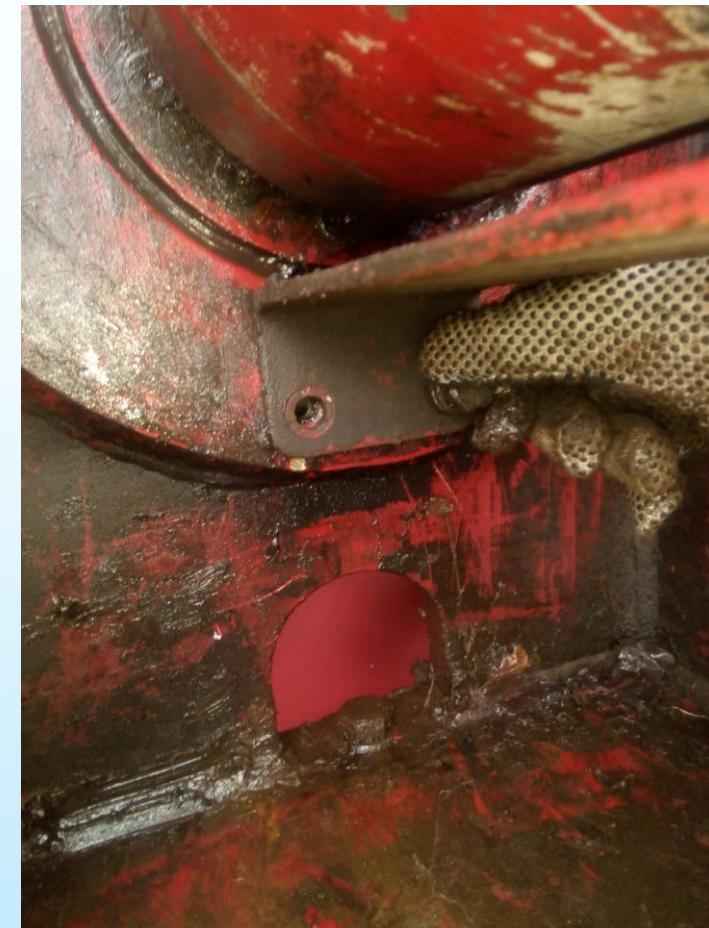
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➤ Install Flange Mounting Support to output of Swivel.

A



B





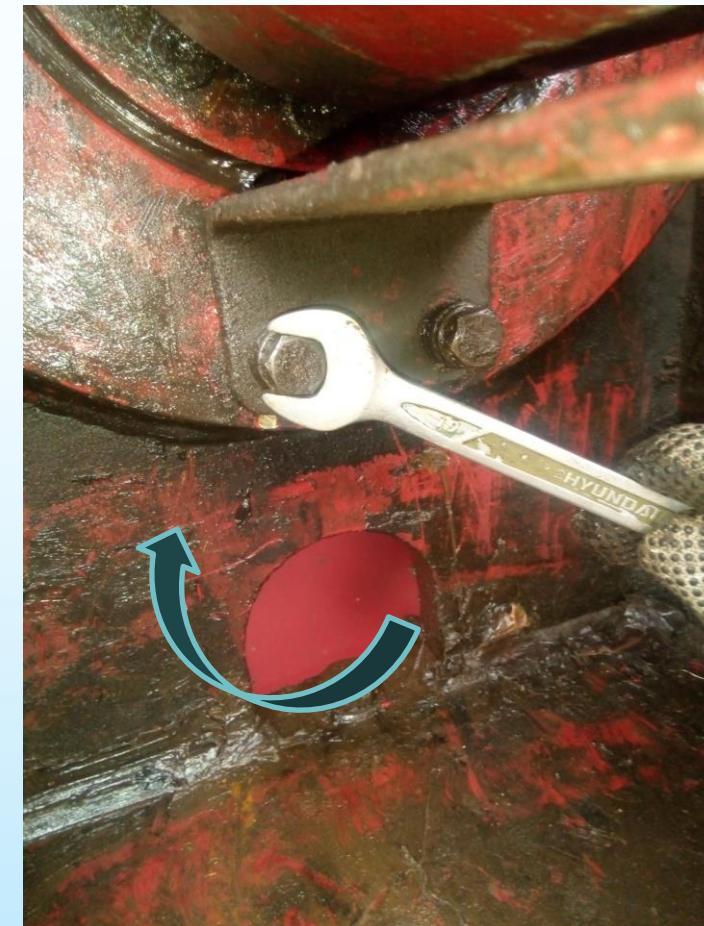
Overseas Technical Services Kish

➤ Install Flange Mounting Support to output of Swivel.

C



D





Overseas Technical Services Kish

➤ Install Flange Mounting Support to output of Swivel.

E



F





Overseas Technical Services Kish

➤ Install Flange Mounting Support to output of Swivel.

G



H

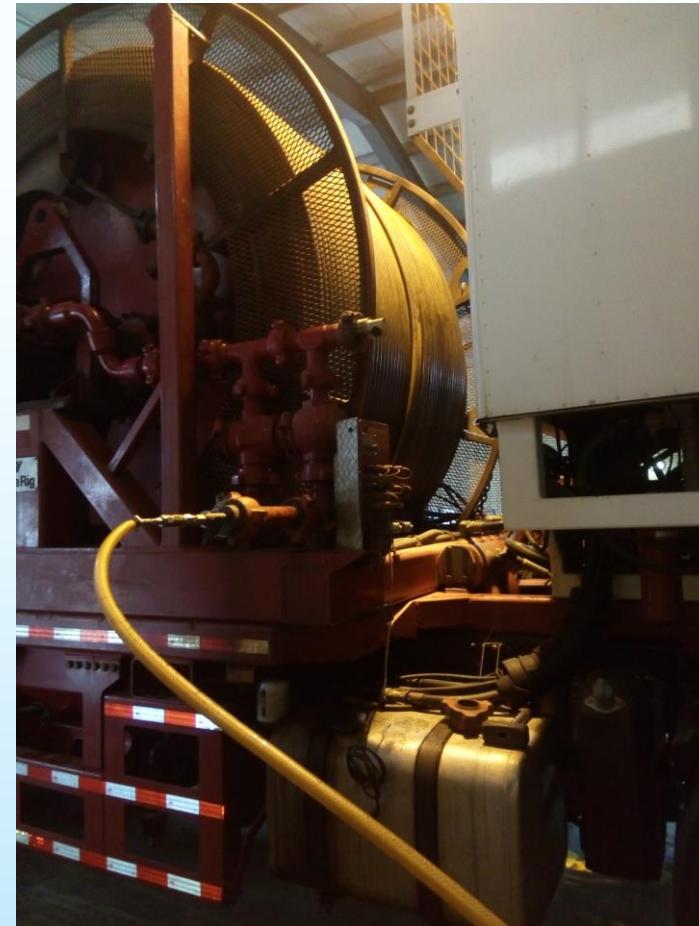




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Swivel Pressure Test

- Connect pressure test pump to the Reel Manifold.

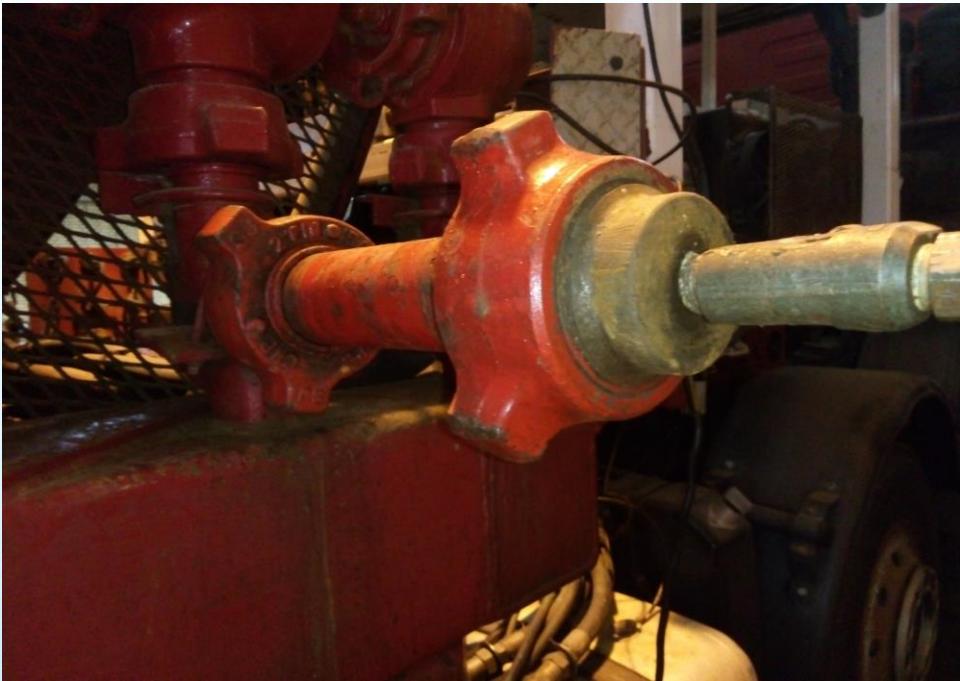




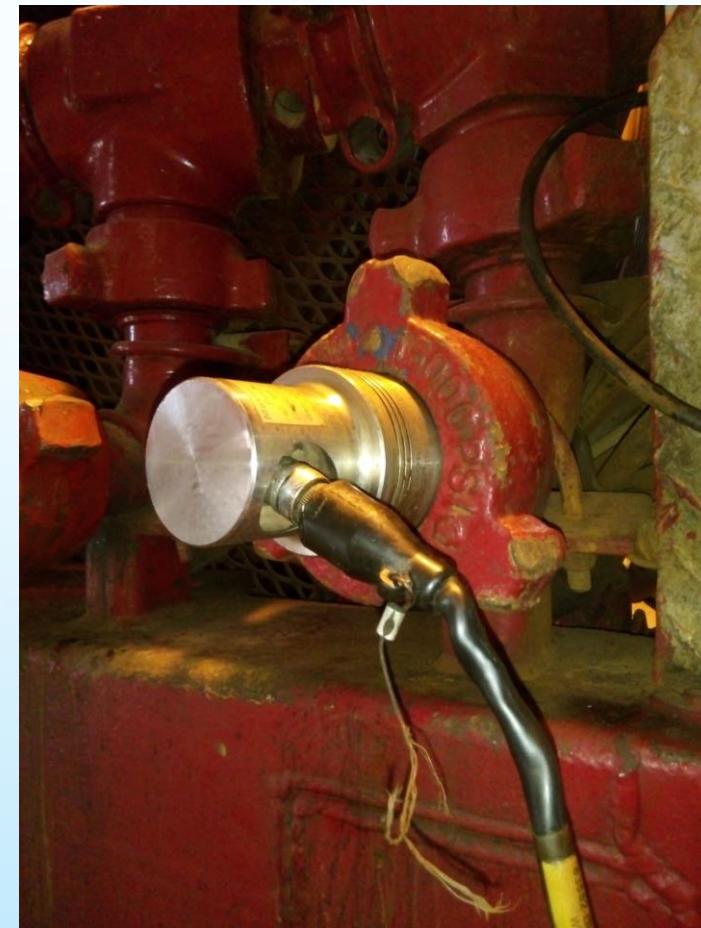
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➤ Assemble "Pressure Transducer" and "Pump" quick connection.

A



B





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➤ Position lower plug valves in "Open" position.

A



B



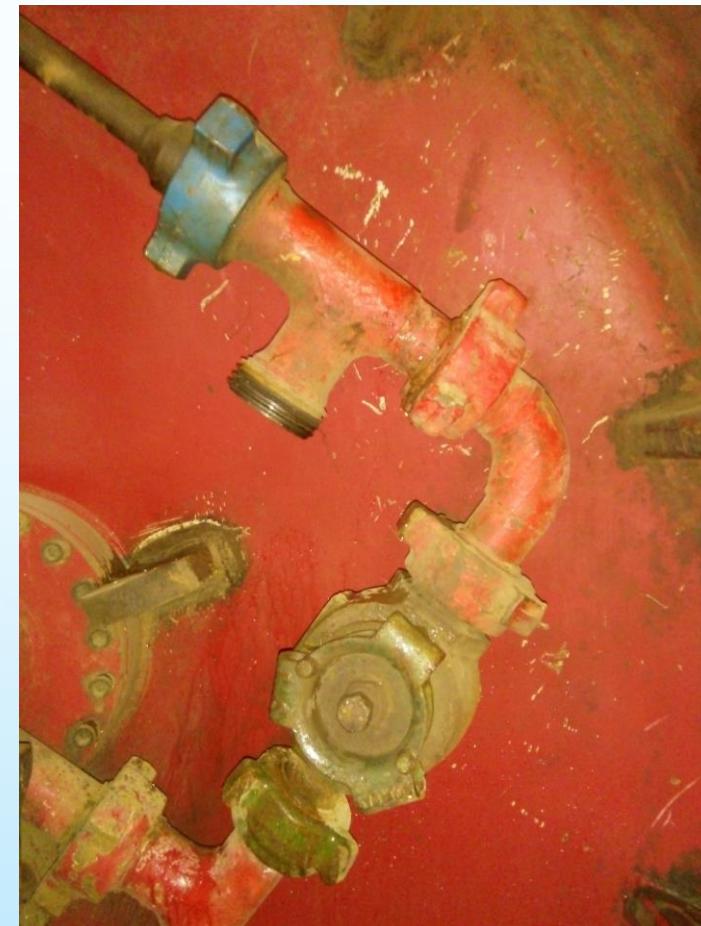


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- Position inner plug valve in "Close" position and open middle "T-Connection" cap.
The leakage will be shown as flow from "T-Connection".



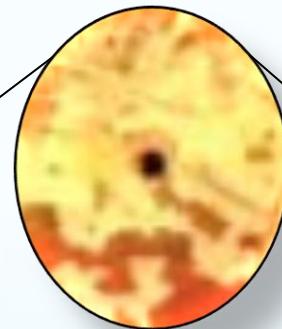
A





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- If the “T-Connection” had no leakage, then we start to test the “Swivel”.
If there is any internal leakage, it will be shown as a flow from the hole that is established in the body.





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Well Done!