Quick Union User Guide

2016

Quick Union User Guide

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Chapter 1: Introduction

Topics:

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The 3 in. 15k, Quick Union provides a safe and fast method of making up the flow head and landing joint to the main landing string without rotation of the flow head assembly or damaging the premium connection.

The 3 in. 15k, Quick Union manual contains maintenance procedures and applies to 101901873. A separate Maintenance Check Sheet (DBT-QU-MNT-3500.MCS) is required to be completed for all equipment maintenance. The user should review technology bulletins, tool alerts, locate the MCS and drawing (DBT-QU-3500). For any additional information, questions, or concerns contact Testing and Subsea (TSS) Global Technical Advisor.

Note:

After a job, the tool must be completely disassembled and cleaned. Visually inspect all tool components per ST-GL-HAL-SSS-510. Any component that does not meet the visual inspection acceptance criteria must be replaced. All Single Cycle tools must be operated/functioned if this has not occurred previously. All Multi Cycle tools must be functioned to the appropriate disassemble position as directed in the manual to enable the disassembly of the tool. Consult the Global Maintenance Standard for Subsea on the inspection interval requirements and general maintenance standards. Record all components and elastomers replaced in the assembly on the Maintenance Check Sheet (DBT-QU-MNT-3500.MCS), and include all trace or batch numbers. All component trace or batch numbers must be additionally captured on the trace log sheet. For additional questions or concerns, contact the relevant TSS Global Technical Advisor.

Related concepts

Chapter 2: Pre Maintenance Preparation on page 13

Maintenance Assembly on page 15

Legend and Auxiliary Equipment

Assembly Tools Table

Assembly Tools				
Item	**Part Number**	**Reference**	**Description**	**Quantity**
	101848149	DBT-LV-3520	Tool No. 6, 3 in. 15K Lubricator Valve	1
	101848150	DBT-LV-3521	Tool No. 7, 3 in. 15K Lubricator Valve	1
	101901880	DBT-QU-3507	Lower Sub Thread Protector	1
	101901879	DBT-QU-3506	Upper Sub Thread Protector	1

Common Tools Table

Common Tools		
Part Number	**Description**	**Quantity**
Shop Supplied	Workbench	1
Shop Supplied	Hoist (with 2,000 lb. minimum lifting capacity)	1

Common Tools		
Part Number	**Description**	**Quantity**
Shop Supplied	Gin sheave c/w Endless Sling (Min. 1000 lb. capacity)	1
Shop Supplied	Cloth Slings	As required
Shop Supplied	24 in. and 36 in. Chain Tongs with extended chains (Min. 60 in.)	1
Shop Supplied	Hex Key or Hex Socket or Hex Wrench Set	1
Shop Supplied	1/4 in. Diameter Round Bar (made of Brass)	1
Shop Supplied	1/4 in. Flat-head Screwdriver	1

Consumables Table

Consumables		
Part Number	**Description**	**Quantity**
102165633	Non-Combustible Spray Lubricant (Preferably WD-40)	As required
101240777	Grease - Silicon Moly Blend - 5 Gal Container - N2 chamber use	As required
100066647	Grease - Pro-long EP2 Plus - 1 Gal	As required
100066644	Grease - Pro-long EP2 Plus - 40 Pound (18 kg) PAIL	As required
101084167	92HTE10008 Seal Lubct Dow Corning 112 Si 18.1 kg Cntr	As required
100006741	92HTE10007 Seal Lubct Dow Corning 112 Si 5.3 oz Tube	As required

Handling

Refer to below documents for handling of tool.

- ST-GL-HAL-HSE-0101 for PPE
- GD-GL-HAL-SSS-801 for handling the equipment
- ST-GL-HAL-HSE-0606 for proper lifting technique

Ensure following points are considered while handling Quick Union tool:

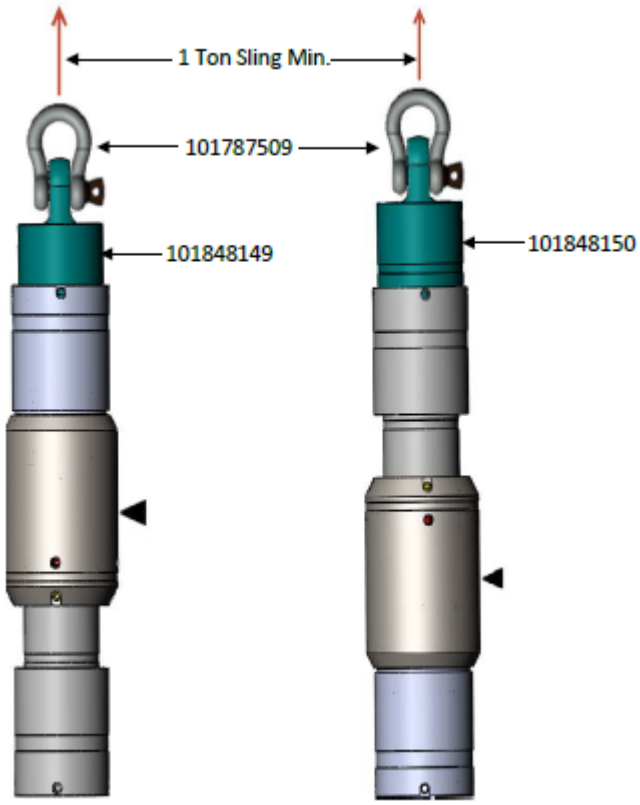
- Maintain a minimum of two points of support for all tool assemblies using proper Lifting Slings and Crane. Best practice is to use a double wrapped or endless sling.

Avoid clamping on critical unsupported sections noted below with *See Figure*below.

CAUTION:

Never attempt to lift a Quick Union individual components over 35 lb. manually. Use the supplied ½-13 UNC on the components with a Swivel and Sling.

- If a horizontal vise use is required, use a stand to support the assembly in a level condition and to maintain a minimum of two points of support.
- The assembly should only be lifted vertically. See below for allowable methods of lifting.



Storage

Refer below document for storage of tool:

- ST-GL-HAL-SSS-510 for storage requirements

Chapter
2

Chapter 2: Pre Maintenance Preparation

Topics:

Note:

Ensure that the Maintenance Check Sheet (DBT-QU-MNT-3500.MCS) and correct assembly drawings are available at the work station prior to commencing the work. Review previous job specific information/reports, and previous maintenance documentation for the specific tool. Unless otherwise stated, all connections are right hand threads. During disassembly, remove and discard all O-Rings and visually inspect all Back-up Seals. All components must be visually inspected using the Global Maintenance Standards. All function and pressure testing must be recorded on a calibrated chart recorder or other calibrated recording device.

Warning:

Use of this manual requires that all XXXXXXXXXX HSE Standards and Guidelines are followed as per global and/or local requirements.

Only grease listed in *Consumables Table* of Introduction chapter are to be used on metal components and areas that are not exposed to Nitrogen.

Catch excess fluids and dispose of in accordance with the Global and Local HSE Standards and Guidelines. Always be positioned safely when opening any area of equipment that can have trapped pressure.

Related concepts

Introduction on page 10

Maintenance Assembly on page 15

Disassembling Tool

Perform the following steps to disassemble the tool.

1. Check the equipment ID number of the tool.
   a) Record the ID number on the first page of the Maintenance Check Sheet.
2. Ensure the latest ST-GL-HAL-SSS-510 and GD-GL-HAL-TSS-910 and assembly drawing is available at the work station.
   a) Record these are available at the work station on the Maintenance Check Sheet.
3. Determine if the equipment is in the vertical position for disassembly.
   a) Record the equipment position on the Maintenance Check Sheet.
4. Determine if the equipment has been operated or not operated.
   a) Record if the equipment has been operated or not operated on the Maintenance Check Sheet.
5. Move the tool to the designated disassemble area.

Chapter
3

Chapter 3: Maintenance Assembly

Topics:

Note:

Ensure that the Maintenance Check Sheet (DBT-QU-MNT-3500.MCS) and correct assembly drawings are available at the work station prior to commencing the work. Review previous job specific information/reports, and previous maintenance documentation for the specific tool. Unless otherwise stated, all connections are right hand threads. All components must be visually inspected using the Global Maintenance Standards. All function and pressure testing must be recorded on a calibrated chart recorder or other calibrated recording device.

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Related concepts

Introduction on page 10

Pre-MaintenancePreparation on page 13

Installing O-Rings and Back-up Seals

Perform the following steps to install O-Rings and Back-up Seals.

1. Visually inspect all parts of the assembly (Level 3 Hold Point).
2. Visually inspect all parts of the assembly (Level 3 Hold Point).
   a) Ensure that the split in the Back-up seals are 180° apart.
   b) Record all batch/trace numbers of new O-Rings on the Maintenance Check Sheet.
   c) Record all batch/trace numbers of replaced Back-up Seals.

   Back-up Seals and O-Rings can be installed throughout the assembly procedure or all at once prior to assembly.

Note:

After Back-up Seals and O-Rings are installed, a re-inspection is required to ensure placement is correct and no damage occurred.

Applying Grease

1. Locate the Upper Sub (C1) and use a Cloth Sling and the hoist to orient it vertically so that it is resting on its box thread end. Stabilize the Upper Sub (C1).
2. Apply Silicon Moly Blend or Pro-Long EP2 Plus grease to the threads located immediately below the seal grooves.
3. Gather the Locking Segments (C5) and apply moderate Silicon Moly Blend or Pro-Long EP2 Plus grease.
4. **Note:**

   The Silicon Moly Blend or Pro-Long EP2 Plus grease will keep the Locking Segments (C5) in place during the remaining assembly process.

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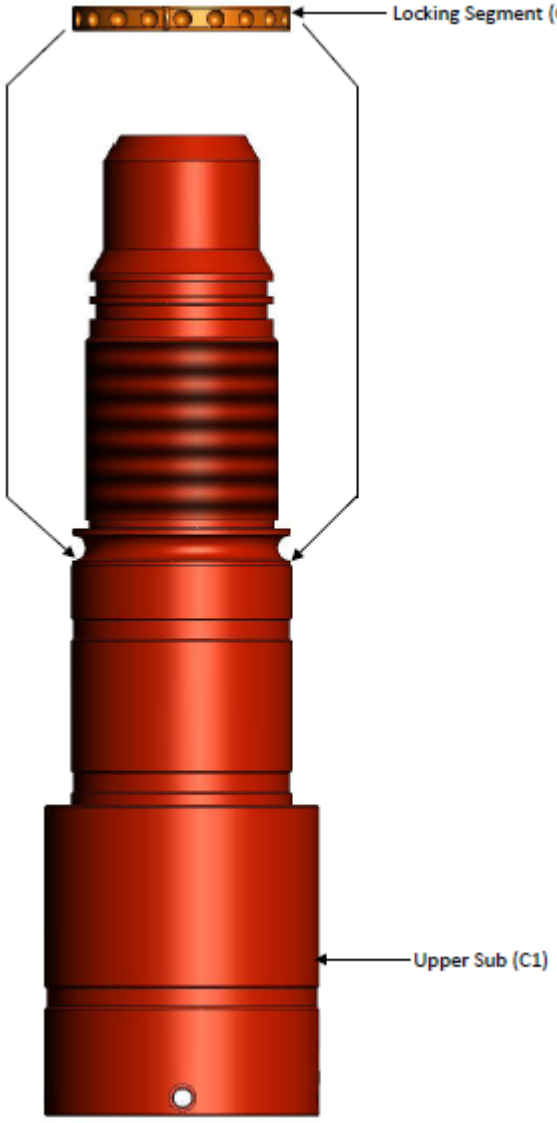
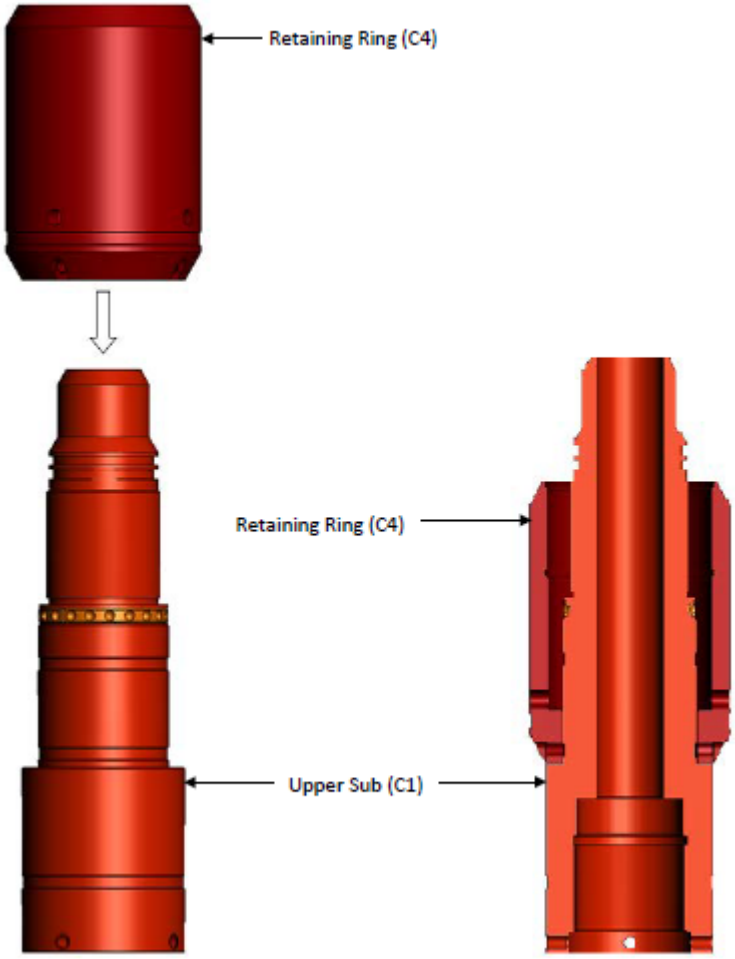


5. Locate the Retaining Ring (C4). Apply Silicon Moly Blend or Pro-Long EP2 Plus grease to its ID threads.
6. Use the hoist and a Cloth Sling to lower the Retaining Ring (C4) onto the Upper Sub (C1).

7. Allow the Retaining Ring (C4) to rest upon the shoulder of the Upper Sub (C1), see figure below.



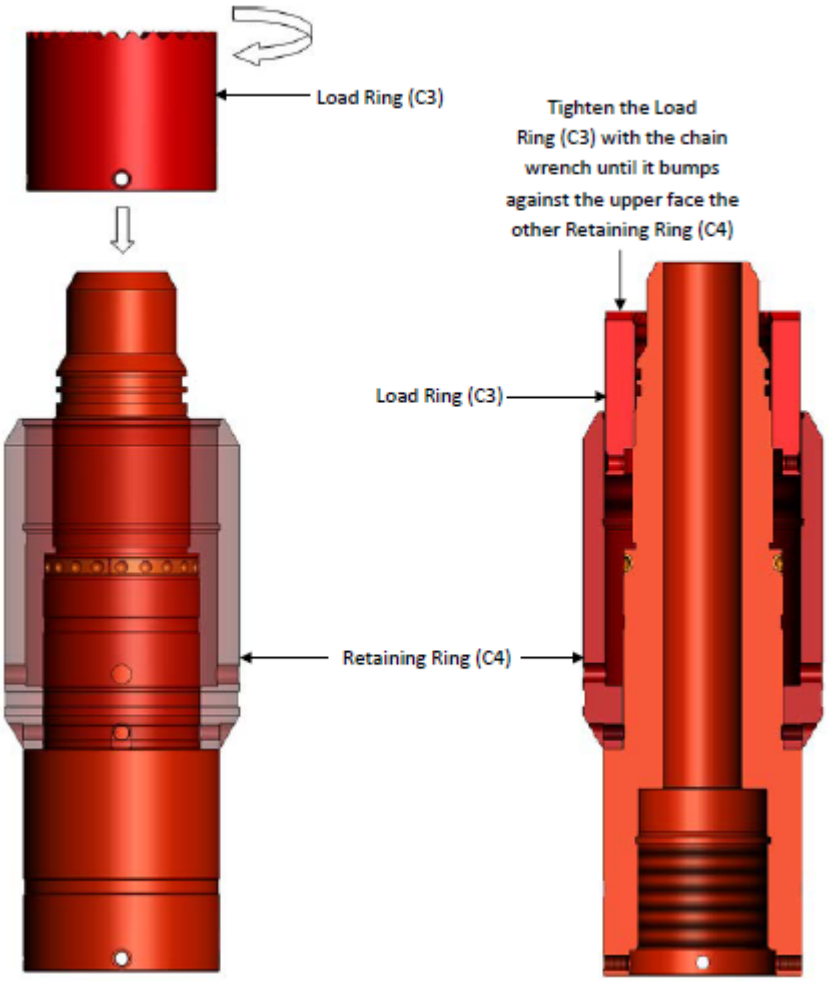
Tightening Load Ring

1. Locate the Load Ring (C3) and carefully lower it onto the mating threads on the OD of the Upper Sub (C1).
2. **Note:**

   Use an assistant to help lower the Load Ring (C3) and to avoid pinch points.

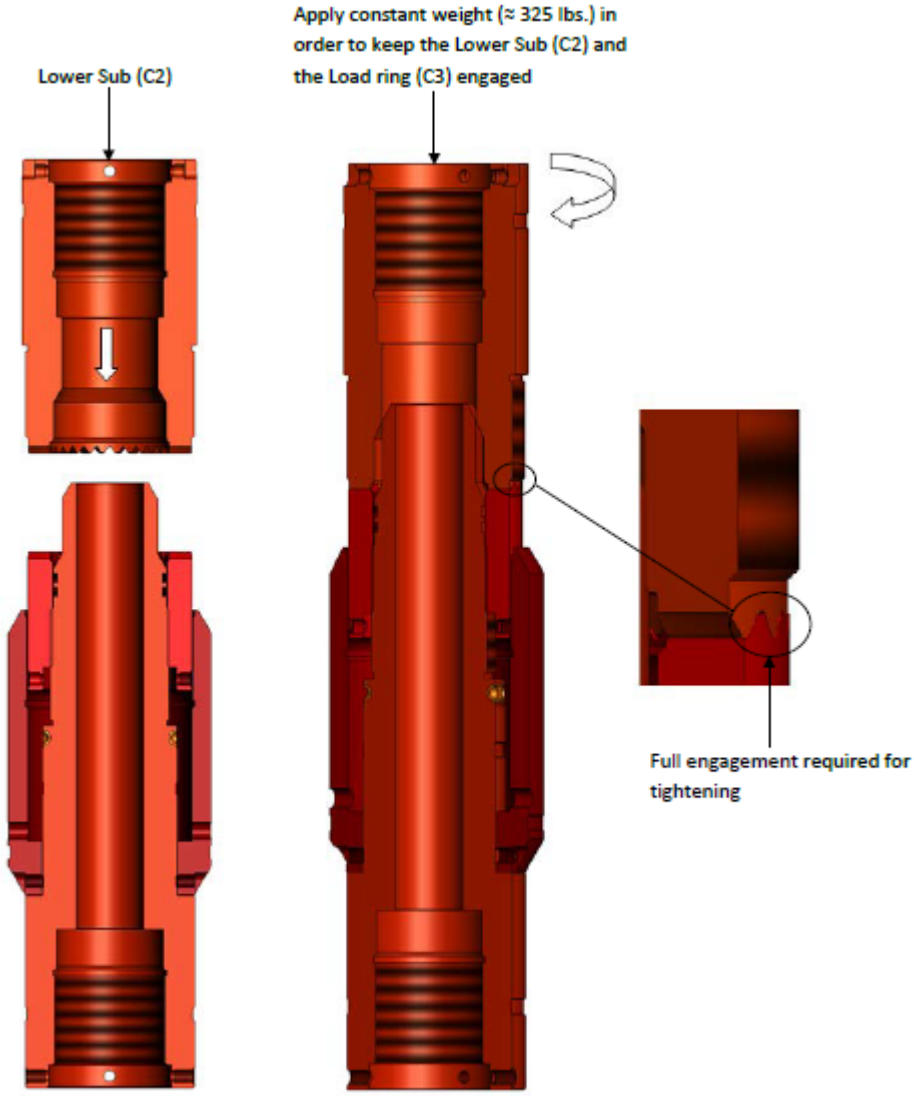
   Hand turn (to prevent any cross-threading) the Load Ring (C3) in the clockwise direction at least two complete revolutions in order to engage the threads.

3. Attach the appropriate size chain wrench in the uppermost position and continue to tighten the Load Ring (C3) until the chain wrench meets the face of the Retaining Ring (C4) that is already mounted on the Upper Sub (C1), see figure below.



4. Use the Lower Sub (C2) in combination with the chain wrench to complete the tightening process.

5. Apply constant weight of approximately 325 lbs. to the face of the Lower Sub (C2) in order to keep it engaged with the mating profile on the Load Ring (C3), see figure below.



6. **Note:**

   Do not allow the Lower Sub (C2) profile to skip across the mating profile due to inadequate weight as it will cause wear.

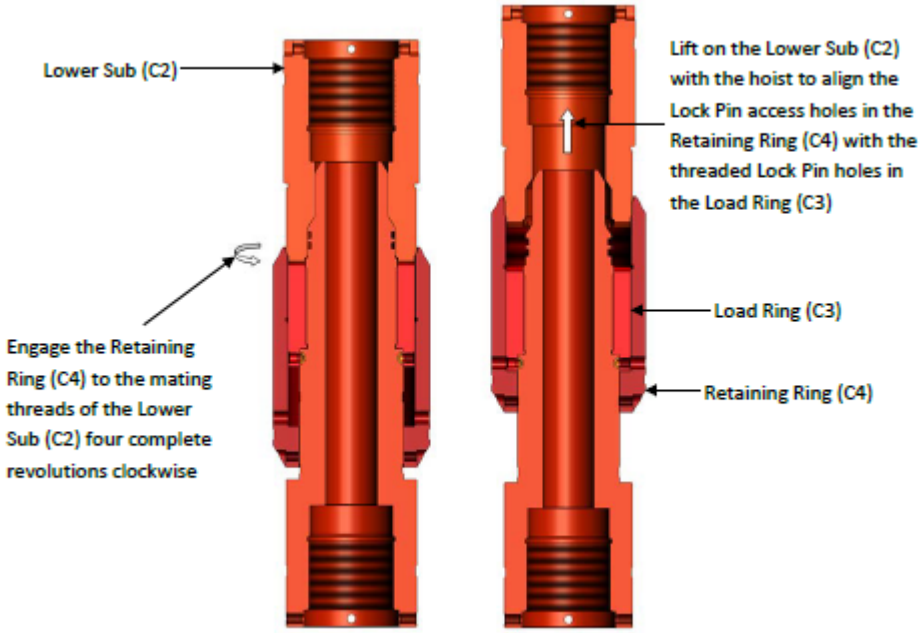
   Ensure that the threaded Lock Pin (C6) holes in the Load Ring (C3) are aligned with the Locking Segment (C5) once the Load Ring (C3) is completely tightened.

Aligning Lock Pin Access Holes

1. Align the Lock Pin access holes on the Retaining Ring (C4).
2. **Note:**

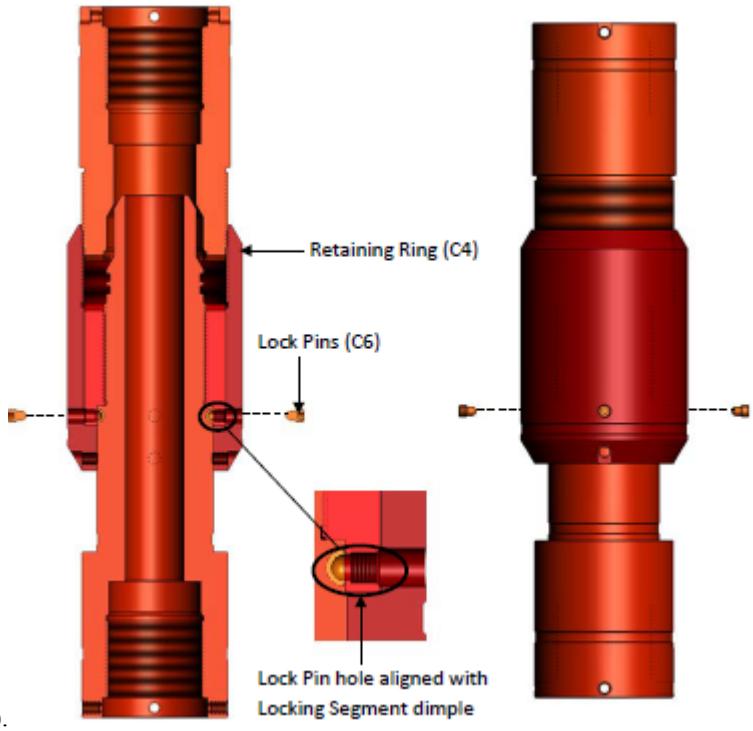
   Alignment between the Retaining Ring (C4) and the threaded Lock Pin holes in the Load Ring (C3) is achieved by engaging the Retaining Ring (C4) clockwise four complete revolutions to the mating threads on the Lower Sub (C2) and lifting the Lower Sub with the hoist to align the Lock Pin holes in both Retaining Ring (C4) and Load Ring (C3) with the Locking Segment (C5).

Use the ¼ in. round bar to pass through the Lock Pin holes to check for proper alignment. If necessary, use the ¼ in. flat-head Screwdriver to rotate the Locking Segment (C5) to align its dimple to the Lock Pin hole, see figure below.



Applying Grease to Lock Pins and Set Screws

1. Gather four Lock Pins (C6) and apply Silicon Moly Blend or Pro-Long EP2 Plus grease to their threads.
2. Engage each of the four Lock Pins (C6) to the mating threads through the Retaining Ring (C4). Fully tighten them with the appropriate size Hex Key (Level 3 Hold Point).

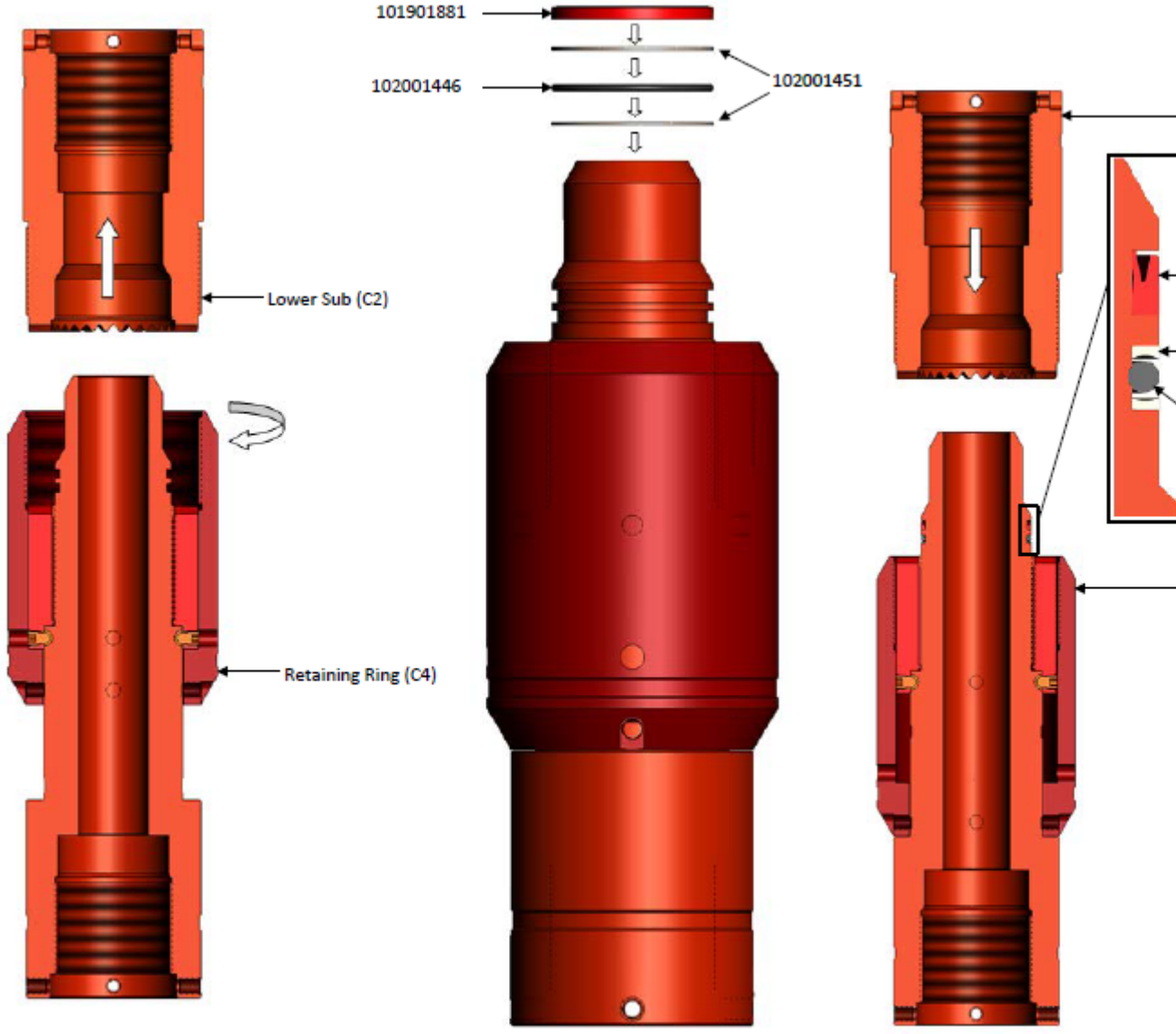


3. **Note:**

   Stop the hoist in position to install the four Lock Pins (C6).

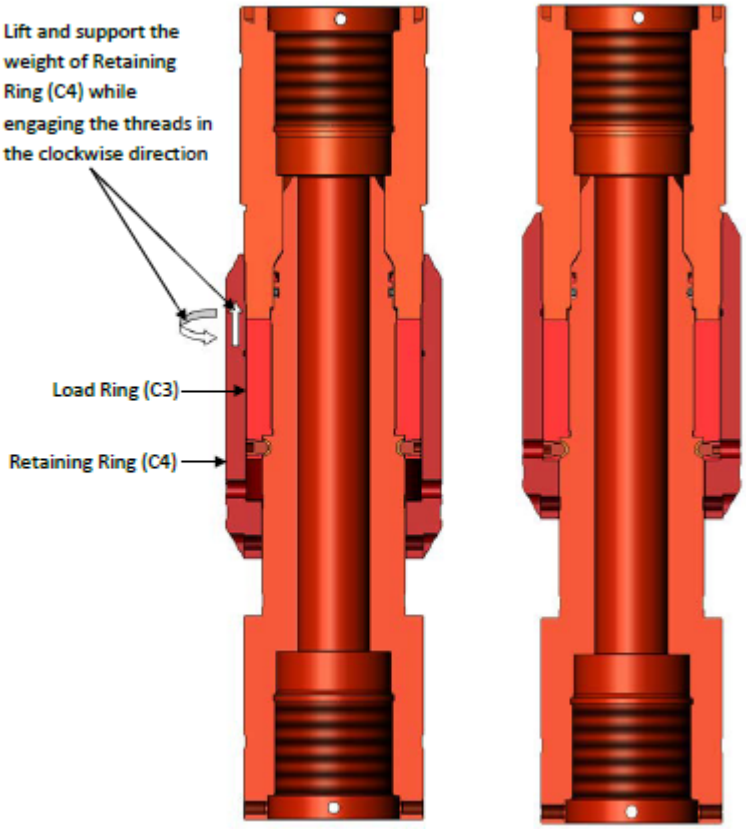
Use a chain wrench to disengage the Retaining Ring (C4) from the mating threads on the Lower Sub (C2). Have an assistant to hold the Lower Sub (C2) with a second chain wrench if the hoist does not prevent it from spinning.

4. Lower the Retaining Ring (C4) to rest on the shoulder of the Upper Sub (C1).
5. Gather the External K-Seal (101901881), two Back-up Rings (102001446), and an O-Ring (102001451).
6. Apply a thin layer of Silicon Moly Blend or Pro-Long EP2 Plus grease to the K-Seal (101901881), O-Ring (102001451), and Back-up Ring (102001446) and install them in the correct location according to the General Assembly Drawing, see figures below (Level 3 Hold Point).



7. Fix two appropriate size chain wrenches on the OD of the Retaining Ring (C4) at 180° apart.

8. With an assistant at the other chain wrench, evenly lift the Retaining Ring (C4) and turn it in the clockwise direction, simultaneously, in order to engage it to the mating threads on the Lower Sub (C2), see figure below.



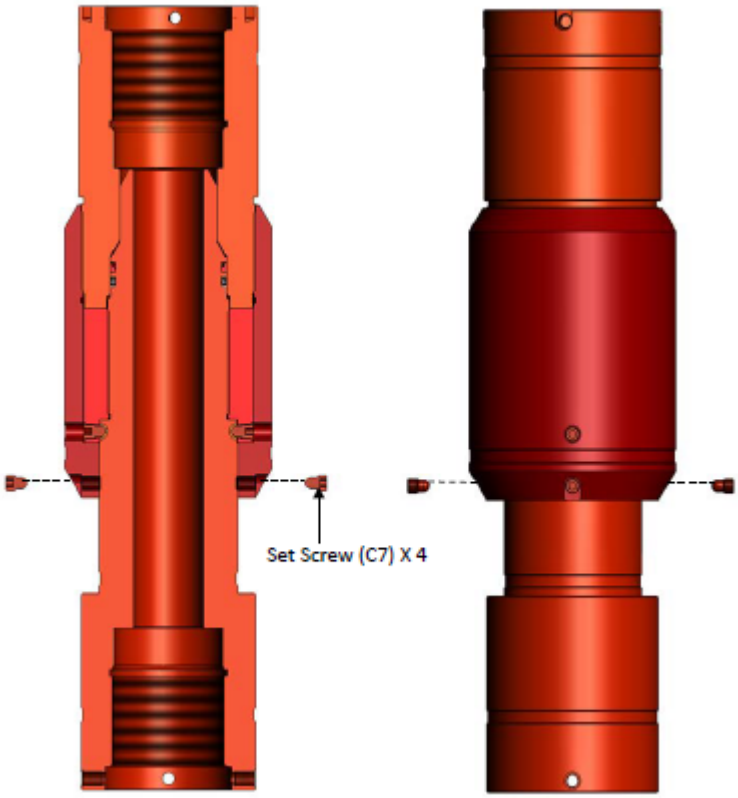
9. **Note:**

Do not allow any cross threading since it is necessary to manage the Retaining Ring's weight while trying to get the threads engaged.

Gather four Set Screws (C7) and apply Silicon Moly Blend or Pro-Long EP2 Plus grease to their threads.

10. Engage one of the four Set Screws (C7) to the mating threads on the Load Ring (C3).

11. Repeat the previous step for the remaining three Set Screws (C7) that are set 90° apart, see figure below.



12. Use the hoist and Cloth Slings to orient the assembly horizontally and install the Lower Sub Thread Protector (101901880) and the Upper Sub Thread Protector (101901879) if necessary.

1. Complete the Maintenance Check Sheet.
2. Label the equipment per Global Maintenance Standards.
3. Store the equipment according to Global Maintenance Standards.