



RenQuip

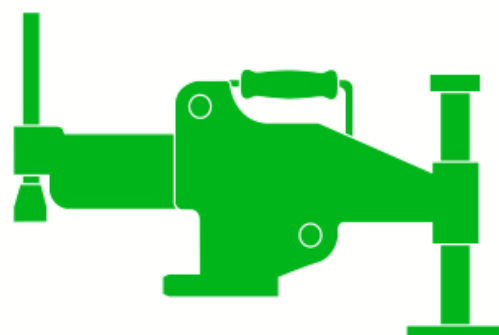


Raptor-6

OPERATION MANUAL

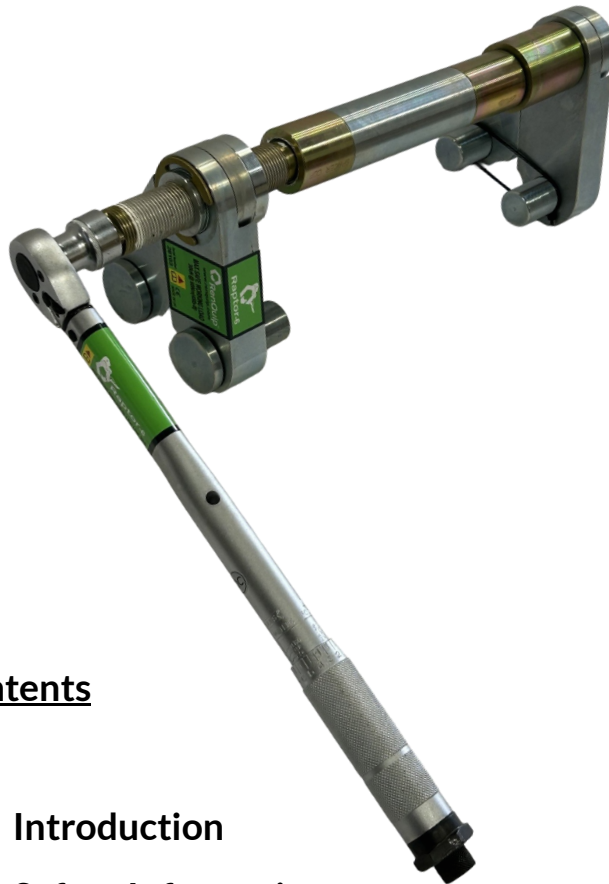
Raptor-6M

Mechanical Valve Removal
Flange Spreading Tool



Engineered Energy Equipment

www.renquip.com



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1.0 Introduction

The RenQuip Raptor-6 Valve Removal Flange Spreading Tool is designed to open flange joints by gripping in the flange bolt holes of both flanges and pulling the flanges apart.

This enables the Raptor-6 to be used for the removal of Valves, Blinds and Spacers. The Raptor-6 can also be used for spreading flange to flange joints.

It is highly recommended that 2 or more Raptor-6 Valve Removal Tools are used together to maintain a parallel Flange joint gap during spreading.



2.0 Safety Information

User Safety

1. The User must be competent in Operating Flange Spreading Equipment.
2. The User must read and understand the relevant Instruction Manual for the Equipment.
3. The User must wear the correct Personal Protective Equipment.
4. Do not lift or hold pressurised or loaded equipment.



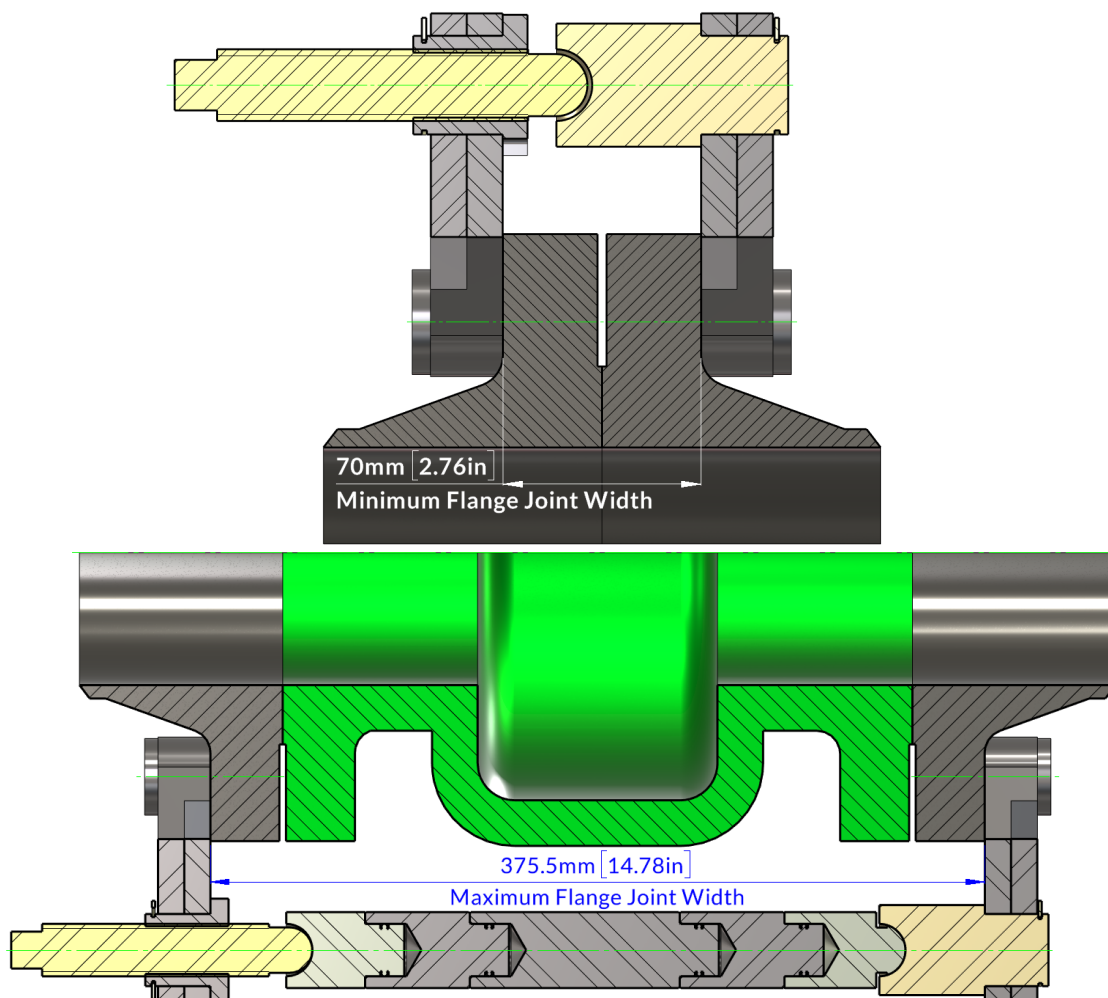
Equipment Safety

1. Inspect all equipment prior to use for any signs of damage, deformity and wear.
2. Do not actuate or back load equipment over its safe working load.
3. Only use the Torque Wrench provided.
4. Assembly contains multiple loose parts—preventative measures are to be taken by the user to prevent dropped objects.
5. Never insert fingers or hands into an open flange joint.
6. Tools are to be Loaded/Unloaded gradually and equally.
7. Ensure the equipment is fully and correctly assembled before use.
8. Ensure the equipment is correct for the application.
9. Ensure the working area is free from hazards to the equipment such as sharp objects, heat sources, moving machinery or vehicles.
10. Carry / transport equipment with care.
11. Store equipment in a cool dry environment.
12. Ensure the correct maintenance procedures are followed.



3.0 Technical Specification

3.1 Application Diagram



Max Applied Torque : 60Nm (45ft.lb).

Max Spreading Force: 60kN (30kN per tool).

Model : RAPTOR-6MI

Kit weight:

27Kg (29.5lbs)

Kit Dims.:

920mm x 510mm x 210mm
(36.2" x 20.1" x 8.3")

Tool Weight:

8Kg (17.6lbs)

Product ordering code:

RAPTOR-6MI

Kit Content:

- 2 x Actuator Assembly
- 2 x Reaction Assembly
- 2 x Spacer Bar Assembly
- 1 x Torque Wrench Assembly
- 4 x 3/4" Grip Pins
- 4 x 7/8" Grip Pins
- 4 x 1" Grip pins
- 1 x Robust moulded carry case
- 1 x Instruction Manual





3.2 Application Chart

RAPTOR-6MI Range - Grip Pin Size Selection

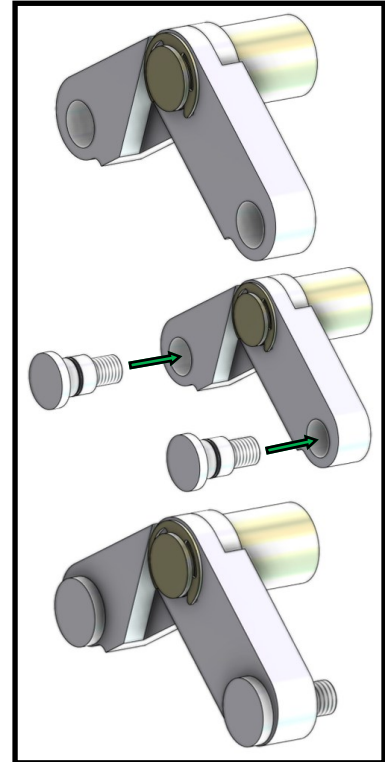
Flange Type: ASME / ANSI B16.5 Weld Neck

	<u>Class</u>						
NPS	150	300	400	600	900	1500	2500
1/2"	-	-	-	-	7/8"	7/8"	7/8"
3/4"	-	3/4"	3/4"	3/4"	7/8"	7/8"	7/8"
1"	-	3/4"	3/4"	3/4"	1"	1"	1"
1 1/4"	-	3/4"	3/4"	3/4"	1"	1"	-
1 1/2"	-	7/8"	7/8"	7/8"	-	-	-
2"	3/4"	3/4"	3/4"	3/4"	1"	1"	-
2 1/2"	3/4"	7/8"	7/8"	7/8"	-	-	-
3"	3/4"	7/8"	7/8"	7/8"	1"	-	-
3 1/2"	3/4"	7/8"	1"	1"	-	-	-
4"	3/4"	7/8"	1"	1"	-	-	-
5"	7/8"	7/8"	1"	-	-	-	-
6"	7/8"	7/8"	1"	-	-	-	-
8"	7/8"	1"	-	-	-	-	-
10"	1"	-	-	-	-	-	-
12"	1"	-	-	-	-	-	-



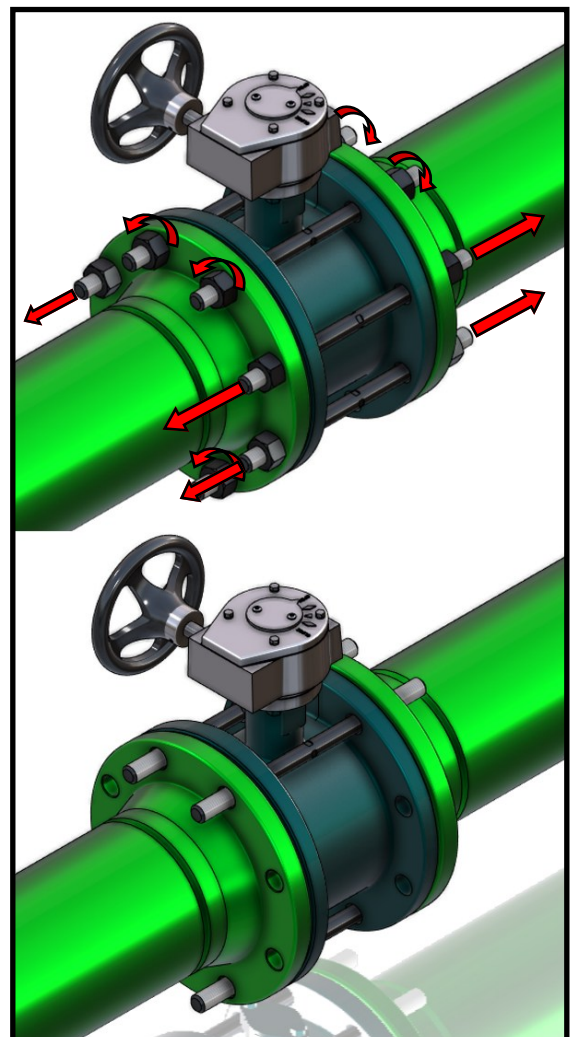
4.0 Operation of the Raptor-6 range

1. Please refer to the Application Chart on Page 5 to identify the Grip Pin size needed for the flange, and insert them into the Reaction & Actuator assemblies.



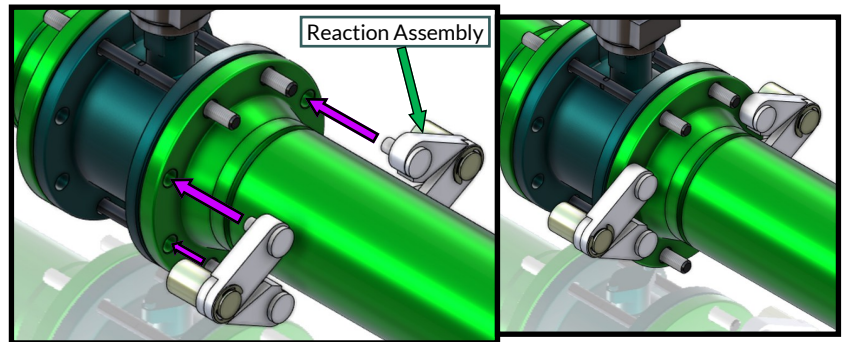
2. Remove all nuts from the flanges and remove 4 studs from the holes where the Raptor tool will be used.

Note: The Raptor assembly must be used on opposite sides (180°) to each other. Ensure that the positioning of the Raptors will not block the removal of the valve,

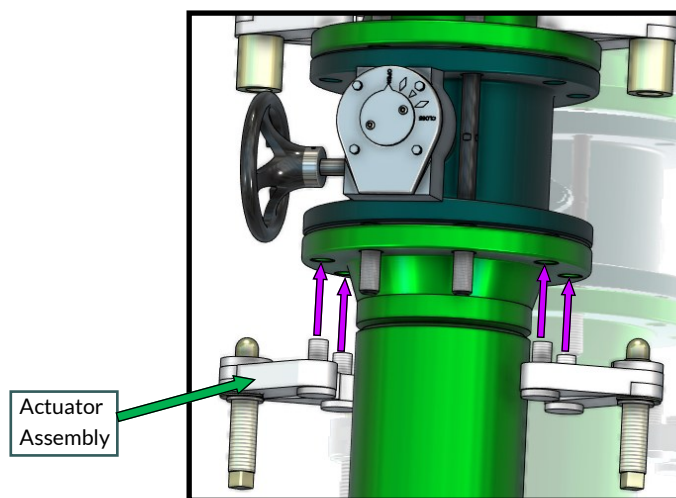




3. Insert the Reaction assemblies into one of the flanges.

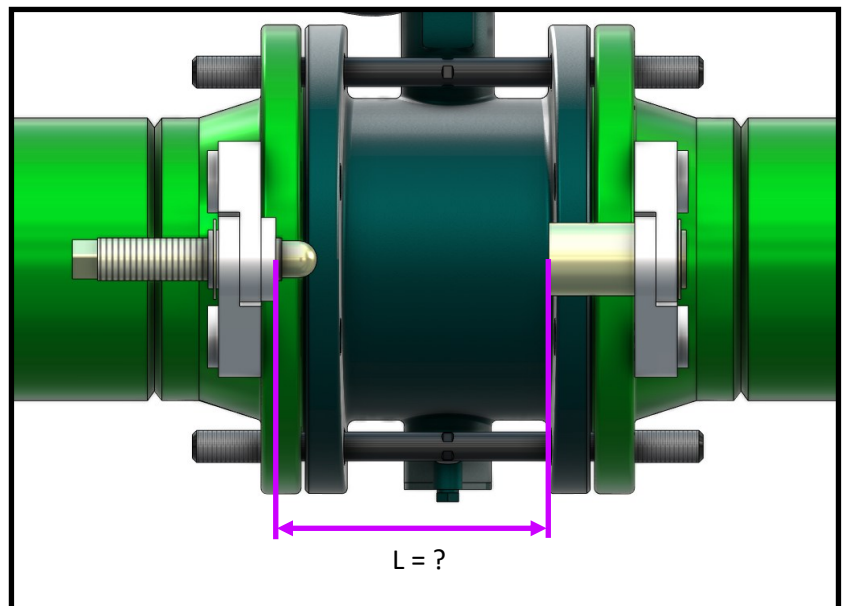


4. Insert the Actuator assemblies into the other flange.



5. Measure the gap between the Reaction and Actuator to determine if a Spacer Bar is needed.

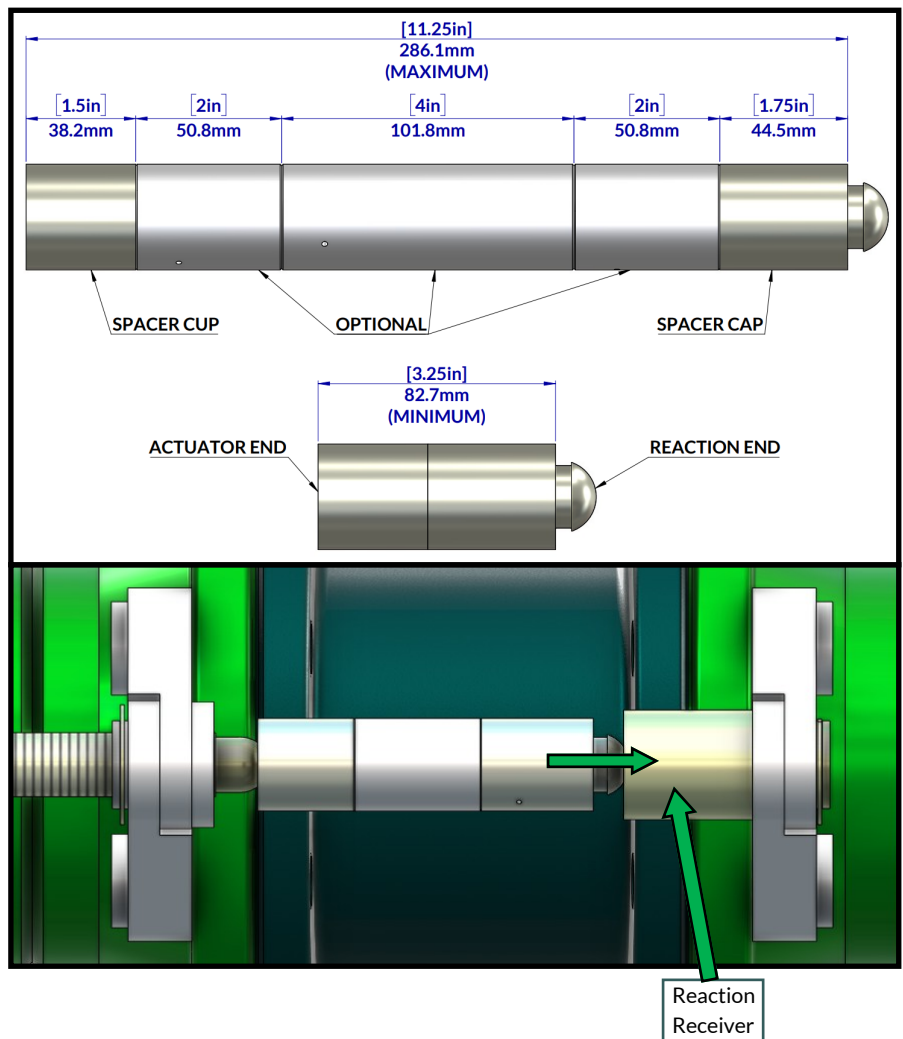
Note - If no Spacer is needed, go to Step 7.





6. Build the required Spacer Bar configuration, and insert the Spacer Cap into the Reaction Receiver.

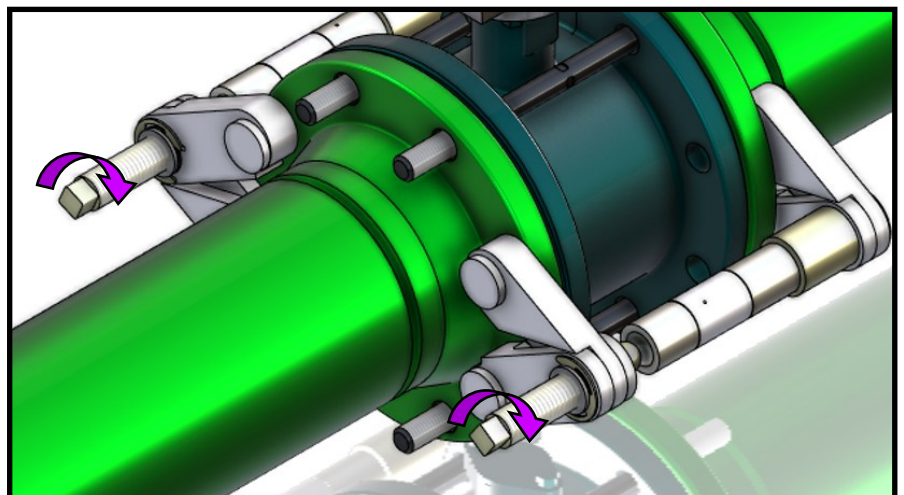
WARNING - The spacer bars are **loose objects**. Preventative measures are to be taken by the user to prevent Dropped Objects.



Note:

The Spacer Bar assembly requires **at least** the Spacer Cup **and** Spacer Bar (total length: 3-1/4") for operation. The Spacer Bar **should NOT** be used without both parts in the order shown.

7. Hand turn the Actuator Rods until they begin to engage with the Spacer Bars (or Reaction Receivers if no spacers are being used).

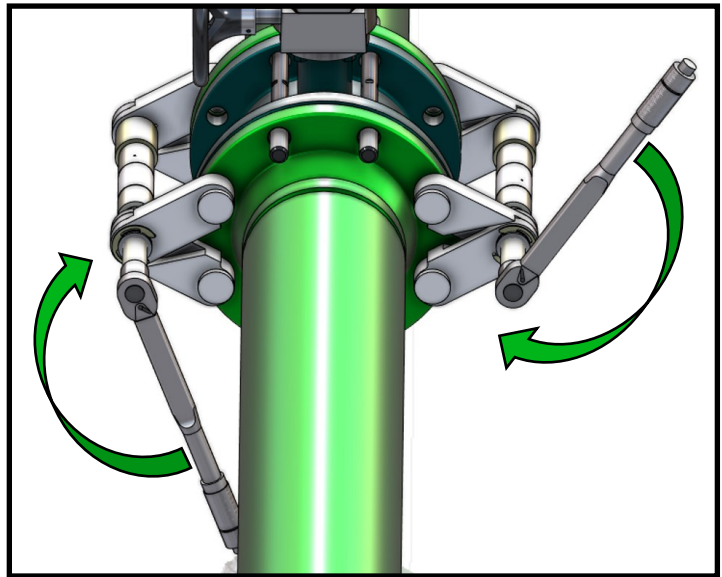




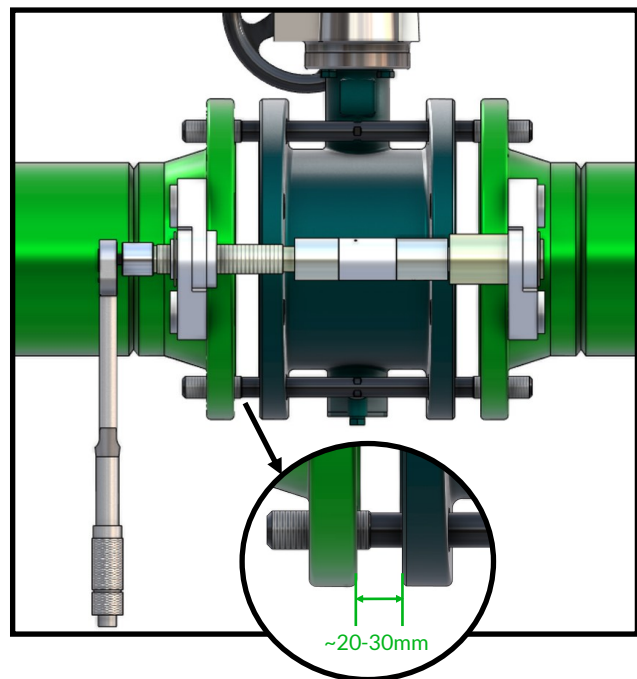
8. Set the torque Wrench to the first value (19Nm).

9. Connect the Torque Wrench to one of the Actuator Rods, and tighten it until you hear the click.

Do the same on the other Actuator Rod to ensure even load is applied.



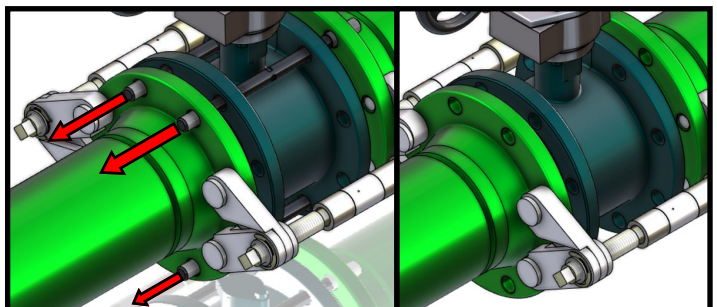
10. Repeat step 8, incrementing the Torque Wrench each repetition (26, 33, 40, ..) until the desired gap is created OR you reach the Maximum torque value of **60Nm**.



11. Remove the Torque Wrench.

Ensure that the valve being removed is secured using the appropriate procedure.

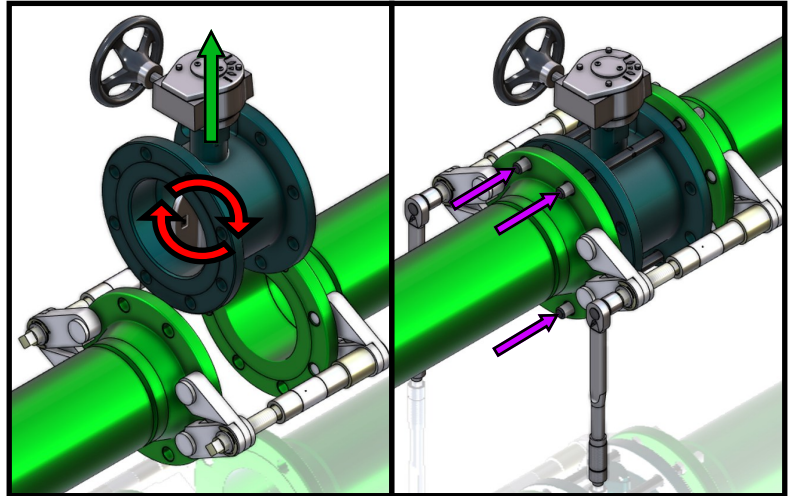
Remove the remaining studs.





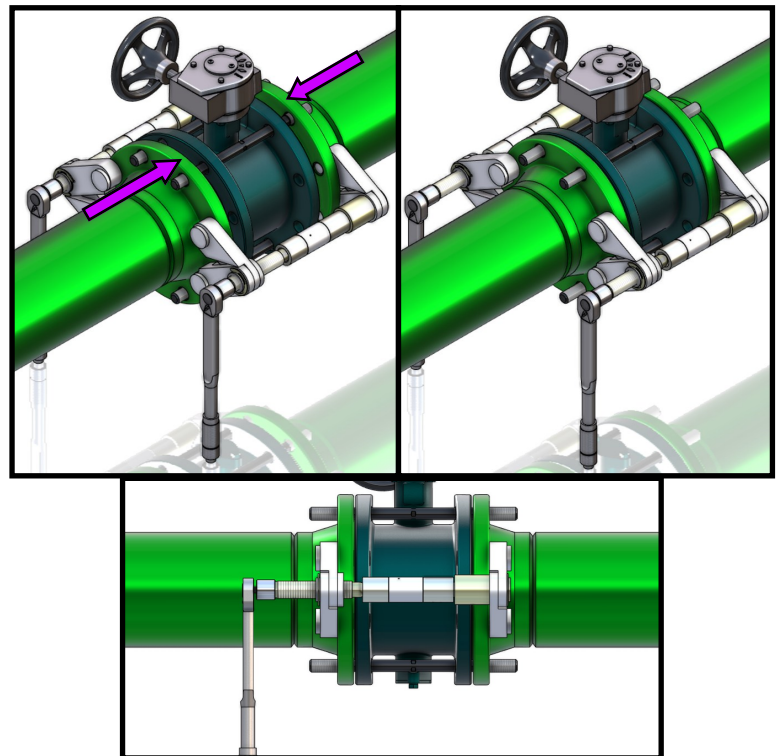
12. Remove and replace the valve.

Re-insert the studs removed in Step 9.



13. Reverse the spreading procedure to close the Flange Joint.

Care is to be taken to ensure that both tools are unloaded evenly and gradually to prevent overloading the tools.



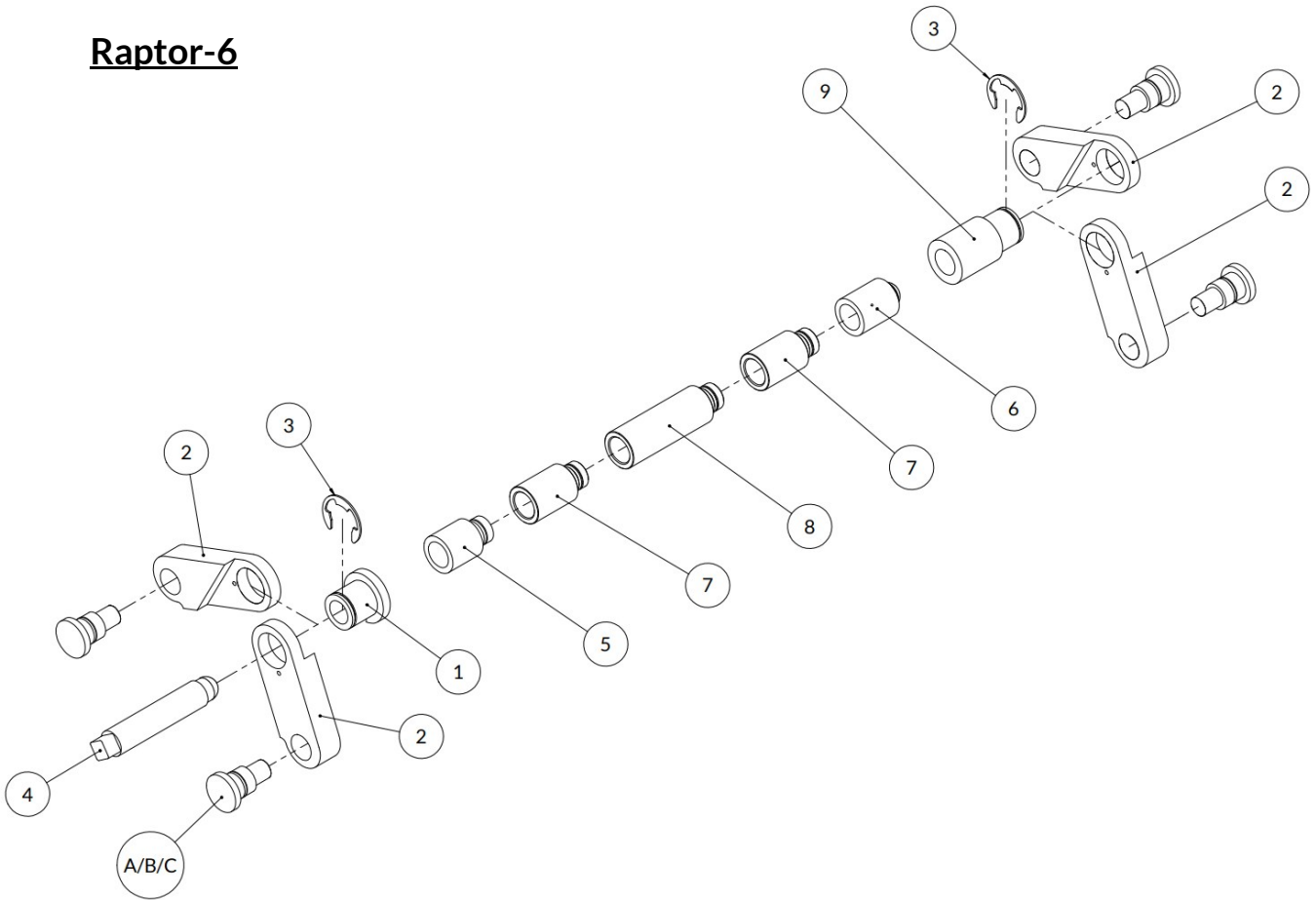
14. Remove the Torque Wrench and follow Steps 6-1 in reverse, to remove the Raptors, and re-insert fasteners.

15. Clean equipment and package for storage in a cool dry location.



6.0 Parts List

Raptor-6

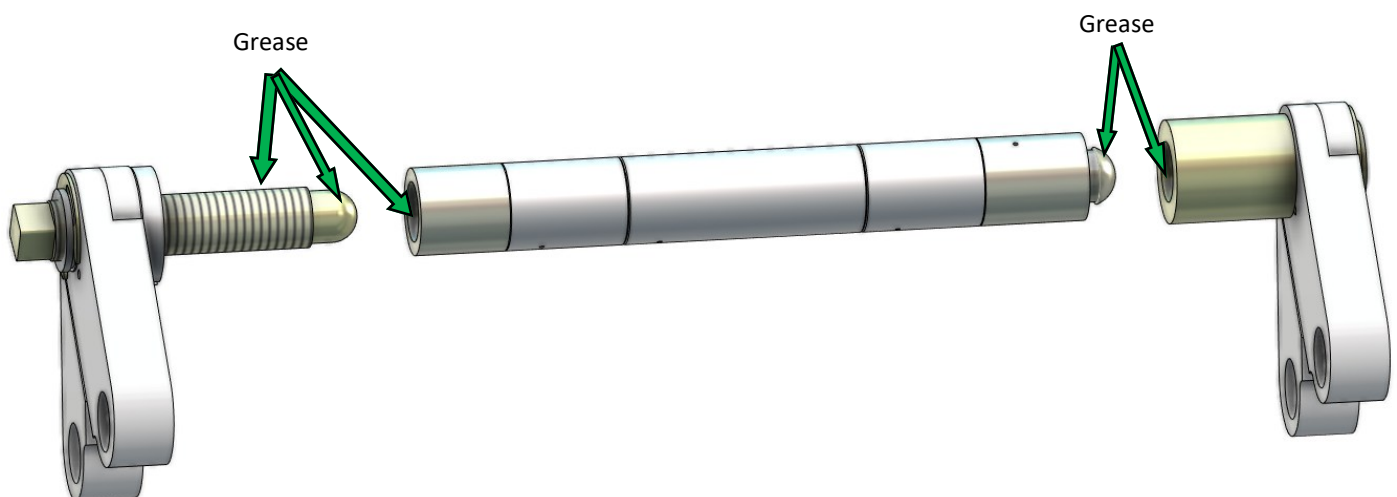


Item No	Part No	Description	Qty
01	155010021	Raptor-6 Drive Bushing	1
02	155010011	Raptor-6 Actuator Leg	4
03	100200431	1-3/8" External Heavy Duty E-Clip	2
04	155010031	Raptor-6 Actuator Rod	1
05	155030011	Raptor-6 Spacer Cup	1
06	155030021	Raptor-6 Spacer Cap	1
07	155030031	Raptor-6 Spacer Bar 51mm	2
08	155030041	Raptor-6 Spacer Bar 102mm	1
09	155020011	Raptor-6 Reaction Receiver	1
A	155040011	Raptor-6 3/4" Grip Pin	4
B	155050011	Raptor-6 7/8" Grip Pin	4
C	155060011	Raptor-6 1" Grip Pin	4



7.0 Maintenance

- Visually Inspect the following Raptor parts for wear, damage, cracks, deformation and elongation PRE and POST USE.
 - ♦ Actuator/Reaction Legs
 - ♦ Actuator Rod
 - ♦ Reaction Receiver
 - ♦ Grip Pins
 - ♦ Spacer Bar components
- Replace any worn or damaged parts.
- Clean and degrease surfaces.
- Grease tools with a quality High load bearing grease as indicated below.
- Store tools in a cool, dry, and low humidity location.



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