Extreme Sales and Rental
Torquing Extreme MWD Tools
Revision 6

Date: June 3, 2024
Applicability: XEM, xBolt, Babel Fish
Issued By: Jack Rader

SCOPE

This document outlines the basics for torquing and breaking connections between Extreme MWD probes, including Babel Fish.

SAFETY

This document is meant as a guideline for the assembly and disassembly of Extreme's MWD equipment, including Babel Fish. Instructions and methods here must be evaluated against the individual conditions of the location before and during the operation to ensure that the operation is performed safely and damage to equipment is prevented. Risks should be actively identified and mitigated before proceeding with any operation.

The condition of the equipment and tools should be evaluated before each use. Please contact an Extreme representative for replacement if necessary.

Safety glasses, impact resistant gloves, and steel toed shoes should be worn at all times during these activities. O-ring installation may require the removal of gloves, but attention should be paid to burrs and other possible hazards during this operation.




TOOLS AND ACCESSORIES REQUIRED

Petol Surgrip Friction Tongs (four sizes possible)
Scan link for further information about use and safety regarding Petol equipment

XEM - Requires the use of 1.75"

xBolt G2 - Requires the use of 1.75", 1.875", 1.96", 2.00", and a Pipe Wrench if the MOP is used.

Babel Fish - Requires the use of 1.75" and 1.875"

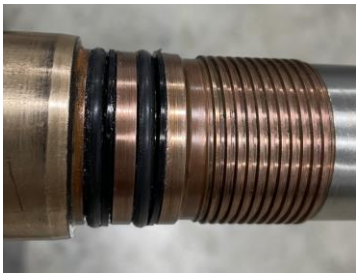
Pipe Wrench – only to be used on the MOP assembly

DC 111 grease
Contact Cleaner
Loctite 603
Stainless Steel Wire Brush
O-Ring Pick Set
Paint Pen

Every female ROTC connection must have two O-Rings and two Parbaks installed.

- These should be evaluated at each exposure.
- They should be free of dirt/debris
- They should not have any cracking, extrusion, or ‘flatness’ from compression, discoloration, blisters, pits, pockets, or signs of corrosion
- They should be free of any nicks, cuts, scratches, or gashes

09ORNG0218 - Size 218 O-Ring, 70D, Viton
09PBAK0218 - Size 218 Parbak, 90D, Nitrile



STARTING THE CONNECTION

Only remove dust caps just before making the connection. Thread the female and male dust caps together when removed to help keep clean.

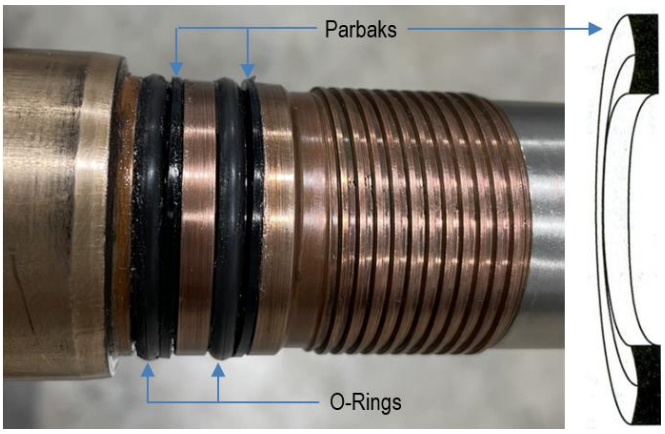
Inspect threads, O-rings, and Parbaks for any damage or debris. Replace the O-rings and Parbaks if necessary. Use only plastic or brass picks to remove O-rings and Parbaks so as not to scratch critical sealing surfaces.

<u>If the Parbaks are replaced, they must be installed with the dished side facing the O-ring on the low pressure side of the connection as displayed on the right.</u>

- O-Rings/Parbaks should be free of dirt/debris
- O-Rings/Parbaks should not have any cracking, extrusion, or 'flatness' from compression, discoloration, blisters, pits, pockets, or signs of corrosion
- O-Rings/Parbaks should be free of any nicks, cuts, scratches, or gashes

Clean threads with the supplied stainless steel wire brush. Avoid contact with the O-rings and Parbaks as they may be damaged by the brush.

A light coating of DC111 should be applied to the o-rings immediately before installing them.



More information about O-ring installation can be found at the displayed link. (Parker O-ring guide)

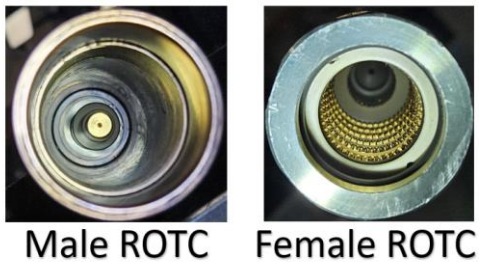
Care should be taken when sliding the O-rings and backup rings over the threads. Stub acme threads pose less of a risk to damaging O-rings than other thread forms.

The threads should be inspected for burrs and debris before sliding O-rings over them for installation.

Inspect both the female and male connections for any damage, debris, or moisture before connecting.

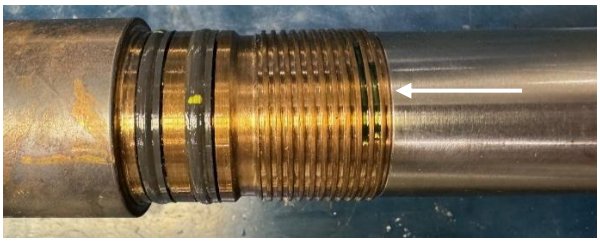
The contact cleaner can be used to help remove any foreign debris. If any cannot be removed or if damage is present the probe should be flagged for service and removed from the field.

Do not insert any objects into these openings to clean or remove debris as it will likely cause damage.

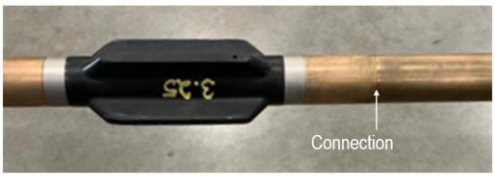


Align the probes with the supplied jack stands to ensure they can be threaded together without issue.

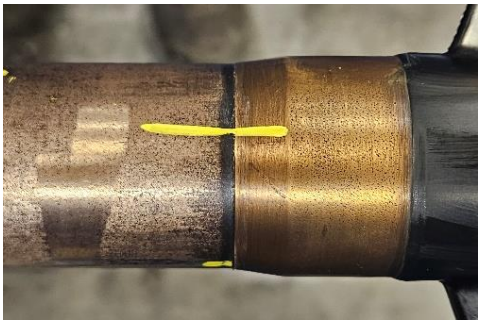
If the string will be used in an air drilling environment, a small amount of Loctite 603 should be applied to the outermost threads of the female ROTC before connecting the probes together.



Hand tighten the connections so no gaps are present between the probes before applying additional torque with Petol friction wrenches.



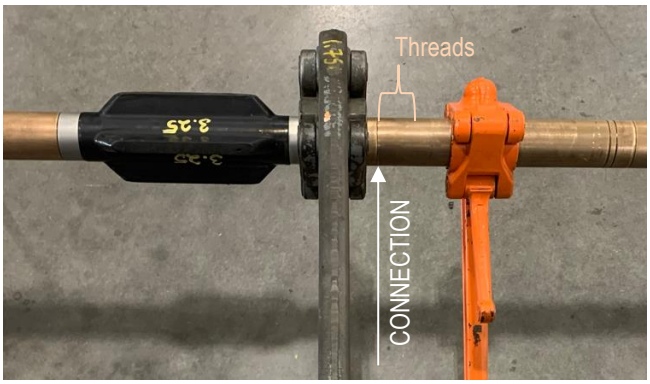
Once hand tight, create a single straight line across the connection before proceeding to torque.



TORQUING THE CONNECTION

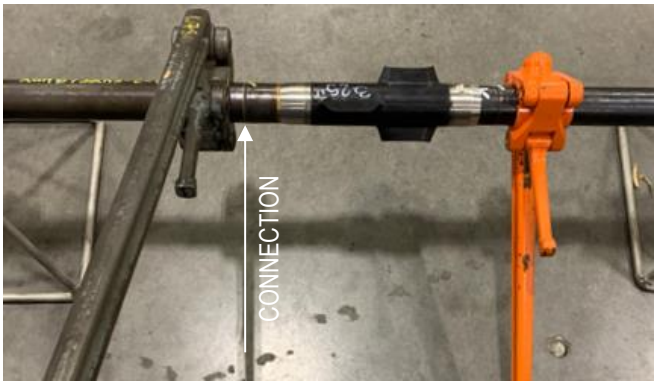
Place wrenches on either side of the connection that requires torquing. There will be a stationary wrench and a torquing wrench. The stationary wrench will hold the part of the probe that you are torquing into while the torquing wrench will turn the probe that is being attached.

Avoid placing a wrench on the barrel directly above the threads. When the wrench is fully clamped it can make torquing the connection more difficult. The example to the right shows the orange wrench placed roughly 6 inches beyond the connection point.



Jack stands should be evenly spaced on either side of the connection that will be torqued. This will prevent the connection from binding or the probes from moving.

When torquing probes with the resizable centralizer installed, the best practice is to torque across the entire centralizer. This confirms that both ends have been torqued properly.

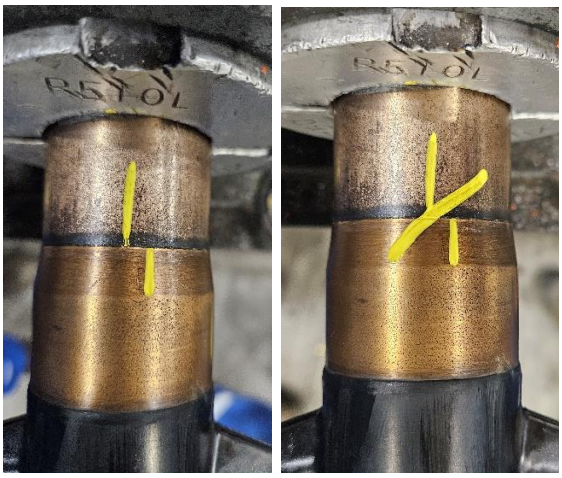


Torque connection to approximately 300 ft/lbs. This will be roughly 150 lbs. of force on the end of the 2-foot-long wrench handle.

Use both hands to stabilize the wrench and press downwards with body weight. In case of a slip in the wrench avoid having any body parts between the wrench and the ground.

Once torqued to 300 ft/lbs. there should be a gap measuring roughly 0.2” between the lines.

A second diagonal line can now be used to mark the connection as torqued. This verification line can be referenced to ensure the connection has not become broken.



DO NOT

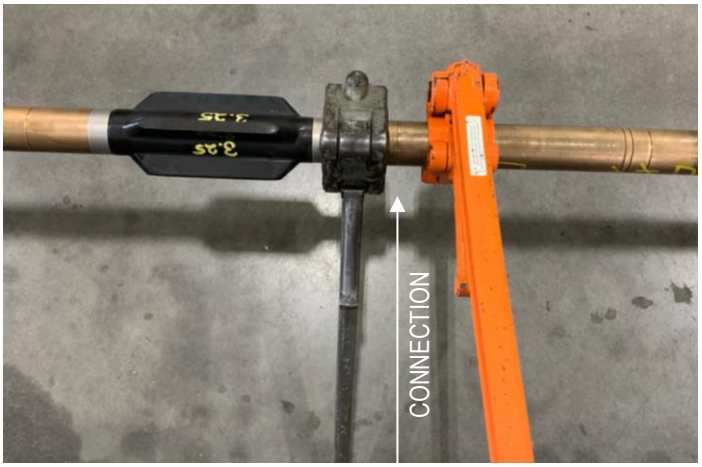
- Stand on the handle of the wrench to torque the connection.
- Use a cheater bar.
- Use a chain tong on the barrel.
- Strike the end of the wrench with a hammer or any other object.

Break Connection

When breaking standard XEM connections, both wrenches will be placed above the centralizer of the below probe.

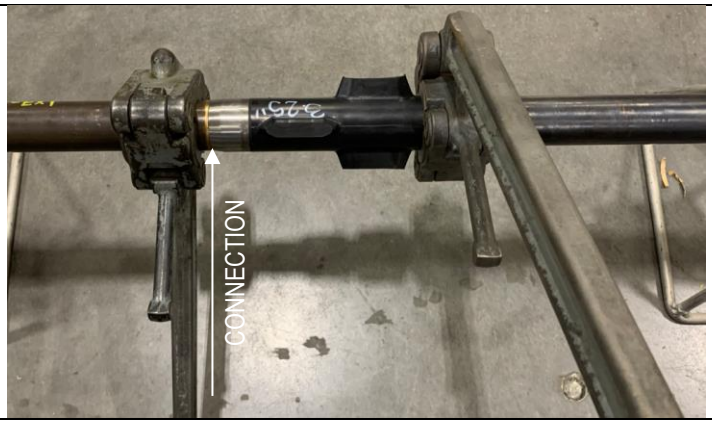
Consider the possibility of trapped pressure inside the probes. Though it is unlikely, probe invasion or battery events can lead to trapped pressure.

If a tool is suspected of this, it is recommended to not break the connection.



Jack stands should be even spaced on either side of the connection that will be torqued. This will prevent the connection from binding or the probes from moving.

When breaking connections with the resizable centralizers, the larger 1.875" wrench will be placed on the centralizer body farthest from the connection while the second wrench will be placed on the barrel of the probe near the connection.



Use both hands to stabilize the wrench and press downwards with body weight. In case of a slip in the wrench, avoid having any body parts between the wrench and the ground.

When the connection is initially broken the wrench can suddenly become loose and resistance will be lost. This sudden loss of resistance can lead to major pinch points between the wrench and the ground or nearby objects. Take extreme caution when breaking the connection to avoid injury.

DO NOT

- Stand on the handle of the wrench to torque the connection.
- Use a cheater bar.
- Use a chain tong on the barrel.
- Strike the end of the wrench with a hammer or any other object.

Consider the possibility of trapped pressure inside the probes before continuing. Though it is unlikely, probe invasion or battery events can lead to trapped pressure.

Resistance after breaking the connection can indicate trapped pressure in the barrel.

If a tool is suspected of this, it is recommended to not break the connection.