Metal One

Document No. GEOCONN RP01 (Rev.0)

December 16, 2025

Recommended Field Running Procedure for GEOCONN & GEOCONN-AB Connections

1. IDENTIFICATION

GEOCONN series is a threaded & coupled connection and has features as below (compared with BTC)

- The thread form of GEOCONN series is identical to and fully compatible with API Buttress.
- The GEOCONN series pin nose has a beveled ID for at least 75% of the pipe circumference.
    - GEOCONN-AB will have the pin nose abrasive blasted with the threads mill finished.
- GEOCONN couplings are 1 to 2 inches shorter than Buttress couplings.
- Couplings are clearly marked with GEOCONN stenciled from the manufacturer. If no stencil is clearly visible, measurements should be taken to ensure accuracy of connection no to be mistaken for API Buttress.
- GEOCONN is designed to allow for pin-to-pin abutment and will shoulder internally once made up correctly. If no shoulder is observed the connection should be backed-out and inspected for any anomalies in the connection.
- GEOCONN-RS has a non-metallic (Teflon) seal ring pre-installed in the grooves on both sides of the coupling (See para. 2 for special care of GEOCONN-RS).

2. RUNNING

2.1 RUNNING PREPARATION

- Handling Plugs are available for use with special clearance couplings GEOCONN to be lifted using side door type elevator, and it shall be appropriate to the dimensions of the coupling. “Contact MO or your field service provider.”
- Always use a stabbing guide.
- Use thread compound recommended below, uncontaminated and thoroughly stirred unless customer specifies special thread compound.
    1) API Modified
    2) Bestolife 2000 series
    3) Topco TK-II for thermal application
- Ensure the tong hangs horizontally level.
- If integral back-ups are not used, ensure snub line is set at 90° for proper torque to be applied at final make-up.
- Check for correct alignment of travelling block and rotary (see 2.3 Stabbing).

2.2 THREAD INSPECTION

Ensure that the connections are thoroughly clean and dry. Visually check that the connections are free from burrs or tears and have a relatively even thread surface. A “mash” on the pin or box is unacceptable.

For GEOCONN-RS

Ensure the seal ring is properly installed, and that no hump or deformation is visible on the entire circumference of the seal ring.

2.3 THREAD COMPOUND (DOPE)

Prior to stabbing a moderate coating of thread compound should be applied to the pin and box connections. The dope should be applied uniformly to all of the threads using a soft brush.

For GEOCONN-RS

As in the case of any connection with a seal ring, special precaution shall be paid to avoid over-doping because excess dope may push the ring down during make-up. Dope shall be applied with a brush lightly and uniformly on both the box threads and on the pin threads.

(Note that dope applied on the box is pushed down the inside of the connection and detrimental to “seal ring popped-in “, but pin dope is always extruded towards the outside of the coupling)

2.4 STABBING

With the joint hanging freely in the derrick - check the vertical alignment to ensure the pin is directly over the box. True vertical alignment either with a stabber, stabbing arm or with the blocks must be maintained during MU operations. Apply the stabbing guide to the box connection in the rotary. Lower the pipe slowly into the box connection to avoid damaging the threads. After stabbing-in remove the stabbing guide and ensure the pipe remains vertically aligned.

2.5 POWER MAKE-UP

Engage the power tong at least 10 cm above the thread run-out area on the pin to ensure that the dies do not contact the coupling face as the make-up loss is absorbed.

If a back-up tong is used it should never be placed directly on the coupling, but always under the coupling. Ensure the tong back-up line is at 90 degrees to the tong and pipe axis (both vertical and horizontal).

Ensure the elevators are not supporting any of the pipe weight.

Using the power tong, make-up the connection at a speed of not more than 25 rpm and ensure that the tong does not slip during the make-up operation and damage the pipe body.

1 to 2 turns prior to shoulder, the tongs must be shifted into low gear with a maximum of 5 to 7 rpm to engage the shoulder and finalize make-up and better torque control to avoid over torque.

Make-up the connection to the correct torque & position with the aid of a torque gauge and confirm that the make-up is acceptable in accordance with the criteria in 2.6.

2.6 ACCEPTANCE CRITERION FOR MAKE-UP

Recommended torque values refer the Connection Data Sheet (CDS), which can be obtained from the Metal One Connection Web-site. (https://www.mo-tc.com/connection-data-generator/)

When higher-friction-factor thread compound is used for field running instead of the recommended ones written in this procedure, following conversion shall be applied;

Friction Factor (FF)*	Conversion Coefficient	Conversion of Recommended Torque	
0.8 <= FF <= 1.2	1.0	No conversion is needed.	
1.2 < FF	FF minus 0.2	If FF is 1.5	Converted MUT shall be 1.3 x MO Recommended MUT.
		If FF is 2.0	Converted MUT shall be 1.8 x MO Recommended MUT.
		If FF is 2.5	Converted MUT shall be 2.3 x MO Recommended MUT.

* Friction Factor is relative to API RP 5A3

Torque should be set at Min. Torque and if no shouldering occurs the torque should be increased accordingly up to Max. Torque.

Connection make-up is considered successful if all of the following criteria are achieved;

- The two pin noses contact which is indicated on the torque dial gauge as a very sudden increase in torque (“spike”)
- The base of the 3/8” triangle stamp on the pipe body is aligned with the coupling face as Figure 1.
- Once shoulder is engaged, no pipe rotation should be observed other than normal tong camming for applying final torque.
- If pipe rotation is observed after shoulder, connection should be backed out and inspected to determine if any damage has occurred and handled accordingly.
- Example torque-turn charts are shown in Appendix-A.

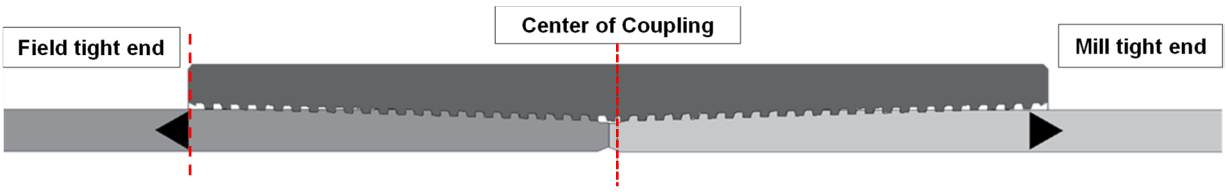


Figure.1 Correct Make-up Position

3. PULLING

The equipment required for pulling is basically the same as running.

Back-up tong should be placed on the lower half of the coupling. Use of the rig tongs for this operation is not recommended. If back-up tong is not available, then please ensure the CPLG mill-end side does not rotate and a paint line gives a useful indication.

True vertical alignment either with a stabber, stabbing arm or with the blocks must be maintained during break out operation.

Engage the power tong at the same area of the pipe as make-up. Break out the connection using controlled torque - do not “jerk”. Rotation speed during break out and spinning out should not exceed 15 rpm. Once the threads have disengaged, the pin will “bump” in the box, rotate 1/3 of a turn before lifting out the pipe.

When lifting out, care should be taken to ensure the threads are fully disengaged to prevent jump out.

Use of a stabbing guide will help protect the pin and may assist in the lifting of the pipe out of the box.

4. MINOR DAMAGE ON THE THREADS

Light imperfections/corrosion on the threads is acceptable. Minor damage to pin end threads such as burrs can be repaired with a fine file, hone or emery paper.

5. INTERCHANGEABILITY WITH API BUTTRESS

GEOCONN series and API-BTC can be interchangeable and the following points should be noted;

GEOCONN series **PIN & API-BTC BOX**

The pin noses will not contact and the make-up criteria should be the same as BTC. (= No pin abutment).

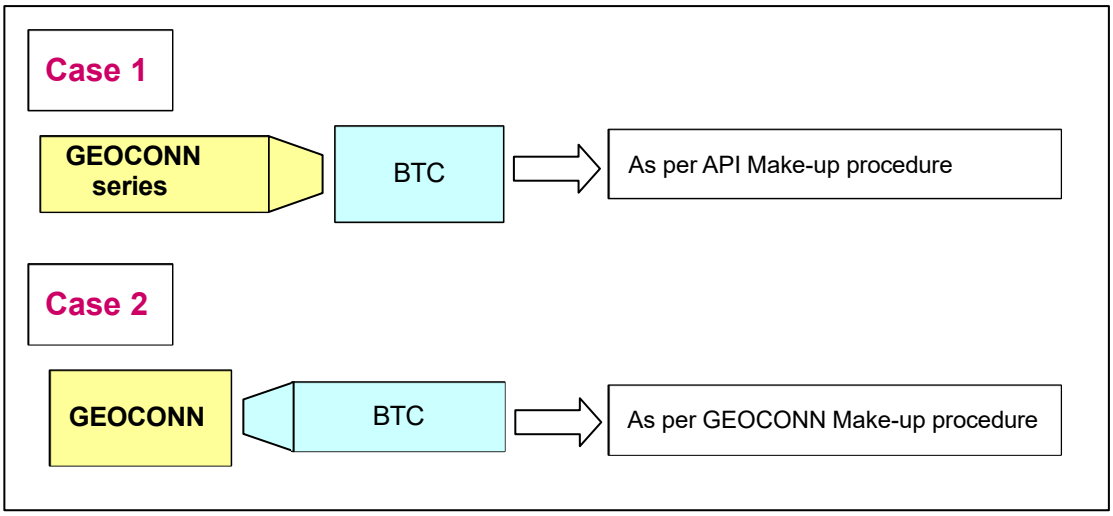
GEOCONN BOX & API-BTC PIN

The pin noses will contact and the make-up criteria should be the same as GEOCONN. (= Pin noses are abutted).

MAKE-UP PROCEDURE

GEOCONN series Pin & BTC Box ➔ Case 1

GEOCONN Box & BTC Pin ➔ Case 2



Make-up procedure for GEOCONN series with BTC

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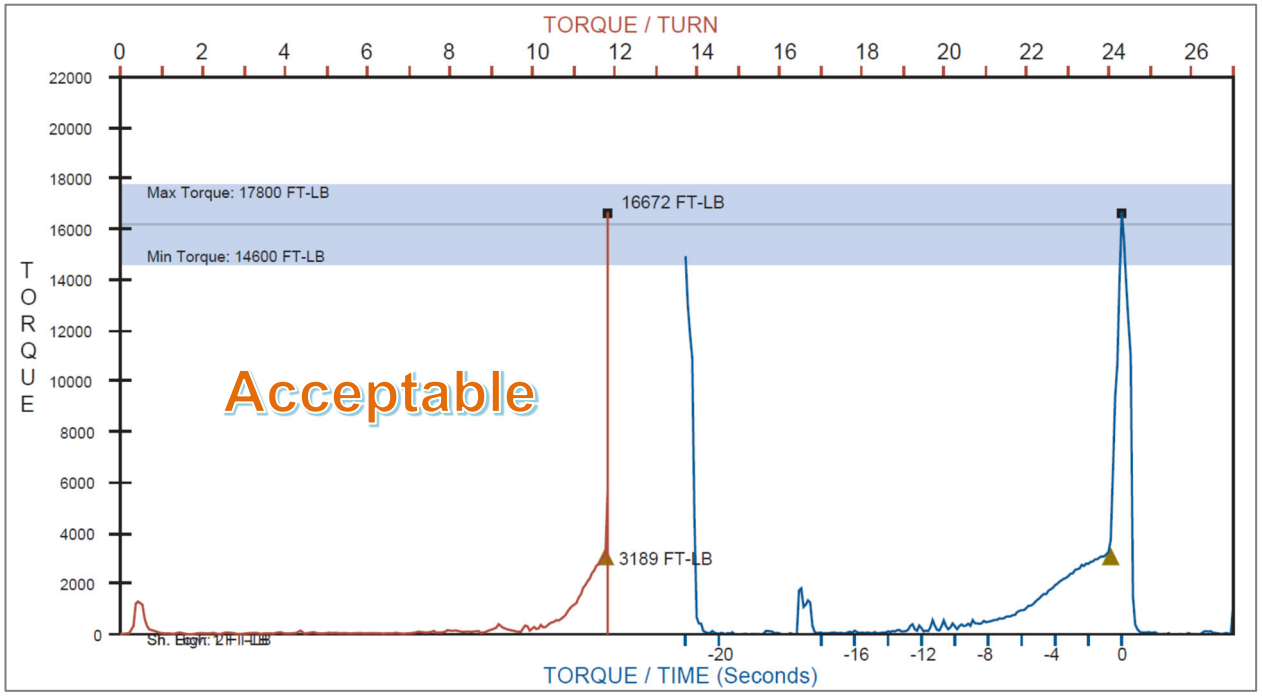
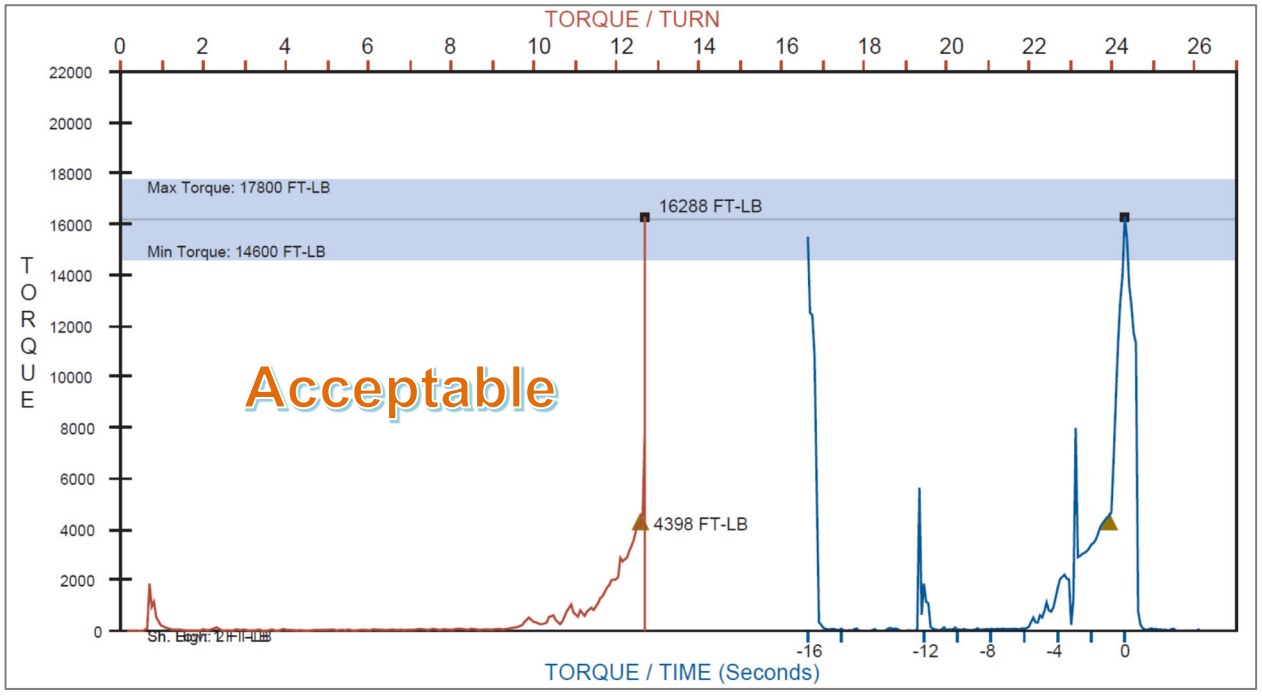
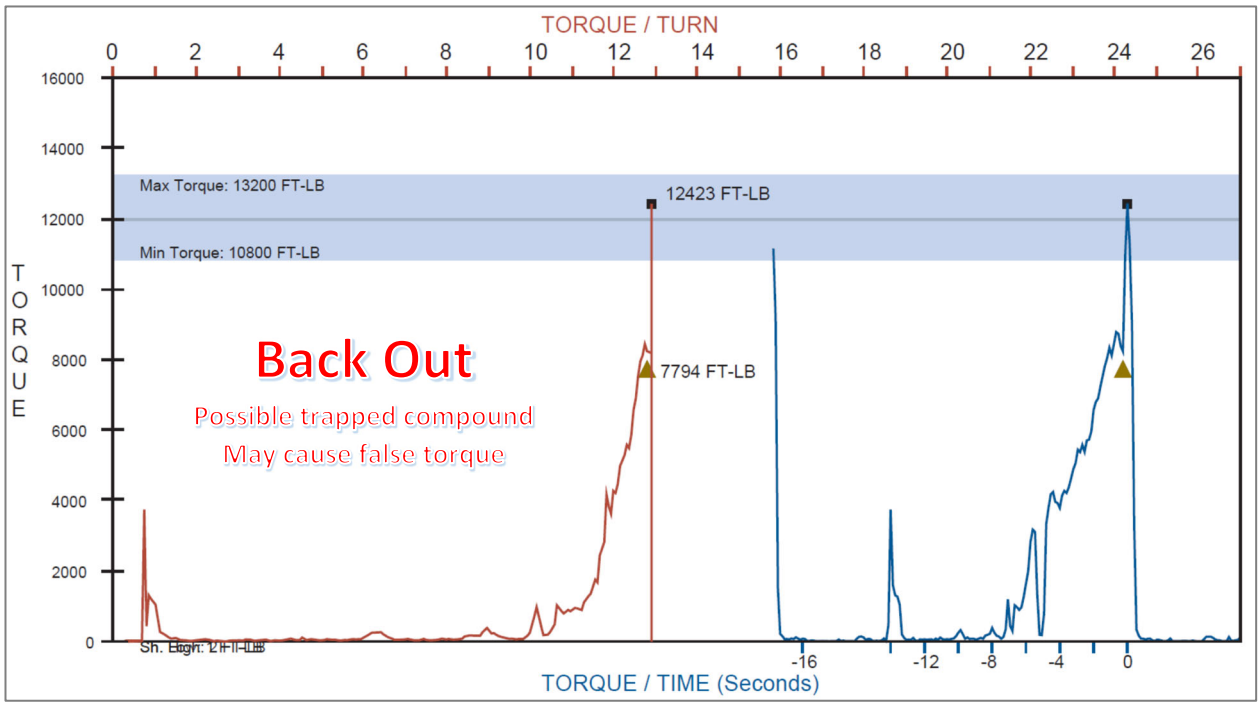
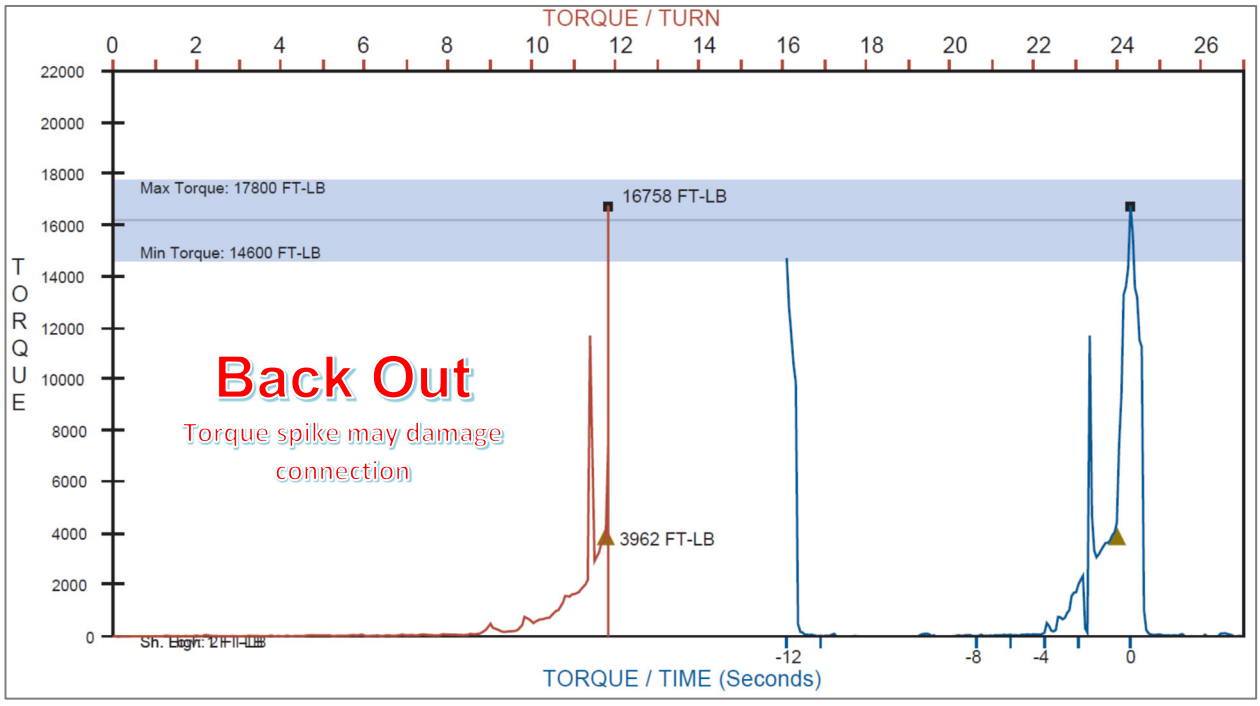
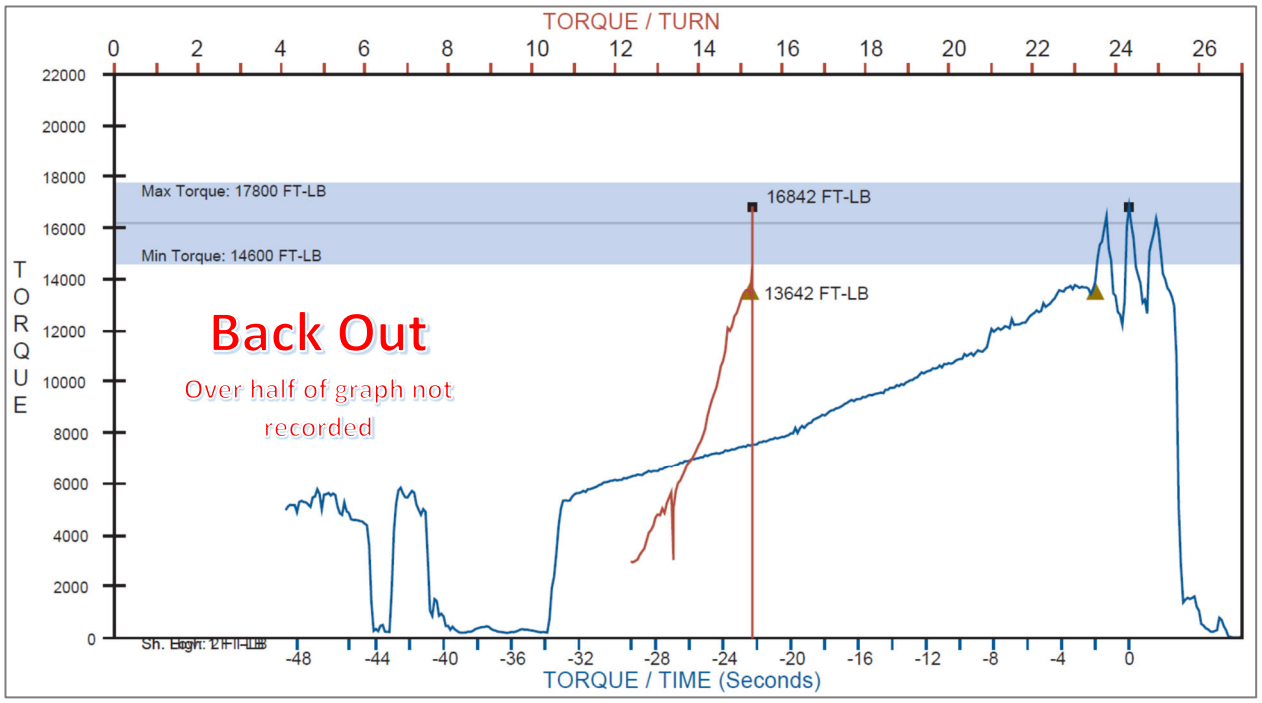
APPENDIX A – EXAMPLES OF TORQUE TURN GRAPHS

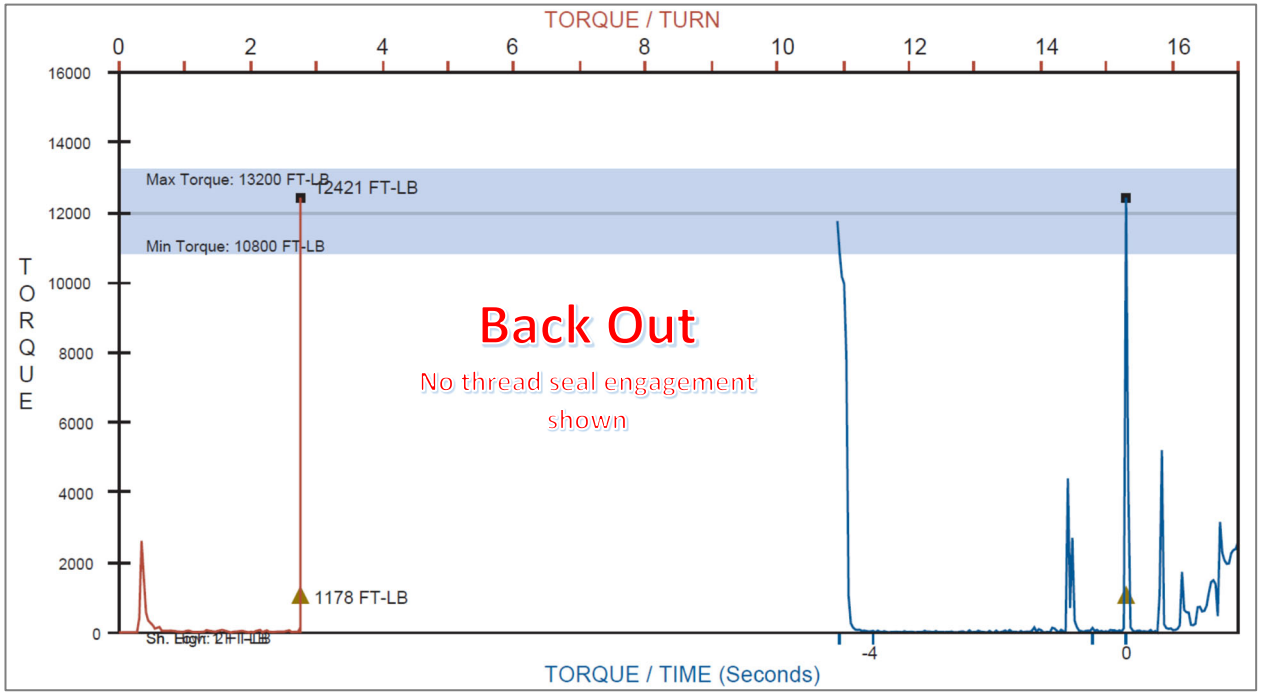


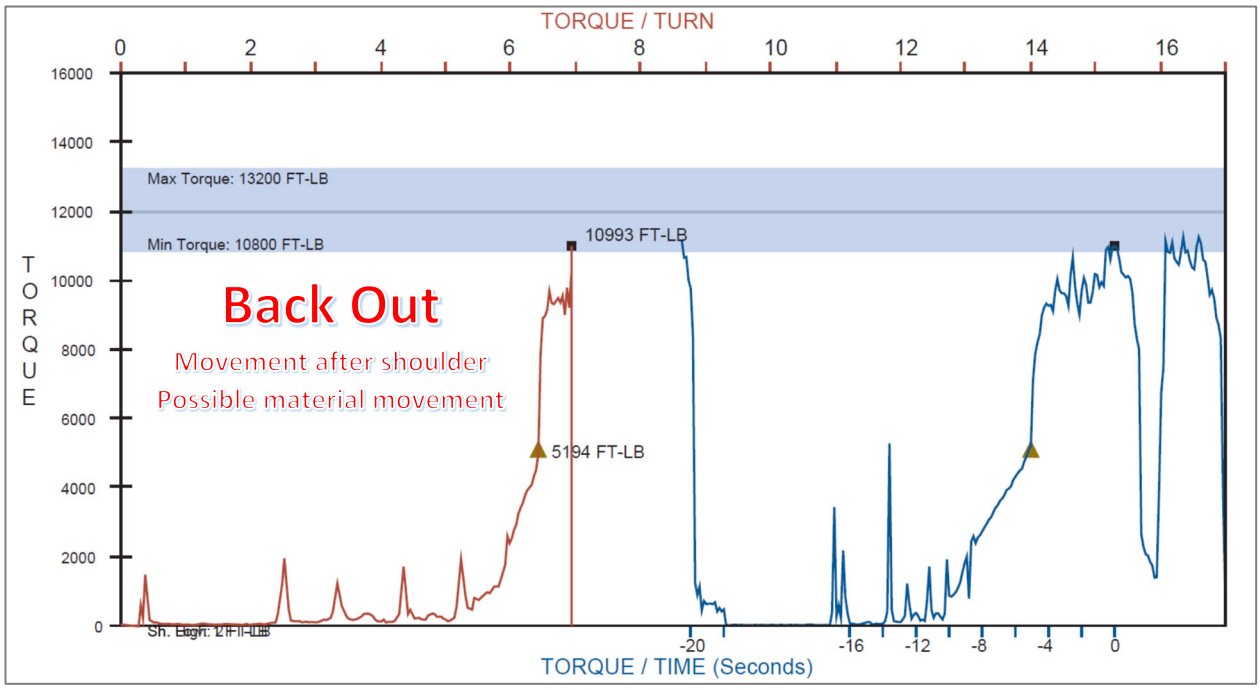



TORQUE / TURN
Max Torque: 13200 FT-LB
Min Torque: 10800 FT-LB
12423 FT-LB
7794 FT-LB
Back Out
Possible trapped compound
May cause false torque
TORQUE
TORQUE / TIME (Seconds)


TORQUE / TURN
Max Torque: 17800 FT-LB
Min Torque: 14600 FT-LB
16758 FT-LB
3962 FT-LB
Back Out
Torque spike may damage
connection
TORQUE
TORQUE / TIME (Seconds)


TORQUE / TURN
0
2
4
6
8
10
12
14
16
18
20
22
24
26
22000
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Max Torque: 17800 FT-LB
Min Torque: 14600 FT-LB
16842 FT-LB
13642 FT-LB
Back Out
Over half of graph not recorded
TORQUE
-48
-44
-40
-36
-32
-28
-24
-20
-16
-12
-8
-4
0
TORQUE / TIME (Seconds)


TORQUE / TURN
0
2
4
6
8
10
12
14
16
16000
14000
12000
10000
8000
6000
4000
2000
0
Max Torque: 13200 FT-LB
Min Torque: 10800 FT-LB
12421 FT-LB
1178 FT-LB
Back Out
No thread seal engagement shown
TORQUE
-4
0
TORQUE / TIME (Seconds)


TORQUE / TURN
0
2
4
6
8
10
12
14
16
16000
14000
12000
10000
8000
6000
4000
2000
0
TORQUE
Max Torque: 13200 FT-LB
Min Torque: 10800 FT-LB
10993 FT-LB
Back Out
Movement after shoulder
Possible material movement
5194 FT-LB
-20
-16
-12
-8
-4
0
TORQUE / TIME (Seconds)