Running Procedure for Cobra® GT Connection

Procedure No: FT-RP-008

Rev: 03

Fermata® Technologies

Approvals

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Revision Control

Rev	Description of Changes	Date Issued
00	Issued for use	10/28/2020
01	Included recommended thread compound Jet-Lube Seal Guard	11/10/2021
02	Added additional thread compound and make-up information	4/18/2022
03	Added additional information for thread compound application	8/28/2023

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1. General Running Procedure

1.1 Refer to General Running Procedure No. FT-RP-000 latest revision.

2. Thread Compound Application

2.1 Fermata® recommends the use of Jet-Lube Seal Guard. As an alternative BOL 72733 can be used. The use of a fine brush is recommended to best control the application of thread compound. The brush should be free of any water. Water that is on the brush, connection, or in the running compound bucket must be completely removed before applying the compound.

2.2 Using a measuring device, apply the amount of thread compound specified in Table 1 to the pin threads and the seal of the pin. Adjust thread compound amount by up to 2 mL as needed to achieve comparable application to that in Figure 1. DO NOT apply any thread compound on the box connection. Under certain circumstances dope application may be altered only if approved by Fermata® engineering. As the thread compound brush becomes more saturated with compound, less is required to achieve full coverage compered to when the brush was new.

Figure 1: Correct way to apply thread compound.

OD	Volume
3-1/2”	1.25 mL
4”	2.5 mL

4-1/2”	3 mL
5”	3.5 mL
5-1/2”	5 mL
7”	5 mL
7-5/8”	6.25 mL
8-5/8”	6.25 mL
9-5/8”	7.5 mL

Table 1

2.3 Ensure to not overapply thread compound. When using a measuring spoon, level the spoon by scraping the top with a flat edge if the volume increment is equivalent to the spoon (example: if 5mL is specified in the running procedure and a 5mL spoon is used for measuring, level the spoon). Use the applicator brush to clean out the spoon and spread the compound evenly across all threads. Do not apply any compound past the base of the make-up indicator.

2.4 Excessive thread compound can cause dope squeeze and/or yielding on a connection. If dope squeeze or yielding is observed, reduce the amount of thread compound. It is recommended to start with a reduction of 30%. Ensure that the connection still maintains light, full coverage. The following are 2 unacceptable graphs due to excessive compound.

Figure 2: Dope Squeeze

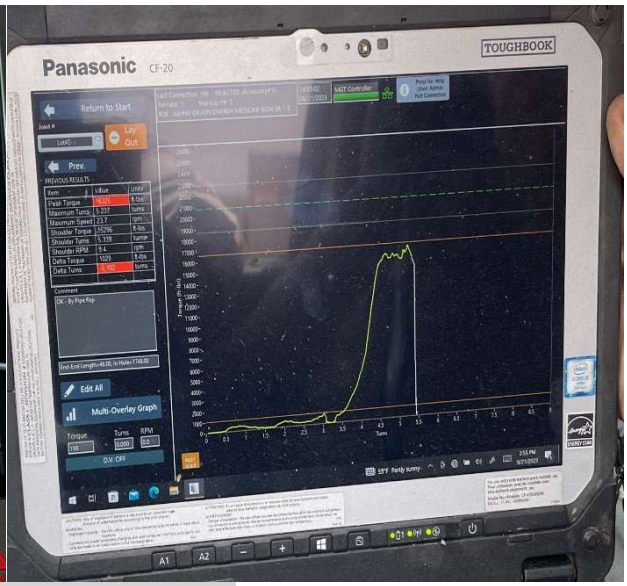

Figure 3: Yielding

3. Compatibility

3.1 Cobra® GT does NOT have compatibility with differing weights within the same OD.

4. Make-up

4.1 Fermata® recommends setting the scale (X axis) of the make-up graph to 5-8 turns to obtain a proper make-up profile.

4.2 An encoder should be used and not a proximity switch for counting rotations. Generally, proximity switches do not provide adequate pulses per revolution.

4.3 Fermata® recommends targeting the optimum make-up torque listed on the current connection data sheet. Any make-up torque between the minimum and maximum make-up torque is acceptable, but the optimum make-up torque is ideal for most conditions and common equipment. Add 10% to all specified make-up torque values when using thread locking compound. A Constrictor® lock point must be visible for proper make-up. See Figure .

4.4 Before the first connection make-up, set the dump valve to the optimum torque and test on the pipe body to ensure proper tong engagement and that the pipe integrity is not compromised.

4.5 Make-up the first connection to the optimum torque, draw a line across the pin and box, and re-apply optimum torque.

4.6 If movement past 0.5” is observed, re-apply optimum torque +20%. (This may exceed maximum make-up torque, but is acceptable, provided no yielding is observed and the tongs are not compromising the pipe body).

4.7 Repeat 4.5 to 4.6.

4.8 Movement is an indication of excess thread compound. If observed, review the amount of thread compound applied and reduce the amount.

4.9 Continue making up the string to the higher torque value, if necessary.

4.10 Spin in the connection in high gear at Revolutions Per Minute (RPM) at or below that listed in Table 2.

4.11 Move to low gear prior to the Constrictor® lock point and keep the RPM at or below that listed in Table 2.

4.12 RPM may occasionally be adjusted based on makeup profile, if approved by Fermata® field service management or engineering.

4.13 The following (Table 2) is the recommended maximum make-up RPM.

Pipe Diameter	High Gear not to exceed	Low Gear not to exceed
2-3/8” to 5-1/2”	20 RPMs	5 RPMs
7” to 7-5/8”	15 RMPs	5 RPMs
9-5/8” and greater	10 RPMs	3 RPMs

Table 2

4.14 The Constrictor™ Lock Point is the point on the graph where the torque-turn slope begins to change from curved to linear. It is required to be between 5% and 80% of makeup torque. See Figure .

4.15 Secondary verification of Cobra® GT connection make-up can be made by checking that the base of the triangle stamp is aligned within ±.062” of the box face. See Figure .

4.16 A 1” X 24” long stripe is painted on the field end pin to aid in locating the triangle.

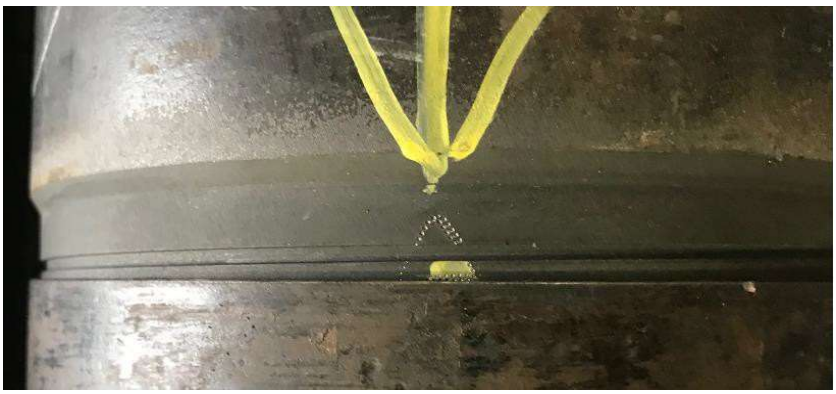

Figure 4: Triangle Stamp

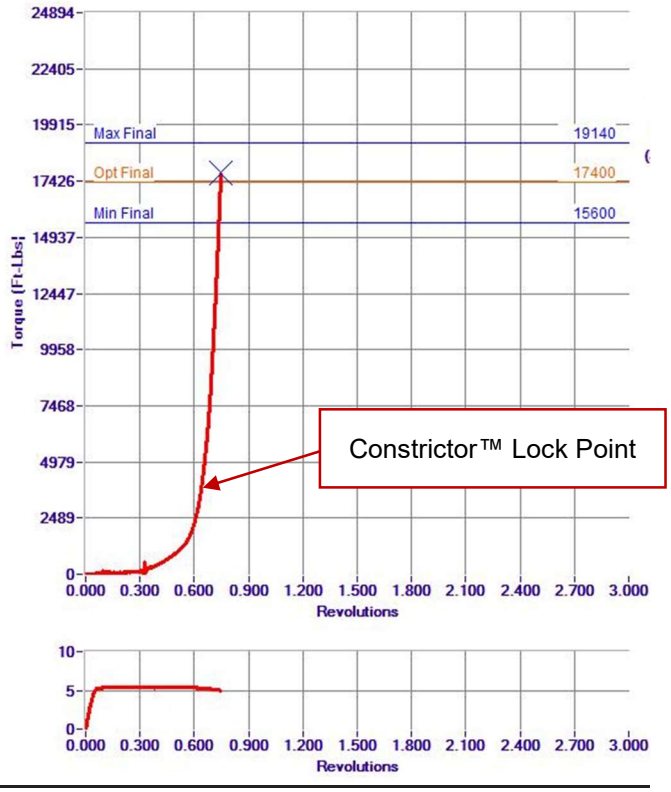

Figure 5: Correct make-up graph

5. Downhole Rotation

5.1 The maximum operating torque listed on the current connection data sheet is the maximum torque for downhole rotation unless reviewed and approved by engineering. Speed should not exceed 40 RPM. RPM's and operating torque can be evaluated and adjusted on a case-by-case basis, if approved by the engineering group.

5.2 Take care to gradually increase or decrease rotation speed and torque to prevent potential dynamic loading scenarios.

6. Break-Out and Inspection

6.1 Verify back-up tongs are equipped with the appropriately sized dies prior to break-out.

6.2 Place the back-up tongs on the pipe body below the threaded area of the box.

6.3 Break-out the connection in low gear to ensure adequate torque capability.

6.4 Keep break-out speed low to prevent galling (preferably 5 RPM or less)

6.5 Break-out slowly until the pin “jumps”, indicating disengagement.

6.6 Use a stabbing guide prior to disengagement to prevent damage to the connection.

6.7 Alignment is equally important during break-out as during make-up. Verify alignment prior to break-out.

6.8 If re-running, fully break-out the connection, remove all thread compound and debris, inspect, and follow the make-up procedure. If laying down, apply storage compound and thread protectors free of grime and debris.

7. Marking Instructions

7.1 All used, rejected, repairable, and or prime pipe left on rig locations will be identified into a classification based on the below chart and must be submitted to Field Service Management as soon as possible via email.

Summary of Pipe left on Rig Location

Customer: _____ **Rig:** _____ **Well Name:** _____

String 1	String 2	
		Prime Joints, conduct VTI leave insructions to apply storage compound prior to having thread protectors placed back on. (Joints that never left the pipe rack)
String 1	String 2	
		Rig Returns, identified by **1 White band** near mill end & **1 Yellow band** at repairable end / area. (Joints that were made up never went below the rig floor, broken out, laid down, and passed VTI.)
String 1	String 2	
		Used Pipe, identified by a **1 Orange band** 6 inches each side of the defect, damage, or made up end and near the mill end. (Joints failed VTI or went below rig floor.)
String 1	String 2	
		Rejected Pipe, identified by a **1 Red band** 6 inches each side of the defect, damage, or made up end and near the mill end. (Joints rejected with signs of galling, pitting, or other damage.)

Figure 6: Pipe Classification Summary