

	Running Procedure for Casing with GB 3P and GB 3P SC Connections	February 21, 2003
		Rev. 2 (03/11/2011)

OVERVIEW

This field running procedure applies to makeup of **GB 3P** Connections on 16", 18 5/8" and 20" OD casing and line pipe. **GB 3P** Connections are suitable for **Running** (standard casing applications), **Reciprocating** (to work the string), **Rotating** (to aid string advancement) and **Driving**. This procedure is universal for all downhole applications because **GB 3P** Connections have been designed with the following features:

- High-torque resistance,
- Enhanced pressure containment,
- Deep, easy-stabbing,
- Fast Mast makeup without cross-threading, and
- Field make/break repeatability.

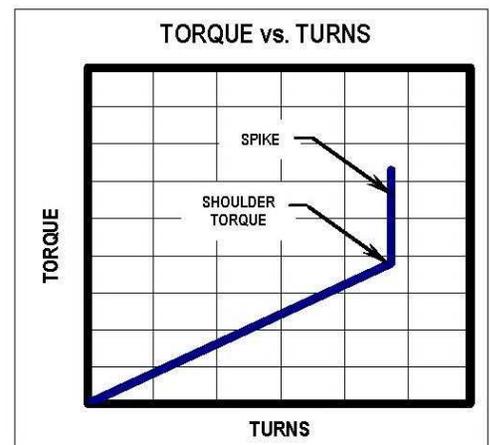
Numerous factors can influence the makeup torque of Buttress and Modified Buttress Threads, such as **GB 3P** Threads. Some of these factors include but are not limited to: vertical alignment, amount and distribution of thread compound, location and orientation of the snub line, distance between tongs and backups, temperature/weather, equipment type, calibration, personnel, gauges, etc. The nature of these types of connections makes it impossible to provide makeup torque values that will yield proper power tight makeup under all circumstances. This procedure has been designed to determine the torque required for proper power tight makeup of **GB 3P** Connections (i.e. the Running Torque) under the actual circumstances and with the actual equipment and set up conditions, weather, etc. that exist at the time of running. If properly executed, this procedure will ensure that all connections are properly and consistently assembled and will provide the requisite downhole performance.

It is imperative that the following procedure be executed carefully at the beginning of the run (1st ten joints or more based on judgment of the crew or as indicated by rig specific conditions) to determine the Running Torque (torque to be used for the rest of the string). Each Connection Data Sheet presents calculated Yield Torque values for the pipe body and connection. The Maximum Operating Torque (includes a 5% safety factor on Yield Torque) on the Connection Data Sheets represent the limiting torque **spike** that can be applied to the connection during makeup and/or rotating operations. The Maximum Operating Torque is **NOT** the Maximum Makeup Torque and is **NOT** a sustainable rotating torque. Operating at the Maximum Operating Torque for any length of time will likely damage the connection.

In general, the Maximum Makeup Torque at the beginning and throughout the run should be limited to 2X the Minimum Makeup Torque shown on the Connection Data Sheet. This rule of thumb is given as a practical limit for avoidance of thread galling and possible tube damage due to excessive jaw pressure that can occur with excessive makeup torque. Operators should make up connections until nose engagement with the minimum torque value shown plus enough additional delta torque for project-specific requirements. Contact GB Tubulars if more than 2X the minimum torque value is required for the intended service. See size- and weight-specific Connection Data Sheets for Physical and Dimensional Properties which include minimum torque values for **GB 3P** Connections.

PROCEDURE (APPLICABLE TO GB 3P AND GB 3P SC)

1. Remove box thread protectors only after casing is set in V-Door.
2. Re-dope box threads with API Modified Hi-Pressure, Best-O-Life 2000, or equivalent thread compound.
3. Remove pin protectors after joint is raised in the derrick. Visually inspect pin threads for sufficient thread compound; add compound as necessary.
4. Make-up the first 10 connections to **shoulder engagement** as indicated by the obvious spike in the torque gauge. Use the maximum anticipated shoulder torque shown on the connection Data Sheet as the minimum makeup torque at the start of the casing run. The tongs should be shut down when the spike occurs. Record the shoulder torque for each joint. Shoulder torque is the last torque observed before the instantaneous jump

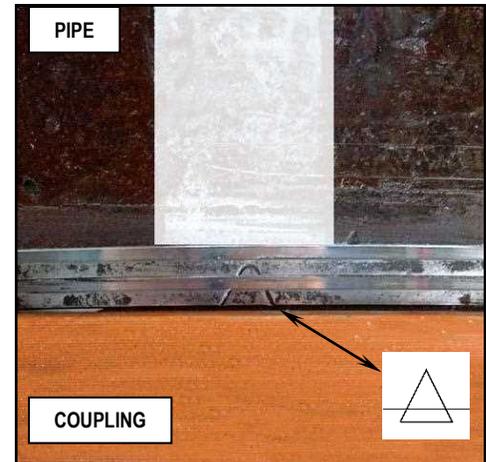


on the torque gauge or at the base of the vertical section on a torque-turn plot (see plot at right). Coupling position relative to the triangle stamp as shown in the picture and sketch also indicates shoulder engagement.

5. After the first 10 make-ups, use a “running” torque equal to the maximum shoulder torque (recorded in Step 4) + 20% for the remainder of the string. Carefully watch for the spike on the torque gauge during each make-up to verify shoulder engagement. As secondary verification, randomly check make-up position relative to the triangle stamp during the run.

COMMENTS

1. If threads are cleaned on racks, new dope should be applied in a light, even coat to **both** pin and box.
2. Using the constant torque established in Procedure Step No. 5, the connections will achieve shoulder engagement. Occasionally, a connection will not shoulder at the established running torque. This can occur due to poor alignment, allowable thread tolerances and other variables. If a connection doesn’t shoulder, check coupling position relative to the triangle stamp and:
 - a. if the position is shy of the triangle base, the joint has not shouldered. It should then be broken out, cleaned and inspected visually for thread damage, re-doped, and made-up again (or laid down if threads are damaged);
 - b. if the position is beyond the triangle base and there has not been a clear indication of shouldering (see discussion under Procedure Step No. 5), add sufficient torque to initiate additional makeup and continue adding torque until the connection clearly shoulders. When restarting a makeup, the torque value may exceed the maximum allowed momentarily to initiate additional turning. A high initiation spike is not cause for reject as once the connection starts to turn; torque will drop off until shouldering occurs. A minimum delta torque of 10,000 ft-lbs or 20% of the shoulder torque (whichever is higher) should be applied to re-torqued connections. Back out any connection that does not turn and clearly shoulder after a second application of torque. The pin and box should be cleaned and inspected visually for thread damage, re-doped, and made-up again (or laid down if threads are damaged). Any connection that does not make-up properly on a second attempt after a break out shall be broken out again and laid down.
3. Connections that have not shouldered should **never** be backed out a couple of turns and remade. They should be completely broken out, cleaned and inspected as described above.
4. It is recommended to have a few spare, loose couplings available in the event box threads become damaged on the rig. This allows changing out a coupling without having to lay a joint down.
5. Torque vs. turn plots provide another indication of a good make-up; but should not be substituted for visual observation of the connection during field assembly. When available, torque vs. turn plots should finish with a clearly defined spike as shown in the above graphic. The general character of torque vs. turn plots for good make-ups will become evident after the first 10 connections. Any make-up that results in a plot that is “out-of-character”¹ when compared with the majority of plots from previous good makeups, should be carefully checked. The make-up position relative to the triangle stamp should be immediately verified and appropriate action(s) in accordance with Comments 2a and 2b should be initiated.
6. When running **GB 3P SC** (Special Clearance) Couplings, a double wrap of the pick-up sling should be used when raising casing into the derrick when single joint, side-door, or slip elevators are not being used.



¹ An “out-of-character” plot may show significantly steeper slope from the start of make-up, wide torque undulations as make-up progresses, no clearly defined spike, etc.