



Model: All AC Top Drives	Sept. 3, 2013
Serial #: All	
Product Bulletin # 133	

Top Drive Torque Unwind Procedure

Canrig Top Drive (TD) systems are able to either automatically or manually reduce ("unwind") the torque in the drillstring of stalled pipe. Follow the procedures provided in this document based on drilling conditions or circumstances.

Automatic Torque Unwind

Automatic Torque Unwind Conditions

The Top Drive (TD) will go into automatic unwind when any of the conditions shown below occurs.

Condition	Description
Communication Fault	There is a communication fault with the console, VFD, or TD (digital module only).
Dynamic Brake High Temp	Dynamic brake temperature exceeds 150°C for two minutes.
Blower Failure	<p>Blower is not running or air pressure is low.</p> <p>If blower is not running or air pressure is low, shutdown time will vary based on TD motor torque:</p> <ul style="list-style-type: none"> If TD motor torque is less than 3,000 ft-lb, the system will shut down in 15 minutes. If TD motor torque is greater than 3,000 ft-lb, the system will shut down in 5 minutes. If TD motor torque is greater than 6,000 ft-lb, the system will shut down in 1 minute.
Lube Pump	<p>The lube pump is not running (new systems will also shut down on low and high lube temperature) for more than 10 minutes while the TD is rotating.</p> <p>New systems are equipped with a bypass that will appear on the screen when the 10-minute shutdown sequence begins:</p> <ul style="list-style-type: none"> If the button is not pressed, the system will shut down in 10 minutes. If the button is pressed, the operator will have an additional 30 minutes to work with the system. After 30 minutes have elapsed, the 10-minute shutdown message with the bypass button will reappear, allowing the operator to bypass the system again.
Motor High Temp	The temperature of any of the three motor RTDs is greater than 150°C for more than 20 seconds.

Automatic Torque Unwind Procedure

When the Unwind function is initiated, the throttle will decrease to below 3 RPM. Once the throttle is below 3 RPM, the torque limit will be reduced to zero at a predetermined rate (approx. 3 seconds). Once the torque is zero and the TD is below 2 RPM, the Unwind function is completed.

Manual Torque Unwind

Throttle and Torque Limit Potentiometer (Regular Console)

To address the issue of getting stuck in the hole, the driller can unwind the torque from the pipe and pull out of the hole to restart drilling by reducing the torque and throttle limit.

To unwind the torque, slowly reduce the torque limit to zero, and then bring the throttle to zero. The pipe will unwind the torque (i.e., spin in reverse) as the torque limit is reduced. Once the torque has unwound and the pipe stops rotating, the throttle must be set to zero.

Once the torque and throttle limit have been set to zero, the driller can pull out of the hole, reset the torque limit, and restart operations.

Torque Unwind and Torque Restore Buttons (Mini Console and Chair Systems)

To address the issue of getting stuck in the hole, two extra buttons have been provided on the HMI screen to allow the driller to unwind the downhole torque in a controlled manner. One button is called Torque Unwind, while the other button is called Torque Restore.

When Torque Unwind is pressed, the torque limit sent to the TD will decrease at a predetermined rate, unwinding the torque in the pipe. Once the desired torque has been reached, the driller can release the button and proceed to pick up the pipe, etc.

Once ready to resume drilling, the driller can enter a new torque limit value on the screen or press Torque Restore to send the last torque limit value entered automatically to the PLC.