

LO/TO Guide To Maverick Rigs



Lockout/Tagout Guide For Rig Packages

Mudpumps, Drawworks, Topdrive, Auxiliaries, Hpu

Mudtanks, Accumulator, 120V & 480V Panels

This will be your basic guidelines and steps to locking out your Main Traction Motors, Pumps and Auxiliaries to the following equipment. When locking out any equipment, all personnel who are working on the equipment shall be present when locking out any electrical device. Any third party that needs to work on the same equipment will need to provide their own lock. Below will be the basic devices that you will need to lockout accordingly.



These are your basic lockout items; Tag, Lock, Hasp, Breaker Locking Device and Lockout Bag.

ALLSTAR EQUIPMENT TESTING AND LOCKOUT/TAGOUT NOTIFICATION LOG

Date	Time	Equipment	Lock	Unlock	Rig Number	Reason / Remarks	All Parties Notified	Energy Circle Reviewed	Work Site Inspected	Appropriate Risk Assessment Completed	Initial	Print/Sign Name
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WHEN RUNOUT BEGINS, TURNED OVER TO PATTERSON



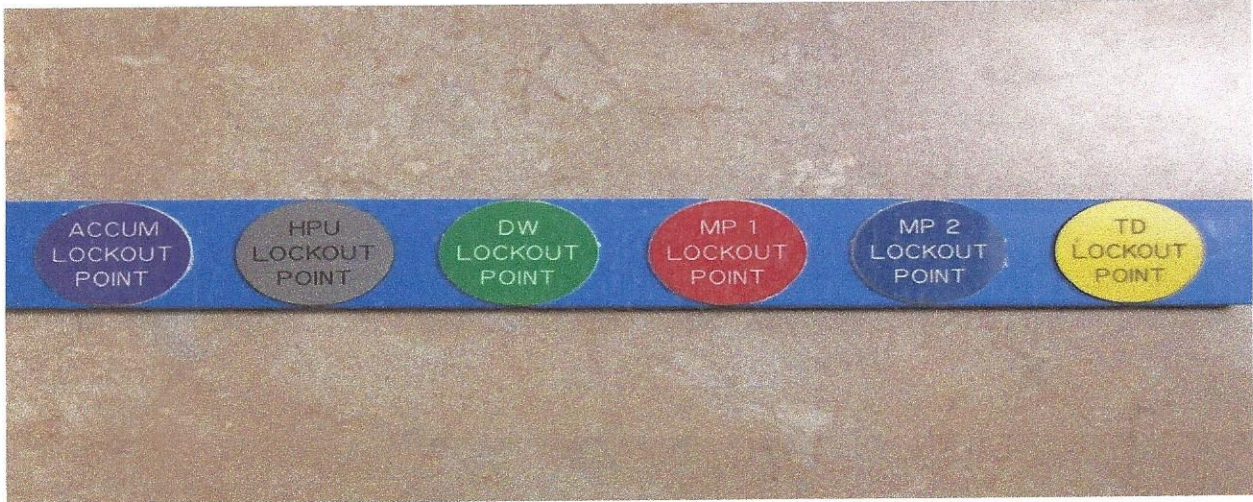
PATTERSON-UTI
DRILLING COMPANY LLC

LOCK OUT STATION



Lockout Dot System

This will be your basic lockout checkpoint system to help and guide when locking out Mudpumps, Top Drive, Drawworks, Centrifugals, Ect.

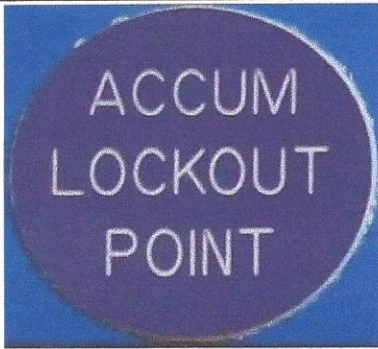


These are the dots to help identify what all needs to be locked out.

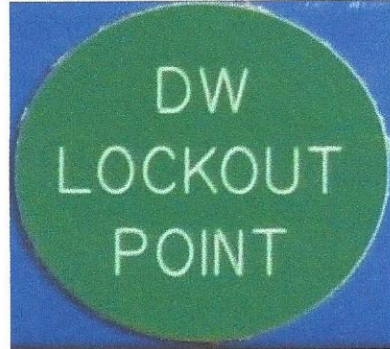


The dots are placed on designated disconnects and breakers so make sure all lockout points have been acknowledged.

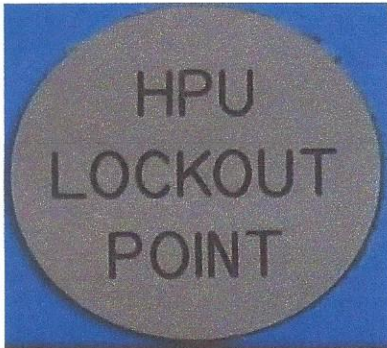
LOCKOUT/TAGOUT DOT LIST



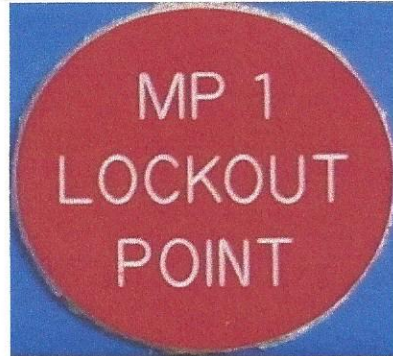
PURPLE TOTAL=2



GREEN TOTAL=6



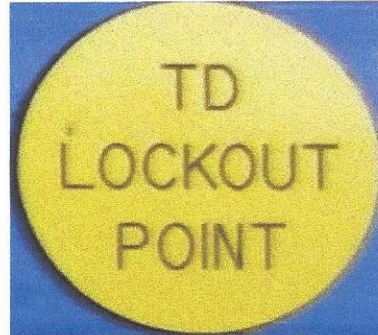
GREY TOTAL=2



RED TOTAL=6



BLUE TOTAL=6



YELLOW TOTAL=5

LOCKOUT POINTS ARE LOCATED IN THE VFD HOUSE AND DRILLERS CABIN

Control Cubicle For Mudpumps, Topdrive & Drawworks

When working on the Mudpumps, Topdrive & Drawworks, there will be a section for the control side. Be sure and lock these out accordingly. Keep in mind this only shuts off the communication/HMI control side.



← Label for Control Cubicle



↑

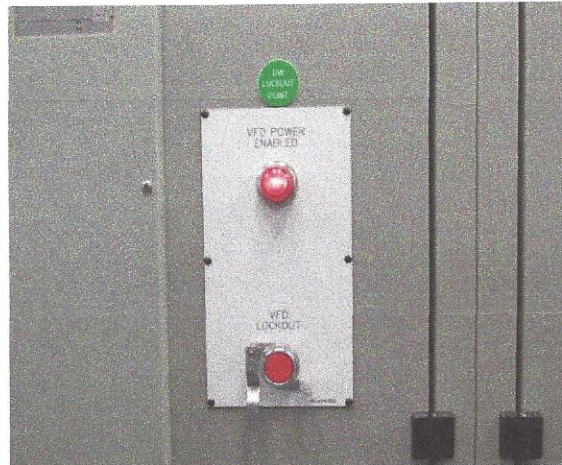
This is the lockout device on the Control Cubicle. Keep in mind that if you lock out MP1-MP2, this will shut down both Mudpumps.

Drawworks and Auxiliaries

When working on the Drawworks, you will have 1 Traction motor on the rig. The Traction motor has its own drive in the VFD house labeled Drawworks. You will also have auxiliary motors such as Drawworks Lube Pump, Drawworks Oil Cooler, Drawworks Blower A & Drawworks Hpu Brake System. So when working on the Drawworks, be sure and lockout all necessary electrical devices.



↑Drive



↑Lockout



↑Auxiliaries

Your Drawworks Lube Pump, Drawworks Oil Cooler, Drawworks Blower A & Drawworks Hpu Brake System will be located in the MCC in the VFD house or Drillers Cabin.

Topdrive and Auxiliaries

When working on the Topdrive, there are 2 Traction Motors but 1 drive.



↑ Drive



↑ Lockout



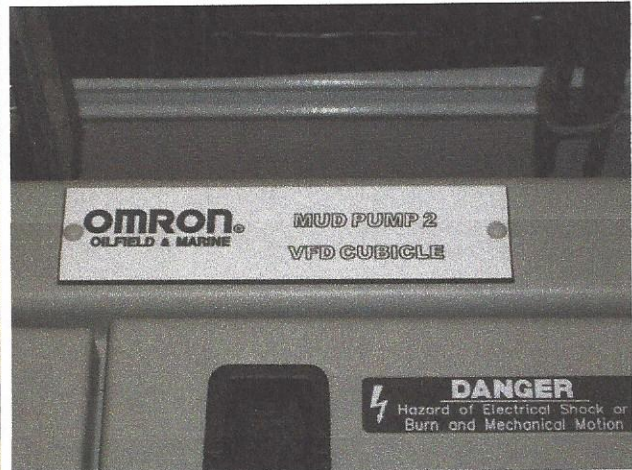
Your Topdrive Left Blower, Topdrive Right Blower and Topdrive HPU will be located in the VFD House or Drillers Cabin.

Mudpumps and Auxiliaries

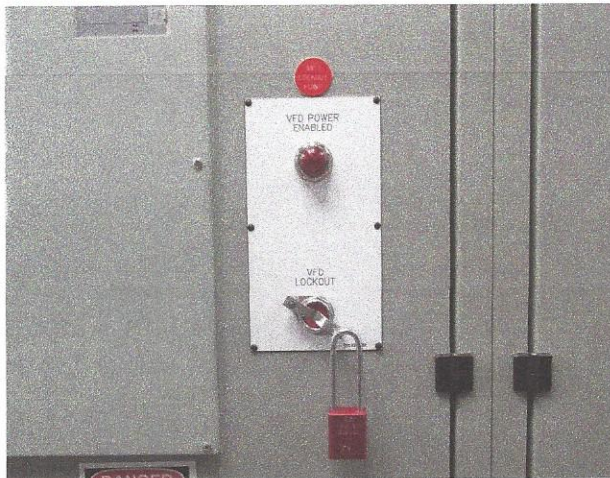
When working on the Mudpumps, you will have 1 Traction motor per pump. Mudpump 1A & Mudpump 2A. It will be labeled Mudpump 1 & Mudpump 2.



↑Drive



↑Drive

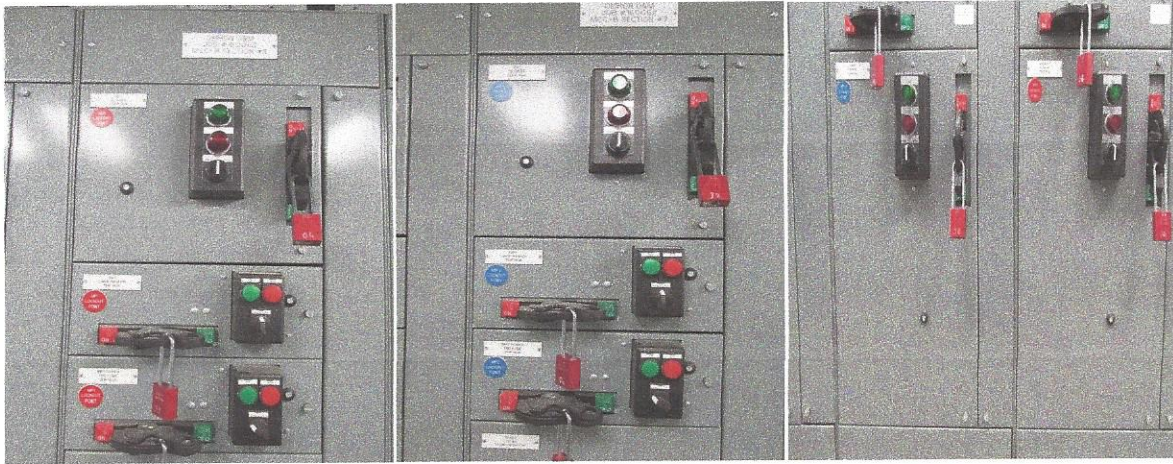


↑Lockout



↑Lockout

Mudpumps and Auxiliaries



Your Mudpump Blowers 1 & 2, Mudpump Oilers 1 & 2, Mudpump Liner Washers 1 & 2 and Charge Pumps 1 & 2 will be located in the MCC in the VFD house.

Accumulator

When working on the Accumulator you will have 2 different voltages -120V & 480V to lockout. The control panel consists of 120V and the motor/pump is 480V. Keep in mind that this unit may be under pressure and any stored energy will need to be released before servicing.



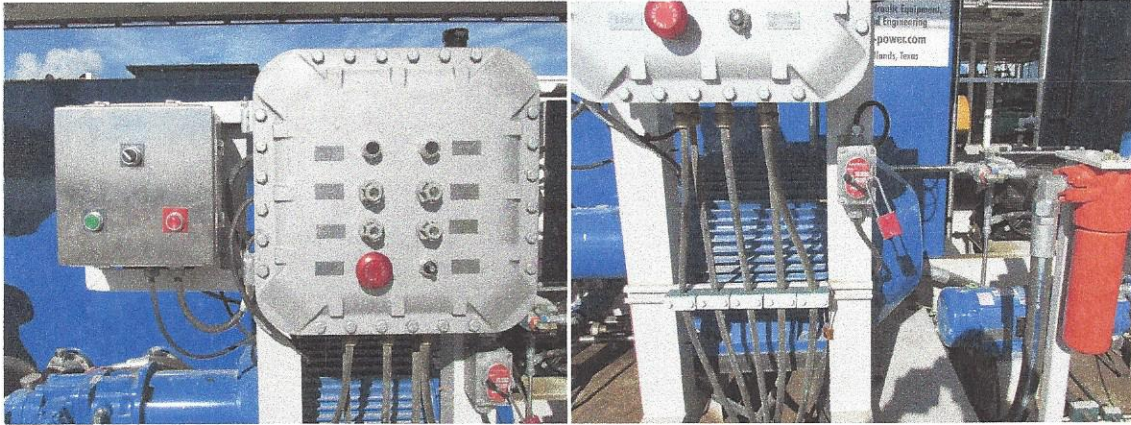
120V Panel

↑Keep in HAND

The way to lockout the 120V is by installing a breaker lockout device located in the VFD House.

HPU Unit and Auxiliaries

When working on the Hpu unit, you will have 1 motor on this unit. You will also have a cooling transfer pump motor. You will have a start/stop control box at the Hpu skid itself. To ensure safely turning off the unit for maintenance, lockout the main disconnect inside the VFD house.



↑ HPU start/stop

↑ Transfer pump switch



↑ Transfer Pump

↑ HPU

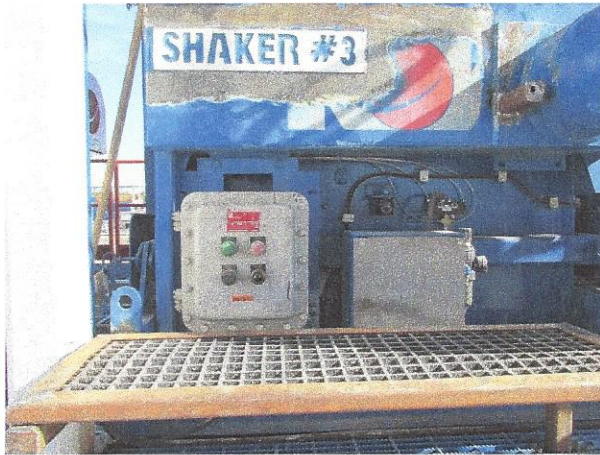
When working on or servicing the Hpu unit, be sure and lock the disconnect out. This is your primary power source and should always be locked out during maintenance. Located in VFD House.

Mudtank Pumps and Centrifugals

When working on any pumps, motors or routine maintenance you will need to lockout the device at the proper destination.



Each motor has a Start/Stop located near the motor itself. This is the device for locking out the motor mechanically, not electrically. All high voltage centrifugals and motors will be located in the MCC in the VFD house. All low voltage circuits are located in the panels in the VFD house.



Shakers have no Lockout on Start/Stop. Lockout in MCC in the VFD House.

TOP DRIVE LOCKING PIN PROCEDURE

1. Before energizing, make sure the switches are locked out. The breaker will be labeled "Top Drive Locking Pins". The breaker is located in the Drillers Cabin low voltage panel.
2. When derrick is raised and in the air you must manually remove the safety pins from the Electric pins below the Topdrive.
3. The electric pins have a failsafe on them and will not operate when weight of the Top Drive is on them. In order to use you must lift the Topdrive off the electric pins.
4. Pick up the Top Drive and make sure it is visually clear from the electric pins.
5. When clear, turn on breaker located in the Drillers Cabin. The breaker will be marked "Top Drive Locking Pins" in the low voltage panel.
6. Then remove lock on the Primary ON/OFF switch.
7. Turn on the Primary switch, then turn and hold the Retract switch until the electric pins have completely been retracted. These pins have a limit switch and will stop on their own when limit has been reached. When retracted, install safety pins back into the electric pins.
8. When retracted, turn both switches off and lockout Primary switch. When locked out, turn breaker off located in the Drillers Cabin marked "Top Drive Locking Pins" in the low voltage panel.
9. Always have the Top Drive Locking Pins system power off and locked out when not in use.



↑Control Station



Extend/Retract switch ↑

↑Primary switch