

Martin

OIL FIELD CAPABILITIES

Power Transmission
Bulk Material Handling
Industrial Hand Tools
Custom Commercial Forging
Made-to-Order Products



EPTDA

PTDA

MPTA

NIBA
The Belling Association

CMIA
The Belling Association

STAFDA

F&M
FORGING
INDUSTRY

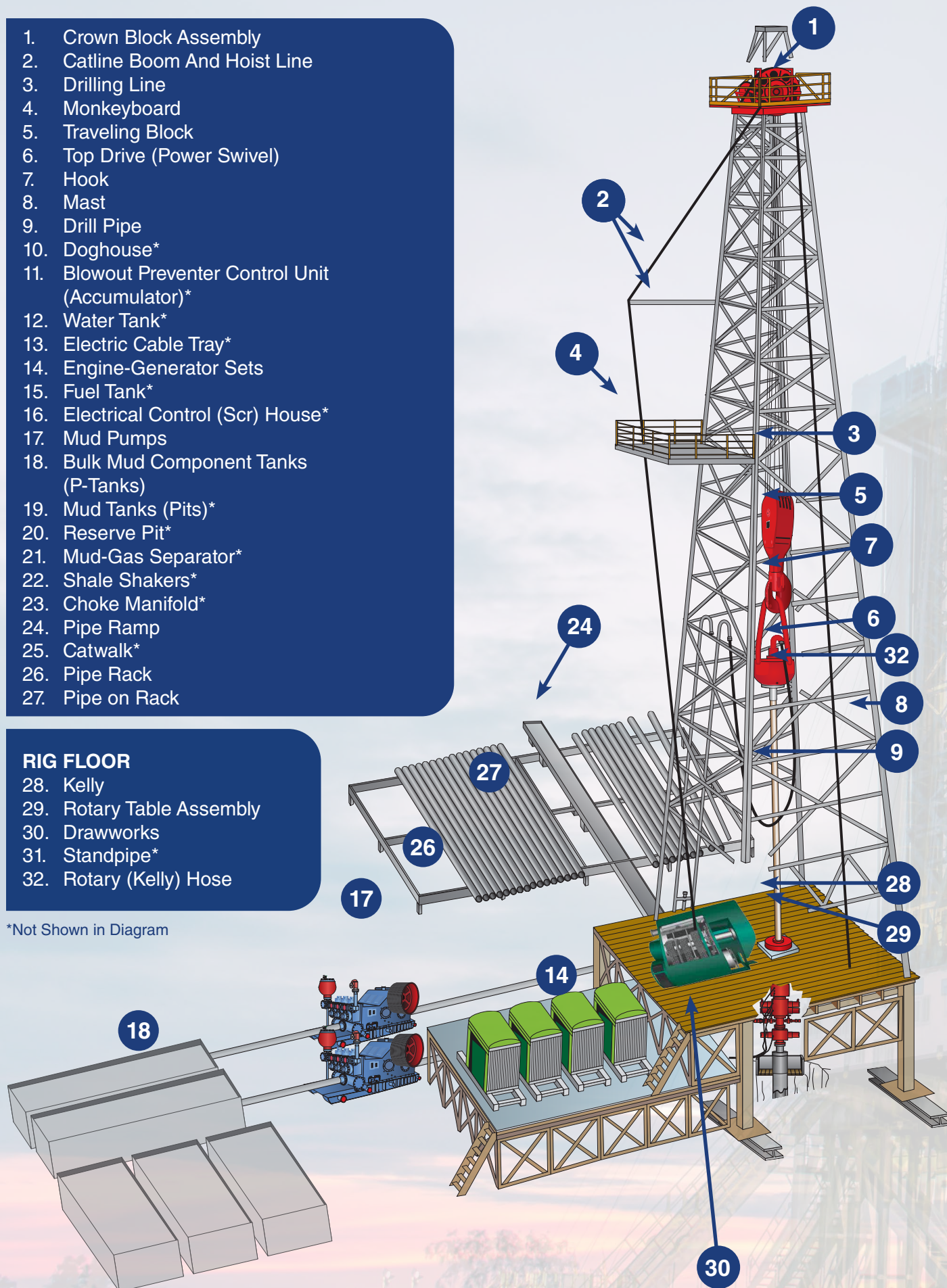
HTI

ISA

1. Crown Block Assembly
2. Catline Boom And Hoist Line
3. Drilling Line
4. Monkeyboard
5. Traveling Block
6. Top Drive (Power Swivel)
7. Hook
8. Mast
9. Drill Pipe
10. Doghouse*
11. Blowout Preventer Control Unit (Accumulator)*
12. Water Tank*
13. Electric Cable Tray*
14. Engine-Generator Sets
15. Fuel Tank*
16. Electrical Control (Scr) House*
17. Mud Pumps
18. Bulk Mud Component Tanks (P-Tanks)
19. Mud Tanks (Pits)*
20. Reserve Pit*
21. Mud-Gas Separator*
22. Shale Shakers*
23. Choke Manifold*
24. Pipe Ramp
25. Catwalk*
26. Pipe Rack
27. Pipe on Rack

RIG FLOOR

28. Kelly
29. Rotary Table Assembly
30. Drawworks
31. Standpipe*
32. Rotary (Kelly) Hose



*Not Shown in Diagram

Drives

All rigs, land or offshore, require a mechanical or electrical system to transmit power from the prime movers to the rig components. Power delivery systems are called drives.

On a mechanical drive the power is transmitted from the engines to the drawworks, pumps, and rig machinery through a transmission assembly known as the compound.

Martin products used: Sprockets, Gears, Sheaves, Bushings, Couplings.

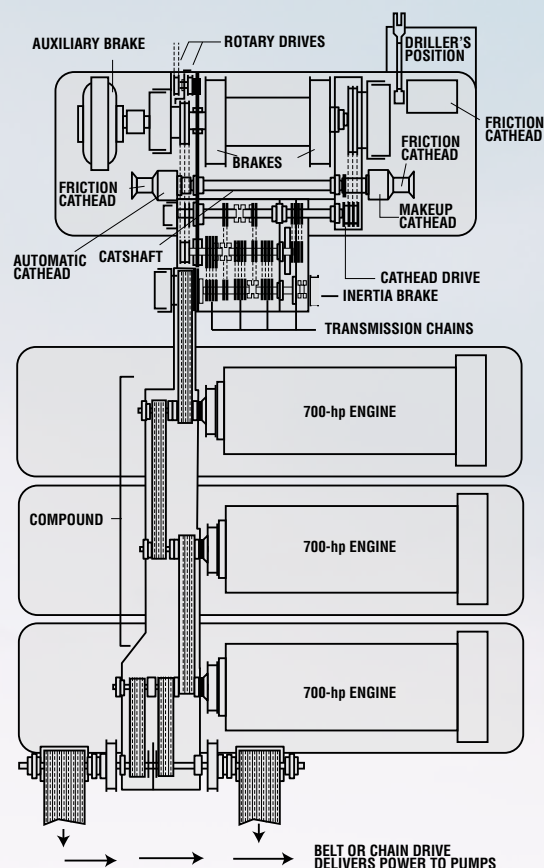
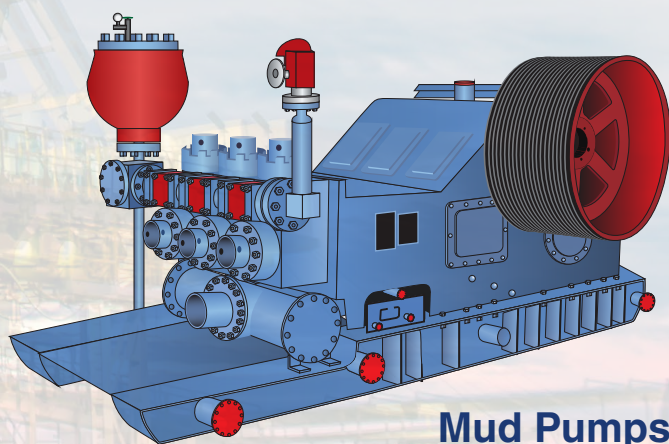


Diagram of a Compound.

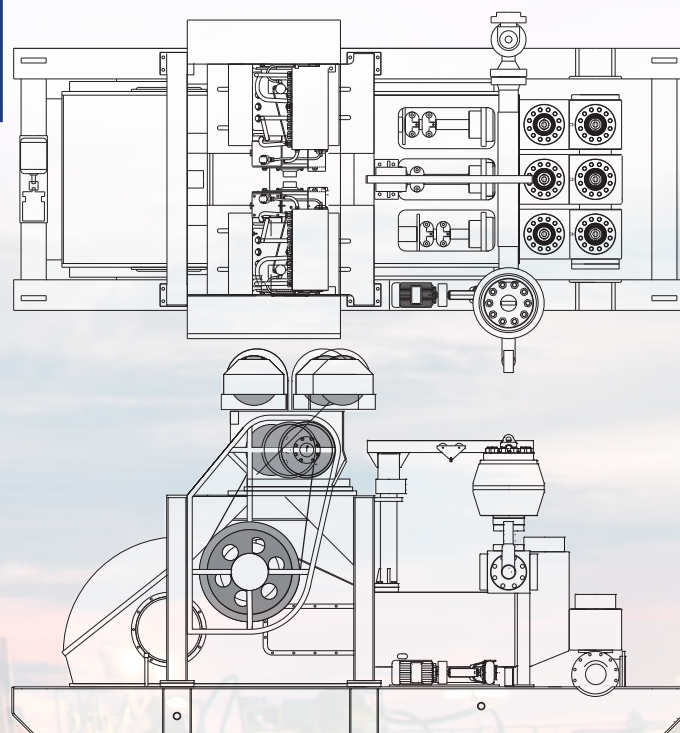
Circulation System

The circulating system circulates drilling fluid to the drill bit and back to the surface for cleaning and recirculation. This system consists of mud pumps, rotary hoses, swivel-to-top drive, drill stem, drill bit, mud return line, and mud tanks. The mud pump is the primary component of any fluid-circulating system. Pumps are powered by attached electric motors or are driven by the compound. They may be double-acting two-cylinder (duplex) or single-acting three-cylinder (triplex) pumps.

Martin products used: Sheaves, Bushings, Couplings.



Mud Pumps



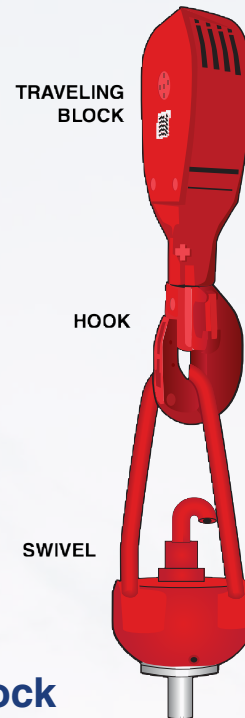
The hoisting system lifts the drill stem in and out of the hole while drilling a well and lowers the casing into the well. The hoisting system consists of the substructure, the derrick or mast, the drawworks (hoist), the crown block, the traveling block and hook, and the drilling line (wire rope).

The drawworks is essentially a large winch that spools off or takes in the drilling line, which lowers or raises the drill stem and drill bit. It also raises or lowers the derrick while setting up or tearing down. The cathead, which is a concave, rotating, pulley-type device mounted on the drawworks, is used to lift or pull equipment around a rig. It is usually the largest, most expensive piece of equipment on a rotary rig. The drawworks brake system enables the driller to control tons of drill pipe or casing. The main brake is mechanical and can bring the load to full stop. The auxiliary brake is hydraulic and can control the speed of a loaded traveling block, but cannot bring it to a complete stop.

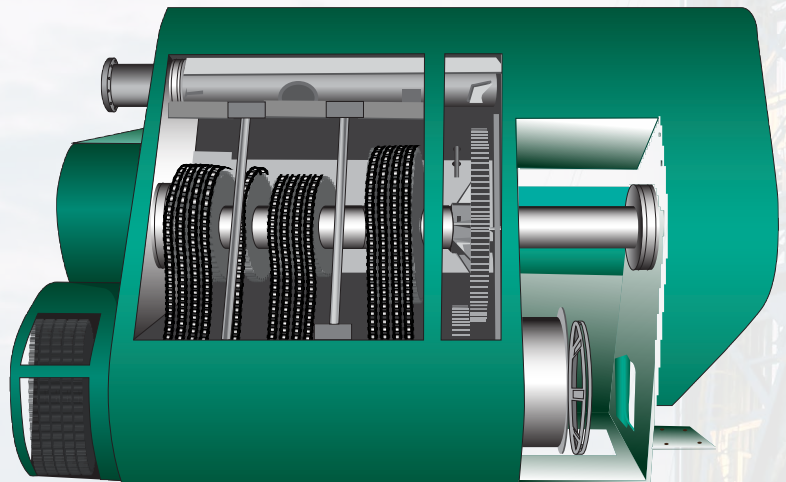
The crown block, traveling block, and the drilling line support the load of pipe in the derrick as the pipe is lowered into or withdrawn from the hole. The crown block is a stationary set of large sheaves that can be 5 feet in diameter or larger and are mounted in the top of the derrick. They transfer the weight of the drill string from the drawworks through the drilling line and then to the derrick. Wire rope suspends the traveling block from several sheaves to the stationary crown block. This allows the traveling block to be raised and lowered in the derrick as drilling progresses.

Attached to the traveling block is a spring, which acts as a shock absorber, and a large hook. The hook can be attached to a cylindrical steel bar, or "bail," which supports the swivel or the top drive.

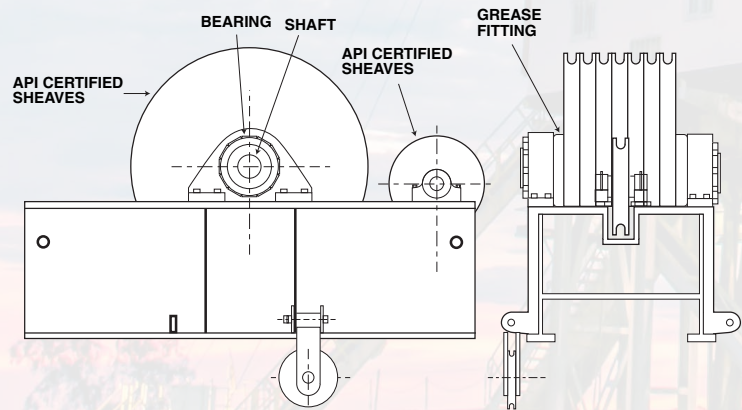
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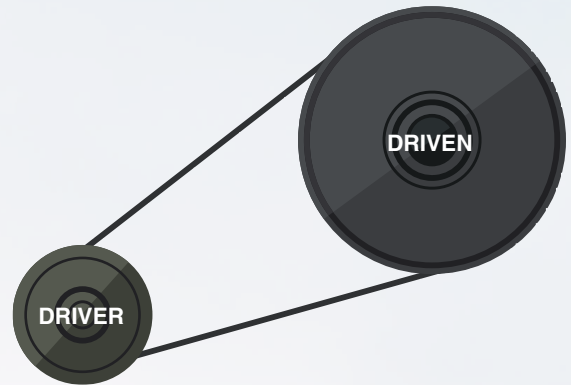
Traveling Block & Hook



Drawworks



Crown Block



A pump jack is used to extract crude oil from a well where there is not enough pressure to force the oil to the surface. They create artificial lift in order to increase the pressure within the well to pull oil to the surface.

A pump jack is powered by a belt drive that utilizes different diameter sheaves. The sheave ratio can be adjusted in order to increase or decrease the output of the well. It is very common to have several different diameter sheaves on hand to accomplish this when needed.

RATIO

- The ratio is the relationship between 2 amounts showing the number of times 1 value is contained within the other.
- 2:1 ratio is shown in this sheave drive example. The driven (or larger sheave) will turn 1 time while the driver (or smaller sheave) will turn 2 times.

Industrial Hand Tools & Custom Forgings

Martin Tool and Forge is a leading supplier of quality industrial hand tools and forged products used throughout the oil field industry.

The forging process enables production of parts with high impact strength and structural integrity.

Forging can produce complex shapes that otherwise may require multiple manufacturing processes. Forged parts are compatible with most secondary operations such as heat treating, machining and fabrication. In many cases, one forged part can be created where multiple parts were originally used, reducing labor cost.

NEW

Click-Type Micrometer Adjustable Torque Wrench

- $\pm 3\%$ CW & $\pm 5\%$ CCW Accuracy
- Aluminum knurled handle
- Laser Etched Dual scale in English for easy reading in (ft-lb) and metric (NM)
- Exceeds accuracy range specified in ASME B107314-2004
- Calibration Certificate included for 100% traceability
- Made in USA



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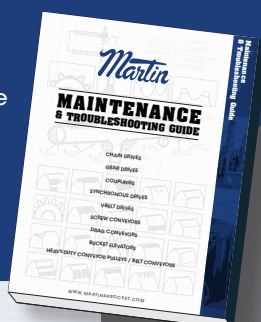
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Martin sales and engineering will work with you to solve all your Power Transmission needs. Since there are any number of possibilities and configurations, our sales and engineering staff are prepared to assist you with a standard or custom solution.

Call Martin, and we will be happy to assist you!



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