

APPLICATION BULLETIN

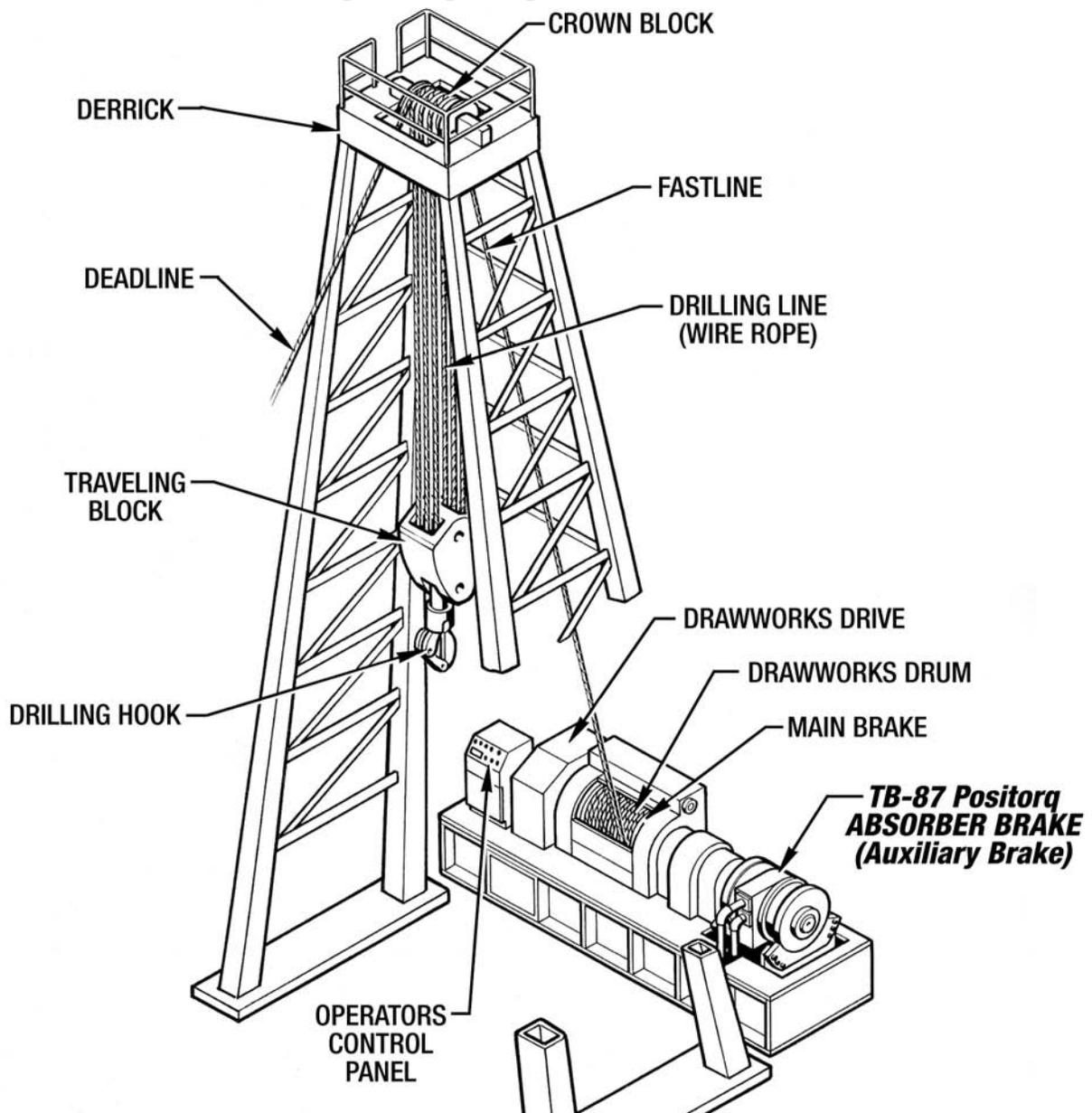


APPLICATION: Drawworks Auxiliary Brake

INDUSTRY: Oil and Gas Exploration

PRODUCT: Positorq Absorber Brake

DRAWWORKS AUXILIARY BRAKE



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WHERE THEY ARE USED: A Drawworks is used on all offshore drilling rigs and many land-based drilling rigs. The Drawworks is an integral part of the hoisting system, which raises and lowers the drill string, top drive and swivel.

HOW THEY WORK: The hoisting system consists of the Drawworks, crown block, traveling block, wire rope (drilling line) and derrick. The Drawworks consists of a revolving drum around which the drilling line is spooled and unspooled - raising or lowering the hoist. When heavy loads are raised or lowered, the Drawworks brakes absorb the momentum created. The Drawworks has two different brakes - the main brake, typically band brakes or disc-brakes, and the auxiliary brake, typically eddy-current or water brakes, used primarily during tripping operations. The main brake engages directing on the rim of the drum to stop the drum from hoisting or letting the drilling line out when making up or breaking out drill pipe and to control the Weight on Bit (WOB) while drilling. The auxiliary brake is used during tripping operations to control the decent speed of the drill string and to absorb the energy associated with the free fall of the drill string.

PROBLEM SOLVED: The primary brake has a tendency to grab and create a modulation thru intermitting starting and stopping of the brake. This modulation migrates down the drill string and causes a condition at the bit, called "Bit Bounce" resulting in premature wear on the drill bit. The auxiliary brakes are applied to try to correct or smooth this modulation with little success; they can't respond quick enough to changing conditions and provide little or no braking capability below 50 RPM - limiting the capability and performance of the Drawworks and control systems like an Autodriller systems.

The Force Control **Positorq** brake is hydraulic set for smooth continuous braking at all speeds and has the capability of full rated load at ZERO "0" RPM. The oil inside the brake shears to transmit torque while at the same time removing heat from the brake. The oil also lubricates all moving parts to prevent wear and corrosion.

IMPORTANT FEATURES:

The Positorq brake will improve rig performance and drilling capability.

- Adaptable to existing Drawworks 500 thru 5000 HP
- No battery or switch gear - freeing up space and eliminating maintenance
- Smooth continuous braking at full range of speeds extends bit life by eliminating "bit bounce" and improve the overall rate of penetration
- Full braking capability down to 0 RPM
- Net loss of over 20,000 lbs. enabling greater set back weight capabilities
- A great companion to an Autodriller system to achieve its full capability



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