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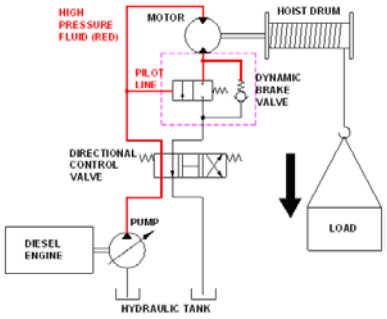
Hoist Lowering Dynamic Braking and Speed Control

with Seatrax/Rexroth API2C Compliant Piston Hydraulic System

The following details the operation of the Seatrax **high pressure piston hydraulic system** during **hoist lowering** by individual component function.

Dynamic Brake Valve

The **dynamic brake valve** is attached to the motor without the use of hoses as required by API Specification 2C for **hydraulic** cranes. Its primary purpose is as a **safety device** to prevent gravity from running away with vertically-suspended loads. This is accomplished by applying positive pressure in the downward direction to slightly pilot open the **dynamic brake valve**. (The **dynamic brake valve** requires positive pressure from the power source to release—also an API Specification 2C requirement).



Diesel Engine and Pump

The lowering speed is controlled by varying the speed of the **diesel engine** and the flow from the **pump**. Full rated loads, on both the **boom** and the **hook**, can be lowered slowly under full control with the **diesel engine** operating at idle speed or at full speed with the **diesel engine** at maximum speed. Intermediate speeds are infinitely variable, controlled by the **diesel engine** speeds and **pump** flows between minimum and maximum.

Directional Control Valve

The **directional control valve** simply selects **up**, **down** or **neutral**. With a Seatrax **piston hydraulic system**, the **directional control valve** plays NO part in the control of speed or any braking function.

Description of Hoist Lowering

With a Seatrax **piston hydraulic equipped** crane, the operator lowers a load by pushing forward on the **hoist joystick**. If the **diesel engine** is at idle speed, the load will lower at a low speed. As **diesel engine** speed is increased, the load lowering speed increases proportionately.

Additional speed control resolution is available from the **pump**. As the **joystick** is moved further forward, the **pump** delivers more flow, and the lowering speed is increased.

The maximum load lowering speed occurs when the **diesel engine** is at full speed and the **joystick** is in the most forward position. This operation is the same for any range of loads between empty **hook** and full rated load.