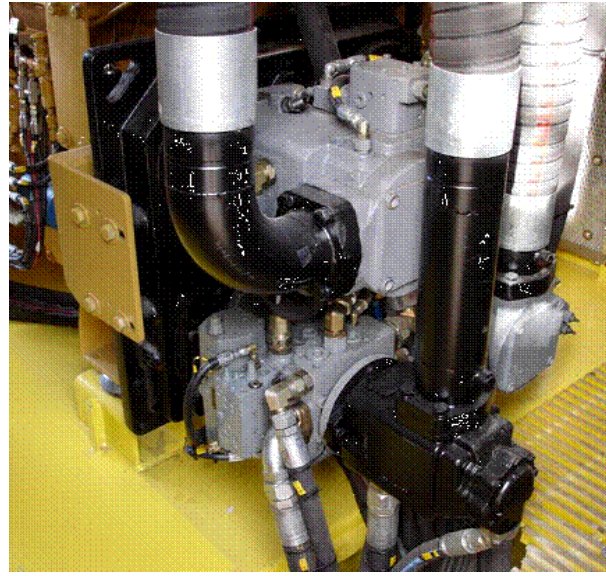


# Fixed vs. Variable Displacement Hydraulic Systems

Fixed Displacement Hydraulic System



Variable Displacement Piston Hydraulic System



An offshore crane mounted on a fixed structure typically operates for 150-300 hours per year, and a crane used to support drilling operations typically accumulates 3,000-5,000 hours per year. The **fixed displacement gear type hydraulic system** works well for many years on fixed platform applications given the low cumulative hours.

However, because of the cumulative hours as well as the number of hours run consecutively during a drilling cycle, the **fixed displacement gear type hydraulic system** provides limited service life and performance on a drilling support crane.

Seatrax recommends a **variable displacement hydraulic system** for any crane that will run through drilling cycles.

Variable displacement (medium flow) advantages over fixed displacement include:

- Provides 50%+ faster operational speeds
- Provides 400%+ greater hydraulic component life
- Improved controllability for the operator
- Quieter operation. (Approximately 72 dba vs. 85-90 dba in the cab w/open wingdeck)
- Combine the advantages above to translate to greater safety



### Machinery Configurations—Fixed vs. Variable Hydraulic Systems:

- Variable volume, axial piston pumps vs. fixed gear pumps
- Bent-axis piston motors vs. fixed gear motors
- High-pressure control valves, brake valves, etc.
- High resolution pilot (joystick control) circuit
- High-pressure fluid conductors and end fittings vs. low pressure
- Oversized pump drive gear box to accommodate larger pumps
- Hard-piped flooded suction arrangement w/butterfly shut-offs
- High speed hoist transmissions compatible w/high speed hydraulic system/high hook drops
- Piston equipment does not contaminate the oil during operation