

Wireline Heave Compensator

Description

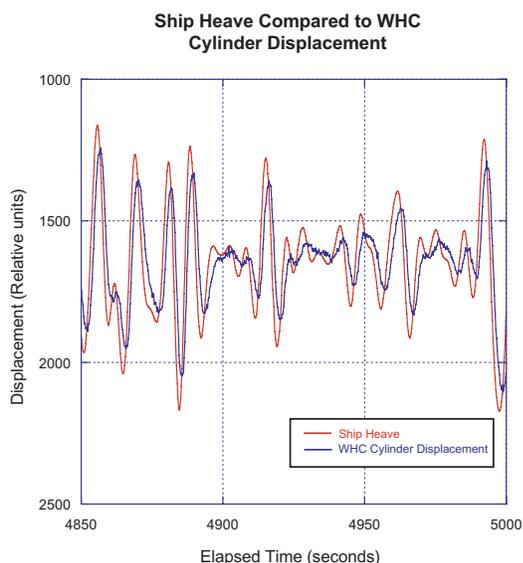
The Wireline Heave Compensator (WHC) plays a vital role in assuring downhole data integrity by countering the effects of the ship's heave. It consists of a large hydraulic ram with a wireline sheave on one end and supporting hydraulics and electronics designed to reduce the effect of the ship's vertical motion on the downhole tool. As the ship rises and falls with the billowing sea, a 3-axis accelerometer located near the ship's center of gravity measures the movement and transmits the data in real time to the controlling electronics and software. The WHC responds by adding or removing cable slack to decouple the irregular movements of the ship from the desired movement of the tool string. The WHC can adequately compensate in seas of 6 meters or less.

Applications

- ◆ Maintains inherent vertical resolution of downhole tools by reducing unwanted vertical tool movement
- ◆ Reduces risk of downhole equipment damage
- ◆ Increases precision in the deployment of instrument packages



Wireline Heave Compensator (WHC) as installed on the JOIDES Resolution.

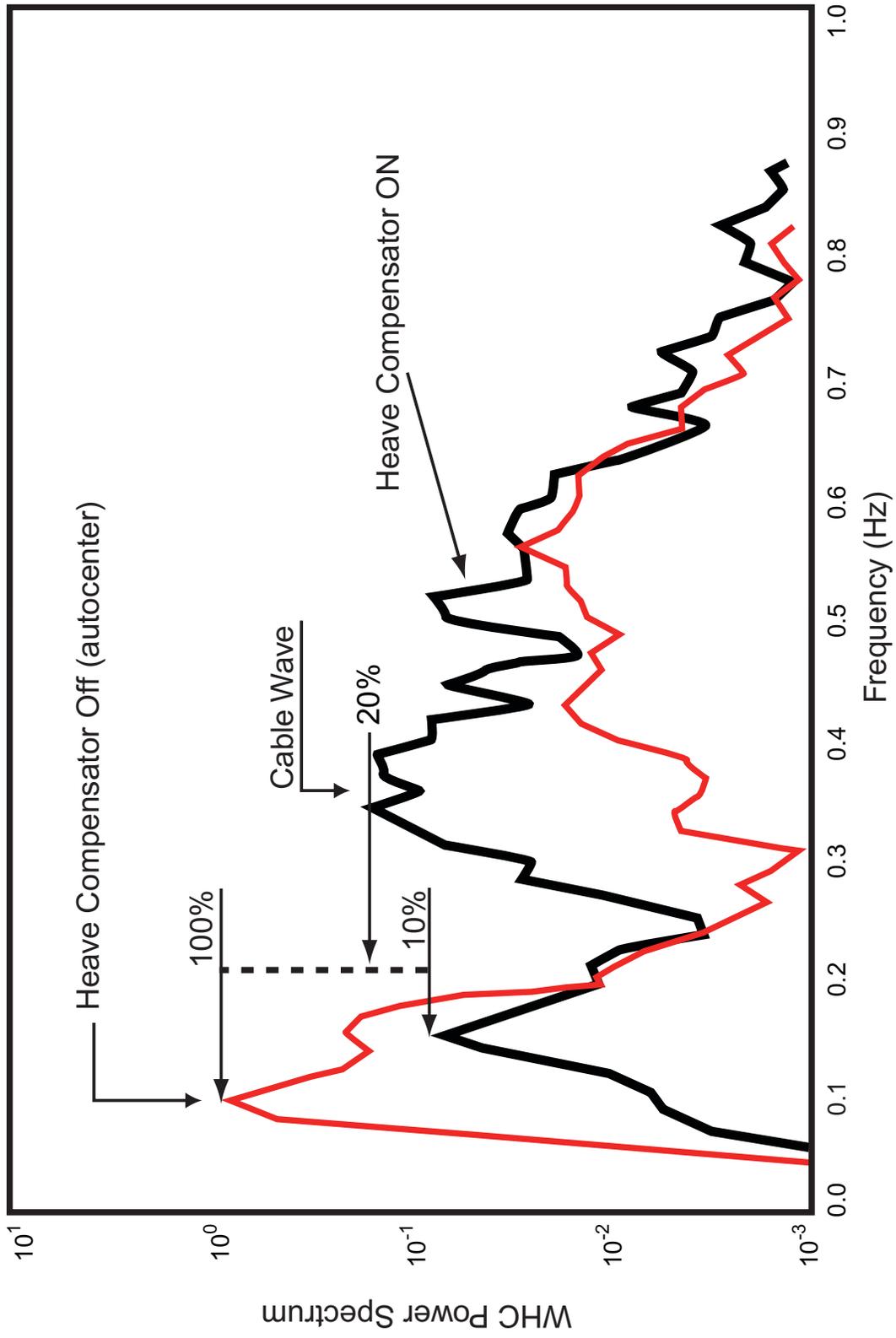


WHC performance data are routinely acquired during logging operations. Ship heave and WHC cylinder displacement are recorded and compared to evaluate WHC response to varying sea states.

Specifications

Power:	440 volts, 3-phase
Pump motor:	150HP
Maximum compensation:	20 ft. (-6.1 m)
Motion detection:	3-axis accelerometer
Accelerometer location:	Mud pit room
Maximum piston pull pressure:	6000 psi
Working pump pressure:	5000 psi
Maximum line pressure:	1800 psi
Maximum line pull:	15,000 lbs.
Accumulator pressure:	1750 psi
Accumulator gas:	Nitrogen
Skid footprint:	24'x3'x30"





Wireline Heave Compensator (WHC) performance from an Ocean Drilling Program site depicting the comparison of frequency spectra of downhole tool acceleration with and without the WHC.