

AN APPARATUS FOR DETECTING MOTION IRREGULARITIES
FOR RACK AND PINION SYSTEM

ABSTRACT OF THE DISCLOSURE

An electromechanical system for detecting motion irregularities between racks and pinions of a jack-up rig couples an input shaft of a gear assembly to an encoder that converts the mechanical motion of the gear assembly to an electrical signal. The generated signal is sent, through an encoder to an electronic assembly, which is operationally connected, through a current transformer, to one of the incoming phases of a motor powering the gear assembly. By comparing the motor current and the rotational speed of the gear assembly, an operator can detect motion irregularities in a rack and pinion system, misalignment between opposing racks, loading conditions on the racks, misalignment of racks relative to pinions as well as misalignment of the legs relative to the hull.

Please see figure 1.



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