Lasers: Position Reference Sensors for DP

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Introduction

The workboat is the backbone of the oil services industry in the Gulf of Mexico. Oil rigs and vessels depend on workboats to supply them with personnel, supplies and needed equipment so that they can do the jobs they are intended to do.

Approaching and positioning near rigs or vessels is a critical operation workboats perform 24 hours a day in all sea conditions. Various tools are available for the boats to use enabling them to on-load and offload in the safest and most efficient way possible. Today, workboats fitted with dynamic positioning systems have an array of sensor inputs available for them to choose from including DGPS, acoustics, Artemis, taut wire, wind sensors, microwave systems, gyros and laser systems.

Laser systems have been used for positioning since the mid 70's in one form or another and scanning laser systems have been used in marine applications since around 1988. Originally these scanning laser systems were developed to track gun arrays towed behind seismic vessels. These lasers swept back and forth in fixed sector scans and recorded range and bearing information that was incorporated with the information acquired from the seismic guns.

The introduction of scanning lasers allowed for vessel movement in the water by incorporating a vertical fan shaped laser beam which kept the target in sight better than single point laser beams could. This beam design made returns from the targets viable in adverse weather conditions and let the unit operate without the need for personnel to point and fire the laser to obtain returns. The result was a laser that could provide repeatable, high accuracy positioning information from multiple targets.

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Title: Development of a Coordinated Control System for
Subject:
Author: Liz Stansfeld
Keywords:
Comments:
Creation Date: 11/6/00 5:33 PM
Change Number: 4
Last Saved On: 11/8/00 11:15 AM
Last Saved By: Liz Stansfeld
Total Editing Time: 7 Minutes
Last Printed On: 12/1/00 2:25 AM
As of Last Complete Printing
Number of Pages: 1
Number of Words: 274 (approx.)
Number of Characters: 1,564 (approx.)