



Mechanical Load-Sharing Propulsion

Improving Legacy Control Systems (Woodward)

VESSEL

M/V Hon. James L. Oberstar

PRIME MOVERS

2x Bergen B32:40L6P
@3000kW

PROBLEM

Woodward 723+ for Mechanical Load Sharing Propulsion at End-of-Life.

SOLUTION

Woodward Flex500: Mechanical Load Sharing Application Upgrade

MSHS PROVIDED

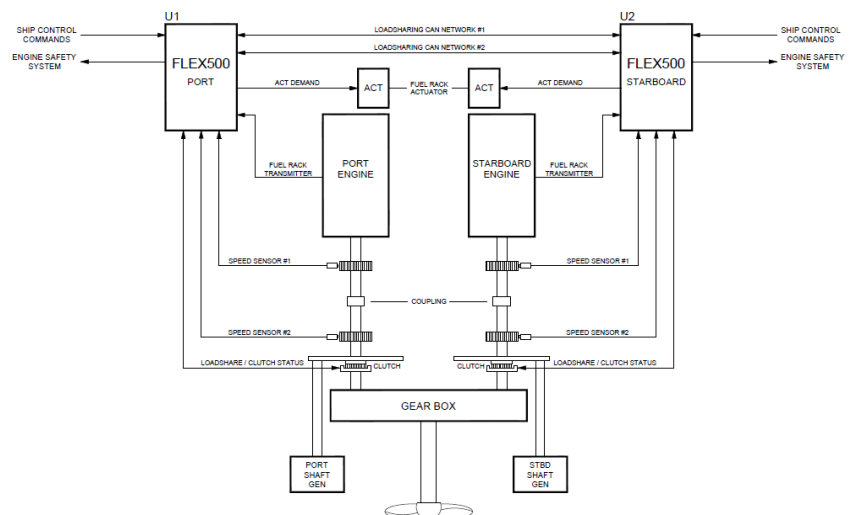
- System Design
- Electrical Drawings
- Software
- System Testing
- Parts
- Demolition, Installation, and Commissioning
- Sea Trials

IMPROVEMENTS

- Superior System Performance
- Long Support Life
- Enhanced fault diagnostics/notifications
- User-Friendly calibration tools
- Flexible application to meet customers' needs



The M/V Honorable James L. Oberstar is an 800' bulk carrier operating on the Great Lakes of Northern America. The vessel is powered by two Bergen B32:40L diesel engines. The engines clutch in together to a common gearbox to drive a propeller for propulsion and a shaft generator for electrical power.



PROJECT OVERVIEW

The engines were originally supplied with Woodward 723+ mechanical load-sharing controls. The Woodward 723+ has reached End-of-Life and are no longer being manufactured.

MSHS updated the engine control system using the Woodward Flex500 hardware platform.

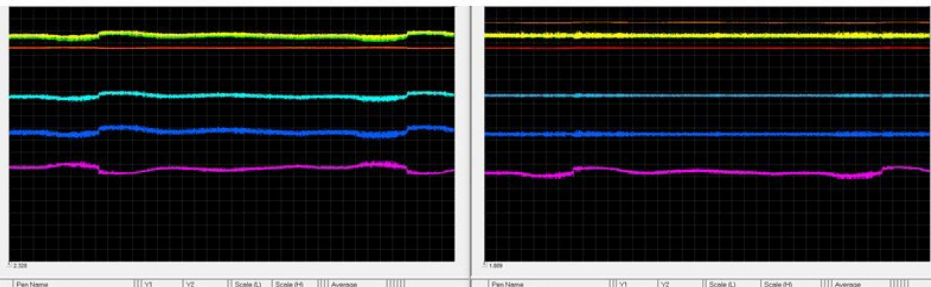


SYSTEM PERFORMANCE

Updated hardware, software tools, and experienced commissioning resulted in enhanced performance through improved engine load balancing. Improved load balancing allowed higher total engine output before individual engine load limiting took control.



8 hour run with Flex500



8 hour run with original 723+

TOOLS FOR SHIPS ENGINEERS

A Woodward Toolkit application was provided as a user interface for the ship's engineers. Toolkit replaces the previous Hand-Held Programmer and allows for improved engine operational visibility, easy calibration, detailed fault diagnostics, and more. Ships engineers can now monitor both engines from anywhere there is a network connection onboard.

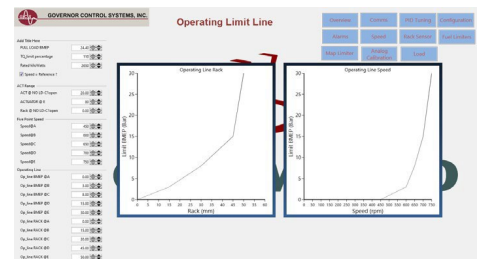
ONGOING SUPPORT

While the existing governor was at End-of-Life, the Flex500 will experience years of support from Woodward and MSHS. MSHS offers 24/7 worldwide support for its customers and products.

USER INTERFACE



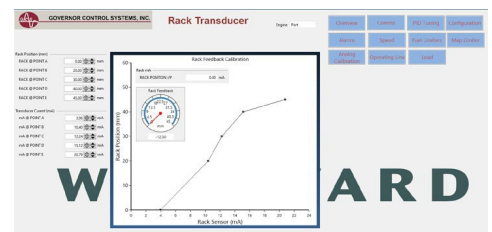
System Overview



Calibration



Tuning



And More...