



CUSTOMISED ENGINE CONTROL RETROFIT

**BLUE STAR MYKONOS
PASSENGER VESSEL**

**CUSTOMISED RETROFIT OF
MAIN ENGINE SPEED &
LOAD SHARING SYSTEMS**

CASE STUDY



**Advanced Power Management
Control, Protection & Monitoring
SOLUTIONS**



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The Problem

Blue Star Mykonos, a Ro-Ro passenger vessel of Attica Group's Blue Star Ferries fleet, required the modernisation of its main engine control system.

The vessel's original main engine speed control and load sharing system was based on Woodward 721 control units. These units had become obsolete and were no longer supported by the manufacturer, creating operations, maintenance and lifecycle support risks.

For a passenger vessel operating under demanding service requirements, the continued use of unsupported control technology could compromise system reliability, operational continuity and future maintainability. MAS was therefore selected to deliver a modern control system upgrade based on latest Woodward technology.

As part of the wider upgrade, the vessel's main engine control cabinets were also replaced with new cabinets designed with reserved space for the installation of modern speed control units.

The Solution

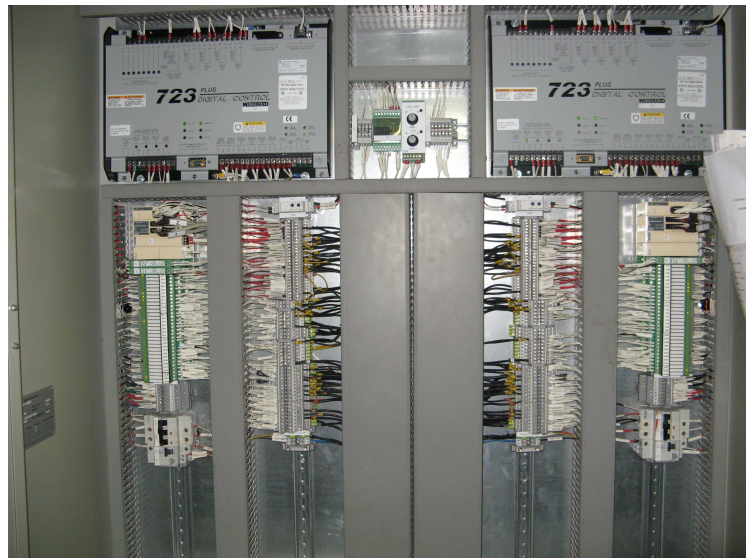
MAS delivered complete main engine speed control and load sharing retrofit based on custom-programmed Woodward 2300E control units.

The upgrade covered the vessel's four Wärtsilä 12V38 diesel engines, with a total installed power output of 31,680 kW. The new Woodward 2300E units were programmed to provide control functionality aligned with the original system, while introducing improved flexibility, communication capability and future supportability.

A new load sharing function based on charge air pressure was implemented. This function compensates for minor differences between governors or fuel racks when engines operate in parallel.

The upgraded system also introduced communication and monitoring capabilities that allow the system to integrate with peripheral sub-systems.

Using serial servers and Ethernet connectivity, MAS also enabled the possibility of remote access to the controllers, allowing specialist support to be provided to the vessel when required.

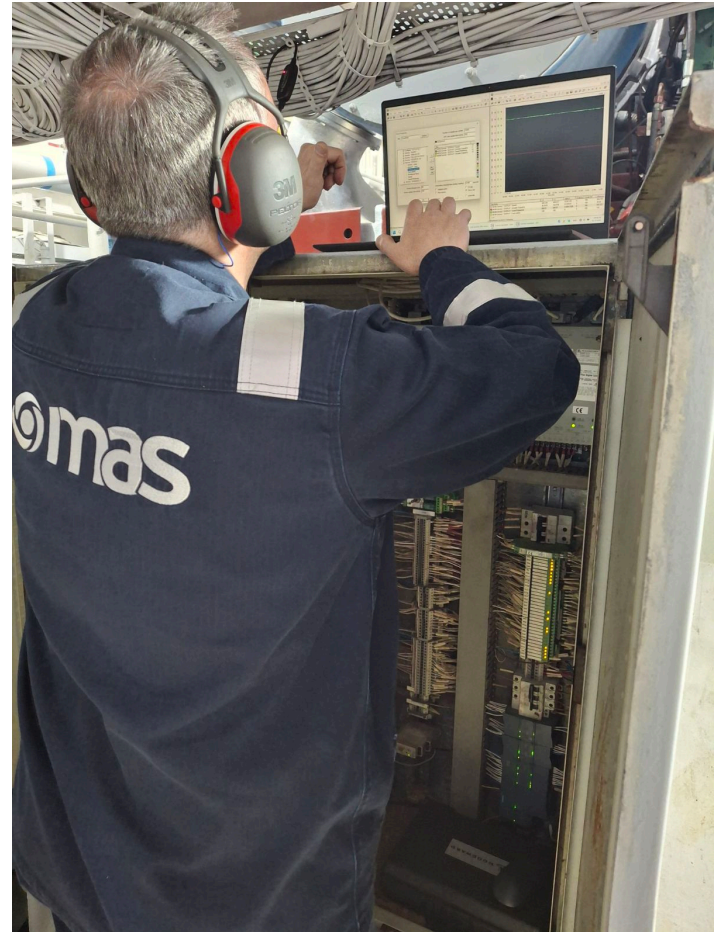


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Scope of Works Undertaken

MAS delivered the full engineering and implementation scope, including:

- Assessment of the existing Woodward 721-based control system
- Engineering of the Woodward 2300E retrofit architecture
- Programming and configuration of the new speed control and load sharing units
- New main engine control cabinets
- Implementation of charge-air-pressure-based load sharing logic
- Configuration of CanBus communication between the control units
- Configuration for support access and remote serial communication
- Dock trial support, including I/O verification and control parameter adjustment
- Sea trial support and validation under operating conditions
- Troubleshooting of interface issues with related vessel systems
- Onboard crew training for daily operation and system understanding



Main System Functionalities

The upgraded Power Management System included:

- Digital speed control for four Wärtsilä 12V38 main diesel engines
- Load sharing between engines operating in parallel
- Charge-air-pressure-based compensation for governor and fuel rack differences
- Remote serial access through Ethernet-based serial servers
- Monitoring through Control Assistant software in table and trend format
- Support for remote diagnostics through secure laptop-based access
- Integration with the vessel's main engine control cabinet infrastructure
- Compatibility with clutch engagement and control room start-up requirements

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The Result

The retrofit delivered a fully modernised main engine control and load sharing system based on Woodward 2300E technology.

The new architecture provided improved control functionality, enhanced load sharing behaviour and better monitoring capability for the vessel's propulsion control environment. It also introduced communication tools that support easier parameter monitoring, diagnostics and remote technical support.

The project resulted in a modernised propulsion control system aligned with the vessel's operational requirements, supporting improved reliability, responsiveness and lifecycle value.

Key results included:

- Improved parallel engine operation through charge-air-pressure-based load sharing compensation
- Improved system monitoring
- Remote support & troubleshooting capability

MAS delivers advanced Control, Protection, Automation and Power Management Systems for maritime applications, supporting shipowners and operators in replacing obsolete control platforms, improving vessel reliability and extending the lifecycle of critical propulsion and power generation assets.



MAS SA is one of the few engineering companies in Europe specializing in the upgrade, design, development and installation of advanced power management control, protection and monitoring systems.

Covering a wide area of expertise for over 50 years, we provide solutions for complex problems both in the Industry of Marine, as well as in the Industry on Land (Power, Oil & Gas and Heavy industry).

For any further information please contact us via email at info@maseurope.com

