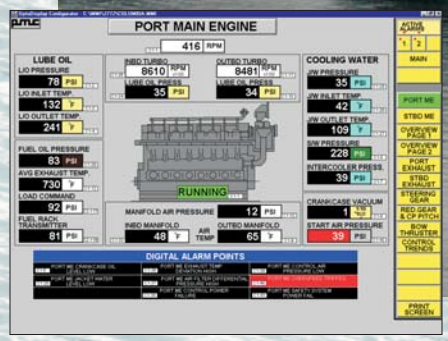
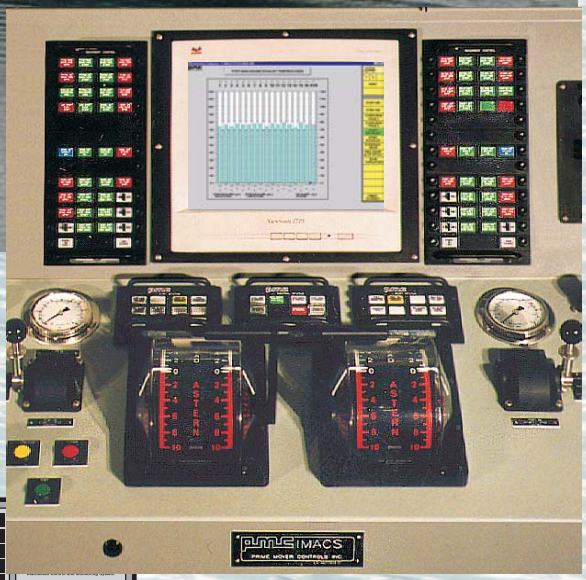
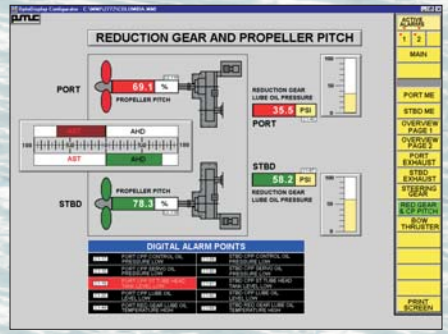
VESSEL BULLETIN VB 2772

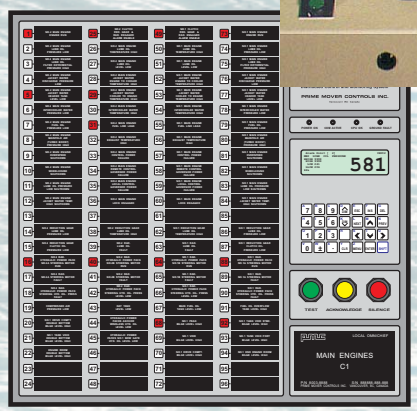
PROPULSION CONTROLS AND ALARM MONITORING

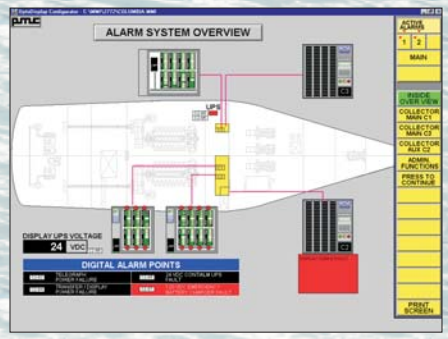
MV Columbia

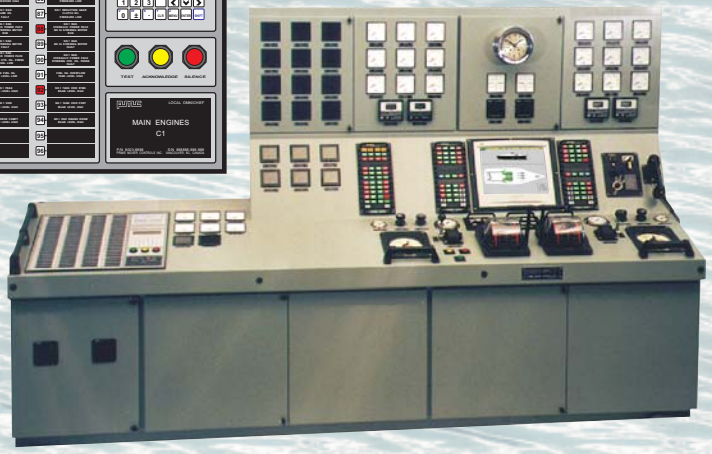












PRIME MOVER CONTROLS INC.

Alaska Marine Highway System
127.4 m RO-RO/Passenger Ferry
MV Columbia

Specifications

Owner	Alaska Marine Highway System
Classification	ABS Class ✠A1 ✠AMS
Length Overall	127.4 m (418 ft.)
Propulsion Engines	2 × Enterprise each developing 6,175 BHP (4,605 kW)
Reduction Gears	2 × Single Input / Single Output
CP Propellers	2 × Escher-Wyss

PMC retro-fitted this vessel with our long established PMC electro-pneumatic twin screw propulsion control system. The system for the *MV Columbia* consists of three all electronic bridge stations, complete with electric shaft functions and electrically driven control heads with pneumatic outputs located in the Engineer's Operating Station. The Engineer's Operating Station control heads produce the pneumatic signals for speed and pitch control. Fast, stable automatic load control is provided by PMC's PCA-2LA pitch controllers.

Also used in this retrofit is the powerful, easy to use PMC **I**ntegrated **M**achinery, **A**larm and **C**ontrol **S**ystem (IMACS). The IMACS combines two independent **Omni Chief** distributed control and monitoring systems, and two ship's computers.

Each **Omni Chief** system consists of one local **Omni Chief** display panel and local collector. Each **Omni Chief** display panel has a dedicated 96-point display showing the status of the optically isolated analog and digital field sensors. All alarm configuration changes (setpoints, time delays, etc.) can be accomplished from the **Omni Chief** display panels, as well as from the two ship's computers.

Communication to the ship's computers, located at the Engineer's Operating Station, is over a high-speed network. The PMC **IMACS**, a technically advanced Windows™ based graphical user interface is installed on the computers, allowing the user to monitor machinery and perform trending.

The system automatically logs all machinery alarms for future reference. A total of 104 custom graphic pages and 28 pop-up windows allow the user to easily identify and monitor the 200+ machinery status points.

The graphic pages contained in the **IMACS** onboard the *MV Columbia* includes:

- Propulsion control parameter screen, trending control signals such as load command, main engine speed setting, fuel rack position, pitch, etc.
- Operating parameter screens for each main engine, generator and the bow thruster.
- Individual cylinder exhaust gas temperature measurements for both main engines are reported on a comparison bar graph. Average and deviation alarms with independent high and low limits are calculated real time.
- Running hours and Start/Stop totals are shown on a single page for all major machinery.
- A data-logging page was created to display all parameters monitored on a single text screen.

To complete the retrofit, PMC designed and manufactured a new propulsion control console for the Engineer's Operating Station, and flush mounting plates for the Bridge stations. All the PMC supplied controls and instrumentation as well as existing ship's equipment were incorporated into the new propulsion control console and flush mounting plates.

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