

MARINE POWER REPORT

MAY 2009

MaK "M" SERIES

In the age of cheaper fuel, good labour availability and lower environmental consciousness the need to repower ships on the Great Lakes was minimal. The benign effects of fresh water on the hull and more consistent machinery maintenance, whether steam or diesel, kept much of the fleet viable in-kind. This has now changed as evidenced by increased repower activity, both in terms of completed and planned projects.

Repowers are not for the financial and technical faint of heart. They are all about becoming a more cost effective service provider in this competitive business environment and improving the ship owner's return on capital employed. Initial capital cost should remain an input but not a deciding factor. All monetary elements including installation and long-term life-cycle costs need detailed consideration. This enables a repower business plan to be developed and carefully scrutinized for the required pay-back. Repowers are also about execution planning and control in an age where such skills are seldom available in-house.



ALGOCANADA AND ALGONOVA

These two recently delivered new OPA 90 class tankers each feature an MaK 9M32C propulsion engine rated 4,500kW (6,120hp). Owned by Algoma Tankers they are ice strengthened for Great Lakes and coastal service.

Applying reduced emissions for the benefit of the environment and the repower business plan are also critical. They are not always mutually exclusive and detailed understanding of how one impacts the other can be very rewarding for the air we breathe and the ship's productivity.

MaK "M" series propulsion and auxiliary engines have featured strongly in recent Great Lakes ship repowers and, indeed, new ships. Technical features ensure ease of installation,

operation, maintenance and lifetime emissions compliance. Installed power is achieved with least number of cylinders, simple off-engine supporting systems and industry leading time between overhauls on both distillate and heavy fuels.

Exhaust emissions legislation continues to evolve and become more challenging. MaK M25C, M32C and M43C engines in service under less stringent EPA and IMO emission limits can be upgraded to meet Tier 3 regulations



ALGOVILLE

The diesel to diesel repower of Seaway Marine Transport managed bulk carrier "Algoville" (now "Tim S. Dool") significantly enhanced ship performance and reduced exhaust gas emissions. The 8,000kW (10,880hp) MaK 8M43C installation features a new exhaust gas economiser, 800kW shaft alternator, new propulsion controls and a comprehensive alarm and monitoring system all provided by Toromont Marine Power Systems.





SAGINAW

The advantages of steam to diesel repower have been proven conclusively by the 6,000kW 6M43C propulsion engine and 1290kW 8M20C unloading set recently installed in Lower Lakes' "Saginaw". Substantial fuel savings combined with significant exhaust emissions reduction and better than expected ship performance will make the "Saginaw" a long term productive asset for Lower Lakes Towing and its customers.

planned for 2016. Installations scheduled for winter 2010/11 will have Tier 2 compliance achieved entirely within the engine. No power loss occurs when permanently switching from heavy fuel to distillates including low sulphur diesel.

Contributing to the success of recent MaK "M" series repowers is **Toromont Marine Power Systems**. Our in-depth knowledge of the Great Lakes operating environment allows us to assist owners with the technical and financial aspects of their planned investment in a local context rather than from an ocean going

standpoint where conditions are quite different. This results in a repower or new construction business plan that can be tested thoroughly for the required pay-back, ship performance and emissions compliance.

All MaK "M" series repowers completed on the Great Lakes have met or exceeded planned financial return for their owners because of this local presence and in-depth industry knowledge. The ships they power will remain highly productive assets for years to come.



ALGOSOO, ALGOBAY AND ALGOPORT

Previously fitted with distillate fuelled Caterpillar D399 marine generator sets these three self-unloaders, operated by Seaway Marine Transport, will become uni-fuel ships with three new 880kW, MaK, 6M20C marine generator sets each. Significant cost savings are expected to accrue from burning IF180 fuel in all the engines. "Algobay" is also receiving two new MaK 8M32C propulsion engines each rated 4,000kW (5,440mhp) and will be returning to service on the Great Lakes later in 2009.



M/V JIIMAN is operated by Pelee Island Transportation on behalf of the Ministry of Transport Ontario.

Twin MaK 6M20 marine propulsion engines each rated 1,020kW (1,390mhp) provides "M/V Jiiman" with the reliability necessary to serve the residents and economy of Pelee Island in Lake Erie. The 6M20 engines are used with the existing gears and controllable pitch propellers and burn distillate fuel.



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