

## *Shallow Draft Magazine*

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### **Reducing Power Demands for Large Steering Systems**

EMI continues to build bigger steering systems but has found a way to do it with less power. It is well known that as the vessel sizes grow, the amount of generator power grows with it. Now it is possible to get the increased steering size but without paying the power penalty. Reductions in horsepower of up to 50% are achievable. While proportional and horsepower-limiting type steering has been used in European shipbuilding for many years, it is just now becoming popular in the United States, and EMI is at the U.S. spearhead of the technology. Using microprocessor controlled electronic steering and state-of-the-art hydraulic manifold valve designs, EMI is able to provide steering systems that not only use less power but are also much quieter and hydraulically "simpler" than their "bang-bang" predecessors. EMI manufactures the full steering system from the hydraulic power modules to the electronic controls at their New Orleans facility.

EMI has recently installed these types of systems in large ITB Tugs for Crowley Vessel Management

Services, Mobil Oil, and Allied Transportation Company as well as the Alaska State Ferry. EMI recently completed the installation in a 260-foot workboat for HV Marine Services, M/V *BJ Blueway*, at Leevac Shipyards. While installation in tugs and larger ships is commonplace, this may be the first of this type of steering to be installed in a Gulf Coast workboat. EMI has provided cylinder type electro-hydraulic steering systems to all types and sizes of commercial vessels, as well as vessels for the U.S. Navy, U.S. Coast Guard, and the U.S. Army.

Proportional steering uses different motors and valves, along with the associated microprocessor electronic controls to meter the hydraulic flow in such a manner that the hydraulic shock is considerably reduced and virtually eliminated. The reduction of the hydraulic shock provides a direct and significant reduction in the life cycle costs attributed to the steering system. In addition, EMI can design the system with horsepower limiting which meters the flow and controls the pumps in such a manner that significantly less horsepower is required to move the rudders. Horsepower limiting improvements are possible in steering system requirements of up to 100 hp and greater, reducing them in size requirements by as much as 50%. This decrease in horsepower provides a direct benefit of less generator power that would be required to run the larger pumps and motors required for the traditional steering systems.

EMI continues to stay on the forefront of technology in areas other than steering. EMI, a marine manufacturer based in the New Orleans, LA, area has recently developed the first fully U.S. designed and manufactured DYNAMIC POSITIONING SYSTEM that can be directly integrated into their steering and engine controls as a complete package. They have also upgraded their standard, digital-alarm-only-display, 8-point Alarm Monitoring System, to add a computer display capability that provides full analog value displays and is networkable throughout the vessel while meeting the ABS requirement of dual redundancy. EMI also continues to offer 3-D console design, fabrication and integration of components.