

NAUTICAN TRIPLE RUDDERS WORK BEAUTIFULLY ON THE ATB ISLAND MONARCH/TRADER.



ATB Island Monarch/Trader

As a recent installation illustrates, Canada's Nautican Research & Development's Triple Rudders are making improvements in the steering capability of pusher tugs, including ocean-going Articulated Tug Barges (ATB).



The Island Monarch with NautiCAN Triple Rudders.

This summer, the Canadian company Island Tug and Barge Ltd. (ITB) of Vancouver, upgraded their tug the *Island Monarch* to an Intercon Articulated Pin system. With the retrofit, the 136' x 32' (41.45m x 9.75m) tug becomes ITB's first articulated pin tug, only the second on Canada's west coast. The retrofit matches the *Island Monarch* to the *Island Trader*, ITB's new 65,000 barrel fuel barge, the largest oil tank barge on Canada's

west coast, almost double in size of the next closest one, the *ITB 38*. As part of the retrofit at Allied Shipbuilders in Vancouver, a pair of Nautican Triple Rudders were installed behind her Modified 19A Nozzles to enable the tug, with her relatively low 3000 horsepower, to turn the barge safely and quickly.

Nautican Triple Rudders are a system of three narrow-bladed rudders that improve the manoeuvrability of vessels with nozzles. Joe Gruzling, President of Nautican describes the typical problems of rudders behind nozzles, "single rudders stall easily so the tug loses thrust, and many multi-bladed rudders choke off the water flow through the nozzle, especially during astern operation." The Nautican Triple Rudders use a differential linkage, a unique geometry, and some hydrodynamic tricks such as high aspect ratio foils and the cascade effect, to "create higher lift forces with less drag on the rudder," according to Gruzling. The result is a more efficient steering system that requires lower steering torque than the equivalent single rudder. In addition, the entire propeller outflow is directed up to 60 degrees to the side, without the

loss of thrust or the engine overloading usually caused by the flow being choked off. For this installation Gruzling says that, "we didn't change anything on the steering system. We just cut the spade rudder off, leaving the rudder stock, then linked that to our system."

The *Island Monarch* has just returned (November 2003) after retrieving the *Island Trader* from China and pushing her across the Pacific to Vancouver. Bob Shields, President of ITB reports that all the skippers say the new Triple Rudders have improved the tug's manoeuvrability. As an example, he recounts how, "on the



The Island Monarch with a single rudder.

trip down the Wangpu River, where the [boat] traffic density is high, like our roads in rush hour, and which like all rivers has bends--and these are sharp bends--the pilot never had to order more than 10 degrees of rudder." As well, Shields says that the Triple Rudders, "had no problem keeping the ATB up to weather on the ocean crossing." He sums up by saying the Nautican Triple Rudders, "work just beautifully."

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