

# Hawaii Tug Gains Thrust

Young Brothers, Ltd of Hawaii's tug the *Moano Holo* has returned to service after being fitted with Nautican Research and Development Ltd.'s Nozzles and Rudders at Foss Shipyards in Seattle. Two 108" Nautican High Efficiency Nozzles were fitted, along with two sets of High Efficiency Triple Rudders.



Prior to the conversion, the *Moano Holo* was fitted with twin open propellers and spade rudders. Its bollard pull went from 64,000 lb with open propellers to 101,500 lb with the Nautican Nozzles. Gisli Olafsson, Naval Architect & Project Manager at Foss Shipyards, says "We are very pleased with the performance. The boat performs better than expected. The bollard pull increased by almost 57 percent and the vessel maintained top end speed of 13 knots. The equipment seems to work really well."

Joe Gruzling, President of Nautican Research and Development Ltd., estimates "with a regular Kort nozzle the speed would probably drop half to one knot, and the bollard pull increase would be less. About 42% over an open propeller."

The results are consistent with the 1994 conversion to Nautican Nozzles of the *Barbara Foss*, a sistership of the *Moano Holo*. That conversion was the third of four similar hulls. The *Barbara Foss's* bollard pull increased 58%, from 89,900 lbs to 142,600 lbs after the conversion from open propellers to 108" Nautican Nozzles.

The *Barbara Foss* was also fitted with Nautican High Efficiency Triple Rudders.



The Nautican Triple Rudders increased the turning capability. During the sea trials, she was able to turn 360 degrees in 60 seconds and one ship length, with both engines ahead. According to Gregg Patch, Marine Maintenance Manager at Young Brothers, the better maneuvering ability means the *Moano Holo* "will be called on more often to assist with ship berthing now."



Gruzling knew the turning ability would be good because, "on one of the previous conversions, we measured the tug going sideways at 4.1 knots, with one throttle ahead, and the other in reverse."

According to Olafsson, "This type of conversion was chosen to increase the towing force and improve the maneuverability without having to repower the vessel."

The *Moano Holo* is 126 ft in length with a beam of 34 ft, fitted with

twin 1500 horsepower diesel engines. She is generally used for towing barges from Oahu to the other Hawaiian Islands.

While in for the addition of the Nautican Nozzles and Triple Propellers, Foss Shipyard also rebuilt the main towing winch, installed new tow pins and new fenders, installed sound insulation for the galley and painted the vessel including the engine room and fidley.

Olafsson says about the conversion, "We knew it was very important for our customer to get the vessel back into service as soon as possible so we set aggressive milestones in the schedule to meet the customer's wishes. We have a very committed work force and management team here at Foss Shipyard which makes this possible, and we work very closely with the customer, it's a team effort."

Gruzling is also quite proud of this installation, "It's the fourth successful installation of the Nautican Nozzles and Triple Rudders on this type of hull. And it's worked for both towing and ship handling applications."

For further information contact:

**NautiCAN R&D Ltd**  
Telephone: 604-921-1920  
josip@nautican.com  
**www.nautican.com**