

Renegade 89



DESIGN PROCESS SAILS FOR A REAL WORLD BOAT

Renegade^{89^{2M}}



You've read about America's Cup sail development with its wind tunnel testing, computational fluid dynamics, and two boat testing. Over the past four years, Quantum has undertaken the most technologically advanced, comprehensive design and testing program for asymmetrical spinnakers. The cornerstone of this effort has been Quantum's exclusive wind tunnel testing project. The first US based program of its kind, the VLU (Very Low Uncertainty) methodology developed in conjunction with the University of Maryland's Glenn L. Martin Wind Tunnel, is arguably the most sophisticated testing system for off wind sails in the world. Working with Jim Teeters, Quantum is leading the way in the integration of wind tunnel experimental data to improve VPP (Velocity Prediction Programs), one of the primary design tools in modern rig and yacht design.

In addition, the technology program has included the creation of state of the art three-dimensional design and manufacturing systems under the direction of Jack Kleene, one of the foremost software developers in the field. Additional tools, including two and three-dimensional numerical analysis to analyze flow and pressure characteristics are also being developed. No



group has more technical resources or more experience in the design and creation of asymmetrical spinnakers.

Quantum is the first sailmaker to apply these resources directly to the development of asymmetricals for the J 105, a real world boat. In February 2002, Quantum designers headed to the wind tunnel to test designs for the 89^{2M} asymmetrical. Valuable wind tunnel testing time usually reserved for multi-million dollar grand prix projects was set aside to help mold the next generation of J/105 spinnakers.

Dozens of designs were tested. Of course it helped to be able to start with one of the world's most extensive databases, and the talent of some of the most experienced designers in the business, but the beauty of the tunnel is the ability to quantify performance to the furthest decimal point. It replaces the laborious, time consuming, trial and error methods used in traditional sailmaking. If one-shape tests better than another but you want to know, can you go further? No problem. In hours, a model can be built and a new generation's performance can be evaluated. The client is no longer the guinea pig.

To confirm results our sailors have been out on the water. They often had to chip ice off of the boats to go sailing, but the hours they racked up in carefully controlled, side-by-side testing provided proof of what had been created.

Quite simply, the new Renegade 89^{2M} Asymmetrical for the J/105 is already light years ahead.