



'The Next Generation of Mast and Sail Systems' **by James Merrington**

Bret Perry has worked in the marine industry for many years, has worked for various America's Cup campaigns and is currently representing Farr Yachts. He and his partner Greg Johnston of Advanced Wing Systems, have spent many years perfecting the wing sail technology which Bret explained at the Cruising Division meeting on 23 October.

First there was a demonstration of the system on board the K8 boat which was moored in the Pond but unfortunately it was too windy to raise the sails to showcase the system.

Back indoors, Bret commenced the presentation with a slide of a 1925 patent application from Herreshoff which outlined a wing type of sail system - so this concept has been around for some time.

Earlier versions tried wing section masts which were very heavy because they were stayless and needed to be self-supporting, they also had no capacity for jibs or spinnakers.

It is very important to know that the power, lift and overall performance of a sail comes from the leeward shape of the sail, and by making a wing section, all the leeward turbulence is virtually removed, making a far more efficient sail.

The current American challenger for the America's Cup *American Magic* is utilising a soft wing system, but this is mechanically different from the system that Advanced Wing System uses.

The easiest way to define a soft wing is 'A three dimensional aero foil with control over the entire chord and span.' The system uses a mast section with a track either side (the shape of the mast is of critical importance in the process,) this mast section is capable of being rotated with the windward side being cranked forward. Sails have no shape and are basically flat with full length carbon fibre battens. Two identical sails are raised in tracks on either side of the mast to make up the mainsail. Stays are used, so the mast section can be of the same weight as current mast systems. Spreader design is different in that it allows for the mast to rotate.

This system is also very useful for cruising applications - the sails never flog thanks to the wing design; reefing is no more complicated than the current systems; if the wind comes up, the sail can be easily de-powered by changing the rotation of the mast. Also, a storm trysail can be set inside the wing sail already deployed if required.

If you'd like to take up Bret's offer of a demonstration sail you can contact him by email at bret@farryachtsales.com