

Pocket-Luff Rigs

The pocket luff rig was first used on Moths in Australia in the 1960s. It was then re-introduced by Ian Ward in 1993 and used by him in the 1993 Worlds in England. It showed moments of great boat speed which prompted Emmett Lazich to change over to a pocket luff rig in his return from these Worlds. Development was initially slow until more sailors switched to using them. Then, in the final few months before the Worlds in Australia in late 1994, there was some extremely rapid development, leading to the rigs we are using now. I have been continually refining my rig, and the rig I used in the most recent Nationals in Melbourne is the result. I think it is arguably the best all-round rig available. I will now try to explain why I think pocket luff rigs are faster than standard bolt rope sails. This is only my opinion, and since I am not an expert on sails, my explanations may be different from what might be in the text books. But here goes anyway !

I think the main reason why pocket luff sails are faster is that the wind is attached to the leeward side of the sail straight away, which enables them to generate more power at a lower wind strength than the bolt rope sail. In contrast, the bolt rope sail has much greater turbulence in the area immediately behind the mast. The smooth entrance in the pocket luff sail is achieved through the use of camber inducers which are connected to the battens. These are small plastic devices of various designs which sit on the back of the mast and rotate to the leeward side of the sail each time you tack or gybe, thus forming a smooth transition from the mast to the sail.

By being able to generate power more efficiently, the sails can be flatter so they have much less drag. They are also very responsive to luff and boom vang tension as the masts are more flexible in the fore/aft dimension, due to the absence of a sail track. However, to get this right, I have spent a lot of time altering the amount of carbon on the front and back surfaces of the mast to achieve the correct stiffness fore/aft.

With the pocket luff rig you have better control over the draft position in the sail. Moth rigs have always had a problem of the draft moving aft in the sail as the wind strength increases. In a bolt rope rig this is almost impossible to stop, but with the pocket luff rig you have greater control. By locking-up the mast down low with the spreaders, the top third of the mast is allowed to do most of the work. With luff and vang tension you can make the top of the sail dead flat and the leech will automatically open and close with the gusts. This is what I call the rigs accelerator. The middle and bottom of the sail are the rigs engine room. This is where the outhaul has a major effect on the middle and lower leech tension, and on the amount of draft. Obviously tightening the outhaul as the wind strength increases will reduce the draft and open the leech. With the draft being further forward in the pocket luff sail than in a bolt rope sail, you have to sail a little lower upwind, but you go so much faster that you get a lot of lift off the centre board which brings your height back up. This technique takes a little while to get used to.

Reaching is where the pocket luff rig really excels, especially in moderate winds. Once your boat speed increases and the apparent wind starts to move forward, the sails work so efficiently that you can flatten them further and the leech opens, giving a very efficient low drag sail shape. Also the sail now being flatter and more open makes controlling the boat, and general boat handling (such as gybing) much easier. For square running the pocket luff rig is no better or worse than the standard bolt rope sail.

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