

**M 242**

# Tuning Guide





October 2005

Dear M242 Sailors,

The M242 is a relatively easy boat to sail and the fleet has taken steps to make the boats as even as possible.

This tuning guide was written as a reference to help M242 sailors easily achieve race ready trim and speed. It is intended as a reference for boats with *Ullman Sails*. We are pleased to share this information but do not assume that the setup and trim detailed will apply to sails from other sail makers.

One of the challenges of sailing is the ever changing conditions. The best way to adapt is to know your boat well enough to be able to identify when performance is good so you can reproduce optimum trim consistently throughout all racing conditions. The luxury of sailing in a one design fleet is that optimum performance is more easily identified. If you have any questions or comments please contact us at the Santa Ana, California loft, we will be happy to assist you and hear your tuning ideas.

*The Ullman Sails Team*

## Bottom Preparation:

Maintain a smooth, growth free bottom. We do not encourage or discourage wet or dry sailed boats and have seen great performance out of both. However, either need to be well maintained.

## Rig Set Up:

**The forestay** should be 27 1 1/2 " pin center to pin center (*note: the fleet uses aircraft pin, not marine. It is thinner and fits better*). This measurement is a fixed length as per class rules. The recommended roller furling unit is a Harken # 435 Hi Load.

Optimal **shroud tension** numbers are 45 on the uppers and 40 on the lowers (*using old style loose gauge*). These numbers can be adjusted between races if conditions radically change. As an example in heavier breeze, the lowers would be eased a few full turns (*at least 3*) to induce more pre-bend in the mast which helps to flatten the main. In lighter conditions the uppers would be eased 3 to 4 full turns to reduce pre-bend, giving the main more shape and inducing a little more sag in the headstay for a more powerful jib.

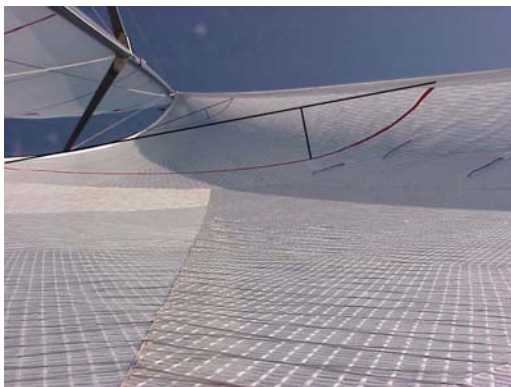
## Weight:

When sailing upwind on the M242 it is important to keep as much crew **weight** forward in the cockpit as possible. This helps to keep the knuckle of the bow in the water to enable the hull to do it's job. When weight is aft and the bow is not in the water, the hull loses steerage and the bow gets pushed to lee-

ward. **Weight** forward is especially critical with 4 people on board as the 4th person will naturally force the center of the crew **weight** aft in the cockpit. For example the driver should always be as close to the traveler or over as possible.



## Sail Trim:



**Jib Set Up:** The objective is to set the jib up with maximum draft at about 40%. Wrinkles in the luff are okay, but it is important to focus on the draft position. Pulling the jib downhaul tight will remove wrinkles and also pull the draft of the sail forward. As the boat becomes overpowered in the higher wind ranges, you should be approaching maximum jib downhaul tension with the draft well forward.

## Trimming the Jib:

It is very easy with a non overlapping jib to sheet it too tight thereby stalling the airflow off the leech of the sail. The leech telltale should be flowing fairly consistently ( 80+% ) while sailing upwind. Sheeting tighter means sailing higher. However, a stalled telltale means stalled airflow which will result in the inability to build boat speed. The key is to sail as high as possible while maintaining boat speed.



By adding tape to your spreaders 16” from the spreader tip, your jib trimmer is able to have a more accurate reference point for where optimum upwind trim is for those conditions. Example: “ It ’ s flat water so let ’ s try trimming 1 ” inside the band ”. The tape adds consistency to the trimming of the sail.



**Jib trim** in 8-10 knots;

Powerful draft with moderate luff wrinkles, straight leech, both tell tales flowing and leech telltale showing a clean exit of the air flow.

To de-power the jib in heavier air, the downhaul should be on fairly hard to remove the luff wrinkles. Move the jib car aft and ensure that there is enough twist as measured by your trim mark on the spreader for the helmsman to easily drive the boat under the conditions. A 1/2 " ease on the jib sheet is a big change in leech tension and twist.



### **Mainsail Setup:**

The first step is to ensure that the main halyard is hoisted so that the headboard is up to the band at the top of the mast. It is a good idea to mark the main halyard somewhere at the deck level with a marker pen to indicate ' full hoist ' . Remember that new halyards often stretch, so ensure that the halyard is pre-stretched or is used several times before you make the mark.

### **Light Air:**

There should be minimal or no Cunningham in light air to keep the draft of the sail aft for power. Like the headsail, wrinkles are OK in light to moderate air ( underpowered conditions ) . As you pull on the Cunningham, luff wrinkles will disappear and the draft of the sail will be sucked forward, flattening the sail which will de-power the boat and help pointing. Draft position for power should be around 50%, moving forward to 40% or less as the boat becomes overpowered. The outhaul should be adjusted in equal proportions.

It is important to remember that M242 's have a relatively long boom, therefore the mainsail clearly generates most of the boat 's power. This means that it is necessary to drop the traveler quickly as the breeze builds because the boat will very quickly go from being short of power to being overpowered. Power or weather helm will be your key indicator for main trim.



**Draft Around 50% For Full Power Upwind**



← The trim on the left is in **ultra light air** only ( less than 3 knots ), boom near centerline with almost maximum traveler up and then having a fairly eased mainsheet to twist the leech to avoid stalling. In these conditions it is important to do all you can to encourage air flow. Also note the leeward crew weight to try and achieve some heel to reduce wetted surface area.

**Moderate Air:**

→ 8-10 knots of wind

Traveler down from centerline approx 10 " for speed.

Tight main leech for power,

Note: the trim of the jib is consistent with the twist of the mainsail.



### **Upwind in Heavy Air:**

The photo on the right clearly shows the boat is dumping power by having traveler down and the leech of the main well twisted. There is a reasonable sea condition also and twist creates a wider groove for the helmsman so they can steer to the waves. The tighter the leech is in overpowered conditions, the narrower the groove is for helming.

In these conditions it is still important to play the traveler also. When boat speed is good and you have a stretch of flat water, traveler up a couple of inches. If you find yourself slamming waves and boat speed dropping, traveler down to get the boat rolling again and find a trim mode that enables you to maintain boat speed.

In heavy air, it is important to have a lot of outhaul on, traveler down and then if the head of the sail needs de-powering, backstay on. Note: Avoid Vang sheeting.



### **Downwind:**

For running conditions, the general rule of thumb is to fly the pole at a height that keeps the spinnaker clews at an even height off the water as shown in this photo. Ensure that you keep as much weight forward as possible until planing or surfing conditions. Keep the boat flat in most conditions. A few degrees of windward heel is OK when there is enough pressure and you are trying to 'dig' to leeward.

### **Downwind Light Air:**

The spinnaker should fly as 'naturally' as possible, and tweekers should only be used in moderate air to take the 'bounce' out of the spinnaker in choppy water. In light air, tweekers should be off to get the clew to fly away from the boat as much as possible.

### **Heavy air:**

In heavy air tweekers should be on to maintain control of the spinnaker by keeping it strapped down. Crew weight forward is not as important as boat handling and surfing, therefore you should position the crew weight where you feel the team is best able to do their jobs. Note: Don't be afraid to let the main out up against the spreaders.

### **Boom Vang Trim:**

When running, a good rule is to trim the Vang so that the 2nd batten is parallel with the boom.

### **Mark Rounding:**

At the top mark, try to sneak or preset the afterguy as much as possible as this will reduce the chance of having a twist or hourglass in the kite.

Mark the topping lift so that you have a preset for the pole height under the prevailing conditions.

If a pole is too low, the luff of the spinnaker will be tight and it will be hard to get the initial fill on the spinnaker and also harder to trim in general. Pole height is important for setting the kite at the top mark.

