



# 11-meter One Design Tuning Guide

## INTRODUCTION

How to win in an 11-meter is written to help you get the most performance out of your 11-meter. North Sails has been sailing 11-meters since they were first introduced. Our commitment to the class and to its sailors sets us apart from any other company in the sailing industry. Welcome to the North Sails Program, the relationship we are about to build is of utmost importance to us. We look forward to working with you.

**Chapter 1 - Boat Preparation**

**Chapter 2 - Rig Tuning**

**Chapter 3 - Sail Trim**

**Chapter 4 - Spinnaker Maneuvers**

The measurements and the settings included in this book are the ones that we have found to be the fastest in the 11-meter. Since crew, wind and sailing conditions vary, you may find slightly different settings are better for you.

## CHAPTER 1

### Boat Preparation

There are certain areas of your 11-meter that you should go over whether the boat is used or out of the box to insure the boat is race ready. Many of these tips are no different than what you should do to prepare any boat for one-design racing.

#### Hull

A clean, fair underbody is essential for fast racing. Be sure that the bottom is smooth and free of any bumps or hollows.

If your boat is not dry-sailed, a very hard bottom paint is recommended for racing. There are several racing bottom paints available that have good anti-fouling properties. Occasionally, go over the bottom with 600 grit wet sand paper to maintain the smoothest finish. Contact your local boat yard, ship chandlery, or North Sails loft to find out about the latest paints.

#### Keel and Rudder

Wet sand both to a smooth, fair finish.

Make sure that the trailing edges of the rudder and keel meet the requirements of the 11-meter class rule. You are not allowed to go less than to 4 mm and 8 mm respectively.

## CHAPTER 2

### Tuning the rig

#### Prior to stepping the Mast

##### Headstay Length

This length is measured from the center of the pins at the hounds and the stem fitting and should equal 10490 mm. This is the maximum length according to the rule and make sure that it does not to exceed this measurement.

##### Jumpers.

Tension the jumpers to 6 on the Loose Gauge

#### After Stepping the Mast

##### Running backstays

If your boat does not have a purchase runner system it is suggested to put that on. We recommend a purchase of 1:16 on the fine-tuning system and 1:2 on the coarse-trim. Both the fine-tuning rope and the gross trim line should have clear marks on it. It is very useful to have a stop on the gross-trim line in order to repeat the setting on the runner. One way to mark the runners is as follows. Pull the coarse runner line more or less all the way to the bottom. Put one mark on the rope at the cleat and one mark where the rope meet the transom. Stitch a 2 cm long piece of water hose at the transom mark. Use hand needle and a strong sailmakers tread to fix it to the rope. This piece of hose should be small enough to run freely through the runner blocks but big enough to jam against the transom.

Now set the gross-trim so the hose stops at the transom. As a reference you can read the mark at the clamcleat to see that you are home. The fine tuning system is the only line you should work with on a beat. When you release the leeward side the runner should be long enough to allow the runner to be free from the mainsail. From this length you should tighten the runner so the forestay will barely not move around. This will be you light air set up. Mark the fine tune line at this level. Next step is to mark the fine-tune system for medium and heavy air. As a rough guide, use the distance between the cockpit side and the rail for the next mark. Pull the fine-tune line till the light air mark reaches the rail and with the line in this position make the medium air mark at the clamcleat. Make the mark for the heavy air in the same way. If this is correctly done you should now have 3 offsets, separated some 50 cm from each other on the fine-tuning line.

## Tuning the rig

- ? **Step One:** With slack lowers and intermediates, tighten the upper shrouds so that they are hand tight while keeping the mainsail track straight. Cleat the main halyard so the shackle touches the rail at the chainplates using a light pull. Measure the same spot on the other side of the boat. If the mast is in column, the shackle will touch in the same place. If not, adjust the uppers until it touches at the same place.
  
- ? **Step two:** Now that the mast is in column pull on the backstay as hard as you can. This should bend the rig and loosen the upper shrouds. Now tighten the uppers again so the new slack is taken out. Be sure to tighten the same amount of turns on either side. Now you may loosen the backstay. The result will be approximately 26 on the Loos Tension Gauge.
  
- ? **Step Three:** Again sighting up the mainsail track to keep the rig straight, tighten the lower shrouds, with equal turns on either side to 21 on the Loos Tension Gauge. Given this tension the result should be ½ -1" of prebend. Now tighten the intermediate shrouds with equal turns on either side to reach a tension just slightly more than handtight. The Loos Tension Gauge is of no help here. Check the rig for overall straightness both at the dock and again while sailing by sighting up the mainsail track. Adjust the shrouds appropriately to get the mast straight. This mast set up will be OK for all conditions.

## CHAPTER 3

### Sail Trim

#### Upwind

##### Mainsail Trim

Besides the usual sheet and halyard you have to make proper adjustments to the running and permanent backstays. Runnertension is very important for the over all performance of the rig because it affects both forestay sag and to some extent mastbend. Setting of the permanent backstay will bend the mast even more, flatten the main and open the top of the sail. The checkstays shall be just tight enough to prevent the mast from moving around.

Without getting overly detailed, because everybody sails to their own style, the following are basic tips for trimming the 11-meter main.

**0-8 kn:** Pull the runners to the light air mark. You will just notice a slight movement of the forestay and the forestay sagg will be aproximately 6". Use no permanent backstay. The mast will be more or less strait .

With the mast in this trim you should have the mainsheet traveler centered. Trim the main until the top leech telltale is just stalling. Sometimes it pays to trim the main even harder. That is in flat water and when you are up to maximum speed.

Outhaul shall be 5 cm in from the black band

**9-13 kn:**As the breeze builds we need to maintain a balanced helm. Begin by pulling on the runners to the medium air mark on the fine tuning line This will straighten the forestay and by easing the checkstays you will increase mastbend slightly. Mastbend should be 7-8 cm or 3-4". By bending the mast you will free the leech but you also need to ease the mainsheet a notch. Not to much though, if the leech is too loose you will lose pointing. The outhaul is now 3 cm from the black band. If the sea is lumpy you can keep the outhaul 5 cm in.

**14- kn:** In more breeze you pull the runners to maximum and set the checkstays just tight enough so that you can control the leech. The traveler should be eased some 10 cm for every 4 kn of wind. Outhaul should be all the way out and the mainsheet eased so the top of the sail barely starts to invert. Try to sail the boat as flat as you can. The less you heel the harder you can trim the main and the better you point. Sailing with maximum crew weight will help a lot in those conditions.

##### Jib Sheet

Four things control the jib shape:forestay tension, sheet tension, car placement, and halyard tension. The sheet tension has the most obvious effect, so we'll talk about that first. The sheet controls the leech twist and how far

the sail is pulled in. If you look at the overall sail as it relates to the sheet it does two things. Picture the boat on a close hauled course and the jib luffing, as you pull in the sheet, first the angle of the sail changes, then as the last few inches are tensioned the leech gets tighter. In short, it pulls it in and then down.

It is important to try to match the leech profile of the jib to the profile of the lee side of the main. Try to envision how the sails would look from a motorboat trailing behind you. Ideal is to have the leech of the jib parallel to the lee side of the main.

## Jib Car

Sheet position in the clewboard and the car placement controls how flat or round the jib is in the lower section of the sail and the amount of leech tension. Assuming that the jib is tacked 50 mm above deck at the forestay, the jibsheet should be attached at hole 4 counting from the leech. In light air and choppy sea you can move the sheet back to hole 3. In wind strength above 20 kn you shall use hole 5 to flatten the lower part of the sail and to compensate for more halyard tension.

The default position of the car is 48 cm from the centerline of the boat.

When you are hit by a puff of 16 kn and above you should move the car out 4-5' till the boat is up to speed, go then back to default position.

In moderate breeze the leech shall be trimmed so the leech telltale at the top batten barely breaks. Make a reference mark at the jibsheet when the jib is properly trimmed and trim to this mark even in heavy air.

In light air you should ease the jib 10-15 mm from this mark.

Finally lets address halyard tension. It very subtly changes the draft characteristics of the sail. As one pulls the halyard tighter the draft of the jib moves forward and as one eases halyard the draft moves aft again. In lighter air the halyard tension should be loose enough so that there is a hint of wrinkling in the luff of the sail. As the breeze builds the halyard must be pulled on harder to eliminate those wrinkles, but not so much that you over stretch the material!

## Crew Position

When sailing upwind in most conditions, the skipper should be just behind the traveler bar. The crew should sit as tight as possible in front of the helmsman. The key to upwind performance is to sail the boat as flat as possible.

## **Downwind**

### **Mainsail**

Be sure to power up the sail when sailing downwind. Ease off the cunningham, outhaul, and backstay. Adjust the vang so the top batten is parallel to the boom or just slightly open. Be sure not to hook the battens to windward with a lot of vang tension.

### **Spinnaker Trim**

The outboard end of the spinnakerpole shall be 60-70 cm above the horizontal line. Make a mark at the downhaul so you can repeat the setting.

Like all spinnakers, the spinnaker sheet should be eased until the luff carries a slight curl. The real trick to flying the sail and having the best downwind performance is to maintain constant dialogue between the skipper and trimmer to keep pressure in the sail without sailing too high and losing sight of VMG (velocity made good to the mark). As a general rule in wind up to 6 kn the boat sails downwind at 135 degrees to the true wind, jibing through 90 degrees .

As the breeze builds, it is possible to sail deeper angles while maintaining good speed. To get down the course fast in medium breeze is to sail nearly on a dead run or sometimes even by the lee, the trick is to bring back the pole to a square position and to raise the outboard end 4-6". This rotates the chute out to windward exposing maximum sail area to the clear air. This will heel the boat over to windward giving some lee helm and the boat will just fly downwind. Sailing this way in strong breezes is extremely fast but very demanding.

Experiment with this a bit and you will quickly get the "Feel" for how low you can go without wiping out.

## CHAPTER 4

### Spinnaker maneuvers

The 11-meter can be handled well around the entire course with a crew of 4. We will detail the maneuvers for all four people; helmsman, middle / aft (M/ A), middle / forward (M/F), and forward (FWD) crew members.

#### Setting

1. FWD sets the pole, and hoist the spinnaker at the helmsman's command.
2. M/A pulls the guy at the rounding.
3. M/F pulls the spinnaker out of the companionway, and pulls the sheet.

- ✍ M/F drops the jib
- ✍ M/A pulls even more at the guy.
- ✍ Helmsman pulls the tackline final distance.

Dropping the jib is key to a successful quick set. This allows the spinnaker to have clear air almost immediately. The helmsman must remember not to ease the mainsheet too much as to trap the spinnaker behind the boom and against the spreaders.

#### Jibing the Spinnaker

The gybing maneuver of the spinnaker is a fairly straightforward maneuver.

- ? **Step One:** Get every body ready and make sure that the windward runner is free to run. Ease the downhaul 6".
- ? **Step Two:** Steer the boat by the lee in order to heel the boat over to windward. The M/A takes the old sheet and the M/F the old guy and should be prepared to trim the sail after the gybe. The helmsman releases the windward runner. Sailing the boat this way it is now the time to trip the pole simultaneously from the mast and the spinnaker. At this moment the helmsman swings the main boom over to the other side without changing the course.
- ? **Step Three:** The bowman should now have attached the pole to the spinnaker and is on his way to attach the pole to the mast fitting. In stronger winds it is of great help for the bowman if the helmsman sail the boat as low as possible and shall not head up. When the pole is in position and the downhaul is trimmed back the skipper turns the boat up onto the new course. The trimmer adjust the sheet out to its proper trim for the new course.

Quite often this is an ease of up to six feet of line. Anticipate the boat loading up on the new jibe. Have the crew ready to move to windward to flatten the boat to accelerate out of the jibe.

## Spinnaker Takedowns

We always takedown on the port side on a normal Windward / leeward or triangle race course unless a gybe-set is guaranteed. There are three basic types that should handle any approach to the leeward mark; windward drop, leeward drop, and the “Mexican”.

### Windward

As you approach the leeward mark, make sure the halyard is ready to run and hoist the jib. Make your approach to the mark a little high so you can bear off downwind to relieve some of the pressure on the spinnaker. When ready, the forward crew trips the pole and stoves it in the boom pocket and grabs the halyard. The M/F crew steps up on deck at the shrouds grab the guy in front of the tweaker and press the guy out as much as possible to fly the sail out to windward. M/A crew holds and trims the sheet.

When it is time to drop the sail M/A crew drops the sheet and the M/F crew pulls the sail into the cockpit. Once he has the sail in hand, the forward crew eases the halyard. *Be sure to keep the clew aft and to windward of the forestay so the sheet stays out of the water. This will prevent you from running over it.* The halyard should be blown as soon as the clew is out of danger. Clean up and have a great rounding.

### Leeward

As you approach the mark, be sure the halyard and the *guy* are free to run. Hoist the jib and trim for the angle you sail.

Grab the sheet under the boom and in front of the tweaker. Blow the guy and pull the sail into the cockpit. Disconnect the pole from the mast and put it in its pocket. Clean up and round the mark

### The Mexican

From America's Cup fame comes the Mexican, a simultaneous gybe / douse. As you approach the leeward mark on starboard tack, you need to jibe to round to port. Be sure the halyard is free to run and the jib hoisted. Just before the jibe, disconnect the pole and blow the guy. . If you are running short of time DO NOT TRY TO PUT THE POLE BACK in the pocket UNTIL THE GYBE IS DONE.

Have the middle / forward crew grab the spinnaker sheet close to the clew of the chute. As the helmsman jibes the boat the crew should begin pulling in the sail, making sure the foot gets on the deck and not in the water. Proceed with the takedown just like a windward takedown.

As in all maneuvers practice makes perfect. Best of luck with your 11-meter. The best way to get up to speed is to go out and work through some tacks, jibes, sets, and takedowns. Have fun with one of the best sport boats around!

## **CARE OF YOUR SAILS**

Always store your sails away from the sun and make sure they are clean and completely dry. Be sure that you always “roll “ your upwind sails. This will help them last longer and remain wrinkle free.

If you have any questions or comments about our 11-meter Tuning Guide, don't hesitate to contact us anytime.

## **CONTACT NORTH SAILS**

If you would like to discuss setting up your 11-meter sails, contact the North 11-meter experts at:

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**Good Sailing!**

# NORTH SAILS ONE DESIGN QUALITY CONTROL CHECK

## 11-meter

MAINSAIL		JIB		SPINNAKER	
Corners		Corners		Corners	
Cunningham		Battens		Numbers	
Tack Slug		Luff Hanks		Country Code	
Leech Cord		Cunningham		North Logo	
Luff Rope		Telltails		Bag	
Windows		Leech telltales			
Numbers		Leech Line			
Country Code		North Logo			
Battens		Bag			
Leech Telltales					
Insignia					
North Logo					
Bag					

Checked by: \_\_\_\_\_

Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_