

North Sails and Petticrows: on the water Dragon tuning guide



	WIND	LIGHT [0-5 knots]	MEDIUM [6-16 knots]	HEAVY [17+ knots]	COMMENTS AND REMARKS
Sails	Sail inventory	Mainsail A-7 Genoa LJ-3 Spinnaker FK-2	Mainsail A-7 MJ-6 FK-2 / CD-4	Mainsail HM-8 MJ-5-H CD-4	The sea conditions and waves can change the wind range in the sail inventory.
Mast	Mast rake	120,5 cm	121,5 cm	122,5 cm	Measurement are taken along the forestay.
	Mast position	83 cm	83 cm	83 cm	Mast position is taken from station 4.
	Mast ram	Mast ram 1,5 cm forward at deck level	Mast neutral	Mast ram 1 to 2,5 cm forward at deck level	If you struggle with pointing pull the mast back at deck level.
	Shrouds position	80 cm	83 cm	83 cm	Shrouds position is taken from station 4.
	Shrouds	Loos gauge tension 14 minus 1 full turn	Loos gauge tension 14	Loos gauge tension 14 plus 3 full turns	Tension is taken on shroud, not over plastic!
	Lowerns	Let the mast bend 1 cm to leeward at spreader level	Mast straight	Mast straight plus 1-1½ turn so the mast bend to windward	When you set the mast straight, sight up at the sail groove.
	Jumper	Loos but straight	Mast straight	Mast straight	Make sure the mast is straight from side to side.
	Jumper (Fixed)	Loos gauge tension 6	Loos gauge tension 6	Loos gauge tension 6	Make sure the mast is straight from side to side.
	Backstay	Little tension in the very light to slack	Just tight to prevent the mast top from moving in waves	Just tight to prevent the mast top from moving in waves	Soft pressure in the very light to pre-bend the mast and open the leach.
Runners [distance from mark to deck]	Slack to 13 cm	From 13 - 5 cm	From 5 - 0 cm this is MAXIMUM	If you measure with you PT-2 Loos gauge on the forestay and pull to runners maximum it will give you 30 on the gauge.	
Mainsail	Mainsail	Light sheeting upper telltales flying straight back	Sheet until the top batten is parallel with the boom upper telltales 25% on leeward side	Sheet until the main is flying nicely. The topbatten is 2 degrees twisted to leeward. Telltales are flying straight back	If you struggle with pointing you must pull the mainsheet on a little harder.
	Main traveler	To windward boom on middle	To windward boom on middle	On the middle and up to 15 cm to leeward	The boat has to be light on the helm.
	Outhaul	3,0 cm from black band	1,5 cm from black band	All the way out to black band	The sail has to be pulled flat along the boom in heavy wind.
	Cunningham	Loos	Loos - just remove wrinkles along luff	Just remove wrinkles along the luff	In very heavy winds you can pull hard to move draft forward.
	Vang	Loos Cleave off before starting the Run!	Loos Cleave off before starting the Run!	Loos Cleave off before starting the Run!	On the reach pull so the top batten is parallel to the boom
Genoa	Genoa sheet	Pull so the foot is just touching the Shroud at deck level	Pull until the foot is touching 10 cm up at shrouds	Pull until the foot is touching 25 cm up at shrouds	
	Genoa barber hauler	Loosen the leech should be flying 15 cm from the spreader	Pull until the leech is flying 4 cm from the spreader	Pull until the leech is flying 8 cm from the spreader	In light play mainly with the barber hauler
	Genoa halyard	Small wrinkles along the luff	Just remove wrinkles along the luff	Just remove wrinkles along the luff	Make sure that the luff is NOT overstretched that make the boat very slow!

Dragon: Tuning Guide

INTRODUCTION

The purpose of this tuning-guide is to give our clients in the Dragon class some guidelines on how to get most out of their North Sails. The tuning-guide is made by Lars Jensen, Jørgen Schönherr and Theis Palm.

Always experiment and try finding your own trim using these guidelines. The weight of the crew, the balance of the boat, the stiffness of the mast together with local wind and sea conditions all have influence on the fastest and final trim.

MAST TRIM

Before stepping the mast in the boat, some very important measurements have to be checked to follow this tuning-guide correctly:

1. Lead the upper shrouds and forestay along the mast, the uppers have to be taken out of the spreader tips. Pull them as hard as you can and put a mark on all three wires at the top of the black mark on the mast. These three marks are now used to check if the mast is straight from side to side in the boat, and to check the mast rake. This exercise is not required for a Petticrows Dragon, as the uppers are the same length.
2. All measurements are taken from station 4, (you will find station 4 between the forestay and the mast marked with a dot either side of the hull). Draw a line in between the points. From the middle of this line to the front end of the mast (without spinnaker pole track) see the distance in the chart below.
3. The mast rake is set by first fixing the forestay on the deck 1,86 cm from the front side of the mast. (This is the max. distance allowed in the class rules). Then measure the distance from the black on the forestay to the deck (along the forestay). see the distance in the chart below.
4. The upper shrouds proper position is located measuring perpendicular from the line on station 4 to where the shroud enters the deck. See the distance in the drawing below; for light crews (220-240 kg) we recommend to leave the shrouds in the forward position.
5. The lower shrouds are placed in the hole just behind the upper shrouds (approx. 3 cm), so that they don't hold the mast back when going downwind.
6. The marks on the top shrouds (from step 1) are now used to control if the mast is placed in the middle of the boat. This is done best by measuring the distance from the mark to the deck. This should be the same on both sides. It is very important, that the mast is straight from side to side and not being distorted at deck level.
7. Setting up forestay tension, put mast in strong wind position (tension 20 on uppers and 10 on lowers). Next, put the tension gauge on the forestay around the black mark. Pull runners until the gauge reads 30. Make a tape mark on runner exit above deck (2 cm). Do the same on the other side. Now you are sure both runners have the same tension on the mark set-up. When you ease the runners until the forestay is just tight, the tape mark will be 20 cm above deck as the uppers are both the same length. (In strong wind the tape mark is on the deck, medium winds 10 cm from deck and in light 25 cm).
8. The jumpers are adjusted by pulling the backstay. Then look up along the sail track and check that the jumpers are equally tight on both sides. If this is not the case, they should be adjusted till the mast is completely straight.
9. For the rig tension measurements we have used a Loos Gauge PT-2. To get a more precise reading, cut the plastic of the upper shroud about 1,2 m above deck. You find all setting in the chart below.
10. The lower shrouds are tensioned, so that the mast is completely straight in the boat up to 20-22 knots. From here on tighten them till the mast drops 5-10 cm off to leeward where the forestay meets the mast - the exact measurement is dependant on crew weight.
11. Setting of fixed jumpers
Put mast on 2 tressles; resting points on jumper and black band with track up. Take tension of the lower part of the jumper; it should be 7. Repeat the same other side. Look up the mast sighting over the track to check if it is straight.