



SPAR ASSEMBLY INSTRUCTIONS

In order to ensure proper assembly, all spars must be assembled by a qualified rigger.

These assembly instructions are intended only as an aid to experienced riggers. An improperly stepped or tuned spar is dangerous and can cause severe property damage or injury.

UNPACKING

All spars shipped by Novis come wrapped in foam and Tyvek in order to protect the spar during shipment. Experience has shown this method to be sufficient protection against the ordinary rigors of shipping, but no protective coverings can protect against abuse or neglect. The mast should be unpacked and inspected upon receipt to check for damage. Any damage must be reported to Novis Marine and the shipping company immediately.

All spars must be completely unwrapped immediately upon receipt and never wrapped in plastic afterwards. Plastic wrap or any porous material that will hold water can cause blistering of the paint. Such blistering is not covered by our warranty. Spars should only be cleaned with mild soap and water; harsh chemicals can damage the finish.

Every spar is shipped with a fitout box containing spreader bars, mast boots, clamps and other hardware. Locate this box and check to ensure that the necessary hardware is included. Notify the warranty department if any hardware is missing.

SPREADER ASSEMBLY

The mast is most easily assembled when placed upon saw horses with the mainsail track side down. The first step in assembly is to install the spreader bars. The spreader bars and clevis pins will be located in the fitout box. Every spreader bar is stamped with the hull number and a spreader designation (S1, S2). The number indicates which set of spreaders the bar fits, with the S1 being the first spreaders and increasing towards the top of the mast. It is critical that the spreader bars are properly located as the bars are matched to fit the spreaders, and clevis pin holes will not line up properly if the bars are incorrect.

The spreader bars are installed from the starboard side of the mast with the angle towards the top of the mast. They should be a snug fit and it may be necessary to lightly tap the bars in with a rubber mallet. Do not use a steel hammer as this will mushroom the bars and the spreaders will not fit. Every spreader bar is pre-fit at the shop before painting to ensure a very snug fit. It may be necessary to lightly sand the edges of the holes in the

spar to remove any paint build up. Do this carefully and keep the sanding to a minimum as a very snug fit is desired.

When installing spreader bars, ensure that all halyards are located behind the bars. The only exceptions to this are a spinnaker pole topping lift or staysail halyard located in close proximity to the spreaders. Such halyards should be routed forward of the nearest spreader bar.

Following spreader bar installation, the necessary intermediate and lower shrouds should be installed. Each spreader bar has a milled seat for the stemball and cup washer of the appropriate shroud. The milled seat is connected via a small slot to a through hole which allows the stemball to pass through the spreader bar. The stemball should be inserted through this hole from the bottom and pulled up high enough to clear any swage fittings. Once clear of the swage, the shroud will slip through the slot and allow the stemball to be pulled down into its seat. (Note: When using PBO rigging the slot in the spreader bar is not wide enough to allow the coupler to pass. Refer to the PBO rigging instructions on how to properly remove the stemball from the coupler to pass it through the stemball seat.)

Once the lower and intermediate shrouds are installed the spreaders can be installed. First install one side, and thoroughly lubricate the bar and clevis pins with Lanocote. Slide the spreader over the bar until the pin holes line up. Every spreader pair is fit and pinned in the factory prior to shipping. If the holes do not line up, check to ensure that it is the proper spreader and bar combination. Make certain that the first spreader is flush with the mast wall and install the second spreader. Again lubricate the bar and pins with Lanocote. After installing the spreaders, tape all rings to ensure they do not snag sails or fall out.

RIGGING ASSEMBLY

Install the remaining side shrouds and stays on the mast. The side shrouds all come standard with a drop in T-hook or Gibb style shroud fitting. The shrouds should be inserted into the appropriate backing plate by rotating them 90° from the normal position and inserting into the backing plate. Install the appropriate rubber plug above the terminal to secure the shroud during stepping. A small amount of clear silicone can be used to secure the plugs.

Install the shrouds on the spreader tips. Use Lanocote on all bearing surfaces and threads. Cover the spreader tips with the supplied rubber boots and tape in place. When installing rod rigging, ensure the spreader bends are properly seated on the spreader tips. When installing PBO rigging follow the PBO manufacturer's instructions regarding the special spreader adaptors. Ensure that water cannot get trapped in the spreader tips as trapped water will cause galvanic corrosion.

Lubricate all turnbuckle threads liberally with Lanocote or Tef-Gel. The lubricant is critical to prevent galling when the turnbuckles are adjusted. Ensure that there are no damaged threads or burrs on the cotter pin holes that may damage the turnbuckles. The

turnbuckles should screw together easily. Do not force any turnbuckles if they are binding as this will only damage the threads and weaken the turnbuckle. Contact Novis if you are having difficulty with thread fit.

RIGGING HALYARDS

Messenger lines are installed in the mast for all halyards. The messenger lines are all run simultaneously at the factory to ensure they are not tangled or wrapped. When installing halyards untie only one messenger line at a time to prevent fouling of the halyards. Tie and tape the messengers to the halyards to ensure they do not catch any hardware or other messengers. Pull the halyard through the mast. If the halyard becomes stuck, pull the halyard back several feet and try again. Once all halyards are run, tie off the ends to prevent them from pulling back into the spar.

ELECTRONICS AND WIRING

All masthead lights and fordeck/steaming lights are tested at the factory before shipping. However, bulbs can vibrate loose and filaments can be destroyed during shipping so it is important to check all lights before the mast is stepped. When installing masthead wind instruments, it is important to make sure that the instruments will not be damaged during stepping. If necessary, install the masthead electronics after stepping the rig. Also, a messenger is supplied inside the wiring conduit to allow the running of additional masthead wiring as necessary.

LIFTING THE SPAR

The mast should always be lifted on the long axis of the section. The mast is stiffest in this direction and will make for the easiest stepping. Once the mast is lifted to vertical it can be rotated into the proper position.

IMPORTANT: Never lift the spar by the spreaders and bars. Always use a lift line with a tie down to the gooseneck or vang brackets. The lift line should be positioned between the first and second spreaders, slightly above the center of gravity of the mast. The spreaders and bars are not designed to be used to lift the spar and damage or failure can result from improper lifting.

STEPPING THE SPAR

When lowering the spar through the mast collar, use rags on the stainless steel collar to prevent damage to the spar finish. Before setting the mast down on the step, ensure that the mast wiring is pulled through the conduit in the mast step and cannot be caught between the mast and step. Every Novis carbon spar is shipped with a G10 mast heel plug. This plug has fore and aft rocker cut into it, and will show a slight gap between the mast and step. This gap is normal and ensures that there is no point load on the carbon spar.

Once the spar is in the boat, and before tensioning the rigging, the Spartite mast chocking system must be poured. Spartite is the only accepted mast chocking system to be used with Novis carbon spars. **WOOD CHOCKS ARE NOT ACCEPTABLE AND CAN**

DAMAGE THE CARBON, VOIDING THE WARRANTY. Ensure that the mast is centered in the boat and then follow the instructions included with the Spartite.

TUNING THE SPAR

After allowing the Spartite to fully cure, the mast can be tuned. Use a steel measuring tape to first ensure the mast is centered in the boat. After centering the spar, tighten the shrouds starting with the uppers and working down to the lowers. Be sure to keep the mast in column when tightening the shrouds. In general the uppers and lowers will be tighter than the intermediates. Do not tighten the shrouds to more than 3015% of their rated breaking strength in a static state. Use a Loos tension gauge to ensure that the shrouds are evenly tensioned and do not exceed 30% of their rated breaking strength.

Under sailing conditions, the leeward shrouds should be slightly slack when sailing in 10-12 knots of breeze. The leeward shrouds should never be sloppy or flapping. Remember, after sailing the first few times, the shrouds will stretch some and the rig should be re-tuned.

IMPORTANT: Never drill holes, modify, or cut the carbon spar without first checking with the factory. The spar is a carefully engineered system and unauthorized modification of the spar or rigging will void the warranty and may compromise the system. Property damage or severe personal injury may result if the carbon fiber matrix is compromised.