

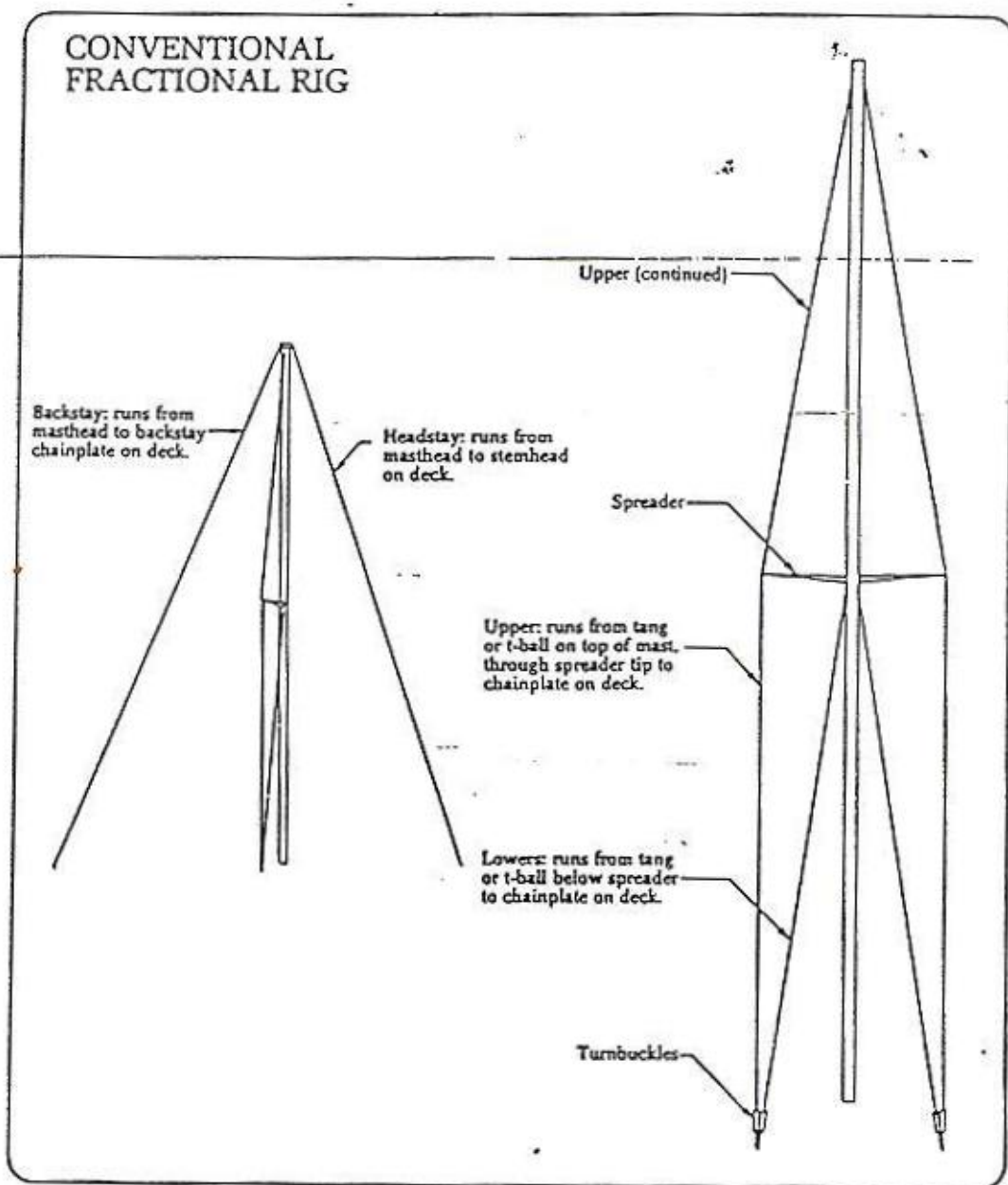
III. Sails & Rigging

A. Tuning the Conventional Fractional Rig (Hunter 23,-30-Hunter 26.5, Hunter 333, Legend 35, Legend 37)

TUNING THE RIGGING:

After raising your mast, attach the headstay, backstay, upper shrouds and lower shrouds. Set the headstay turnbuckle at half open and then tighten backstay turnbuckle to medium tension.

To center the mast athwartships, start with only slight tension on the upper and lower shrouds. Check that the mast is centered in the boat by measuring



Install spreaders on spreader bases using the supplied clevis pin and plastic bushing. Be sure that the plastic bushing is in place in the pin hole of the spreader base. Shrouds can now be attached to the pins in the spreader tips. On the upper spreader, the upper section of the upper shroud should terminate in the center of the pin with the upper diamond forward and the lower section of the upper shroud aft. (See diagram page 3)

On the lower spreader tips, the upper shroud passes through the groove in the after end. The upper intermediate will terminate in the center of the pin with the lower diamond forward and the lower intermediate aft on the pin.

Refer to the B & R TUNING INSTRUCTIONS supplied by Hunter with every boat, for pre-tuning of mast which can be done before mast is stepped in boat.

The boom is provided with adjustable reefing eyes for the termination of the reefing lines. Once the mainsail is installed on the boom, the reefing eyes can be fixed for appropriate horizontal and aft tension. The reefing lines run aft from the sail leech and into the outboard end of the boom end and up inside the boom to the jammers. A back winch pad is supplied for the reefing winch. When releasing tension on the jammers, take up some tension in the reefing line with the winch and then disengage the jammer.

The exit sheave box at the base of the mast has sheaves which are retained by a pin passing through the sheave box. This pin can easily be removed by grasping and pulling. The pin is retained with spring loaded clips and it is not necessary to get inside of the mast to release or re-install it. Use a hook or rod to keep sheave from falling back into mast.

The ISOMAT catalog is very helpful as it describes all the parts and aspects of the ISOMAT masts and booms. All standard and optional parts are available from the ISOMAT agents listed on the back page of the ISOMAT catalog. The Miami agent, ENGINEERED MARINE SYSTEMS, INC., is most familiar with the Hunter 40' system and would be happy to respond to any specific questions.

RIGGING INSTRUCTIONS FOR THE HUNTER 40'

The Hunter 40 has been supplied with the latest in spars and rigging systems. The ISOMAT mast and boom on your boat have been designed for strength, performance, and reliability by the largest mast building company in the world. These instructions, and the tuning instructions for the B & R RIG, will help you to properly install and understand the rigging and the ISOMAT system. You may also refer to the ISOMAT spar catalog for a complete description of the various parts of the ISOMAT masts and booms. The mast profile is NG 70 with the NG II masthead and the boom profile is the NB 40.

The first step is to install the standing rigging on the mast. One of the unique aspects of the ISOMAT spar is the use of the stemball terminal that replaces the eye or fork terminal used on other masts. The rigging comes with a stemball used with a stainless steel cup that must be present between the mast support structure and the stemball itself. This takes the place of the tangs, clevis pins, cotter pins, and toggles that are used on other masts.

To install the upper shrouds the rigging is unrolled and the end with the lower terminal is pushed through the side stemball receptacle in the masthead. (See ISOMAT catalog, masthead NG II, pp. 15 and 16 for detailed pictures.) The wire then exits through the slot that is located just below the masthead. Be sure that the starboard shroud exits through the starboard slot. These shrouds do not cross over below the masthead. The wire actually rests against the upper part of the slot opening, resulting in effectively reducing the length of the upper panel and thus resulting in a stronger and stiffer mast. When the shrouds are pulled up so that the stemball is resting in the masthead, the stainless steel cup must now be in place between the stemball and the receptacle in the masthead.

The backstay is attached to the stemball eye fitting that rests in the socket at the back of the masthead. A similar stemball eye is used to terminate the upper end of the headstay. You will notice the masthead cover plate has to be removed to install the headstay. Wind instruments and lights can be installed on this cover plate and can easily be removed for service at later dates.

The upper part of the intermediates and the lower shrouds are dropped through the aft holes in the spreader bases. The forward holes remain empty. The lower shrouds pass on the after side of the lower diamonds. The upper part of the intermediates pass aft of the upper diamonds.

The lower ends of the diamonds are supplied with turnbuckles which have a socket on their lower end. This socket can be slipped sideways through the hole in the mast (located at the base of the mast and just above the lower spreader base). This socket attaches the lower end of the turnbuckle to the mast and it needs no other attachment because once under tension it is held securely in place. Upper ends of diamonds will be attached to spreader tips.

It is important to make sure the mast is straight athwartships at this time.

You are now ready to step the mast.

Step the mast with all shrouds loosely attached.

Adjust the forestay and backstay to obtain the desired mast rake. The mast should be vertical or raked aft. The more rake, the greater the weather helm. The forestay and backstay should have a reasonable amount of tension on them.

Adjust V2 (port and starboard) evenly until they are tight. You should finish with approximately equal amounts of thread showing on each turnbuckle.

Using the jib halyard, check the mast for athwartship plumb. Pull the halyard out to the side of the boat and below the shear. Repeat the procedure on the opposite side. If you find a big difference (more than $\frac{1}{2}$ inch), adjust turnbuckles an equal amount in opposite directions until the mast is straight.

Adjust V1 (port and starboard) using the above procedure.

Repeat the procedure for D1 (port and starboard).

Your mast should now have the original "pre-bend" and be straight athwartship.

Check the mast tuning by sailing in medium winds (10 to 12 knots). Sail on both tacks, sighting up the luff groove to check athwartship straightness. Shrouds should not be loose on the leeward side. (This is especially important with the B&R rig.) Follow the progressive shroud tightness routine described in the tuning instructions for the conventional rig. When mast tuning is complete, install cotter pins in all turnbuckles and tape over sharp edges of the cotter pins with chafe tape.

B&R RIG

D3 upper upper:
runs from upper tang
to upper spreader tip.

Upper spreaders

V2 lower upper:
runs from upper
spreader tip through
lower spreader tip to
chainplate on deck.

D2 upper intermediate:
runs from tang below
upper spreaders to
lower spreader tips.

d2 upper diamond:
runs from upper
spreader tip to tang
above lower spreader.

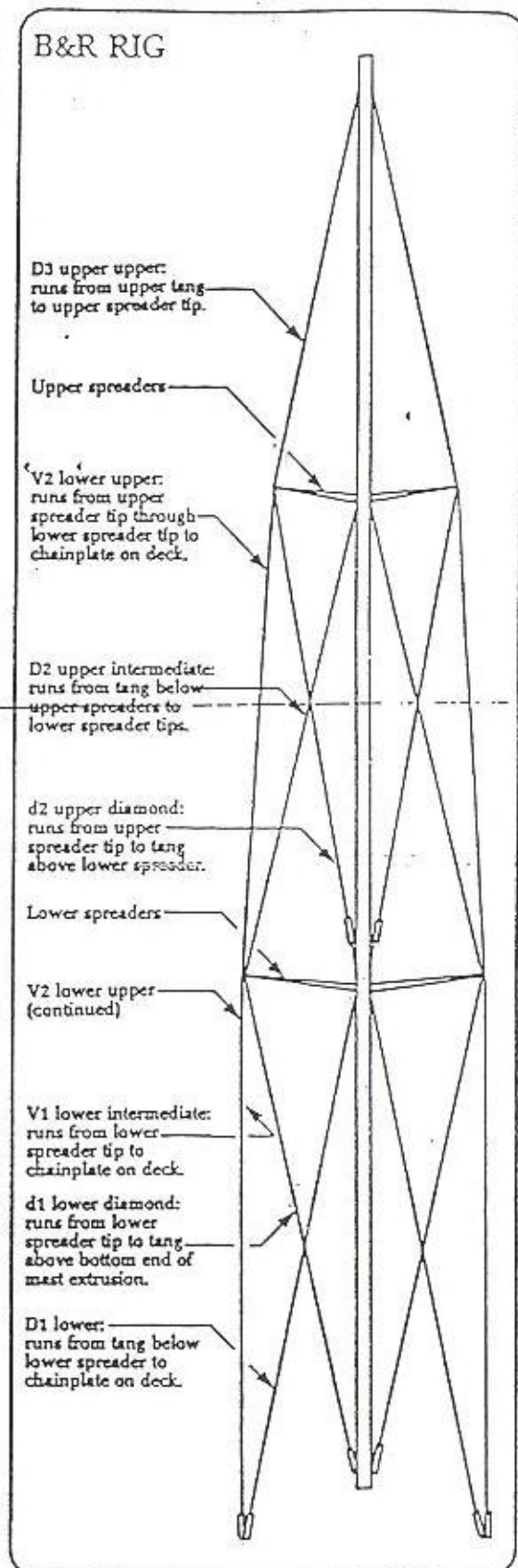
Lower spreaders

V2 lower upper
(continued)

V1 lower intermediate:
runs from lower
spreader tip to
chainplate on deck.

d1 lower diamond:
runs from lower
spreader tip to tang
above bottom end of
mast extrusion.

D1 lower:
runs from tang below
lower spreader to
chainplate on deck.



from the masthead to the chainplates with a steel tape measure hoisted completely up the main halyard. Adjust the upper shroud until the measurements port and starboard are exactly the same. Now the spar is plumb athwartships, tension both uppers equally, counting turnbuckle revolutions as you go. Tighten uppers until you have approximately one inch of "prebend" fore and aft in the mast. This is achieved because the swept spreaders will push the middle part of the mast forward as you increase tension of the uppers.

Now tighten the lower shrouds evenly, making sure the mast remains straight athwartship. Sight up the luff groove to assure this straightness. Lowers should end up almost as tight as the uppers. (The uppers should always be the tightest.) Both the Legend 35 and Legend 37 are equipped with double spreaders. The three shrouds should be made progressively tighter toward the top of the rig; the uppers should be the tightest of all. Tighten backstay to a taut position: perhaps eight to ten turns past your original tension.

Check the mast tuning by sailing in medium winds (10-12 knots). Sometimes fine tuning the upper and lower shrouds is necessary when the spar is loaded in sailing conditions. Sail on both tacks, sighting up the luff groove to check athwartship straightness. Both upper and lower shrouds should be taut on the leeward side.

When mast tuning is complete, install cotter pins in all turnbuckles and tape over sharp edges of the cotter pins with chafe tape.

B. Tuning the B&R Rig (Hunter 28.5, Legend 40, Legend 45)

NOMENCLATURE DESIGNATION:

upper-upper	D3*
lower-upper	V2
lower-intermediate	V1
lower	D1
upper-intermediate	D2*
lower-diamond	d1
upper-diamond	d2

*D2 and D3 are cut to a fixed length (no turnbuckles).

Initial tuning is best accomplished before the mast is stepped.

Support the mast, forward side down, about one-quarter of its length from the end and at its center. Once the mast is supported, make certain that it has no bow in any direction. Attach a small string from the masthead, in line with the sail track groove, to the base of the mast, stretching it as tight as possible. Check to make sure it is a constant distance from the mast along the entire length.

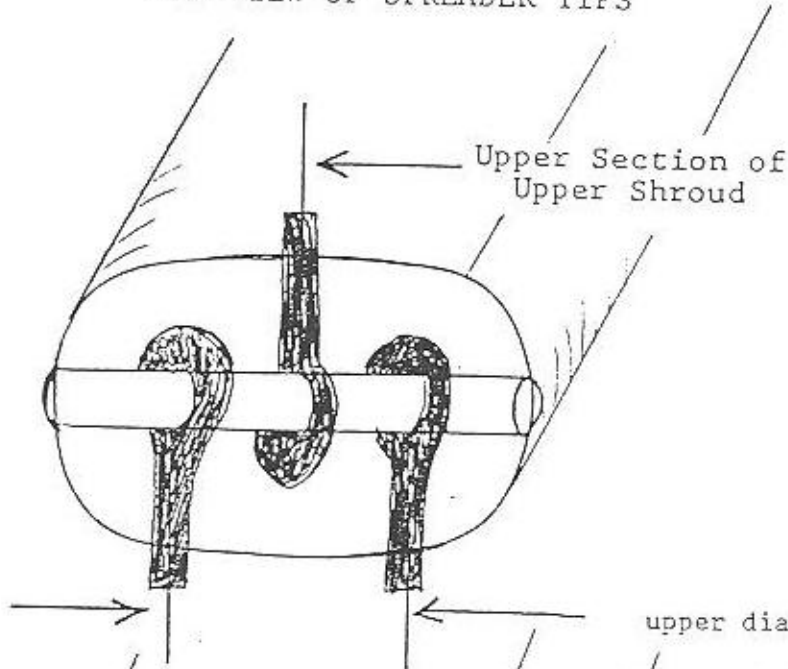
You are now ready to "tune in" the desired mast bend, which is one percent of the mast height above the boom ($.01 \times$ mast height above boom). On a 50' mast, this would be .5 feet at the mid-point of the mast.

Using the rigging diagram, locate d1 and d2. Before tuning, make sure the turnbuckles are adjusted back with equal thread showing. Carefully counting turns, adjust d1 port, d1 starboard, d2 port and d2 starboard evenly until the desired bend is induced. This is checked by measuring from the string down to the mast at the center of the mast.

DIAGRAM

END VIEW OF SPREADER TIPS

UPPER SPREADER



LOWER SPREADER

Upper Shroud

