

## RIGGING INSTRUCTIONS

FOR

### CHRYSLER 16' CATAMARAN (MUSKETEER)

The initial rigging of a sailboat is not difficult, but if the boat is strange to the new owner, or the new owner is a stranger to sailing, we hope that these instructions will enable you to complete your rigging easily and at the same time learn the nomenclature and function of every part of your Musketeer.

Before you begin the actual rigging be certain that you have a sharp knife, a standard slot type screwdriver, a #2 Phillips head screwdriver, and either a good pair of combination pliers or a set of wrenches. Also, you will want a roll of tape (gray duct tape), a small spool of wire, and perhaps a few feet of 1/8 inch nylon line.

References used in these instructions will enable you to identify major parts by checking the corresponding number on the boat sketch.

First, let's assemble the Mast (Ref. 1). This group consists of the following parts which you should get from your parts bags or box.

- 1 - Wire halyard (3/32" flex. cable w/shackle) - Ref. 2
- 1 - 3/16" x 34' rope tail for wire halyard
- 1 - Forestay (1/8" cable w/thimble end and eye end) - Ref. 3
- 2 - Shroud (1/8" cable w/thimble end and eye end) - Ref. 4
- 2 - Stays (1/8" cable w/jaw and eye ends) - Ref. 5
- 1 - Spreader Assy. (3/4" alum tube w/slotted ends) - Ref. 6
- 1 - Sheet metal screw (#10 x 1 1/4" Phillips head)
- 2 - Turnbuckles - Ref. 7
- 4 - Chafe tubes (10" clear plastic) Ref. 7 & 8
- 2 - Clevis pins (3/16" x 1/2")
- 2 - Cotter pins (1/16" x 1/2")
- 3 - Shroud or forestay Adjustor (12 position) - Ref. 8
- 1 - "D" Shackle (w/5/16" dia. pin)

Reave the wire halyard through the mast head sheave, leaving the shackle on the grooved side of the mast. Tie the 25' rope tail to the thimble end of the halyard and run it through the black clam cleat on the bottom of the mast. Now attach the two shrouds and the forestay to the Hound - Ref. 3 - with the large "D" shackle. The forestay is approximately 5" longer than the shrouds and should be in the center position on the shackle. Attach a stay to each of the tangs just below the hound. Use 3/16" clevis pins and 1/16" cotter pins for this. Insert the spreader thru the hole in the mast - Ref. 6 - then slide the aluminum rings on each side and secure the spreader with the 1/8" cotter pins. Attach the brace to the spreader with the 1 1/2" screws and lock nuts and to the mast with the 1 1/4" sheet metal screw. Attach a turnbuckle to each of the lower tangs - Ref. 7, open them as far as possible, run the stays in the grooves of the spreader, making sure the plastic wheels on the stays are above the spreader, slide a 10" chafing tube on each and attach them to the turnbuckles. Adjust turnbuckles tightly with equal tension on each stay. Tie the stays in the spreader grooves with wire and tape the spreader ends well. Connect an adjustor to each shroud and the forestay. Initially use the center adjustment hole, and slide a 10" chafe tube over each shroud.

Now, let's assemble the jib group - Ref. 9 - consisting of:

- 1 - Aluminum tube (3/4" x 18")
- 1 - Jib reefing tube (1" x 22' w/welded on spool)
- 2 - Hose clamps
- 1 - Jib sail
- 1 - Jib reefing line (3/16" x 25') - Ref. 11
- 2 - Blocks (Harken 1 3/4" dia. w/shackle, clevis, and cotter pin)
- 1 - Jib block bridle (5/16" x 2' polyester line) - Ref. 10
- 1 - Pin clevis 3/16 x 15/16
- 1 - Ring, Keeper
- 1 - Roller Reefing bracket
- 1 - Bearing, Roller Reef

Slide one hose clamp down the reefing tube to the spool, unroll jib and insert reef tube through the pocket on luff of sail. Secure the tack of the sail at the reefing spool with a hose clamp. Secure head of jib to the reefing tube with the other clamp. Be sure to stretch sail tightly along tube before securing clamp at head. Remove the adjustor from the forestay, slide the 18" alum tube up the forestay to the "D" shackle and secure it to shackle with wire. Roll the jib neatly and snugly around the reefing tube and slide it onto the jibstay and over the 18" alum tube at the hound. Place the roller reefing bracket over the forestay adjustor so that the bushing (hole) is directed aft, put the 15/16" clevis pin thru the bottom adjustor holes and secure it with a retaining ring. This pin keeps the bracket from being pushed down when the jib tube is resting on it. Now put the plastic bearing washer over the adjustor and let it rest on the bracket. Replace the adjustor to the end of the jibstay extending from the spool. Tie the jib block bridle at its center to the clew cringle of the jib, then tie one jib block to each end of the bridle - Ref.10. Push one end of jib reef line between flanges of spool and up through hole in the top flange. Tie a figure 8 knot at end of line, then take about four turns around the spool with the reefing line. Study a little here to make sure you take the turns in the direction that will wind the line on the spool when the jib is unwound from the reef tube.

The boom group - Ref. 12 - is next and has:

- 2 - Clevis pins. (1/4" x 1 1/4")
- 2 - Keeper rings
- 2 - Single blocks (Harken 2 1/2" dia. w/shackle, clevis & cotter)
- 1 - Downhaul line (3/16" x 4' polyester line)

Place a clevis in each casting yoke at boom ends and secure it with a keeper ring. Tie the downhaul line through the ring underneath the gooseneck. Attach a block to the two aft boom bails. You will note that these blocks can swivel or not swivel by tightening the small screws against the shoulders of the block shank. The blocks should be made to not swivel.

The forebeam - Fig. 13 - has a strap riveted to it for attaching the forestay. The mainbeam - Fig. 14 - has on it the mast socket casting and a black clam cleat for the jib reefing line. One other part, a 1 1/4" dia. x 1/4" thick polyethylene wafer, is used with the main beam. This wafer is placed in the mast pivot casting before stepping the mast and acts as a bearing surface for the pivoting action of the mast when changing tacks. When the boat is not completely rigged, this part should be removed to prevent its being lost. Place the remaining 1/4 x 1 1/4 clevis pin in the mast pivot casting and secure it with a keeper ring.

The aft beam group - Fig. 15 - accepts the following parts:

- 1 - Swivel jam cleat
- 3 - Machine screws (#8-32 x 3/4" Phillips oval head)
- 3 - Lock nuts (#8-32)
- 1 - Traveller and Block assy. w/4 nylon wheels

Use the 3 machine screws and nuts to mount the double deck swivel jam cleat to the aluminum bracket attached to the rear beam. These screws must be installed through a vertical hole in the cleat. When the cleat is turned it will reveal the screw holes in the metal base one at a time. Now place the nylon wheels on the traveller axles and place it in its internal track on top of the beam. Move the traveller and block to the center of the beam and temporarily tie it to the jam cleat to prevent it from sliding out when handling the beam.

The main sail - Fig. 16 - is made up with the following:

- 1 - Outhaul line (3/16" x 3' polyester line)
- 1 - Batten 9' 5 1/2" long
- 2 - Batten 9' 3" long
- 1 - Batten 8' 11 1/2" long
- 1 - Batten 8' 5" long
- 1 - Batten 7' 9" long
- 1 - Batten 6' 10 1/2" long
- 1 - Batten 5' 9" long
- 1 - Batten 4' 4" long
- 9 - Plastic batten tips
- 9 - Batten tie-in lines (1/4" polyester line)

Unfold the mail sail. Note that each batten is tapered about 40" on one end. This tapered end goes toward the luff of the sail and indexes into the plastic cheeks at the luff end of the batten pockets. Insert a 9'3" batten into the very bottom pocket on the sail. The second batten up is the 9' 5 1/2" one, then the other 9'3" is next. The next longest batten is used progressively then, with the 4'4" batten in the very top slot. Place a plastic tip on the protruding end of each batten. You will note that each batten protrudes about 4" out of the sail and between two loop tabs on the leach end of the batten pockets. Tie one of the batten tie-in lines to a tab of each pocket, run it through the hole in the batten tip and tie it to the tab on the other side. By adjusting the tension on these tie-in lines, you can put "set" into your sail. Experience will dictate just how much "set" you want. If you happen to lose a tip, you can just drill a 1/4" hole near the end of the batten and pass your tie-in through it. Attach the mainsail tack tab in the yoke at the gooseneck end of the boom, and using one of the small "D" shackles, attach the clew tab to the forward hole in the sliding clew outhaul. Tie the outhaul line (3/16" x 3') to the aft hole of clew outhaul and roll up the sail for now.

Well, it is time to begin getting it all together! Align your hulls side by side and about 8 feet apart with the beam holes to the inside. Insert the three beams into one hull, making sure the trampoline groove on the main beam is toward the aft end of the boat and the welded assembly on the aft beam is toward the forward end of the boat. Now wiggle the other hull over and work together until the beams are seated in both hulls. The trampoline - Fig. 17, should now be put on and you should have two 45" clear plastic tubes for the hiking straps. There is a groove opening at the center of each beam that holds the trampoline. Feed the aft trampoline strip into the rear beam and the large portion of the trampoline into the main beam via these openings. Make sure the zipper pocket and nylon straps are on the top side. Each side of the trampoline has a cord sewn in. These cords run through the grooves in the extrusion on each hull, and must both be pulled through at the same time.

Thread the nylon straps thru the plastic tubes and then start your lacing procedure. You may wish to tie these hiking straps down with separate line or you may pick up the loops in the straps with the trampoline lacing line as shown. At any rate, lace the trampoline tightly. There are two pockets on your trampoline, a large zippered one for storage and a small one on top for your halyard. Now tie each grommeted corner of the trampoline to the shackles on the hulls with a piece of 3/16 line.

Let's step the mast! Place the pivot bearing in the mast casting on the main beam, lay the mast, luff groove down, over the trampoline and extend aft with the mast heel casting even with the casting on the main beam. Now attach your shroud adjusters to the chain plates. Have someone lift the mast head until you can get the hook on the heel casting into the groove on the main beam casting and engaged in the pin across this groove. Warning!! Make certain you have picked a spot to step this mast where the area is free of trees and power lines. While you attend the mast heel, have the person at the mast head walk slowly toward the rear beam raising the mast over head as he does so. Your mast heel should be firmly contained by the hook now and you can walk to the aft beam, on the trampoline, and take over the mast raising. Be sure to come straight up with it. Your companion should move to the front of the boat as you take over the mast. Here he attends the jib, forestay, and reefing gear as you finish raising the mast. As long as forward pressure is on the mast, the shrouds and heel casting will contain it while you then go forward and secure the jib stay. More rake forward or aft on the mast is made by changing the hole location on the adjustors.

At this point check to see that the jib and jib reefing line are wound in a manner to permit the reefing line to pass through the fairlead and on to the clam cleat on the main beam, and to wind up as the jib is unwound. If not, you should re-wind so it functions properly.

The jib sheet - Ref. 18 - can now be put on. Place one of the remaining two shackles in each adjustable jib slide. Start, say, on the port adjustable jib slider and track by tying the jib sheet to the small shackle just forward of the jam cleat. Now pass the sheet through the port jib block on the sail clew, then go back through the jam cleat, across the trampoline, out the starboard jam cleat, through the jib block on the starboard side of the sail clew and tie off at the shackle just forward of the starboard jam cleat. This makes your sheet endless.

Place the boom gooseneck in the mast groove at its opening and raise the boom end above the trampoline to facilitate stringing the main sheet - Fig. 19. Untie your traveller and tie one end of main sheet to the forward bail on the boom. Pass the other end thru the forward side of one of the doubler blocks on the traveller, then up thru the aft side of the forward block on the boom, down thru the forward side of the other side of the double block on the traveller then up thru the forward side of the aft block on the boom, down and thru the aft side of the matchet block on the traveller, out thru the cam cleat on the ratchet block, back thru the fairlead and cam mounted on the aft beam, thru the two sheaves on the traveller, and thru the eye strap on the center aft side of the aft beam. Tie a knot at the end of the sheet. This makes your main sheet endless.

The last portion of the rigging is the rudder group - Fig. 20 - and the parts you should have are:

- 2 - Rudder Assembly
- 2 - Tiller Assembly
- 1 - Tiller connector bar (1" alum tubing w/castings)
- 1 - Tiller extension (7/8" alum tubing w/plastic end caps)
- 1 - Clevis pin (1/4" x 2")
- 1 - Keeper ring

Assemble the rudder blades in the rudder cheeks with the bolts provided. Place the rudders into the transom gudgeons. Make sure the angles on the tillers point toward the center line of the boat. Place the connector bar so the rounded surfaces of the castings are together. The sequence of the rubber grommets and washers is as follows:

- a. One washer and rubber grommet in the cup of the tiller casting.
- b. One washer, one grommet, and one washer between the castings.
- c. Two grommets and one washer in the cup of the connector castings with the keeper ring thru the clevis pin.

Now attach the tiller extension at the center to the center of the connector bar using the 2" clevis and remaining keeper ring. You will note that the two lines coming out of the tiller operate the up or down position of the rudder when sailing or when launching or beaching the boat.

Your center boards are adjusted by the use of the lines and clam cleats already on the hulls, and of course you always check your drain plugs before launching.

This should leave you with these instructions, a sail bag, and a boat ready to put into the water. Catamarans are notoriously fast, sometimes a little stubborn, can capsize, and are great fun boats. Happy sailing!

