

Prindle

 Catamarans

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19

Owners Manual



INTRODUCTION

This owner's manual is provided to ease assembly, maintenance and use of your Prindle Catamaran. We believe these instructions portray the simplest methods. Do it our way the first time and learn from us. Then, if you discover a better method, feel free to tell us about it using the reader comment form enclosed. You may see your idea appear in the next edition. We are sure you will enjoy your Prindle Catamaran and hope that this manual will make your enjoyment easier to come by.

Make sure to join the Prindle Class Association — it's fun and it's FREE to any owner of a Prindle Catamaran residing in the United States. A \$15.00 annual fee is charged for all other areas. You will receive the Prindleletter, our Class publication every other month. This newsletter contains feature articles, news and results of regattas, photographs, timely tuning tips, special announcements and contests. As a member of the Prindle Class Association you will also be entitled to enter and participate in all of our Class sanctioned regattas.

One design racing begins at the local fleet level leading to regional qualifying regattas and culminates with the Annual National Championship Regattas held in a different region each year. Even if you are not a racer, join the Prindle Fleet in your area. Our fleets have held such fun events as watermelon hunts, hull flying contests, group cruises, Prindle barge picnics and clinics. It's much more fun to share the joy of sailing a Prindle Catamaran. If a fleet does not exist in your area — start one! All you need is five enthusiastic owners!

Make sure your dealer fills out and submits your warranty card as this not only validates your warranty, but it will also automatically register you as a member of the Prindle Class Association. If you have purchased a used Prindle Catamaran please send us your sail and hull numbers as well as your complete address. Make sure to notify us when you move too, the Prindleletter does not get forwarded.

Keep in touch. We love to hear from our owners!

Lear Siegler Marine
1810 E. Borchard Avenue
Santa Ana, California 92705

CAUTION!! CAUTION!! CAUTION!!
DANGER!!

EXTREME CAUTION MUST BE
OBSERVED WHEN LAUNCHING AND
SAILING NEAR OVERHEAD WIRES.
A MAST NEAR A WIRE COULD
BE FATAL!

WARN YOUR FELLOW SAILORS!

CAUTION!! CAUTION!! CAUTION!!

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PRINDLE 18-2 + 19 CATAMARAN OWNER'S MANUAL

Section I: ASSEMBLY

PREPARATION

Tools needed:

- large screwdriver
- pliers
- needle nose pliers
- 1/2" wrench
- combination 1/2" & 9/16" box-end wrench
- adjustable wrench
- silicone sealant

Your Prindle Catamaran comes packaged in two hull containers, one large hardware box and one mast box.

Place the two hull containers approximately 6 feet apart with stapled seams at the top of the cartons facing each other. This will insure that both hulls will be facing the same direction.



Open the hull containers. Leave the hulls standing on the cardboard supports.



Open the hardware box and familiarize yourself with the major parts of your boat. The contents of the hardware box should include:

- boom
- battens
- rear crossbar
- sails (may be packed with hulls)
- trampoline
- rudder box
- filler crossbar
- filler extension

Open the rigging box. The contents will be listed on the sheet enclosed.

CROSSBARS

Put a dab of grease (included in bolt kit) into each hole in the hull for the front beam bolts. This is very important! Put a small amount on each of the 3/8" hex head front beam bolts before assembling crossbars. The front beam bolts are tapped into an aluminum plate.

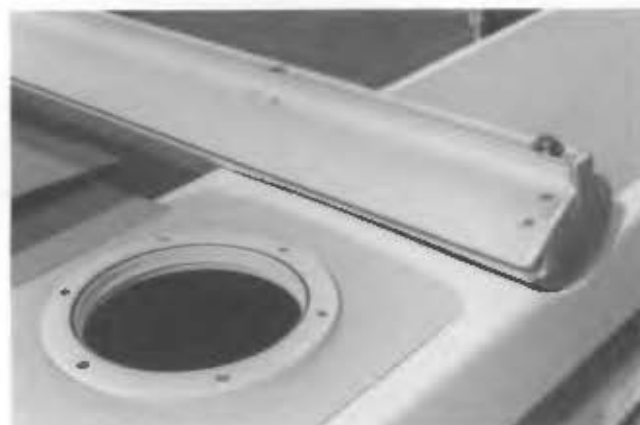




Lay both the front and rear crossbars on the hulls with the outside edges even with the outside edges of the hulls. The curf (groove) on the front crossbar should face aft and the curf on the rear crossbar should face forward.

To attach inside bolts on the rear crossbar, insert one of the 5/16" flathead screws through the inboard hold of the rear crossbar. Apply silicone sealant to washer and nut and tighten with *fingers only*.

To attach inside bolts on the rear crossbar, insert one of the 5/16" flathead screws through the inboard hole of the rear crossbar. Apply silicone sealant to washer and nut and tighten with *fingers only*.



Align holes in front beam with the holes in the hull. Carefully thread all 4 of the 3/8" hex head bolts, with

grease on threads, through the beam and into the hull until they are about 1/8" from being completely tight. **CAUTION!!!** If the 3/8" bolts bind at all, remove the bolts and check fit of bolt without the beam on. **DO NOT** force bolts as you could strip out the aluminum plate inside the hull. If the bolt continues to bind, use a 3/8-16 tap and rethread the hole to rectify the problem.

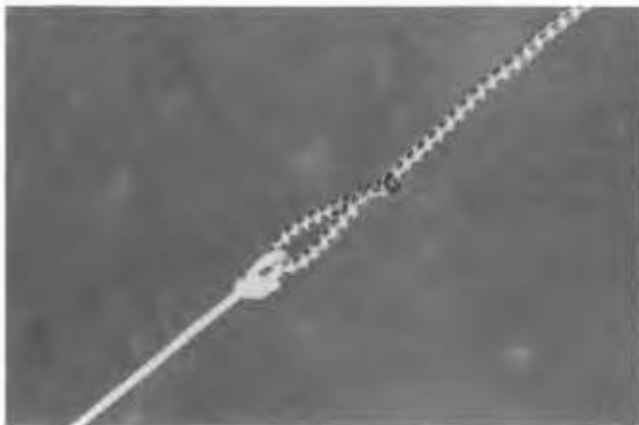
Tighten all rear beam bolts until about 1/8" from being fully snug. This allows beams to properly align themselves. Snut down all 8 bolts and then tighten all 8 bolts.





TRAMPOLINE

Lead trapeze shockcords before putting trampoline on hulls. Tie one piece of 1/8" x 2' paracord to one end of shock cord using a small bowline knot.



Feed the line through the white fairlead on side of hull and out the other side. Continue across to the other hull and repeat procedure.

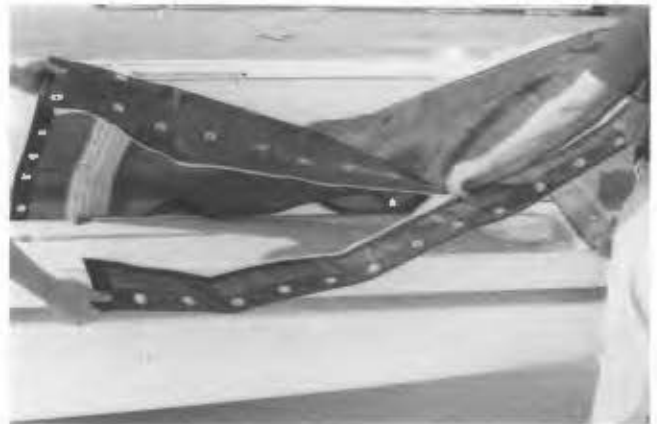


The trapezes are continuous from one hull to the other.



If one of the fairleads should come loose during assembly, simply apply some silicone sealant and push into place.

To install the trampoline, first unzip and remove the rear section.



Slip the front of the trampoline onto the front crossbar.



Slide the sides down each side of the trampoline track. Two people are needed here.



Slide the rear piece and zip the two pieces together.



Center the trampoline in the front. Lace up the back of the trampoline with 1/4" x 19' lacing line. Begin by tying a double overhand knot in one end of the line and thread through the right/aft grommet.



Always tighten rear lace line first. Stand at the back of the boat and tighten lines by bracing your foot or knee on the rear crossbar for leverage. Pull tight. Tie line off under trampoline. Do not trim excess line as this leaves something to hold onto when retightening trampoline.



Lace up the side of the trampoline with 1/4" x 19' lacing line. Begin by tying a double overhand knot in one end of the line and thread through the forward/inboard grommet.



Tighten starting at the front.



Complete lacing



STANDARD JIB SYSTEM

Attach jib block to padeye on side jib tracks.



Note: there may be an aluminum cleat on the deck just forward of the jib track, this is for future addition of the 4-way jib system as is the "sock" on the trampoline.

DELUXE 4-WAY JIB SYSTEM

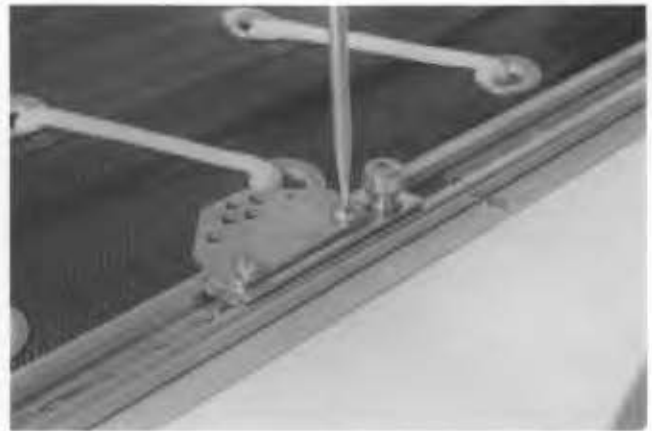
The parts are included in a separate bag.



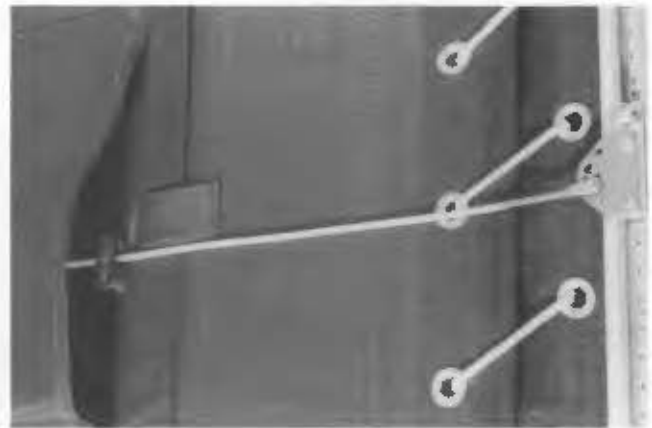
If the jib cars have installed pad eyes remove them since they will not be used.



Attach jib adjuster plate to both sides.



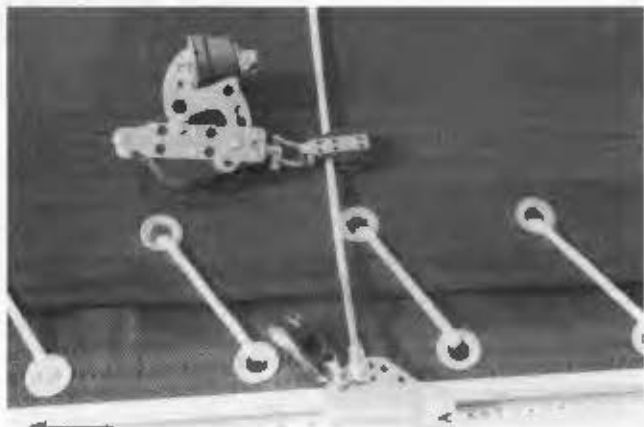
Attach jib crosswire to adjuster plate, leading wire through the tramp sock, choosing one of the four middle holes on each side so the wire is snug. Note: you may find it necessary to remove the plate to put the "O" ring on the clevis pin.



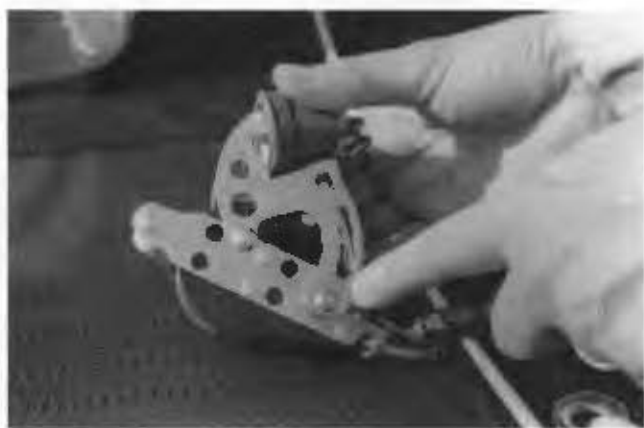
Attach the small bullet blocks to the *forward most* hole on each adjuster plate using a 3/16" shackle.



Shackle the jib blocks to each of the 2 bullet blocks on the crosswire.



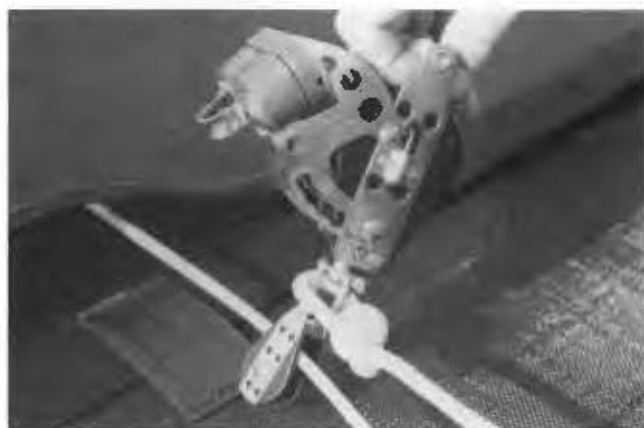
Adjust the cleat angle as high as possible using the side set screws. Most people prefer this position.



The jib blocks have a ratchet which can be turned off and on by using the button on the side of the block.



Tie each 1/4" x 8 1/2' line completely around the jib block shackle — not through.



Lead the line around the bullet block on the adjuster plate and through the aluminum cleat on the opposite side of the boat leading line through the trampoline sock.

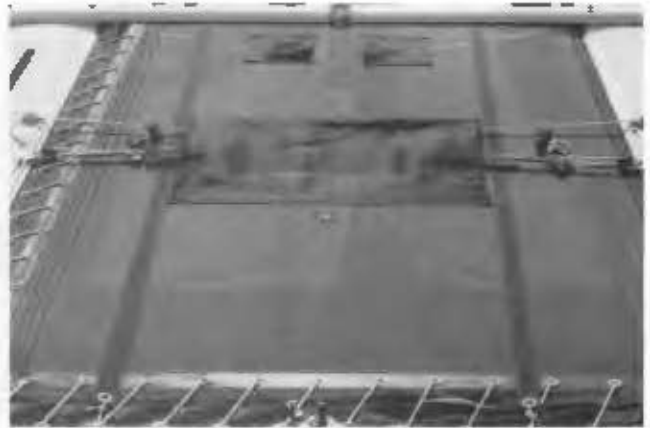


Lead the shockcord through both loops in the lines around the jib shackles and tie shock cord together. Slide the knot into the sock to hide from view.



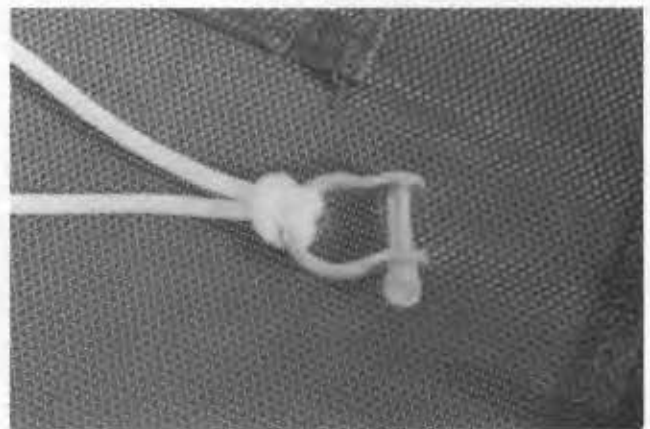
One side of 4-way system completed.

Entire 4-way system completed.



JIB SHEET

Tie a 1/4" shackle to the middle of the 3/16" x 6" line provided.



Tie the small jib clew blocks to each end of the line using a small bowline. Thread the 5/16" x 33' jib sheet line by tying off one end to jib ratchet block with a bowline. Thread through small jib clew blocks, through cleat of jib block, across trampoline and through opposite jib block in opposite direction. Jib sheet should be one continuous line.



RUDDER SYSTEM

Remove cradles out from under hulls and peel off protecting paper from Prindle logo on hull.



Open rudder box, it should contain: left & right rudder castings with tiller arms and complete workings installed and 2 rudder blades with lock pins attached.

Castings



To install rudder casting onto transom, make sure Prindle insignia is on outboard side. Remove cotter key and pintel from casting. Line up casting with gudgeons on transom and reinsert pintel through gudgeons and casting.

Tiller crossbar



To attach tiller crossbar to tiller arms, remove 1/4" bolt, washer, and lock nut from end of tiller arm. Place tiller crossbar over tillers with large hole at end facing up and end cap pop rivet facing aft. Drop 1/4" bolt down through crossbar, putting washer between tiller crossbar and tiller arm. Insert 1/4" bolt through hole in tiller arm and put lock nut on end. Make sure lines inside tiller go on either side of bolt, do not cross them. Do not put the nut on the bolt at adjuster end of crossbar until the rudders have been aligned (instructions later).

Tiller extension



Remove locknut from end of tiller extension. Attach extension to tiller crossbar and reattach lock-

nut. Tiller extension should be able to touch trampoline easily. If it does not, the tiller crossbar has been installed backwards.

Rudder blades



To install rudder blades into rudder castings, untie ends of downhaul and uphaul lines in castings but **DO NOT UNLACE**. Remove 1/4" bolt with locknut. Place rudder blade between casting with lock pin forward. Reinsert 1/4" bolt through casting and 1/4" hole in rudder blade. Replace locknut and tighten until rudder will just fall by itself. Do not overtighten as this will restrict rudder movement, too loose and rudder will be sloppy in casting. Thread downhaul and uphaul lines into rudder blade and tie off ends with a figure eight knot. Make sure the ends do not extend beyond the edge of blade. Follow same procedure on both blades.

Rudder lock bolt



The rudder lock bolt is on the forward edge of each rudder blade. It is necessary to adjust this bolt to obtain proper helm. Making the bolt longer produces more weather helm (heavy steering) and shortening the bolt decreases weather helm (easier steering.)

Adjusting helm



We recommend the following method for adjusting the rudders before the boat is sailed.

Place boat so there is clearance to lower rudders and lock down. Take a short batten or yardstick and lay the straight edge flush against the transom. Adjust the lock bolt so that the forward bottom edge of the rudder is about 1/4"-3/8" forward of the forward edge of the batten. (Pull rudder back lightly to pull out any slop). 1/4"-3/8" forward is a good starting point, further adjustment may be necessary for personal preference.

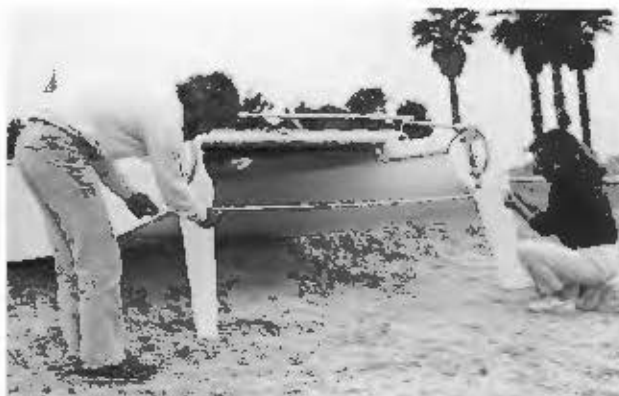
Note: As the mast is raked aft, the rudders must be raked forward to balance helm.

Rudder alignment



Lock both rudders down. Measure 20" up the leading edge of rudders and mark this measurement. Do the same on the trailing edges.

Turn the rudders so they are pointing down the hull as if sailing straight ahead.



Measure from the centerline of the front edge of one rudder blade (20" up) to the centerline of the front edge of the other blade. Do the same with the trailing edges.



If the distance between the trailing edges is greater than that of the front edges; lengthen the tiller adjuster by unscrewing it.

If the distance between the front edges is greater than that of the trailing edges; shorten the tiller adjuster by screwing it in.

One complete turn is 1/16 of an inch.

Attach adjuster end of tiller crossbar to tiller.

Example: if the distance between the front edges is 86" and the distance between the trailing edges is 86½"; unscrew the tiller adjuster 4 or 5 complete turns and measure again. Keep adjusting until the measurements are the same. You can achieve accuracy up to 1/32 of an inch but 1/8" is good.

Operation of rudder system

The Prindle rudder system is designed to be used underway and functions best under that condition. The aft force of the water facilitates raising the rudder and when the rudder is released the water slows its fall.



To raise the rudder, grab handle at end of tiller and pull until desired height of rudder is achieved.



Lock line in jam cleat at end of tiller by pulling line up.



To lower rudder, release uphaul line from jam cleat and pull ball at end of downhaul line until lock bolt engages spring loaded pin in rudder casting.



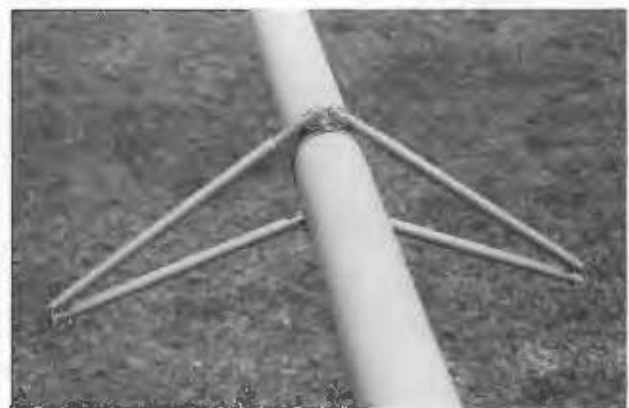
In operation if the rudder is pulled up too far, the head of the rudder blade will hit the washers at the top of the casting. This could chip your rudder blade. To prevent this, tie a knot in pull down line about 3" from ball. Adjust position of knot so that the raised rudder stops just short of hitting the washers.

MAST AND RIGGING

Spreaders



The spreader bars are installed onto the mast spreader base with four $3/16"$ x $5/8"$ clevis pins and cotter rings. The adjustable length spreader bars are attached to the front of the spreader base plate and the shorter bars to the ears near the aft edge of the mast. Cotter rings should be on the bottom. Connect spreader tips with six clevis pins and cotter rings.



The adjustable forward bar can be lengthened or shortened to adjust the amount of "sweep back" the

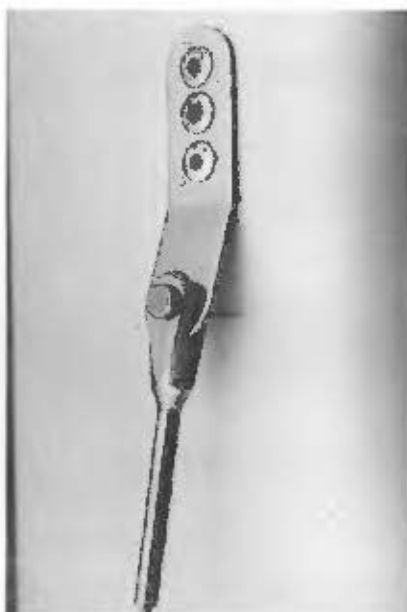
spreaders have. The more the spreaders are "swept back," the smoother the mast bend will be, even with tight diamond wires. However, the more "swept back" the spreaders are the more they will get in the way of the jib while sailing. There is not "right" or "wrong" in the amount of "sweep back" — just personal preference. Be sure both sides are adjusted to the same length.



To measure the amount of "sweep back" in the spreaders, lay a batten or yard stick from tip to tip. Then measure the distance from the curf of the mast to the batten. About $1\frac{1}{2}$ " "sweep back" is considered normal.

Diamond wires

Attach diamond wires to the tangs on the sides of the mast.

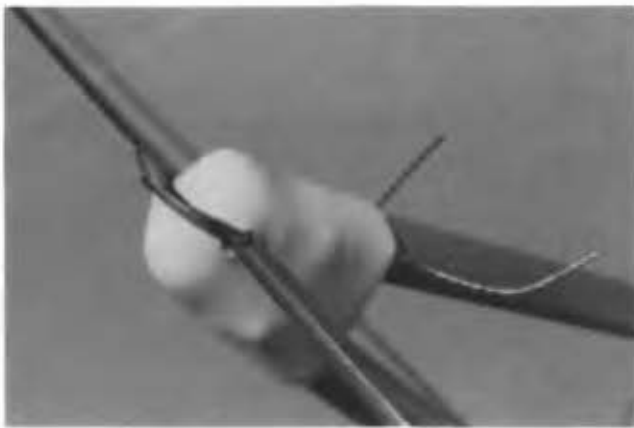


The fork fitting on the diamond wire is attached to the upper fitting on the mast.



The turnbuckle on the diamond wire is attached to the lower fitting on the mast. The two separate turnbuckle studs should be started into the turnbuckle at the same time.





Place plastic protector over spreader bar ends and place the diamond wire in the slot in the spreader tip with the nylon roller above the spreaders. Using the short pieces of seizing wire, seize the diamond wires in place so they cannot come loose.

Feed seizing wire from the back side of the tip with one end on each side of the diamond wire. Lead wire out of the tip, cross the seizing wire over the diamond wire and feed to the back of the tip. Pull and twist tight with needlenose pliers. Check the diamond wire to be sure it is in the tip slot and snugly in place.



To prevent the jib from chafing use duct, sail or electrical tape at the spreader tips.

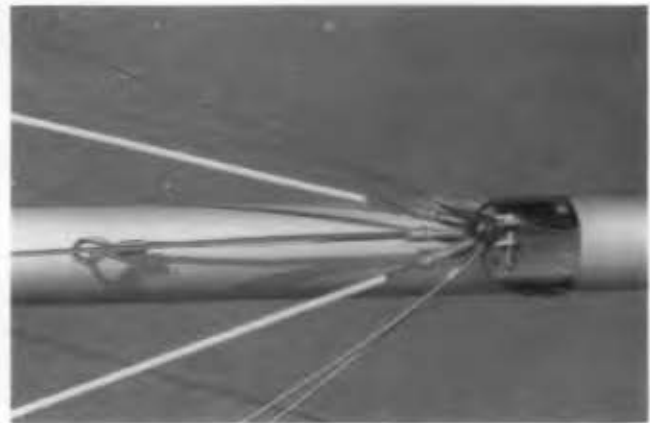
DANGER! SPECIAL ATTENTION: Be sure all spreader fittings are securely attached. The mast will break if the diamond wires comes loose. The mast is not covered under warranty for breakage due to improper tuning, assembly or maintenance.

Mast rotator



The rotator wishbone is bolted to mast using the upper bolts fitted through the diamond tang fittings. This fitting can remain on mast permanently. The lower bolts are used to keep the wishbone from dropping down onto boom.

Masthorn



Take large 5/16" shackle and thread rigging onto masthorn in this order:

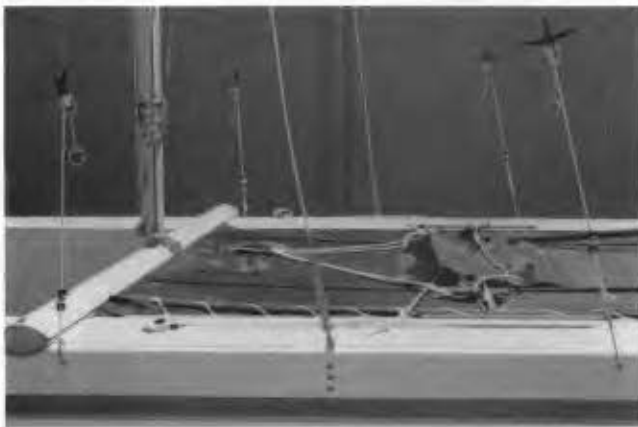
- double trapeze wires
- plastic coated shroud
- forestay pigtail (with ring)
- plastic coated shroud
- double trapeze wires

Note: When rigging forestay pigtail onto masthorn, the short wire must be towards the mast.

Shrouds and trapeze wires



Attach twist clip to shroud tang on deck with 1/4" clevis pin. Attach twist clip to shroud adjuster using another 1/4" clevis pin. To attach shrouds to shroud adjuster, insert shroud thimble in between shroud adjuster jaws and insert clevis pin through adjuster and shroud thimble. Use one of the upper holes in the adjuster. Insert cotter ring.



Tie a trapeze ring to each of the 3' lines supplied. Thread the line through the thimble at the end of the trapeze wire. Thread one of the plastic height adjusters onto the line, wrapping the line around it at least twice. The adjuster allows you to adjust your trapeze height. Tie the tail of the line to the shock cord with a bowline.

Forestay and jib halyard

Attach the forestay to the long pigtail with a 1/4" shackle. The ring must face towards the mast.



The jib halyard with the brummel hooks connected together is lead up through the ring, through the short pigtail thimble and back down through the ring. Tie both ends loosely near the base of the mast.

Main halyard



The main halyard lock ring (ring with loop welded on) is attached to the main halyard by tying the halyard through the welded loop with a small, compact bowline. Attach the twisted shackle onto the ring.

Attach the main halyard ring and other end of main halyard near the base of the mast to help keep it out of the way while raising the mast.

Note: Be sure to tie a small, compact bowline on lock ring as a large knot will prevent the mainsail from hoisting fully.

Bow bridle wires



Attach fork end of bow bridle wires to each tang on the inboard side of the bows. Connect the loop ends of these wires together using a 1/4" shackle.

RAISING THE MAST



This photo shows the mast step and hinge. Store hinge components as shown when not in use.

Hint: You may wish to use the split ring from the forestay turnbuckle on the aft pin as it is easier to install and remove during mast raising.

Before raising the mast the boat should be on steady, level ground. If the surface is not level, point the bows downhill. Lengthen the forestay turnbuckle so that only 3/4" of each threaded stud is into the barrel. Remove the clevis pin. Note that the shackle pin takes the place of the pin supplied with the turnbuckle.

Uncoil and straighten out shrouds, forestay, and trapeze wires allowing them to hang over the tiller crossbar to the ground. Walk the mast back until the base is just behind the mast step on front crossbar. Secure the hinge to the mast base using the pin provided. Attach cotter rings to both ends of hinge pin to prevent it from falling out while raising mast.

Before lifting the mast, make sure wires will not catch on rudders or other obstructions and that

forestay is clear and not fouled with the shrouds. CHECK FOR OVERHEAD WIRES BEFORE RAISING MAST. A MAST WHICH COMES IN CONTACT WITH ELECTRICAL POWERLINES CAN CAUSE SERIOUS INJURY OR DEATH.



Mast step hinge in use.



Stand on trampoline with one foot on rear cross-bar to steady yourself.



Raise the mast to your shoulder and walk forward with it while extending arms over your head until the mast is held by the side shrouds.



Attach the forestay to the 1/4" shackle holding the bow bridle wires together. After the initial rigging,

you can leave the forestay turnbuckle pre-set. Tighten turnbuckle until mast is raked slightly aft of straight up. See Performance Tuning section for optimum mast rake suggestion. If the shrouds are in one of the top holes the rig will be a little loose.

After hoisting the mainsail we will explain how to tighten the rig. Use a wrench or pliers to tighten the nuts against the turnbuckle barrel. This will help keep it from unturning.



Note: Make sure to tape the turnbuckle barrel and nuts to prevent them from loosening.

Diamond wires



Adjusting the tension of the diamond wires should be done with care. Before the sails are hoisted, but after the mast has been stepped; adjust both diamond wires to the same tightness. If one is looser than the

other your mast will bend more on one tack than the other.

Push both wires towards the mast with equal tension at the same time. The wires should touch the mast at least 12" above the lower attachment point but not more than 20" above.

If the diamond wires are too tight, your mast will not bend and undo strain will be put on these wires.

WARNING: If the diamond wires are too loose the mast could break under high pressure loads.

Be sure to tape the locking nuts on turnbuckles after you have adjusted the wires so that they will not unturn.

Sailing Note: The looser the diamond wires are the more the mast will bend and the flatter the sail will become (and vice versa).



A way to insure that the turnbuckles on mast do not loosen is to thread a small line (batten tie) through the center hole in each barrel, tying a knot on the back side of the barrel.

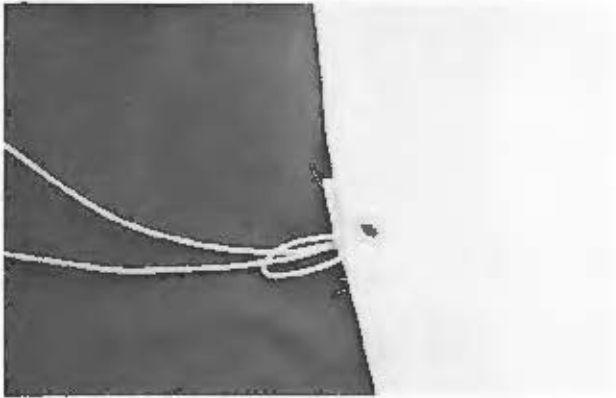
Be sure to check diamond wire tension periodically as the wires will stretch with use.

SAILS AND BATTENS

Mainsail battens

The Prindle mainsail has a batten between each panel of cloth. The longest one is the second one up from the boom. The rest go from long to short as you progress up the sail.

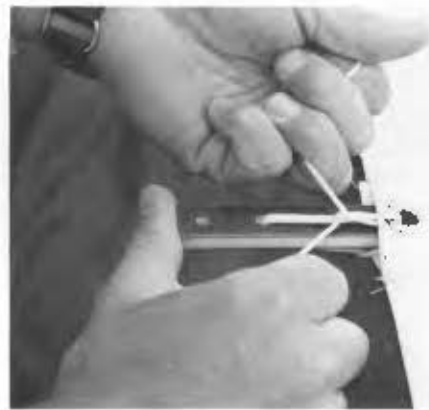
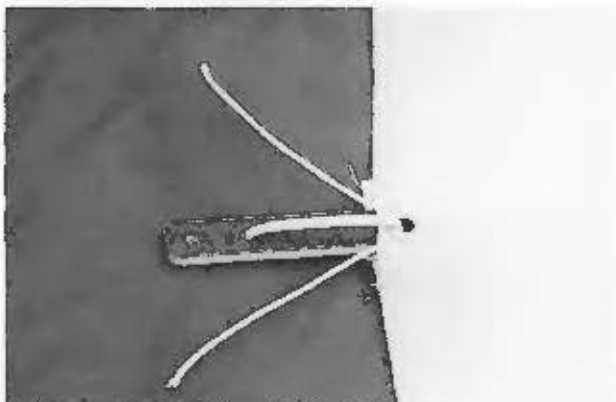
Remove batten string ties from clew of mainsail.



Fold batten string in half and loop through batten grommet on leech of sail.

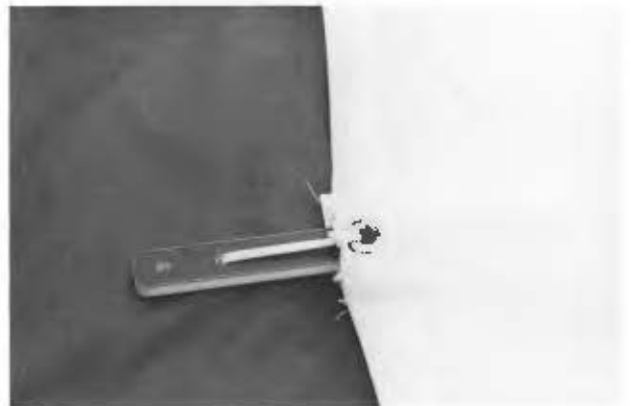


Insert tapered end of each batten into batten pockets making sure each batten fits into the pocket end protector at forward edge of sail. Put plastic caps on aft end of fiberglass battens.

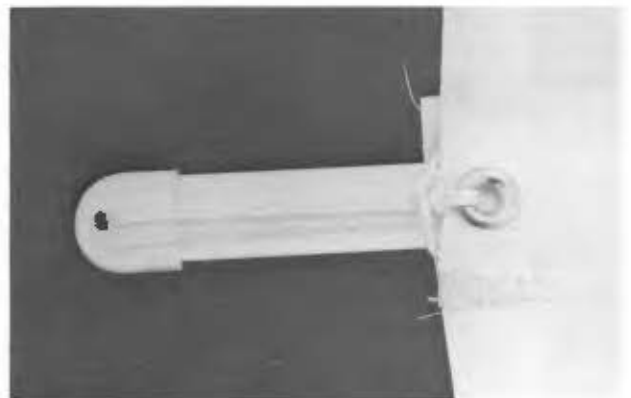


Lead string up through either hole in foam batten or through batten end cap and down through top grommet and tie an overhand knot (tightly) while pushing batten into sail with thumb.

Push batten tight enough to eliminate all wrinkles in batten pocket if using fiberglass battens. Foam battens should be tight enough to just "flop" from side to side.



Finish tying string with a square knot and tuck loose ends into batten pocket.



Finished tie on fiberglass batten.

Hoisting the mainsail

Face your boat into the wind when raising or lowering your sails. Lay the mainsail so the batten ends will not get caught on the tiller crossbar.



Attach the twisted shackle to the main halyard ring.

Note: The halyard should follow the curve of the mast and not wrap around the hook at the masthead.

Attach the twisted shackle to the head of the mainsail and place forward edge of sail into curf of mast.

With one hand, feed the sail into the curf and pull on rope tail of halyard (exiting at base of mast) with the other.



Make sure the mast base sheave, or roller, spins freely while raising the sail. If it does not, you may need to file the inside of the mast base casting.



When the sail reaches the top of the mast, you must lock the ring on the halyard line to the hook at the head of the mast. To do this, pull halyard until the ring is above the hook. Rotate mast (push rotator towards starboard hull) so hook is inside the ring and pull down on the tack of the sail gently until the ring locks onto the hook.

Coil the extra main halyard line and store in one of the pockets on the trampoline.

Boom



Remove clevis pin from gooseneck assembly attached to forward end of boom. Connect boom to the bracket on the mast using this clevis pin and cotter ring.



Use 1/4" shackle to connect the clew ring of the sail to the outhaul car on the boom

Note: Do not remove the clevis pin from the outhaul car. Further explanation in Section IV Maintenance.

Mast Rotator

(Previously installed on mast.)



Tie rotator line (3/16" x 5') to fairlead built into the aluminum clam cleat. Lead line down through the eye in the rotator wishbone and back through the cleat. This provides a 2:1 purchase for adjusting mast rotation. 45 to 75 degrees rotation is considered normal for most sailing.

Downhaul



Tie downhaul line to gooseneck base on the mast and lead:

- 1) Through cheek block on starboard side of sail.
- 2) Down through pulley on gooseneck on starboard side of mast.
- 3) Up through block connected to sail with shackle.
- 4) Down through pulley on gooseneck on port side of sail.
- 5) Up through cheek block on port side of sail.
- 6) Down to cleat on port side of mast.

Note: Lines are all lead through inside of rotator wishbone.

Mainsheet and traveler



To thread mainsheet blocks (7:1 purchase) lay blocks on their sides on a flat surface. Feed line away from you through cleat and ratchet roller of lower block and lead:

- 1) Towards you through bottom roller of upper boom block.
- 2) Away through bottom roller of lower block.
- 3) Towards you through middle roller of upper block.
- 4) Away through middle roller of lower block.
- 5) Towards you through top roller of upper block.
- 6) Away through top roller of lower block.
- 7) Tie to becket of upper block with bowline.

Install upper block to block hanger on boom with 1/4" shackle. Install lower block to traveler with 1/4" shackle.



Tie or splice 5/16" traveler line to loose end of mainsheet. Thread traveler line through traveler cleat, fairlead, traveler car, and pad eye. Tie off with figure eight knot.

Tips on splicing from Leigh Martin: Cut the bitter end of the mainsheet off with a new single edge razor. Pull out 8 to 12 inches of the center core and cut with a hot knife (or tape, cut with a razor, and burn end). Put the end of this core up to end of traveler sheet and carefully sew them together, end to end, with no overlap using a good, heavy dacron-polyester thread. Feed the core and traveler sheet back into the mainsheet cover until it is all smooth. Sew the traveler sheet into the mainsheet cover for the last 8 to 12 inches. This can be done neatly by stitching with the weave of the braid so that your stitches do not show. Make sure the stitches go through the middle of the new core (traveler). Complete it by turning end of the mainsheet cover over the traveler sheet.

Jib

Tie "S" hook to the aft half of jib halyard. This can be left on permanently. Attach "S" hook to the head of the jib with a 3/16" shackle. Hook opening must face towards mast.

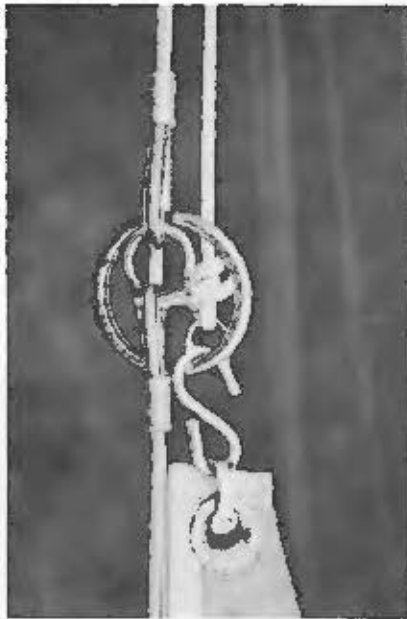
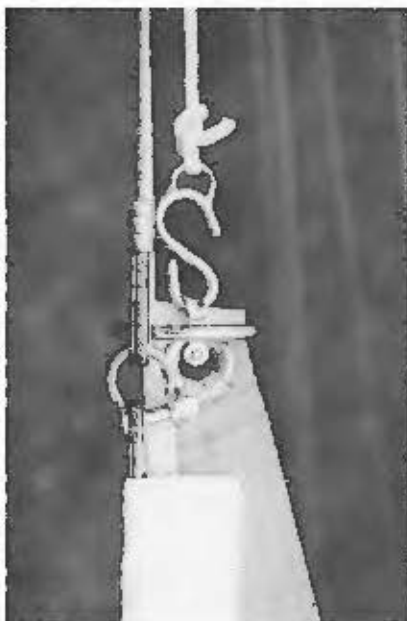
Note: if you are using a Smyth jib with a webbing



loop at the head instead of a grommet — do not use a shackle, slip webbing loop over the bottom end of "S" hook.

Start the zipper around forestay wire and jib halyard line. The jib halyard is internal in the luff of jib.

Hoist jib up, closing zipper as you do until "S" hook just passes ring.



Slowly pull the jib back down at the tack (forward lower corner) until the hook is locked in place. Note: the opening on hook should be between 1/4" to 3/8" for easiest operation.

Unlock the brummel hooks from each other and store extra halyard length in one of the hatches in the hull.

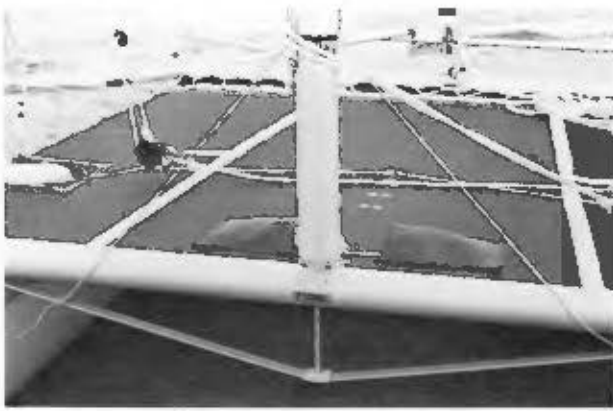


Lead jib downhaul line around shackle pin and cleat downhill line snugly into cleat on jib tack.



Attach jib sheet to the foot of the jib by attaching shackle you previously tied in the middle of the line. Make sure this has been lead in front of the mast.

Jib sheet jam preventor



Using the extra 7' piece of shock cord supplied, attach the center to the mast and tie each end to dolphin striker bar on opposite sides of mast. Be sure the jib sheet is lead outside shock cord. This will keep the jib sheet from catching under mast base.

Righting line



It is recommended that you *always* carry a righting line on your boat. A grommet and pouch are on the trampoline to facilitate this. You will need a line at least 15' long and 3/8" or 7/16" diameter. Tie a figure eight knot about 9" from one end. Insert the tail down through the grommet in tramp by the mast and tie another figure eight knot on this end. You might also find it useful to tie knots on line every few feet so your wet hands do not slip when righting your boat. Coil the line and store it in a pouch until needed.

Tightening the rig tension

After the boat is completely rigged with sails up and mainsheet connected, it is time to tighten the rig. You should not attempt to do this by yourself or if it is windy until you have done it several times.

Turn the boat until the wind is blowing from a 45 degree angle to the bow. Ease the traveler out to the lee side and sheet the main in tight. Have your crew sit on the trampoline to keep the mainsheet from uncleating and the boat from tipping. With the main sheeted to leeward, the leeward shroud will be loose. Move the shroud down a couple of holes on the adjuster, but not all the way down. Replace clevis pin and ring. Loosen mainsheet.

Turn the boat so the wind is coming from the opposite side. Ease the traveler out to what is now the lee side and sheet in. The new leeward shroud will be loose. Move the shroud down to the corresponding hole in the adjuster as the first shroud. If the rig is still loose, move the shroud down one or two more holes and repeat with the other side until the rig is fairly tight and both shrouds are in the same hole on adjuster.

It is possible to over-tighten the rig which will make the mast hard to rotate.

When you take the boat apart, be sure to loosen *one side only* before taking the main down. By leaving one shroud in the correct hole, you will only have to tighten one side next time you go sailing.

If you are not happy with the mast rake you have, simply lengthen or shorten the forestay turnbuckle. *Be sure to leave at least 10 complete threads into each side of the barrel.*

Centerboard operation

Operating the centerboards is simple but there are a few important things to understand to keep them functioning properly.

1) Centerboards should be removed for trailering or tied in the up position. Once a board is 1/3 of the way down, gravity will take over causing it to drop rapidly if boat is not in the water. It could hit the ground hard, causing a chip.

2) The bearing in the head of the centerboard is a spring loaded lock. Each centerboard has been adjusted for the hull it is in but if you feel adjustment is necessary, you can do so with the screw. By turning the screw in, the centerboard will kick-up easier. (Be careful, if you make it too easy it will come up while sailing.) By turning the screw out, the tension increases and the board will be held down more firmly. A half turn makes quite a difference in tension. If you are unable to get the tension correct with the spring supplied in the head, a set of four different lengths is available. A longer one (more tension) or a shorter one (less tension) will allow you to correct the problem.

3) The centerboard is locked into place at the pivot point. To remove the board, simply kneel on each side of the centerboard facing aft, put the centerboard about 1/3 of the way down and pull up firmly without jerking. The centerboard will pop out of the lock. To replace the centerboard, simply slide the tube bearing down the well slot. Position the board in the full up position and push down on the board firmly with both hands, one on each side of the slot. You should *hear and feel* the tube bearing lock into place. The centerboard should not come out easily, if it does it is not locked in.

4) The centerboards are designed to kick-up when they hit an obstruction, such as an underwater object or the beach. However, we strongly suggest pulling both centerboards up before hitting the beach to keep them from getting worn.

Section II: SAILING

Boat used in photos is a Prindle 16, but tips pertain to other models as well.

SAIL TRIM To Weather



The main traveler should be centered with the main and jib sheets in snug. Be careful not to pull the sails in too tight. If the main is oversheeted (too tight), the mainsail will be too flat and the boat will not move very fast.



If the jib is oversheeted it will stop the air flowing between the leech of the jib and the mainsail. This gap (slot) between the jib leech and the mainsail should be about 12 inches near the top of the jib.

The jib tell-tale on the leeward and windward sides should be streaming back. If the windward tell-tale on the jib is flopping forward you should head the boat downwind a little. If the leeward tell-tale is flopping forward, you should head the boat up into the wind a little or, if you do not want to head up any further, let the sail out a little.

Reaching



The main traveler should be set a few inches from center with the main sheet snug and the jib sheet slightly looser than used when going to weather. This will allow the distance between the main and the jib to increase. Both sails should be sheeted in so that both the leeward and windward tell-tales are streaming back.

Downwind



Let the main traveler all the way out to the end of the crossbar and sheet the main loosely. **Do not** let the main out far enough to rub against the shrouds if at all possible. Trim the jib sheet loosely trying to keep the windward and leeward tell-tales streaming back.

If your boat is equipped with a barber hauler, see Section V — Tuning for Performance for instructions regarding its use.

Downhaul systems

The luff of both the main and jib should be pulled down tightly to pull all the wrinkles out when sailing. You have to be quite strong to over-downhaul the mainsail, so give it a hard pull. You can easily over-tighten the jib downhaul, so just pull hard enough to get wrinkles out.



Notice the diagonal wrinkles in the luff of both the main and jib. Both sails should be downhauled until they disappear.

TRAPEZING

Lacing the harness



Using bowlines, tie each of the lines supplied onto the bottom inside grommets. Lace back and forth loosely and tie a half hitch at the top outside grommets.



Put the harness on. It should be slightly loose. Most people find a tightly laced harness uncomfortable. Slip the webbing over your head. Feed the lines through the webbing grommet from the backside, then feed one through each backside of top grommet near hook. Tie ends together using an overhand knot. Do not use a square knot. The webbing over your shoulders should fit tightly. The tighter it is the more it will support your back and shoulders.

Trapeze positioning

We recommend that you practice going out on the trapeze on shore before you try it while sailing.

Before hooking up, pull the dog bone down and see if it will reach the deck. The lowest ring should almost reach the outside edge of the deck. If it does not, adjust the length using the height adjuster.



Sit on the side of the hull just forward of the shroud. Pull the dog bone down and hook the uppermost ring onto the hook on the harness.



Lean back until you are being supported by the trapeze wire. Hold the jib sheet in your back hand.



Bring your forward leg out and put foot on rail.



Now bring your aft leg out and put that foot on the rail. Slowly straighten your legs out, keeping your feet about two feet apart. Lean back! Do not hold onto the handle as you could unhook yourself.



When trapezing on a reach, move your weight back on the hull to keep the bows up.

LAUNCHING

Always launch with your bows into the wind. There are two basic wind conditions that will affect the way you launch:

Onshore (wind blowing from the water towards the land)

Offshore (wind blowing from the land towards the water)

Before leaving the beach, make sure that the rudders are up all the way, the main traveler is out all the way, both sheets are loose and the hiking stick is on the windward side of the boat.

Onshore



Push the boat off at a 45 to 60 degree angle to the wind until it floats, jump on and sheet in the jib (only) tight. (Do not sheet in the main yet.) This will pull you out at a good angle until you can safely drop your rudders. As soon as water is deep enough, drop and lock both rudders and centerboard and bring traveler to center and sheet in main. You're off!

This method can also be used when **very light** offshore winds are blowing. Otherwise use the following method.

Offshore





Look to make sure it is totally clear where you will be backing.

Walk boat out backwards until it is floating. Give boat a big shove and jump onto the bows. Keeping the transoms out of the water, have the crew hold jib clew out as far forward as necessary to fill jib with air and keep boat moving backwards. Keeping the transoms out of the water will keep the boat moving straight out. When you are far out enough (usually about 100 feet) let the jib go, move to the proper sailing positions, drop rudders and centerboards down, sheet in both sails and go.

TACKING

Before starting your tack, be sure you are sailing to weather with good speed (sheeted in and traveler centered). **Do not** attempt to tack while sailing on a reach.



Make a smooth turn to windward using about one-

half the amount of rudder throw. Turning the rudders too sharply will stall the boat and bring it to an abrupt stop.



When the bows are pointing into the wind, release the main sheet 1 or 2 feet. Let the jib go on the 18-2 and 19.



The skipper should now move aft, into the center, and swing the hiking stick to the new side. **Do not** straighten the rudders out. If you do, you will find yourself in "irons" (boat pointing directly into wind making no headway).



When the main "pops" to the new side, sheet in both sails.



While the crew is sheeting in the jib, the skipper should be sheeting in the main and moving to the proper position on the windward side of the boat. Tack is now completed.

Note: If you end up "in irons" you will start to drift backwards. While sitting on the weather hull, uncleat the main and push the boom to leeward. Backwind the jib and push the tiller away from you. This reverses the rudders and allows the boat to sail backwards. Leave them reversed until the bows are pointed in the direction of a close reach. Release the jib, straighten the rudders and sheet both sails in quickly.

JIBING

When sailing downwind or on a broad reach you must jibe. To do so, first check new direction to be sure it is clear of other boats.



The skipper should move aft and to center of the boat while turning the rudder about 1/3 of the full throw.

Swing the hiking stick to the opposite side, placing the end aft of the rear beam and forward of the tiller arm. Keep the rudders turned by holding onto the tiller crossbar.



When boat is heading straight downwind, grab the sheets between the main blocks and pull the sail across. **BE SURE TO KEEP LOW AS THE BOOM CROSSES THE BOAT.**



When the main fills on the opposite side it may

“snap” across so be ready for it. Have your crew bring the jib to the new side. Move to the side of the boat and pick up the hiking stick.

BALANCE

Your Prindle Catamaran will sail faster and easier if it is sailed on its “lines” so that the water flows across the hull as it was designed to do.



Note how the transom is almost under water and the bows are very high. The sailors are too far aft — **MOVE FORWARD!**



Bows are too low and transoms are too high out of the water. Sailors are too far forward — **MOVE AFT!**



Trim fore and aft here is good, but there is too much

weight on one side for the light air. Move the crew to the middle or leeward side.



When balance is proper, the leeward bow will be between 6 and 12 inches out of the water and the weather hull will just touch the water.

RIGHTING

Even the best sailors flip occasionally, so prepare your boat for the inevitable. Install a righting line according to instructions in Section I — Assembly.



The boat will lose speed as it raises up on one hull and usually flips over slowly. Sit down on the flat surface of the hull.



Ease yourself down to the bottom hull using the mast as a step.

It is important to get off the top hull quickly to prevent the boat from turning upside down (turtle). Do not jump off the boat as current and wind may not allow you to return to it.



The skipper should unclasp the main while the crew unclasp the jib.



The crew should reach around the front crossbar for the righting line and throw it over the top hull.



Make sure the bows are pointing into the wind. If the mast is pointed into the wind, the boat may flip over in the other direction as you try to right it. To swing bows around into the wind, walk back towards the transom **slowly** until bows are positioned properly.

Be careful not to shift your combined weight too far forward or aft as this may cause the boat to roll and turn "turtle".



Standing even with the front crossbar, the skipper and crew should grab the righting line and lean backwards. Knots in the line help keep your hands from slipping. If you are single handing your boat, carry your jib bag on board. Grab onto the righting line, scoop up a bag of water and hold it over your shoulder while leaning back. This extra weight should allow you to right the boat.

DO NOT stand on the centerboards.



An alternative method is to tie a loop in the end of the righting line and attach the loop to your trapeze harness hook for more leverage.

Once the tip of the mast comes out of the water, the boat will right quickly. Be sure to hold onto the righting line until you can grab the boat and pull yourself up. The boat will now be pointing directly into the wind and moving slowly if at all. Stow the righting line back in the pouch and your are sailing again!

Section III: AFTER SAILING

Boat used in photos is a Prindle 16, but tips pertain to other models as well.

Loosening rig

Before you lower your sails, you must loosen the rig tension using the mainsheet and traveler method (explained in Section I — Assembly). With the wind coming from the bow at a 45 degree angle, travel the main all the way out to the leeward corner. With the crew sitting on the trampoline, sheet the main in tight. The lee shroud should become loose.

Move the shroud up to the second to the top hole in adjuster, insert pin and ring and uncleat main. **You do not need to loosen the other shroud.** Leave it in the proper sailing position and you will know where to place the loosened shroud the next time you go sailing.

Lowering sails

Point your bows into the wind. Uncleat the main downhaul and disconnect the boom from the mainsail.

To lower the jib, uncleat the jib downhaul. Rehook the jib halyards together with brummel hooks. Hoist the jib slightly until "S" hook is just above ring and quickly pull jib down by the tack.

Note: If the jib does not lock or unlock the first time, try again. Remember, the hook must face aft and to hoist the "S" hook just above the ring. Pull down **slowly** to lock and **quickly** to unlock.

Lower the jib and tie the jib halyard at the base of the mast. Use the downhaul cleat for this purpose. Pull the lines tight to keep them from flapping while trailering. Leave zipper open with the zipper car at the head of the sail. If it is allowed to go to the bottom, it may fall off.



Fold the jib in half and start rolling from the middle.



Roll tightly without any folds. If it is windy, put the jib under the hiking strap to keep it from blowing away while you lower the main.

To lower the main on the Prindle 18-2 + 19, hoist the mainsail up as far as possible and rotate mast away from sail to unhook main halyard. This rotation should be towards the side of the mast that the hook is riveted onto. The object is to turn the headboard and ring away from the hook enabling the sail to be lowered past the hook.

Note: The best way to do this is to have one person pull the sail up and rotate the mast using the rotator wishbone while someone else pulls the clew of the mainsail in the opposite direction than the mast is rotated. The person hoisting the sail lets the halyard go and pulls down on the tack while keeping the mast rotated.

Once the sail has dropped a couple of inches below the hook, let the clew and rotator go and drop the sail. Note: Be sure to have a knot tied in the end of the halyard to keep it from going inside the mast.

After the main is down, attach the twist shackle to the rotator bar and pull the main halyard firmly and tie off.



Roll the main starting with the second or third batten from the top. Roll smoothly and tightly. You may insert the rolled jib with the main or use the special jib bag.



Wrap and tie downhaul line around rolled sails.



Place sails in long mainsail bag.

We strongly recommend that you store your sails in this manner rather than folding them as they will last much longer.



Unfasten the lower main block from the traveler car and the traveler line. Tie the outhaul line tail to the lower main block shackle and coil the excess mainsheet. This keeps everything from becoming tangled in storage.

Trailer



Place the boat on the trailer. Tie the boat down using at least 1/4" nylon or dacron line. **DO NOT TIE ANYTHING TO THE DOLPHIN STRIKER BAR OR ROD.** Remove the rudder blades from castings. Be sure they are marked port or starboard so you do not have to retune them next time you go sailing.



Attach mast hinge to the mast. With one person on the trampoline, push the mast forward and disconnect the forestay shackle. **DO NOT** undo the turnbuckle. Rig shackle so it holds the two bow bridle wires together. Check in back of boat to make sure you will not be lowering the mast onto a person, car, or power line.

****CAUTION**** — Extreme caution must be observed when launching and sailing near overhead wires. A mast near a wire could be fatal!



The second person should move to the back to catch the mast as it is lowered.





While the second person holds the mast, remove the hinge pin and walk the mast forward until you can place it in the front mast support on the trailer. Store hinge in down position.

Place the top of the mast in the rear mast support making sure the mast does not extend beyond the rudder castings. Trailer the mast with curf up to prevent damage to rear support padding and mast. **DO NOT** trailer with the mast on its side. The bouncing will put excess shock loads on the spreader assembly.



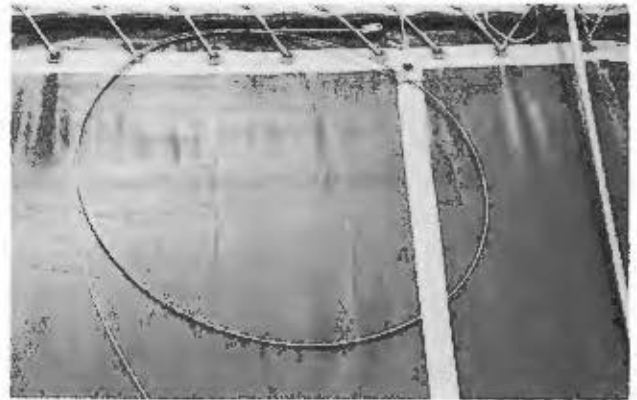
Secure the mast and support to the boat by wrapping the tie down line around the mast twice and down through the trampoline grommets. Store the tiller under a hiking strap or jib lead line to keep it from flapping around. Tie a 3 or 4 foot piece of line to the traveler pad eye, around the tiller crossbar twice, and through the fairlead and cleat. This will keep the rudder castings from swinging. Tie the front end of the mast

down making sure to wrap line twice here also.

There are several ways to store your rigging while trailering. Here are two popular methods.



#1 Tie a 6 foot line to the front mast support. Bring all shroud and trapeze wires forward to the front support and tie the line around them.



Lace the forestay through the back lace lines 2 or 3 times. Store trapeze dogbones under trampoline to keep them from banging around. You may wish to tie the wires up off the front crossbar to keep them from rubbing on a long trip with a line over the mast.



#2 This method is not recommended if the boat is stored outside during the rainy season. Remove both hatch covers, and feed shrouds and trapeze wires into each hull. Store forestay as in method #1.

With any method you use, the important thing is to keep all rigging separate and tangle-free.

Store the jib sheet by tying or shackling the jib clew blocks to the bow bridle shackle. Pull the jib sheet snug and cleat each side. Store the extra line in the halyard pouch or loop around hiking straps.

Section IV: MAINTENANCE

DOLPHIN STRIKER

The single most important maintenance procedure is done on the dolphin striker. This **must** be kept snug at all times with **no** play between the vertical rod and the bar. Think of the dolphin striker as the backbone of your boat.



To test the snugness of your dolphin striker, grab the aluminum bar between the side and the rod, push up and then pull down. If you can move it more than 1/4" you must tighten the rod.



To tighten the rod, first loosen the nylon mast bearing (half-round ball on top of mast step).



Loosen screw at bottom of striker rod.



Turn dolphin striker rod clockwise using a wrench and the flat spot on the rod designed for this purpose until the bar is snug again.

Retighten the nylon ball and screw.

The bolts that connect the striker bar to the front crossbar should be loosened occasionally to check for cracks in the crossbar. If cracks are apparent, the crossbar should be replaced. There is a back-up plate inside the crossbar so these bolts can be tightened easily from the outside. Again, do not overtighten, since the bolts could snap.

BATTENS

Your Prindle Catamaran may be equipped standard with solid fiberglass battens. These are virtually unbreakable but do require some attention.

Make sure that battens are inserted all the way into

batten pocket with tapered end inside stop at luff of the sail. If it is not, the batten may tear the sail. The battens should extend about 1½" past the end of batten pocket. You may wish to trim them to this length.

Loosen battens when storing the sail for more than a few weeks or during extreme temperature changes. This relieves pressure on the sail and battens and will preserve the life of both.

Foam/fiberglass battens

Race equipped Prindle Catamarans come with foam/ fiberglass battens. These battens are much softer and more fragile requiring more care.

Occasionally, a delamination may occur at the tapered end where the foam narrows towards the tip. To repair, spread the glass and foam apart slightly and coat with 5-minute epoxy, clamp tip together, and let harden. This repair should be stronger than new.

Take care when rolling a sail with foam battens. If the sail is rolled unevenly and battens are allowed to twist they will hold the twist. This may hamper your sail shape. You can, however, remove this twist by removing the batten from the sail and twisting it in the opposite direction and holding it for a moment or two. The batten should spring back to fairly straight.

GENERAL MAINTENANCE TIPS

After your second sail on your Prindle Catamaran and periodically thereafter:

1. Tighten the 8 crossbar bolts. This is very important as most of the strain on the boat is concentrated on these bolts.
2. Check all shackles (shrouds, forestay, etc.) and other fasteners (including nuts and bolts on blocks and cleats). Tighten where necessary.
3. Check all hardware attached to hulls (bow tangs, shroud pins, gudgeons) for tightness. Do not overtighten.
4. Cut off excess length on solid fiberglass mainsail battens leaving 1½" past aft edge of sail.

Hulls

Check for leaks at all hull fittings by covering these areas with detergent and blowing air (from your lungs) into drain plug hole. **DO NOT USE A VACUUM CLEANER AS THE EXCESSIVE PRESSURE CAN DAMAGE THE HULLS.** If detergent bubbles, there is a leak. Remove fitting and cover area with clear silicone sealant and replace.

Rudders

Rub paraffin on the inside of casting where blade slides to ease operation. To fine tune: remove uppermost bolt on casting and paraffin. If there is slack between sheaves add a washer on nut end of bolt. In-

sert and tighten. This will help keep lines on sheaves. Remove bolt which holds top of spring and rub with paraffin. If rudders do not kick up easily: pull spring to loosen tension and replace bolt. Paraffin lock pin. Sand all rough edges on blades lightly. Always remove blades for trailering.

Sails

Rub paraffin on the luff of mainsail to ease hoisting. Sail tape should be applied to batten pockets where it hits shrouds to avoid chafe. Always fold your jib and store it in the envelope bag or roll it — **DO NOT JUST STUFF IT IN BAG**. Roll your main from the third batten (from top) to your boom and store in long boom bag. Storing your sails will greatly lengthen their life. Rinse with fresh water whenever possible.

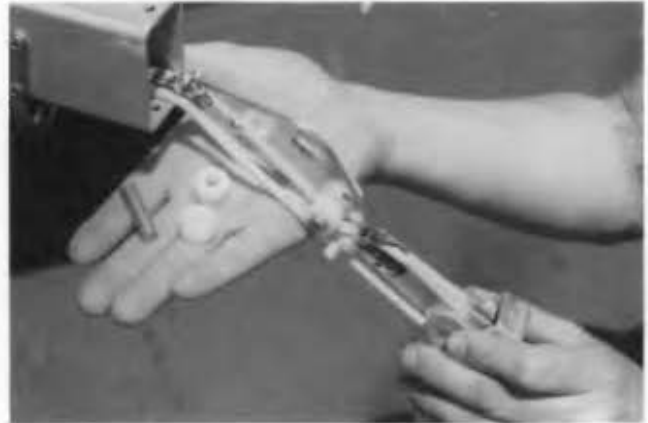
Note: Howe & Bainbridge, Inc., the manufacturers of our sail cloth have sent us the following memo which we felt was important enough to pass on to you.

To prevent color transfer on your sails, dry them as thoroughly as possible after using. Try not to store wet in sailbag for any longer periods of time than necessary.

When either dyed nylon or dacron sail fabrics are stored wet, the color will bleed or transfer from the colored to the white or even from a darker shade to a lighter shade. The wetter and more compressed the fabric, the greater the bleeding — such as stuffed in a sailbag.

Outhaul system

The Prindle 18-2 and 19 boom is equipped with an internal 4:1 outhaul system with shock cord load return. Shock cord tension can be tightened simply by pulling some cord out of the boom at the front end and tying a new knot. **DO NOT LET THE SHOCK CORD GO!** To relead the shock cord you must disassemble the entire aft end of the boom. **DO NOT REMOVE** the small clevis pin in the outhaul car unless you need to remove the internal workings of the outhaul system.



If you need to remove the internal workings of the outhaul system, do so carefully. Drill out the rivets holding the rear end cap on the boom. Pull the small clevis pin in the outhaul car to allow the car to slip into the boom. It is not necessary to untie the shock cord unless you are replacing it. Pull the end cap off. The sheaves and wheels are not permanently attached and can be easily replaced. However, be ready for them to fall off as you pull the car out.



Section V: TUNING FOR PERFORMANCE

MAST RAKE

To measure the amount of mast rake, your mast must be up with your rig tension snug.



Lay a carpenter's level on the deck just aft of the centerboard. Adjust the boat until it is level fore and aft and relatively level from side to side. Attach a one or two pound weight (a heavy wrench will work) onto the main halyard. Using the main halyard as a plumb, measure the distance from the aft edge of the mast at the black band to the center of the plumb. This distance is how much mast rake you have. We recommend between six and ten inches of aft rake. You may find that you prefer slightly less or more.

MAST ROTATION

The Prindle 18-2 + 19 come equipped standard with an adjustable mast rotation control (wishbone device on mast). For most sailing this rotation should be set between 60 and 75 degrees from straight back. A good rule of thumb is to have the wishbone pointing at the shroud when you are sailing to weather. As you ease the traveler out, the rotation will automatically increase so that it should be between 80 and 100 degrees for downwind sailing. When sailing to weather, an increase in rotation will flatten the mainsail and less rotation will make the mainsail fuller.

BARBERHAULER



A barberhauler system works like a traveler for the jib and is used for broad reaching and downwind sailing. It is optional equipment. This system is generally used to get that "extra edge" while racing and is not necessary for pleasure sailing. The barberhauler will pull the clew of the jib out to the end of the front crossbar which will give it a slightly better shape and make it easier to trim properly.

FOUR-WAY JIB SYSTEM

The optional four-way jib system has a few basic positions and infinite options in between. Use these basic guidelines to discover your preferences.

The fore and aft track:

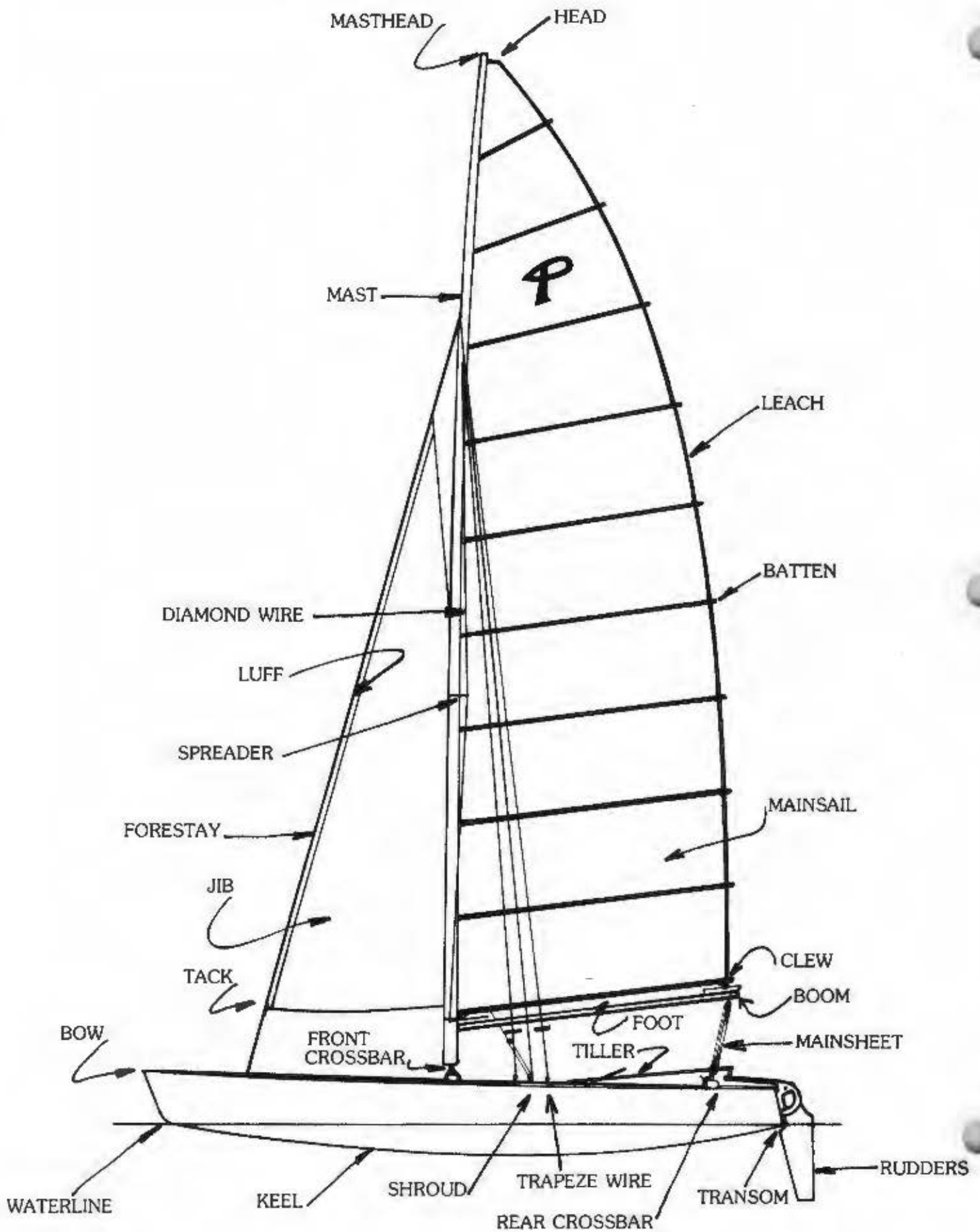
- Set at center position for light to medium air.
- Set at aft position for heavy air.

The side to side lead:

- Set at 8" inboard in light air.
- Move position outboard as wind picks up until lead is about 2 to 5 inches inboard when you are a little overpowered.

You may find in certain downwind conditions that having the barber hauler (option and separate from the four-way jib system) all the way out is too far for proper wind flow. In medium to heavy conditions setting the barber 8 to 15 inches from fully outboard is optimum.

**SECTION VI:
SUPPLEMENTAL INFORMATION**



GLOSSARY OF TERMS

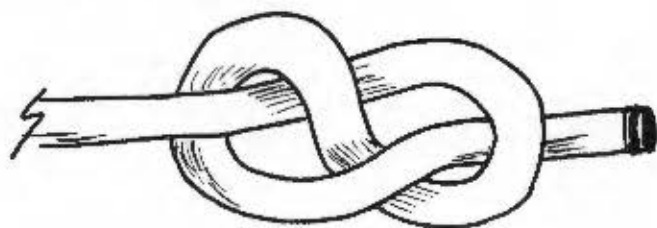
AFT.....	toward or near the rear part of the boat.
ASYMMETRICAL.....	not symmetrical. On Prindle hulls – flat on one side, curved on the other.
BATTEN.....	thin, narrow strip of material used to stiffen the shape of a sail.
BEAT.....	to sail to windward.
BLOCK.....	roller or pulley.
BOOM.....	aluminum tube that holds the foot of the mainsail and attaches to the mast.
BOW.....	the forward part of the hull.
CAPSIZE.....	to turn boat over.
CLEAT.....	device which secures a line or rope by jamming or tying off.
CLEW.....	lower, rear corner of sail.
CLOSE HAULED.....	sailing close to the eye of the wind.
CROSSBAR.....	aluminum tube connecting two sides together.
CURF.....	groove in boom, mast or crossbar.
DIAMOND WIRE.....	wire that attaches to mast and spreaders to control mast bend.
DOWNHAUL.....	line used to pull down the tack of a sail.
DOWNWIND.....	sailing away from the wind.
EYE OF THE WIND.....	exact direction the wind is blowing from.
FOOT.....	bottom edge of sail.
FORE & AFT.....	from the bow to the stern.
FORESTAY.....	forward wire supporting mast.
GOOSENECK.....	fitting connecting the boom to the mast.
GROMMET.....	metal ring set into a sail.
GUDGEON.....	fitting bolted through transom of hull for attaching the rudder system.
HALYARD.....	line or wire used to hoist and lower sail.
HARNESS.....	a support worn while hooked to trapeze wire.
HEAD.....	top of sail.
HEAD OFF.....	to steer the boat away from the wind.
HEAD TO WIND.....	also referred to as "in irons" – pointing with bows directly into the wind.
HEAD UP.....	to steer the boat into the wind.
HELM.....	tiller which controls the rudders.
HIKE.....	to position weight as far as possible to windward.
HOIST.....	to pull up.
IN IRONS.....	heading directly into the eye of the wind, unable to tack or go forward.
JIBE.....	also gybe, to change course of boat without tacking.
LEE.....	side falling away from the wind.
LEECH.....	back edge of sail.
LEE HELM.....	tendency of boat to turn away from the wind.
LEEWARD.....	side away from the wind.
LINE.....	rope.
LOOSE FOOTED.....	mainsail not held to a boom for its entire length.
LUFF.....	leading edge of sail, or flagging of sails due to improper trim or heading.
MAST.....	aluminum tube used to support sails.
MAST RAKE.....	positioning the top of the mast fore or aft in relation to straight up and down.
OUTHAUL.....	system used to pull clew of mainsail away from mast.
PINTEL.....	pin which holds rudder casting onto gudgeons.
PORT.....	the left side.
REACHING.....	to sail across the direction of the wind.
REEFING.....	to reduce sail area.
RIGGING.....	lines, wires and spars used for support and operation of mast and sails.

GLOSSARY OF TERMS (cont.)

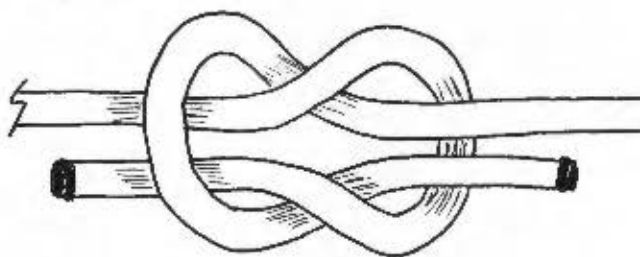
RUDDER.....	wing-shaped device used to steer boat.
SHACKLE.....	"U"-shaped fitting with removable pin used to fasten lines or parts together.
SHEAVE.....	roller or pulley.
SHEET.....	lines used to control sails.
SHROUD.....	wires on each side of boat supporting the mast.
SPREADER.....	strut projecting from side of mast to brace diamond wire.
STARBOARD.....	the right side.
STERN.....	back of hull.
TACK.....	to turn the bow by having the bows cross through the eye of the wind, or lower forward corner of sail.
TELL TALE.....	short pieces of ribbon or yarn attached to sail or rigging for reading wind direction.
TILLER EXTENSION.....	device which controls rudder steering.
TRAMPOLINE.....	material stretched between hulls and crossbars to sit on.
TRANSOM.....	aft-most end of boat.
TRAVELER.....	"car" which rolls width of rear crossbar.
TRIM.....	to adjust sheet tension, or to balance hulls in water so they function to maximum efficiency.
TURNBUCKLE.....	threaded fitting for adjusting wire length.
UPWIND.....	to sail into the wind.
WEATHER.....	to sail into the wind.
WINDWARD.....	side toward the wind.

GLOSSARY OF KNOTS

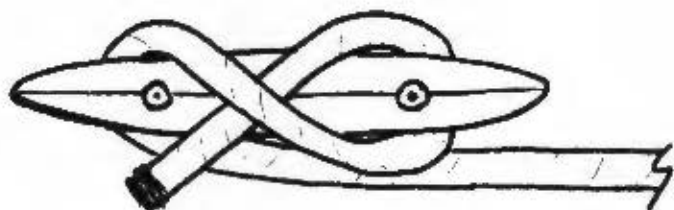
FIGURE EIGHT



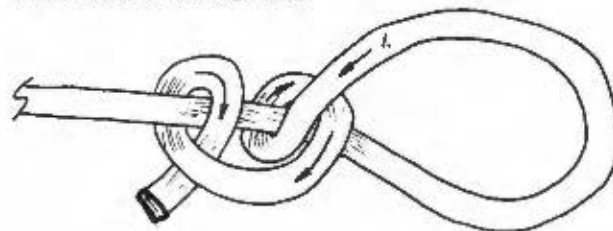
**REEF KNOT or
SQUARE KNOT**



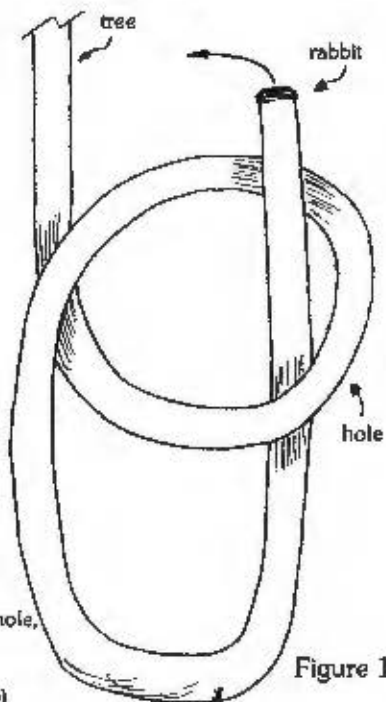
CLEAT HALF HITCH



TWO HALF HITCHES



BOWLINE



(the rabbit goes up through the hole, around the tree, and back down through the hole)

Figure 1

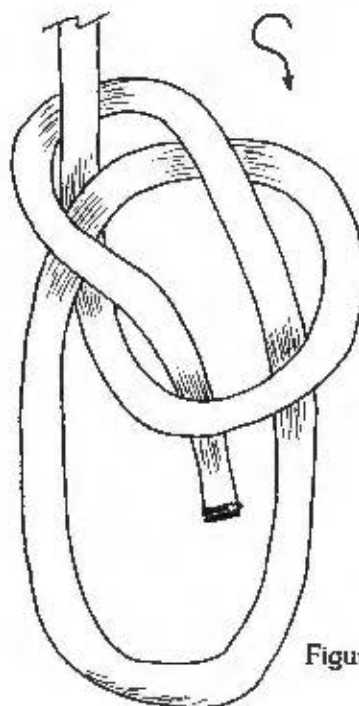
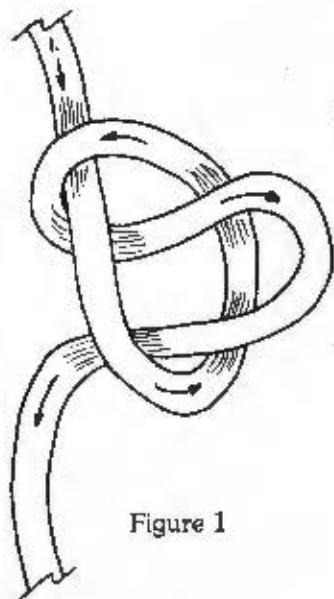


Figure 2

TRUCKER'S HITCH



(for tie-downs and extra purchase on jib block tie-down)

Figure 1



tie off with half hitches

Figure 2

DOUBLE OVERHAND KNOT

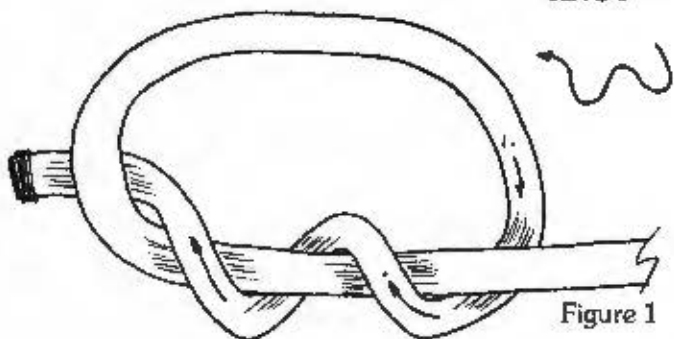


Figure 1

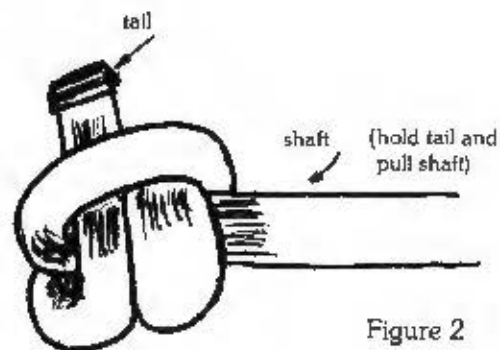


Figure 2