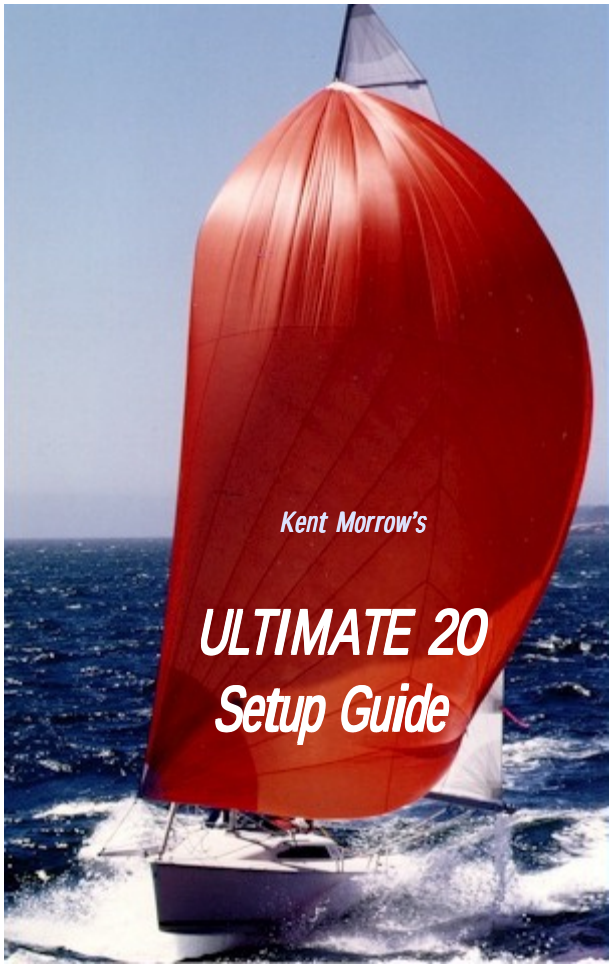


published by

the Ultimate 20 Class Association

as a service for new Ultimate 20 owners

with support from

Ultimate Sailboats, Inc.

So you now own an Ultimate 20! Congratulations and, on behalf of all the members of the Ultimate 20 Class Association, *welcome aboard!* We know you are anxious to go sailing, and, if you feel like most of us U20 owners did when our boats first arrived, at this point you are wondering, *"how do I put this thing together!"* Therefore, we are pleased to provide you with this setup guide to help you get off on the right foot, and we want to provide any other help you may need with your new boat in the months ahead.

We have several other resources available on our Class Association website at www.u20class.org. They include an Ultimate 20 tuning guide written by Charlie Ogletree from Ullman Sails, (*www.u20class.org/tuning_guide.htm*) and a complete library of back issues of our quarterly newsletter, *THE ULTIMATUM* (*www.u20class.org/morgue.htm*). In those issues you will find many tips about U20 sailing as well as a regular column, 'Ultimate Solutions,' in which U20 sailors share ideas and pictures of things they have done to make their U20s even more fun to sail.

We know you will be thrilled with your Ultimate 20, and we very much hope you will join us in supporting the class by becoming an active member of our class association. Please don't hesitate to ask for help or advice from any of your fellow U20 sailors. You can e-mail or call Kent at *downeast@cnw.com* or (360) 293-4342, and me at *rhm@u20class.org* or (501) 227-5895.

..... Dick Martin
Executive Secretary
Ultimate 20 Class Association

Setting Up Your Ultimate 20

by

Kent Morrow

FIRST STEPS

If your boat is new, when it is delivered it may or may not be wrapped in plastic. Use a sharp knife or razor blade to cut and peel away the plastic, being careful not to cut the gel coat of the boat! The boat must be lifted or launched off the trailer to get the last remaining bits of plastic off of the trailer bunks. If launching, don't let the plastic float away, recycle it or at least put it in the trash. Your boat may or may not have a canvas cover over the deck. If so, you don't have to cut this one off! Untie and unsnap it from your boat and give it back to the driver before he heads back to Santa Cruz, or box it up and send it back to USI so they can use it on the next boat waiting to be shipped.

Check to make sure there is no shipping damage. Better to have the driver there to verify any problems before you contact USI. You will have to sign a release for the driver before he goes, so give the boat a good check out and have the driver initial any problems you put on the release form before he leaves. Unloading your boat always takes longer than expected. Allow at least 1-1.5 hours between when the delivery driver shows up, until he is back on the road to Santa Cruz.

MAST SET UP

Unload the mast from the boat or truck, and place it in a flat area suitable for rigging. A new mast should be plastic wrapped and partially rigged with halyards or leader lines for the halyards. You will have to install the spreaders if they are not already on the mast. The spreaders need to be installed sweeping aft (the groove in the mast is for the mainsail luff and is the back of the mast) and slightly upward. The mid-piece is a bar of stainless steel that goes through the mast to connect both spreaders together (Fig. 1). It may only slide into the mast from one side, and it takes a bit of elbow grease to get it in there, so be patient. To make things a bit easier, I recommend putting together just one side first (the spreader and Teflon insert on one side of the mid-piece bar), then sliding the remaining section of the mid piece bar through the

Figure 1 *Mid piece placed in mast*

Figure 2 *Spreader with insert*

mast. Once the mid-piece is in the mast, place the white Teflon inserts on top of the mid-piece, lining up the holes (Fig 2). Slide the spreader on top of it, finessing it until the holes line up on all three items: spreader, Teflon insert, and mid-piece bar. You might find it helpful to use a small, but long, screwdriver or pen to help you line up all the holes (Fig 3). Once the holes are lined up, and you're sure everything is oriented in the right direction, insert the bolts and tighten the nut on the bottom side (Fig 4). Be careful not to overtighten the nuts; just snug them up to the spreader, not so tight that they indent the spreader.

Figure 3 *Lining up holes on spreader*

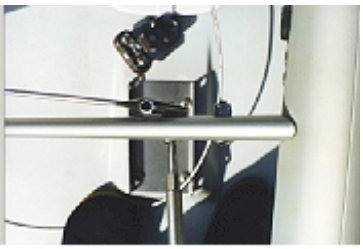


Figure 4 *Tightening spreader bolts*

FORESTAY ASSEMBLY

Next you will hook up the forestay. This, as well as the upper and lower shrouds, all attach to the mast using a T-ball and socket arrangement, which is held in place with a rubber "Gibb" plug. Locate these black rubber Gibb plugs which are about the size of the end of your finger. Then take the short forestay, which is about 8 inches long and will have a T-ball fitting on one end. Rotate and insert the T-ball fitting into the forestay socket about 7/8 up the front side of the mast, below the spinnaker halyard exit block. Now insert the Gibb plug to secure it. I gently use a screwdriver to help pry it down into place, and it helps to 'lubricate' the plug with a little saliva.

Figure 5

Insert the T-ball fitting into its socket perpendicular to the mast

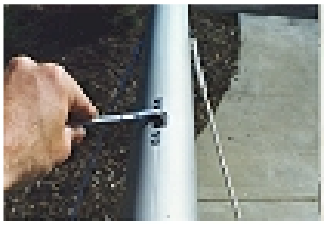


Figure 6

Rotate the fitting and wire back down into permanent position, then pop in the Gibb-plug to keep it in place

The next step is to attach the roller furling system's upper swivel with a clevis pin to the eye at the end of the short headstay you just installed on the mast. Make sure the arrow is pointing "up" on Schaefer units, or that the logo is right side up on Harken units. There are two small tangs or sections of stainless steel that go between the roller furling upper swivel and the wire halyard block. Make sure the block is facing the correct way, with the larger gap around the sheave and associated wire halyard facing the roller furling upper swivel. You may need to use a couple of washers on each side of the stainless sections to make a snug fit through the clevis pin into the wire

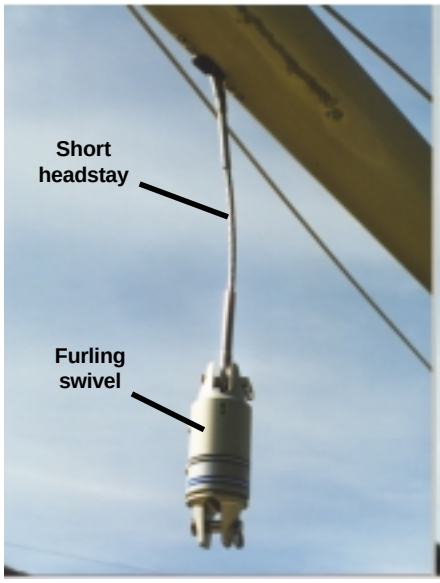


Figure 7
Short headstay hooked up to roller furling swivel

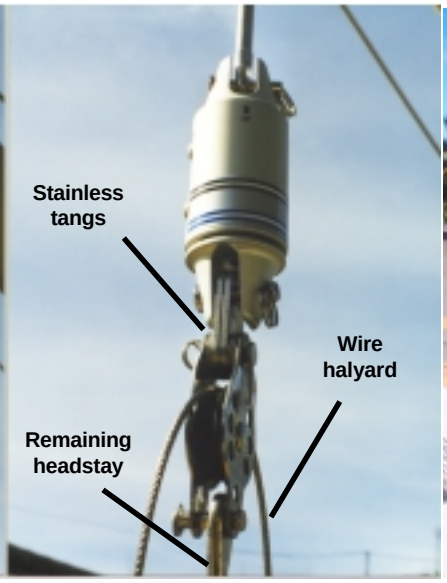


Figure 8
Roller furling swivel connected to stainless tangs, connected to the wire halyard block, connected to the rest of the headstay

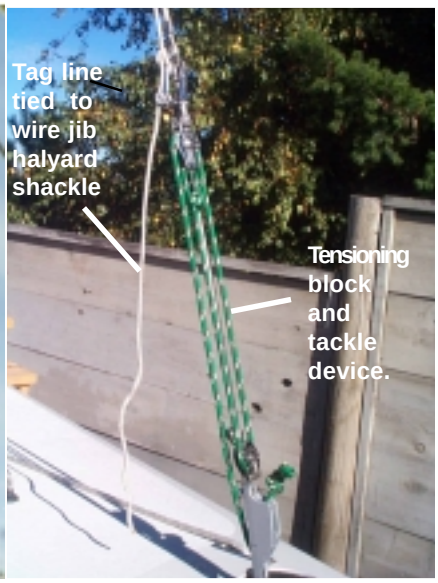


Figure 9
Jib halyard tag line tied off to wire jib halyard shackle at top of tensioning block device

halyard block. Then clevis pin the long length of headstay wire to the wire halyard swivel. This should have the custom headstay tensioning block and cleat at the base of it.

Before you raise the mast, you must attach the jib halyard tag line onto the wire-rope halyard (see Fig 9). The jib halyard tag line is a small (1/8" Dacron), long length of line that is used to hoist and lower the sail. Tie it off at the base of the halyard tensioning device or wire halyard shackle when it is connected to the halyard tensioning device, so that the weight of the wire halyard won't pull it all the way up to the top swivel.

SHROUDS

Now attach the lower shrouds the way you did the uppers and headstay, by inserting the T-ball fitting into its socket (Fig 10)

Figure 10 *Lower shroud in place*

Figure 11 *Main and spinnaker halyards being pulled out of the mast*

Figure 12 *Windex attached to top of mast*

After hooking up the lower shrouds to the mast, pull the main halyard shackle (Fig 11) out of the mast and down to the base of the mast, making sure to tie a stopper knot in the bitter end so that you don't pull the entire halyard out of the mast. Do the same with the spinnaker halyard. Notice that there is an extra block *below* where the halyard exits the mast. This is for the outward pulling force generated by an asymmetrical chute. Finally attach the Windex in the threaded hole at the top of the mast (Fig 12). There is not much clearance below the Windex hole, where the main halyard rides up over the top sheave. Place a nut on the Windex before threading it into the hole, or simply hack saw off the extra threads of the Windex to allow room for the main halyard to pass freely over the sheave at the top of the mast.

ROLLER FURLER

Attach the lower unit of the roller furling system, if it is not already in place. This furling drum should be attached to the stem fitting with a clevis pin, down in the recessed drum area at the bow of the boat. The only way to get to the clevis pin is to crawl up inside the boat and open the clear inspection port. Now you know why that opening port is there! Next, rig the furling line as shown in Figure 13. Dead end the line in the hole on the top of the drum. Wrap the line around the drum, inside its cage (rotate the drum *clockwise* while doing this). When there are a few full wraps on the drum (how many is not critical), lead the line out of the cage as shown, through the block in the recessed area and out over the deck block. From there it goes through two deck-mounted grommets to its cleat on the port side of the cabin top.

Later, after the mast is up and the jib is attached, you'll want to have about two full turns of furling line on the drum when the jib is tightly furled around the forestay. Unfurling the jib by pulling on a jibsheet will wrap just the right amount of line on the drum. With the jib fully unfurled, use an indelible marker to indicate where the furling line is in the jaws of its cleat, so you can reproduce this the next time you rig the boat. When trailering the boat for long distances, I usually tie some sort of a slip knot between the furling drum and the exit block on the deck (Fig 14). This keeps the line from getting fouled around the drum; just be sure to untie it before you attach the headstay and set up the mast for sailing.

Figure 13

Furling line as it passes through flush exit block on deck and swivel block to furler drum

Figure 14

Extra knot tied in between block and drum for long distance road trips (emember to undo it before you set up the boat)

RAISING THE MAST

WARNING: The surgeon general has determined that manual mast lifting can be detrimental to your back. If you don't have a strong back, or don't want to hurt a healthy one, don't try this one. Instead, rig up a crutch system using the boom or some other strut to give you an additional purchase advantage while raising the mast.

You are now ready to step the mast. This is usually a two person job, so get a friend or crew member to help you, at least with this part of the setup. Better yet, let other sailors know you are getting ready to rig your new Ultimate 20 for the first time and you will probably have more helpers than you can possibly use throughout the whole process. (Huck Finn would have been able to get his friends to do the whole thing for him.)

Figure 15
Walking the mast forward

Figure 16
Getting the pins ready

Figure 17
Sitting on mast to pin it down

Figure 18
Placing the forward pin into mast base

- Mount the aft mast crutch on the transom motor mount and place the mast in that crutch and the one on the front of the trailer.
- Make sure the long pins at the mast base are unhooked and lying next to the deck tabernacle (Fig 16).
- Lift the mast base from the stern mast crutch and walk it forward to the deck tabernacle.
- Use your weight and straddle or sit on the mast facing aft (Fig 17), while you work the forward pin into the tabernacle and mast base (Fig 18).
- Attach the lower shrouds to forward-most padeye on the port and starboard rails while hoisting mast (Fig 19).
- Attach headstay to the roller furling drum (Fig 20).
- Tie stopper knot in bitter end of spinnaker halyard and pull shackle end to transom of boat.

Figure 19
Lower shroud attached to forward padeye

Figure 20
Headstay clevis pinned to roller furling drum

Figure 21
Forward base of mast pinned and ready to be hoisted up

- Make sure all shrouds and stays are free and clear of potential snags, like the trailer winch or bowsprit.
- Be sure the spinnaker halyard is on top of the spreaders for a direct pull aft.
- Get your helper to take hold of the spinnaker halyard and get ready to help pull up the mast.
- Position your feet securely at the bow, and heave the mast up, walking it back toward the stern. The initial heave is the hardest.
- Carefully lift the mast from the bow, with a crew person helping lift with the spinnaker halyard from behind the boat.
- Walk the mast up the rest of the way, watching to be sure that the stays remain free from snags or kinks, until the forestay is taut (Fig 23).
- Insert the aft pin in the mast-step tabernacle (Fig 24).

Figure 22
Ready for the initial heave

Figure 23
Walking the mast up

Figure 24
Putting the aft pin in the tabernacle

- Attach the upper shrouds to the furthest aft padeye on both sides.
- Then bring the lower shrouds back to the middle padeye, just in front of the upper shrouds.
- The set up is complete.

Figure25
Attaching upper shrouds

Figure 26
Uppers and lowers in place

Figure 27
Viola!

TENSIONING THE RIG

Rig tension is still a topic of lively debate in our class. However, a basic guideline is to set the upper shroud tension between 300 and 470 lbs. using a Loos tension gauge. The turnbuckles are calibrated, but not all shrouds are exactly the same length so use a tension gauge to first figure out what each corresponding setting equals. Often this will be between 2 and 3.5 on the calibrated turnbuckles. Experts differ widely in their recommendations for setting the tension of the lowers, and you will see anywhere from 50 to 300 lbs. About half the tension of the uppers is one reasonable way to start. Keep in mind that there was absolutely no correlation between shroud tension and finish position at the 1997 U20 Nationals (spinnaker color was a better predictor of outcome), so don't get uptight about this rather trivial part of tuning, at least for now. The lower turnbuckles are not calibrated, so use the tension gauge to first get a feel for where the tension should be.

BOOM SET UP

- Put clevis pin into the boom and gooseneck fitting at the mast (Fig. 28).
- Attach the boom blocks if they have not been put on already, and lead the mainsheet through them (Fig. 29).
- Attach the boom vang to the mast and boom, leading the line as shown in Fig 30. (Note: some boom vang rigs may differ from the one shown, but they will attach to the mast and boom at the same points shown here. Some rigs dead-end a wire cable to the upper mast attachment point; with that arrangement a fiddle block attaches to the tabernacle bail, and the tail of the vang line is lead through the eye on the pivoting cam cleat.)
- Attach and lead the mainsheet traveler lines, if not already done (Fig. 31).

Figure 28
Gooseneck detail

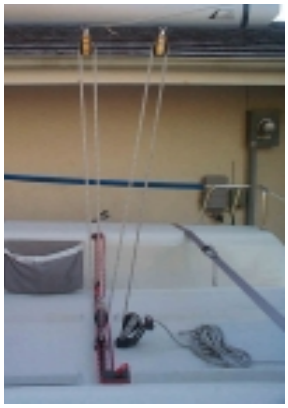


Figure 29
Mainsheet detail

Figure 30
Boom vang detail

Figure 31
Traveler detail

OTHER DECK HARDWARE

You may have to attach optional equipment like life lines if you have ordered them; these are usually pretty self explanatory. Otherwise your boat should have most of its deck hardware in place. For example, the ratcheting jib blocks may already be in place on the jib car track, but, if not, take the large stainless steel spring and compress it (I use two Vise-grips for this). Then lower the spring over the padeye on the jib car as shown in Fig. 32. Attach the ratchet block to the jib car padeye, and undo the Vise-grips.

Figure 32 *Jib block with standup spring in place*

RIGGING THE JIB

Take the jib out of its bag and place it on the forward deck, with the zipper luff at the bow. Make sure the jib halyard tag line is attached to the wire rope jib halyard; a simple bowline knot will do. Attach the jib halyard shackle to the head of the jib sail (Fig 33). Hoist on the jib halyard and simultaneously zip up the zipper luff, making sure that all the halyard and tailings are inside the zippered luff – nothing outside of the zippered luff as it goes up. Before you hoist the jib all the way up, shackle the tack of the sail to one of the loops at the base of the headstay. Untie the jib halyard tag line from the grommet at the end of the wire halyard and put the hook of the purchase system in its place as shown in Fig 34 (don't accidentally let go of the halyard: it can ruin your whole day if the weight of the jib causes it to fly back up, and you have to take the mast down to retrieve it). Then tighten up the wire-rope halyard with the hook and purchase system (the tensioning block and cleat contraption attached to the bottom of the headstay – whew that's a long one!). Tighten enough to remove wrinkles from the jib luff. This clever halyard-tensioning arrangement takes the place of a jib luff downhaul, which can't be used on a roller-furling jib.

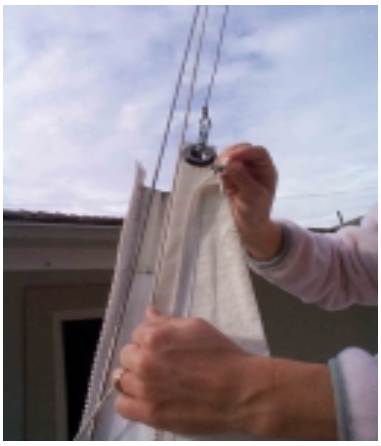


Figure 33 *Jib head and zipper luff detail*

Figure 34
*Zipping the luff: **remember**, the wire halyard and the rope tag line **both** go inside the zipped-up luff!*

Figure 35
Green 'tensioning contraption' has been attached to the wire jib halyard

Figure 36
Finished product: note the tail of the tensioning line wrapped up out of harm's way to avoid snagging and accidental uncleating

Figure 37 *Jib sheet detail*

Finally, attach the twisted "D" shackle (missing in Figure 37 where it has been replaced with a rope jury-rig) and two small Harken blocks to the clew of the jib. Tie a stopper knot in the end of the jib sheet and lead it through the base of the jib car padeye, then up through the small Harken block on the clew of the jib and back down to the ratchet block on the jib car lead, then cross sheet the jib sheet over the companionway to the cam cleat on the opposite side. Make sure that the hexaratchet blocks are facing the correct way when the ratcheting mechanism is clicked on. Incidentally, jib cars are typically adjusted between the 1st and 3rd holes on the jib car track, so leaving them on the 2nd hole is a good position to start from. Furl the jib.

LAUNCHING THE BOAT

Finally the big moment has arrived! Get out the champagne and make sure you have already completed running all the necessary lines for the spinnaker (see next page). Get the rudder and tiller assembly out in the cockpit where it will be easier to install once launched. Get bow and stern lines attached and fenders out and ready for launching. Undo the rear tie-down rope or strap off the back of the boat. It depends upon the steepness of the launch ramp, but on most ramps simply back the trailer down into the water until the back tires of the tow vehicle are just touching the water, then unhook the bow hook tether from the trailer to the boat, and proceed to back up until the boat floats free, then pull the trailer out of the water.

Once the boat is secured to the dock, take the wedges out of the sides of the keel box and lower the keel down by cranking the keel hoist handle counter clockwise. It has a built in clutch that works very well. Once the keel is down, unhook the keel hoist hook and simply lift the top crane and crank part of the hoist off of the post and set it down below in one of the storage bins. Then pull the quick release pin out of the telescoping tube part of the post and lower it into the cabin support tube and replace the quick release pin in the hole.

Tighten down the keel using the two "Scotty" bolts *hand tight*. These are bolts with large black plastic tops on them for tightening. They may be located in the round-opening storage ports on the V-berth area, just forward of the keel box, or they might be in the storage bins under the cockpit.

Take the rudder out of its bag and attach it to the transom with the large stainless steel pintle (don't drop the pintle into the water – that can ruin your whole week). If the wind is light and you're headed into it, you can now hoist the mainsail. Otherwise, wait until you're motoring out into the wind to raise the main.

HOISTING THE MAINSAIL

Bring the mainsail out of its bag into the cockpit, with the luff up at the base of the mast. Attach the main halyard shackle to the head of the mainsail and hoist on the halyard, feeding the luff of the sail into the luff grove just above the boom gooseneck fitting. Pull the sail all the way up, until the halyard Nicropress stopper ball pops into the groove on the keeper fitting on the mast. It may take an extra heave to get the sail up the very last inch!

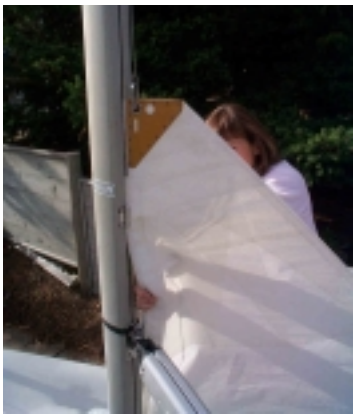


Figure 38 *Feeding main luff bolt rope*

Coil up the extra halyard tailings and either attach them to the mast with a Velcro strap or place them down below or in the cockpit. Attach the Cunningham hook and tighten down on the tack of the main sail.

Take the slug on the foot of the mainsail and feed into the cut out in the foot groove that is about half way out on the top of the boom. Then attach the clew to the outhaul shackle.

RIGGING THE SPINNAKER LINES

- Rig the spinnaker lines as shown in Fig 39.
- To rig for a port spinnaker set, run the tack line (usually blue) from the bowsprit around in front of (outside) the forestay and furled jib and attach it on the port side of the boat as shown in Fig 40 and 41.
- Rig the spinsheets (not shown in the pictures below) so that they both attach to the port side and the starboard sheet runs in front of the headstay.
- When you attach the tack line and sheets to the spinnaker, lead the tack line *over* the sheet as they come back from the headstay and attach to the tack and clew of the sail. This will cause the clew of the spinnaker to jibe "inside" the body of the sail, and is best except in strong winds when "outside" jibing is perhaps preferable.
- Make sure the spinnaker halyard goes behind and around the port side upper shroud.
- Most people attach the sheets, tack line and halyard to the forward port side stanchion, and then attach them to the spinnaker just before hoisting.

Figure 39 *Spinnaker line details: halyard(next to companionway), tack line (blue) and bowsprit (red)*

Figure 40 *Tack line goes around (outside of) the headstay, when rigging for port spinnaker set*

Figure 41 *Spinnaker halyard and tack line hooked to stanchion anticipating port spinnaker set*

ULTIMATE 20 SAILING TIPS

The special techniques and fine points involved in making a U20 go fast are beyond the scope of this manual and, to the extent that any of us have figured them out in the relatively short time the boat has been around, can be found in back and future issues of our newsletter, *THE ULTIMATUM*. But here are a few tips from Kent and Dick to help you get going.

Asymmetric spinnaker handling

Launching

- Launch the spinnaker from the companionway, using one of the laundry baskets under the cockpit sole or a bag which can be ordered from Layline or custom made by your local sailmaker. It is merely a box pattern made out of canvas that hangs in the companionway, similar to the ones used by many J/24s and J/22s.
- Some U20 sailors "preload" the tack of the spinnaker partway or all the way to the bowsprit. Others hoist before pulling in the tack line. Try it both ways and see which you prefer.
- Bear off before hoisting, so that the spinnaker is blanketed by the mainsail when being raised. You will need to trim in the mainsheet a bit, as the spinnaker halyard has a tendency to get pinched between the mainsail and the spreader and upper shroud. This will open a gap so that the spinnaker can be hoisted up easily.
- If you don't preload, once the halyard is hoisted all the way up pull the tack line in. Leave a foot or two off the end of the pole, not all the way to the end of the pole, unless you're on a tight reach.
- Now trim in the spinnaker sheet, while bringing the boat up just enough to fill the spinnaker with wind. Once it starts filling you may have to bear off a bit to keep the boat under the mast.
- Ease out the sheet to let the spinnaker fly out in front of the boat. Trim it just as you would a symmetrical chute, easing the sheet out until the luff starts to curl. Try to ease the sheet out as much as possible (remember: "when in doubt, let it out"). When you want to sail as close to dead downwind as possible, heel to windward and ease the sheet so the luff of the spinnaker rolls around to windward of the centerline, as shown in Fig 42, grabbing wind that would otherwise be lost behind the mainsail. When sailing as low as possible, the spinnaker trimmer needs to communicate with the driver to keep the chute filled. As soon as pressure on the sheet diminishes tell the driver to "heat it up" (come up a tad).

Figure 42
Spinnaker "lifting" to windward: note windward heel and tack two feet above bowsprit

Jibing

- Jibing is just a matter of timing. Like a big jib, you simply ease the sheet (ease it enough so that the spinnaker is out in front of the boat and easily clears the forestay, otherwise you end up trying to drag it over the forestay which is not only harder on you, but harder on the sail).
- The driver starts to turn the boat and, once the spinnaker is out in front of the headstay, the trimmer starts hauling in the new sheet while the driver turns through the wind. Keep feet and other anatomic parts off of the spinnaker sheets during the jibe, so that the new active sheet can be trimmed swiftly in order to get the chute filled as soon as possible on the new tack.
- The helmsperson may have to head the boat up a bit to fill the spinnaker, then bear off as it loads up, to keep the boat underneath the spinnaker.

Dousing

- Make sure tack line and spinnaker halyard are free to run, unfurl the jib, and bear off to blanket the chute while the spinnaker trimmer over trims the chute to pull the clew in near the boat.
- Trimmer grabs the spinnaker clew, then someone releases the tack line (being careful to feed it out through a hand so it can't hockle and cleat itself) while the trimmer gathers the foot of the chute into her/his arms.

- Release the halyard (again, let its tail run through a hand to avoid hockling) while the trimmer actively pulls the chute down and stuffs it into the companionway.
- Steer and trim sails to desired course, and retract the bowsprit.

Other spinnaker handling tips

When you begin to be overpowered and start to heel too much while flying the chute, if the spinnaker is not overtrimmed (and has that slight curl in its luff) and the main isn't stalled, you need to bear off — rather quickly and sometimes forcefully. Over-ease the main to help you do that and overcome weather helm (the narrow U20 rudder stalls easily and you can suddenly lose the ability to bear off with rudder alone). The spinnaker trimmer should ease the chute as the driver bears off (but doesn't need to let it luff or collapse). On a reach a U20 generates so much apparent wind velocity that you can become overpowered, despite three adults on the windward rail, in surprisingly light winds, e.g., as little as 8-10 knots of true wind on a close reach. When you bear off and ease the sails appropriately, the boat immediately climbs right back on its feet, still moving fast or even faster, the weather helm returns to normal, and you can then begin to head back up to your reaching course. This is the spinnaker-flying offwind (reverse) version of "feathering" through gusts while sailing upwind. On a reach in a U20 another spinnaker-flying mantra (a verbatim rerun of the old racing truism) is: "bear off in the puffs, head up – a little above the course you want to make good – in the lulls."

Upwind Sailing

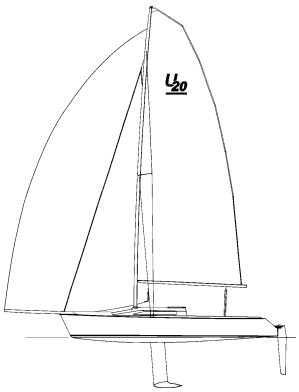
Remember that this boat has very high-aspect-ratio foils (keel and rudder), so when the wind is up over 6 knots, the boat is very efficient upwind and should out-point just about any other boat on the race course. But these foils rely heavily on the lift they generate while moving through the water in order to prevent sideslipping. Thus pinching, for more than a few seconds at least, is not a good idea. And if the boat should stall or go into irons, get it moving forward briskly before trying to point very high. The Ultimate 20's high pointing angle typically means that your mainsheet trim needs to be a bit tighter than with most other boats. In most conditions, the boom is nearly on the centerline when going upwind.

The subtleties of vang, traveler and mainsheet tension are actively debated by U20 sailors: you can read the various points of view in *THE ULTIMATUM*, and in contributions which are posted fairly often on our class' electronic mailing list server (go to our website to subscribe). For now, just point high, keep the boat going, and have fun.

Jib trim is largely dependent upon how your main is trimmed. Just follow normal techniques and trim to the telltales. Typically the jib clew is two to six inches off the jib sheet lead block.

We sincerely hope that this will be enough to get you going, but don't hesitate to ask for advice. Our class motto, "Fast, Friendly, and Fair" is not just advertising hype. We really do want to help you enjoy the ***ultimate sailboat***, and we look forward to sailing with you soon.

ULTIMATE 20
Class Association
Fast, Friendly, and Fair



Revised: May 17, 1999

About the author

Kent Morrow, who operates Mad Dog Marine in Anacortes, Washington, bought his first Ultimate 20, *Mad Dog*, in 1995. He is the Pacific Northwest dealer for Ultimate Sailboats, Inc., has introduced numerous sailors to the fun of U20 sailing, and has helped many of them set up their new boats.

Kent has raced in each of the U20 National Championships to date, placing third in 1995, second in 1996, and third in 1998. He served the class as Northwest District Chairman in 1996-97, and in 1997 was elected President of the class association.

The Ultimate 20 Class Association gratefully acknowledges financial support from the builder of the Ultimate 20, Ultimate Sailboats, Inc., which helped to pay for the printing of this setup guide.