Figuring Out The

HOYT FREEDOM GUN MOUNT

with Contributions by
Rick Simonds, Rick Cunningham,
and numerous unnamed sources

Compiled by Luca Ceccarelli

V.1 - Oct 26, 2023

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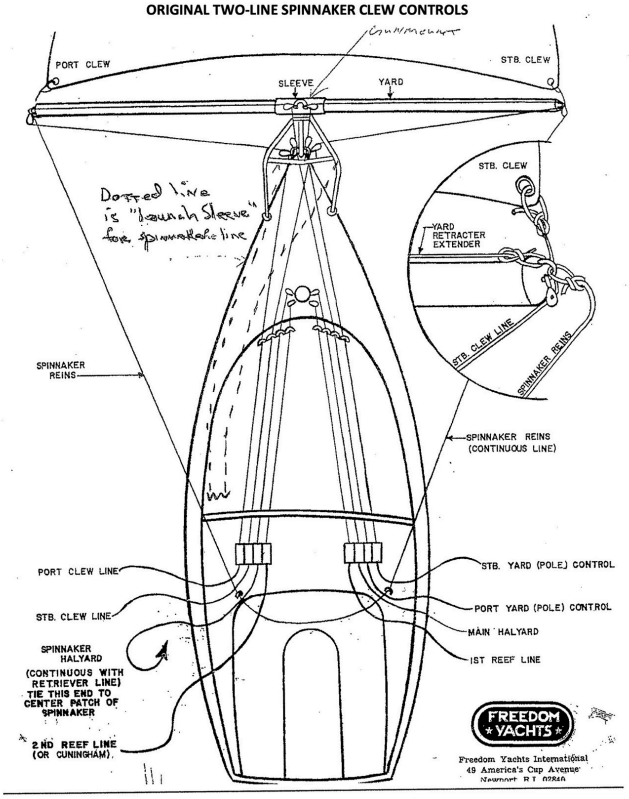
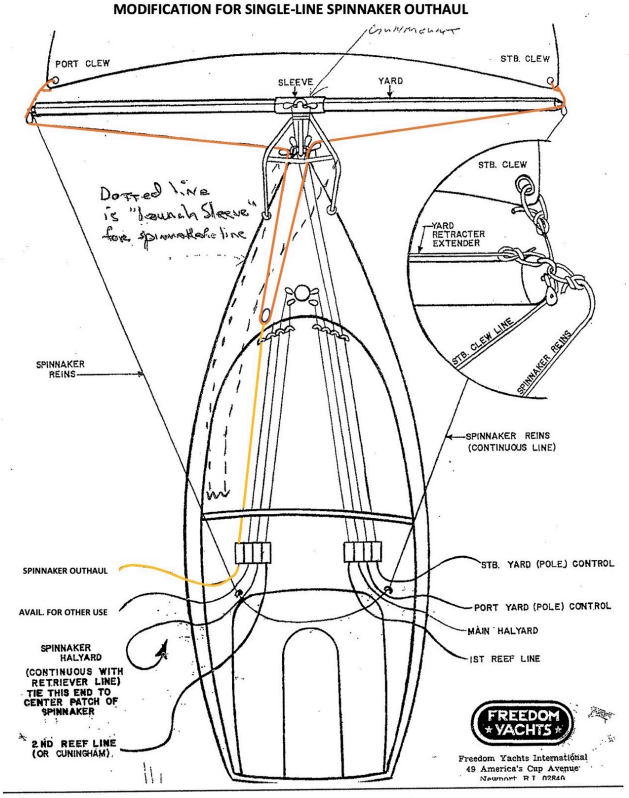
ORIGINAL TWO-LINE SPINNAKER CLEW CONTROLS



MODIFICATION FOR SINGLE-LINE SPINNAKER OUTHAUL



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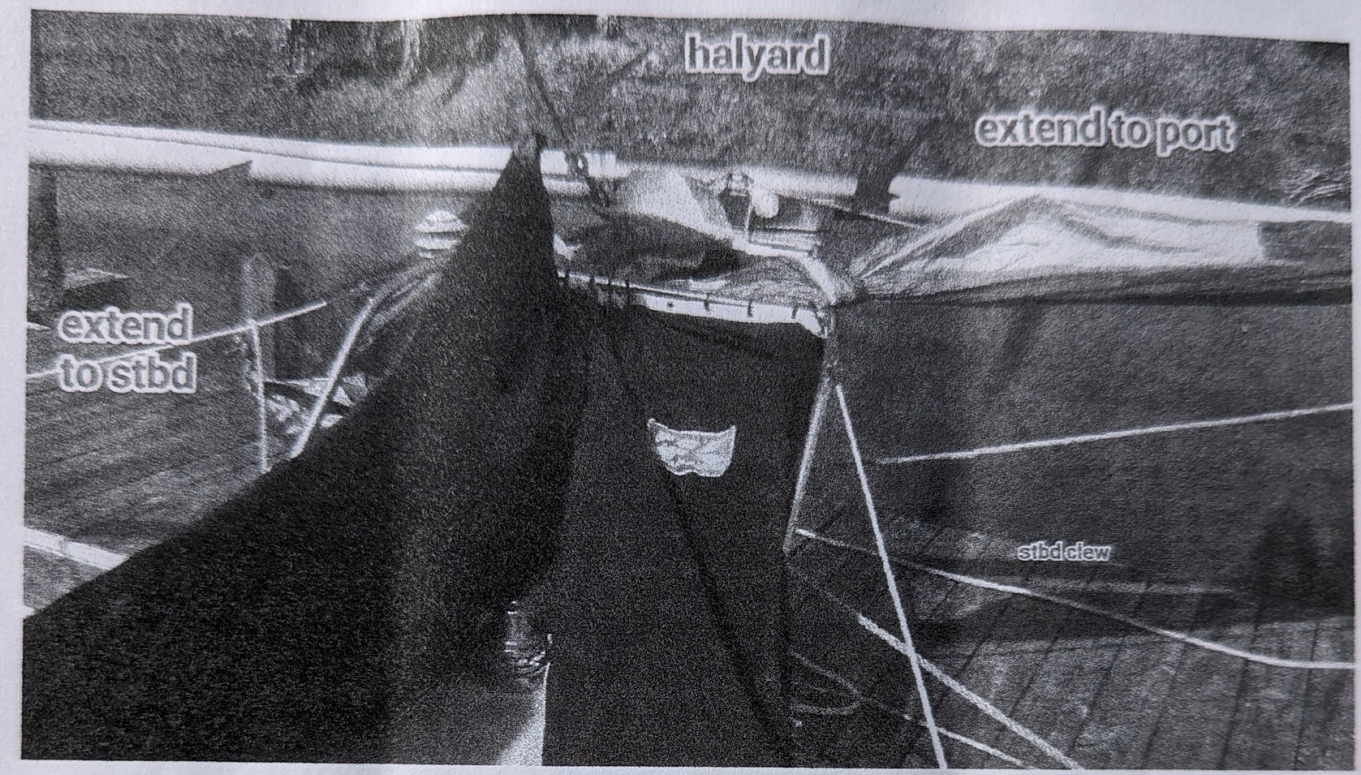
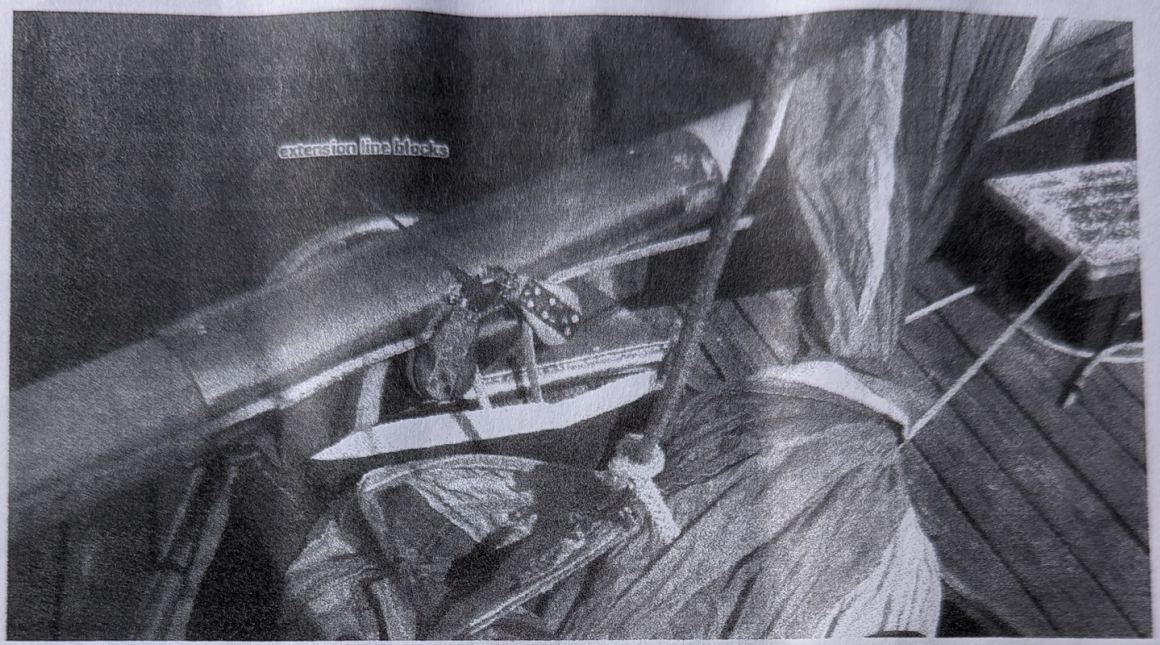
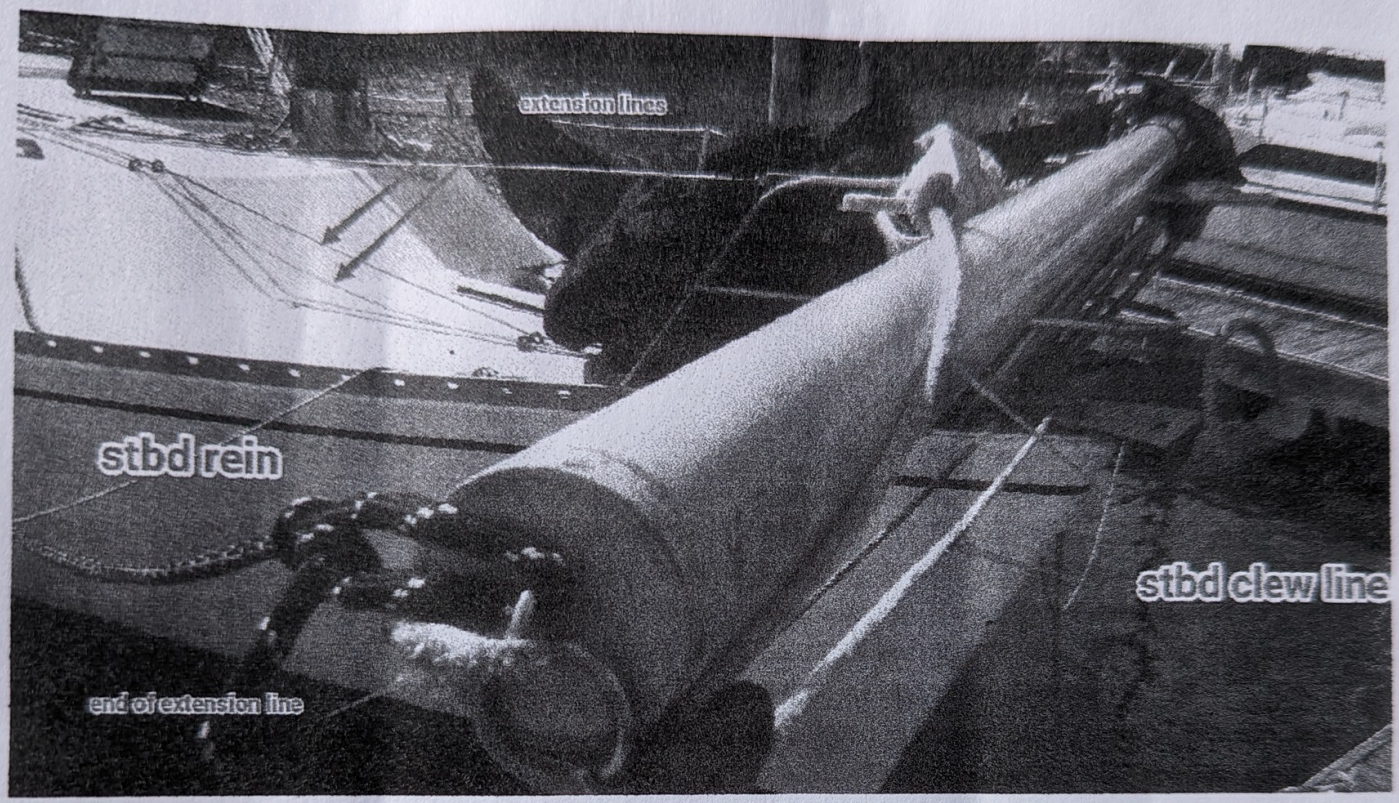


The pole has been extended and swiveled to be square to the centerline of the boat. You can see the pole extension lines on the backside of the pole. The extension line going to the starboard end of the pole extends the pole to port and vice versa. You can see the starboard clew and clew line in its usual position because the starboard clew has been pulled out to near the end of the pole, like it would be when the spinnaker is flying. The port clew has not been pulled out, it's just drooping over the bow pulpit, and you can see the clew line just draped over the life line on the port side. It would normally look just like the starboard one, the port clew would be pulled out to near the end of the pole, and the clew line would take take the same diagonal path back to the base of the bow pulpit. The halyard is hooked to the head of the sail. The spinnaker bag is fastened to the bow pulpit with electrical zip ties and is leading back, hung along the starboard lifeline (the bag can be rigged on either side of the boat, it doesn't matter at all.)

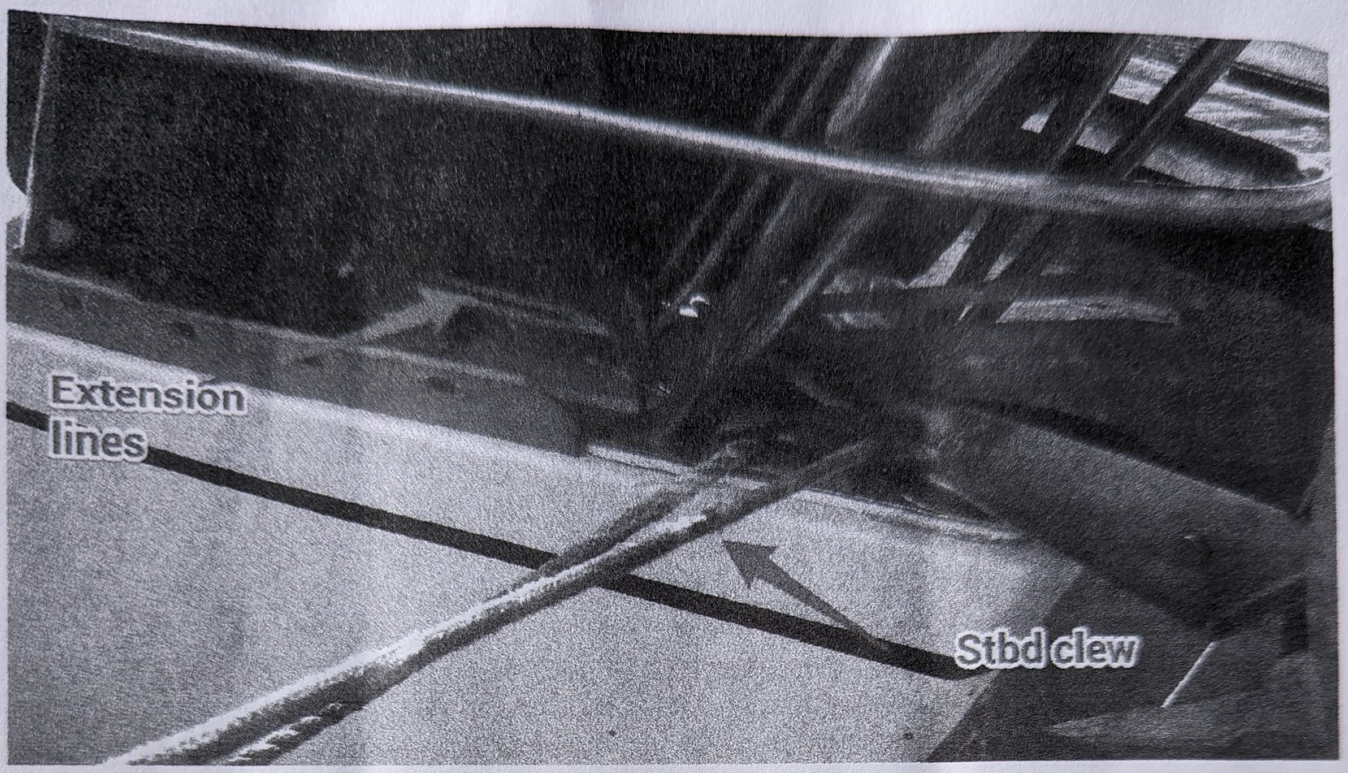


The extension lines go through turning blocks on the swiveling gun mount tube and tie to the ends of the pole. You can also see the halyard hooked to the head of the sail here. For storage the halyard hooks onto the same welded on ring that the extension line blocks are fastened to. The starboard clew happens to be twisted here as it's coming out of the bag but that will almost certainly straighten itself out when the halyard gets pulled and the sail goes up.



The black line is the rein, it leads straight to the cockpit and is pulled to swivel the pole. The end of the extension line along the back of the pole simply ties to the permanent eye built into the end of the pole. A ring is also through that permanent eye and a turning block for the clew line is shackled to the ring. The clew line comes over the top of the pole, through the turning block and down to another turning block on the anchor roller. The extension lines should always be on the back of the pole, the clew lines above and on the front. The port end of the pole is a mirror image of this end. In the background the extension lines can be seen going through fairleads on the starboard foredeck (I bunched up the bag forward so these can be seen. Normally the bag would be stretched out along the lifeline and these extension line fairleads wouldn't be seen from here because they would be behind the bag. The clew lines go through another set of foredeck fairleads just like these ones, but on the port side.)

(4)



There are two turning blocks for the extension lines at the base of the bow pulpit (these are two separate blocks, it's difficult to see in this photo because one is exactly behind the other.) They turn the line from the turning blocks on the gun mount to the fairleads on the foredeck. The starboard clew line comes to a turning block on the anchor roller and from here goes to the fairleads on the port side of the foredeck. This is the one awkward spot in all of this, there isn't a really great lead here, there's a little interference from the anchor whether the starboard clew line goes above it or below it.

The port clew line comes to a turning block at the base of the bow pulpit and you can also see the starboard clew line coming across from the other side. Both lines go to fairleads on the port foredeck, part of one fairlead is just barely visible in the upper right hand corner, but they look just like the ones for the extension lines. The extension lines, clew lines and halyard go to stoppers at the winches near the cockpit.

Trimming the gun mount spinnaker

GUNMOUNT SPINNAKER INSTRUCTIONS BY: RICK SIMONDS

Setting up the spinnaker:

1) Open the clew stoppers.

2) Pull the bag out from the bow pulpit. There are some carabineers attached to the spinnaker bag to allow the bag to hang from the lifeline. There is also a line about 5' long on the aft end of the bag that prevents it from being pulled forward as the sail slides through it. Tie that line to the toe rail. Check that the rein on that side of the boat ended up ABOVE the bag and ABOVE the lifeline.

3) At the bow pulpit find the head of the spinnaker and, if needed, pull it up near the mouth of the bag. Remove the spinnaker halyard from the welded-on loop on the gunmount and attach it to the head of the spinnaker.

4) If you're going to be putting the spinnaker up fairly soon, pull both clews out of the mouth of the bag so they are outside the bow pulpit by maybe a foot. Sometimes when the clews are being pulled out of the bag by the clew lines they can hook on the bow pulpit tubing so it's easier to pull them out by hand whenever possible. If you're just setting up the spinnaker so it's ready to go but it will be quite a while before it will be used, leave the clews in the bag.

5) Find the tripline in the aft end of the bag and run it through the block on the toerail. Tie a stopper knot in the end of the tripline. Run the knotted end to the cockpit.

Extending the pole:

1) Have the clew lines, the extension lines and the reins coiled and ready to run. Open the stoppers for both clews and both extension lines. Make sure the reins are out of the cam cleats on the cabin top.

2) The port extension line extends the pole to starboard and the starboard extension line extends to pole to port. Pull the appropriate extension line and let the other extension line (I'm calling that one the "lazy" extension line) run out through the stopper. The pole can't quite be extended by hand, use the starboard

winch for this but it should be just barely needed. As the extension line is coming in 5 other lines (2 clews, 2 reins and the lazy extension line) are going out. If the extension line gets very hard to pull something is wrong, there's a snarl in one of those 5 lines somewhere or a stopper is still closed. Stop and find the problem.

You should be able to extend the pole directly from its storage position on top of the lifeline. The pole is harder to extend at first because it is way off balance, the aft end of it is droopy and this causes more friction in the gunmount sleeve. As the pole extends it gets more balanced and gets easier to pull so be daintier with the winch as you get close. The aft end of the pole should rise above the lifelines all by itself as the end gets forward of the first lifeline stanchion but every now and then you may have to walk forward and lift the aft end over lifeline. The pole may partially drag one clew out of the bag as it extends but, assuming you're going to set the spinnaker right away, this is actually more of a help than a problem.

3) Each extension line is marked with a whipping to show when the pole is extended to its midpoint. When both whippings are at the stoppers the pole is extended to its center point. There is also a painted a band on the pole the same length as the gunmount sleeve at the portion of the pole that will be covered by the sleeve when the pole is extended to its midpoint. The painted band on the pole actually works better than the extension line whippings for knowing when to stop. Just watch as the pole extends and stop when the last of the paint disappears into the gun mount sleeve. Close the extension line stoppers when the pole is where you want it and firmly pull the lazy extension line by hand to snug it up. Better yet, try closing the stopper on the lazy extension line when you still have about 4" to go extending the pole. The lazy extension line ends up snug automatically. Having some tension on both extension lines guarantees the pole will stay centered in the gun mount. It isn't a big deal, the pole is balanced in the gunmount and it takes some pretty big forces to make it move but snugging up both extension lines is easy enough to do and prevents any movement at all. Keep the extension line stoppers closed while using the spinnaker and only open them after the spinnaker is down and it's time to retract the pole.

4) Pull the appropriate rein to rotate the pole square to the wind. Lock the reins in the cam cleats on the cabin top. The reins don't have to be tight; they can have a foot or two of slack in each of them.

5) The starboard winch is not needed for the rest of the spinnaker set so you can leave the extension line on it if you want. Probably better is to remove and coil the extension line now to keep the spaghetti in the cockpit from getting overwhelming, you're about to make a whole bunch of it!

Setting the spinnaker:

1) CLOSE BOTH CLEW STOPPERS. CLOSE THE HALYARD STOPPER.

2) With the clew stoppers closed pull the clew lines so the clews are maybe halfway to, but not closer than 2 feet from the ends of the pole. This can probably be done by hand, no winching should be needed. If the clews lines simply won't pull the clews are probably snagged on the bow pulpit inside the bag, the only thing you can do is walk up to the bow and pull them out. I find it important to leave the clews 2 feet away from the end of the pole or more when setting the spinnaker because the geometry of the clew lines on the pole is not perfectly symmetrical. As the gunmount is rotated the leeward spinnaker clew will be pulled closer to the pole and the windward clew will extend itself farther from the pole. Leaving the clews at least 2 feet from the ends of the pole allows the pole to rotate after the sail is first put up without fear that one side will bind up. It's one less thing to worry about when setting the sail and later, after the sail is up and flying; the clew lines can be tweaked as needed.

3) Wrap the spinnaker halyard around the port winch only one turn and do not wrap it through the self tailer. Check that the trip line is ready to run. Check again that the clew stoppers are closed. Check again that the spinnaker halyard stopper is closed.

4) Pull the halyard by hand just letting the winch freewheel. It will be moderately difficult at first but very rapidly get easier as the spinnaker starts coming out of the bag. If at some point it simply stops coming out of the bag check if the tripline has fouled. Pull as fast as possible. If you pull as fast as you possibly can while the pulling is easy you'll not only save yourself some winch work but onlookers will "Ooh" and "Ahh" when the spinnaker pops open almost perfectly in place. Normally the spinnaker will not be full as it goes up but very soon after the "bullseye" (the reinforcing patch that attaches the tripline to the spinnaker) is out of the bag the sail will pop open. Pull fast to try to get as much up as you can before it opens, once it's open you won't be able to pull by hand

anymore. Often you will make it all the way. If the clew and halyard stoppers aren't closed you'll find out about it immediately and dramatically and onlookers will "Ooh" and "Ahh" in a VERY different way

5) After the spinnaker opens the closed halyard stopper will carry the load on the halyard while you wrap the halyard around the winch a few times then through the self tailer. If needed, winch the spinnaker up the rest of the way. There's an orange whipping on the halyard that ends up at the winch when the sail is all the way up.

Flying the spinnaker:

With the possible exception of compounding the gelcoat I can't think of a more tedious activity than blathering about esoteric nuances of sail trim. Don't worry. I'm not going subject you to that. Here are just a few random, probably obvious observations on flying a gunmount spinnaker.

1) When pointing I pull the leeward clew all the way down to the pole and lift the leeward end of the pole over inside of the lifelines. I also let the windward clew out until it's ahead of the forestay. This is the best pointing you can do, almost always 60* or better, depending on the smoothness of the sea. This point of sail is fast and fun.

2) When very broad reaching or dead running I let both clews out about 3 feet when it's important to see in front of me, like, say, when I'm in a channel or in traffic. The spinnaker will rise and I can see under the bottom of it. Farther offshore, depending on my comfort level about traffic, I might pull the clews down to the pole to get a bit more effective sail area. That makes for a pretty huge blind spot ahead, though. Easing the clews like this requires that there is at least a moderate breeze. In very light air I usually must pull the clews down to the pole to get the spinnaker to behave better or sometimes just to keep the spinnaker flying at all.

3) Again, the distance the clews are from the pole will change as the pole is rotated. If I have the sail trimmed for pointing (one clew pulled all the way down, like in #1 above) I make sure both clews are loosened before I jibe. If I don't the pole will stop rotating once the clew jams into the block at the end of the pole and things get really interesting halfway through a jibe. Preparing to jibe really just means checking to see that both clews are at least 2 feet away from the ends of the pole. That's all there really is to jibing,

otherwise this sail almost jibes itself. Just use the reins to keep the pole square to the wind as the boat comes around (there's never more than a few pounds of force in those lines, you can literally pull them with just your fingers) but because of where you'll be standing when doing this, please watch your head as the main boom comes across.

4) Beware of the halyard or clew lines if they are not held by the stoppers, the full force of the spinnaker is on them and that force can be tremendous at times. In very light air you may be able to pull them by hand but never assume you can. Wrap the tail around the winch a few times before you open a stopper then remove the wraps as needed. When the force on the line is high the stopper will be jammed too tight to open without winching the line anyway. That's actually fortunate because you can't open a stopper by mistake, you must wrap the line around the winch just to get the stopper to open. That's fine.

5) When I'm sailing with only the spinnaker up I found an easy way to change to the main and jib, assuming you've got some time and sea room. Head the boat on a broad reach. Put ONLY the jib up first (no main) and then take the spinnaker down. Without the main the boat tracks downwind very well, there's no big sail winged out to one side trying to turn the boat. The jib is so small that the speed drops down to just enough to have steerage way. That's good; it keeps the apparent wind higher which keeps the spinnaker out of the water and also helps the windvane steer better. After the spinnaker is down come up to close hauled, even pinch a bit, under jib alone while you put the main up. Let the boom way out so the main goes up luffing. Once it's up you can fall off to whatever course you need. Changing from spinnaker only to main and jib this way is really easy and works very well. I've done it single-handed dozens of times.

6) I ran aground at full speed all standing only once and that's all it took to teach me to always have the lines ready to run whenever the spinnaker is flying. It was awful. The spinnaker was pulling me farther up the shoal, flogging wildly, or filling up sideways and flopping the whole boat one way then the other. Amidst all this I had to straighten out my lubberly line mess before I could even begin to get the sail down. I always keep the spaghetti under control now. Whenever possible I leave the halyard on the winch, in the tailer, with the 3 or so wraps around the winch. When the halyard is on the winch I leave the halyard stopper open so I'm ready to get it down RIGHT NOW, no winching needed. (I can't always leave it there because at some point I'll usually need the winch for tweaking the clew

lines.) In an emergency I can just open the windward clew stopper and let the whole clew line fly, about the same technique as a racing boat rounding a leeward mark. In a real emergency I'd cut the windward clew line if I have to. The spinnaker will flop around behind the main, it will be flogging like crazy but it's out of the way, it won't get run over and the sail will be de-powered instantly. I actually ended up doing this that day and it worked but it was probably pretty tough on the sail. It sure was tough on my nerves.

Dousing the spinnaker:

1) If possible sail on a run or a very broad reach. It is much easier to get the sail down from this point of sail and then any other. When reaching it is difficult to get the sail to go into the bag, when pointing it is practically impossible. When the boat is sailing on a broad reach beware of the boom! It's very easy for an accidental jibe to occur and, if it does, the boom will slam to the other side of the boat very hard. Even though you are concentrating on other things always keep some awareness of the boom throughout the whole process. If it moves even slightly, DUCK FIRST AND THEN FIGURE OUT WHAT'S HAPPENING.

2) If they are not already there, pull both clews down right to the pole as close as they will go.

3) Find the end of the tripline and lay it near you.

4) Make sure there are two or more wraps around the winch (more wind: more wraps) and the halyard is secure in the self tailer. Open the halyard stopper. If the stopper won't open you'll need to winch the halyard a few inches to release the pressure on the stopper. Keep some tension on the line as you unwrap the halyard from the self tailer. Keep a good grip on it but try slowly easing the tension on the halyard tail. The spinnaker should start pulling the halyard out as soon as you ease your pull. It will be easy to control how fast it goes out by pulling back on the halyard a little bit. If there isn't enough wind to pull it out you have to remove some wraps from the winch. Keep some tension on the line as you remove one wrap at a time and, before removing another wrap, again try easing the line to see if the spinnaker will pull the halyard out. Be careful because there is often tremendous tension on this line. It is possible you'll end up only needing one wrap but never, ever remove that last one, always leave at least one wrap on the winch even in the very lightest wind. Remove as many wraps as needed until the sail will pull the halyard

out as you ease the tension on it. When it does, smoothly slack the halyard about 11 feet. The orange whipping on the halyard at the stopper should end up at the base of the mast. Be careful because it is very easy to get the halyard snarled on the winch. As the line goes out each wrap will want to override the wraps below. Holding the line well above the winch and feeding the tail of the line at a downward angle will prevent much of this. Also only using one wrap on the winch, if the wind allows it, will prevent overwraps. The sail will get droopy and it will be flying way out in front of a boat but it should fly there just fine, at least long enough to get it down.

5) Pull the spinnaker down and into the bag with the tripline. That's not as easy as it sounds. The tripline is very hard to pull and there is also some "art" to pulling it. The art is controlling just how much tension there is (how much you ease the halyard given the amount you are pulling in the tripline) at the moment the spinnaker first starts going into the bag. As the sail first begins to come down the tension isn't important. The rope of the tripline will slide against the underside of the bar on the pulpit very easily no matter how tightly it's pulled. The "bullseye", the reinforcing patch that attaches the tripline to the spinnaker, is the problem. The difficult moment, the moment when tension is a really big deal, is when the bullseye is right at the bar on the pulpit just as the bullseye itself is beginning to turn the corner from vertical to horizontal, just as it's first starting to go into the bag. Too much tension and the bullseye won't turn the corner at the mouth of the bag. Too little tension and the belly of the sail splats in the water ahead of the boat and gets run over. Once the bullseye has successfully gotten past the bar on the pulpit and it's actually into the bag by maybe 5 feet, the tension again isn't that important.

My method is this:

A) Ease the halyard about 11' (as in step 4, above.) Watch the sail's belly as the sail comes down. When the belly is uncomfortably close to the water ahead of the boat, stop easing the halyard and temporarily wrap the halyard in the self tailer to hold it.

B) Start pulling the sail down with the tripline. Pull the tripline until the bullseye touches the bar on the bow pulpit.

C) Try pulling the sail into the bag with the tripline and, when that doesn't work because the bullseye is hooked on the bar, …

D) Remove the halyard from the self tailer. In one smooth, deft

maneuver, ease the halyard a few feet. The wind will push the bullseye forward, away from the bar. Immediately pull the tripline a few feet, pulling the bullseye past the bar and into the bag. (The belly of the sail may dip in the water while doing this.)

E) Continue pulling the tripline like crazy while easing the halyard out only enough to keep the process going. This should get the sail's belly away from the water.

F) Once the sail is about 5 feet into the bag the crisis is over and the sail will be completely under control. Ease the halyard a lot faster than the tripline just to make pulling the tripline much easier.

The mistake I generally make is not easing the halyard enough when the bullseye is right at the bow pulpit. The sail ends up under tension and the bullseye hooks on the bar, stopping the tripline. Takedowns are actually a bit easier in higher wind. The sail will stay dryer as it comes down if the bottom stays full and it will stay full with a little bit of wind holding it up. It also pushes the bullseye forward, away from the bar. If there is very little wind the sail will go limp and more of the sail's belly will end up the water ahead of the boat. I don't see a way around this except for crew on the foredeck doing their best to gather up the sail as it comes down. Fortunately the boat will be moving slowly in light air so running it over is less likely.

5) With about 8 feet to go until the sail is all the way into the bag, release the clew line stoppers and, in theory, the clews will pull away from the ends of the pole and into the bag with the rest of the sail. In practice I sometimes have to walk to the bow and pull them away from the ends of the pole and stuff them into the mouth of the bag. If the clews are very hard to pull when you are standing at the bow either you forgot to open the clew stoppers or, more likely, your left foot is standing on the clew lines on the deck (how do I know this?) Back in the cockpit pull the tripline until the head just disappears into the bag.

Retracting the pole:

1) Pull the rein that is on the same side of the boat as you want to store the pole. The pole will end up just barely inside or just barely outside the lifeline, either is fine. Exactly where the pole is pointed is not very important as long as it's roughly lined up with one of the lifelines.

2) Depending on how snug the extension lines are one extension line stopper may have to be winched lightly to get it open. Once one extension line is slack the other extension line stopper should open easily. Open both clew stoppers and both extension line stoppers. Make sure all these lines are ready to run.

3) Wrap the appropriate extension line around the winch 2 or 3 times and then through the self tailer (the starboard extension line makes the pole go to port and vice versa.) Winch this line in and the pole should retract fairly easily. If it ever stops the problem is either a closed stopper or there is a snarl in one of the clew lines or the lazy extension line. I usually retract the pole until the aft end is about 6"inches ahead of the second lifeline stanchion. About 8" of the pole will still be sticking out the front of the gun mount.

4) If, say, you have retracted it to the port side, the starboard clew line and starboard rein will have so much slack in them now that they will be dragging in the water from the bow. (The opposite is true if you retracted the pole to starboard.) The other rein will also be very slack. Pull these 3 lines in just to neaten them up and get them out of the water. Flip the rein up over the lifelines but leave enough slack in it so it can just lie on deck. The clew line can just be pulled in very loosely. Leave the clew stoppers open for now but close the extension line stoppers.

5) Neaten everything up. When the pole is fully retracted walk to the aft end of it and lift it over and rest it on the lifeline. Be aware that when you lift the pole it will become more balanced and it will probably slide back by itself an additional 2-4" from the tension still in the extension line. Make sure your hand is not between the aft end of the pole and the stanchion or the pole may trap your hand between them.

It is possible that the pole has dragged one clew out of the bag as it retracted. If it has, walk to the bow, pull a few extra feet of clew line out and stuff the clew back in the mouth of the bag. Again, it's very easy to be standing on the clew lines as you pull them from the bow so if the clew line won't pull try moving your feet and see if you're standing on it. If you're at the bow anyway and you're not going to use the spinnaker again soon it's probably better to move the halyard back to the welded-on ring on the gunmount instead of leaving it hooked to the sail. The sail is less likely to be accidentally pulled out of the bag that way. Unless it's convenient don't worry about this too much.

Back in the cockpit close the clew stoppers. Coil the tripline and hang it on the lifeline. Coil both clew lines and both extension lines and hang them in the companionway hangers.

Storing the spinnaker:

1) Untie the stopper knot in the end of the tripline. Coil the tripline at the aft end of the bag, pulling the line out of the block on the toe rail as you go. Stuff the coiled tripline and whatever small amount of spinnaker may be sticking out of the bag back into the aft end of the bag.

2) Unhook the bag from the lifeline and untie the line holding the aft end to the toerail. Grab the bag about 4 feet back from the mouth and walk it toward the bow. Push the part of the bag you're holding into the bag's own mouth. Repeat this until the entire bag is stuffed in its own mouth accordion style. The aft end will end up on top so next time you want to use the spinnaker all you have to do is pull on the aft end and the bag will come out.

3) To put the cover on the stored bag unhook the halyard from the welded-on ring. Being careful not to let the halyard get away from you, loop the strap of the cover under the small stub of pole sticking out the front of the gun mount. Pull the cover back, letting the welded-on ring stick up through the hole in the cover. Hook the halyard back on the ring through the cover. Pull the rest of the cover back over the bow pulpit. The aft corners of the cover will wrap around the side pulpit tubing behind the bar and hook back on itself. The twist lock fasteners hold it on.

Totally random details:

If you want to experiment, nothing says you MUST always have the pole extended to its midpoint in the gun mount sleeve. Another shape control for the spinnaker is having the pole off center. I've experimented with this a little and it can be used to adjust for weather helm. The pole can also be extended forward when close reaching; the luff will straighten and you can eek out another few degrees of pointing. Be aware that the reins will have tension in them when the pole is not centered and, when pointing, they might have to be lead at an angle more like a barber hauler. I haven't worked out the details of this and I don't have any idea if this is structurally okay or if we are likely to break something; I've only tried it a few times, always in fairly light wind.

There's a can of "Dry Film Lubricant" spray stuff under the chart table. Spraying the pole and the gunmount sleeve every few weeks helps the whole thing work better.

I've used the spinnaker pole (without the spinnaker, of course) as a downrigger for trolling fishing lines! (We were motoring a long, long way in a flat calm anyway, totally bored senseless, so ...) It works! We got home with our limit of Spanish and king mackerel and I think the downrigger made the difference.

Rick Simonds

March 2003