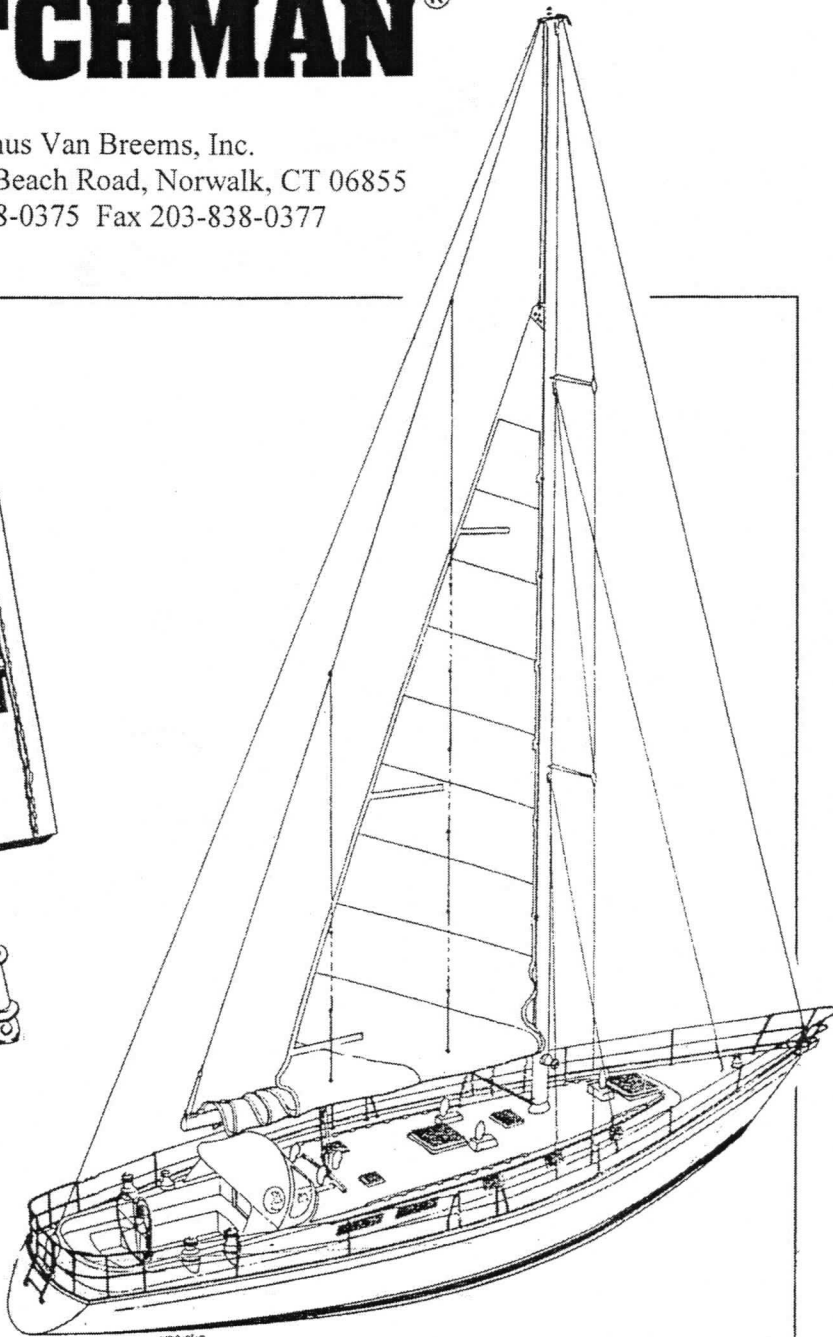
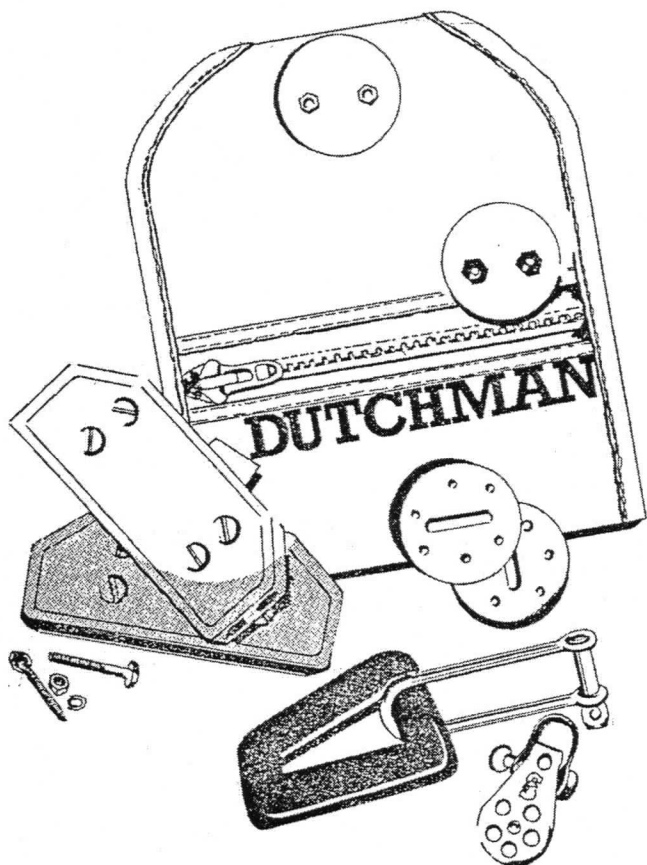




DUTCHMAN®

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Owner's Manual

For the DUTCHMAN Sail Flaking System
Type B/C Topping Lift April 2013

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Legal Information and Warranty

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U.S. Patent 4,688,506. Canadian Patent 1,273,848. Australian Patent 580,691. European Patent 580,691. Other foreign patents pending. Construction, installation, or use of unauthorized systems may result in legal action.

Warranty: Satisfaction with the Dutchman is guaranteed if the sail is less than 4 years old and has at least 75% of its original strength. You must inform us of any dissatisfaction within one year of the date of purchase. Please note that the System will work better as the sail develops a "memory," which takes several months to occur. If it does not seem to be working correctly, contact us. We will assist you over the phone, and/or send you a copy of our video. If you are still not satisfied, you must make the boat and sail available for an inspection by a representative of MVB Inc. at a location within ½ hour travel time of our nearest sailmaker. MVB Inc. will have the right to correct any defects so as to make the System operate correctly. If such repairs do not result in the system operating satisfactorily, MVB Inc. will remove the System and refund the purchase price of the System, including installation of the system into the sail. MVB Inc. will not pay for any rigging or other charges.

The Dutchman is unconditionally guaranteed against defects in materials supplied by MVB Inc. for a period of 5 years. Normal wear to rope, the control line or fairleads is excluded. Defective items must be returned to MVB Inc. and will be repaired or replaced at the option of MVB Inc. Return of defective products or a claim of dissatisfaction must be accompanied by a letter giving name, address, phone number, copy of original invoice, size, builder, year, name and location of boat, and an explanation of the defect or problem with photos, if possible. This warranty does not apply to or include any products which were improperly installed or maintained, nor to any consequential or incidental losses or damages arising from the product or its use. This warranty is in lieu of all other implied, express and statutory guarantees, and in no event shall MVB Inc. be liable for special, incidental, or consequential damages.

Introduction

Thank you for your purchase of a Dutchman Sail Flaking System. At Dutchman, we work hard to produce the most effective products on the market, and provide excellent customer service. Let us know if you are not totally happy. Of course, we like to get letters of recommendation also! Bear in mind that we guarantee your satisfaction with our products. See our guarantee for more details. Finally, we know many of our sales come from customer recommendations, which we thank you for very much in advance.

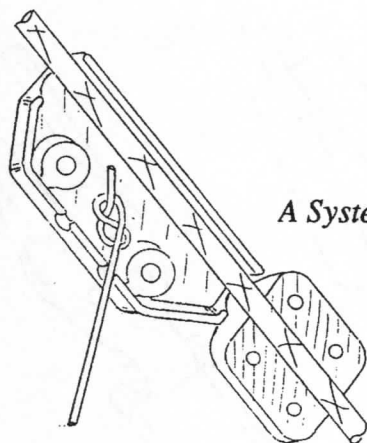
Your system is supplied with a Type B or C Topping Lift. This means the control lines are fastened to a Continuous Topping Lift, which works like a clothes line loop to allow the topping lift clamps to be moved up or down. With the B system, you only rotate the Continuous Topping Lift to replace the control lines or if the clamp position needs to be adjusted. Normally the Continuous Topping Lift lines are taped together just above the jam cleat to prevent them from rotating.

The C system uses ball bearing blocks at the top and bottom of the Continuous Topping Lift so it can be easily rotated. This allows you to slack the control lines for putting on a sailcover or awning without slits, or use a roller reefing boom.

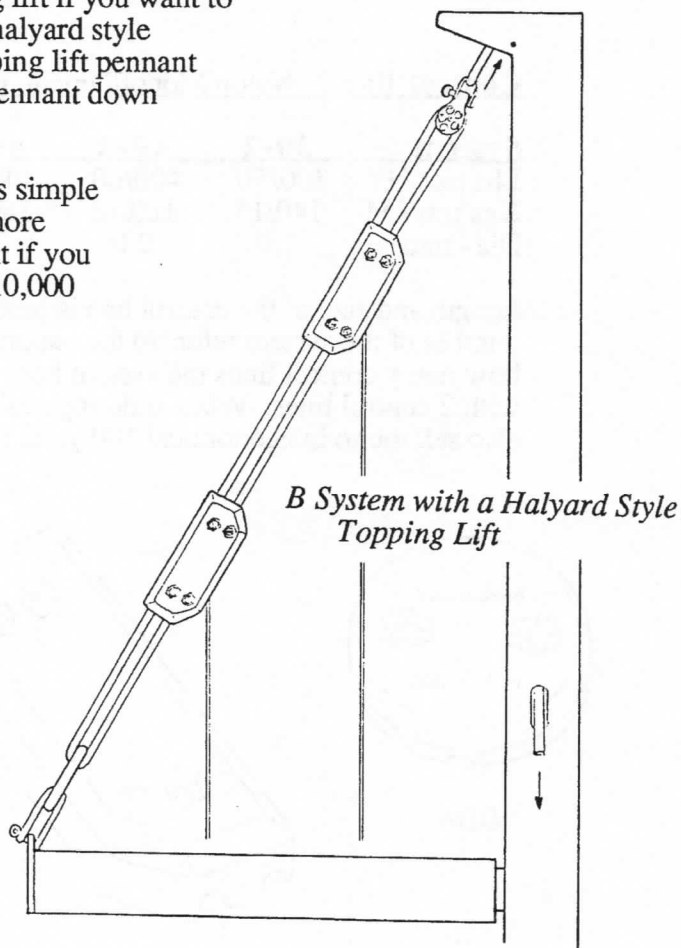
The A System uses a single line pennant. It can only be used on boats with halyard style topping lifts (the topping lift runs over a sheave at the top of the mast). The A System is highly recommended if you have a halyard style topping lift, for charter boats or yachts over 40'. Contact us if you are interested in any of our other systems.

We recommend adding a halyard style topping lift if you want to make the sail easier to take on or off. With a halyard style topping lift, you only have to hoist up the topping lift pennant to install the system, or drop the topping lift pennant down to remove the system with the sail.

Although the Dutchman Sail Flaking System is simple enough, you'll be able to operate the system more effectively and will get more enjoyment from it if you take the time to read this manual. After over 10,000 systems, we've learned a few things! Again, thank you, and we look forward to hearing from you.



A System Clamp



B System with a Halyard Style Topping Lift

Components

Check that you have the following parts. Discs may have already been fastened to the tabs. Normally, the sailmaker will make up the Continuous Topping Lift (CTL) using the clamps and other parts. In some cases, the control lines will also be run through the sail. The CTL line must be 1/4" (6mm) for boats up to about 36' or (11m) and 5/16" (8mm) for larger boats. If the sailmaker did not make up the CTL, you will need a length of line double the distance from the top of the mast to the end of the boom, less about 5' (1.5m).

<u>Item</u>	<u>Description</u>	<u>Quantity per Control Line</u>
Discs	Attach the control lines to the tabs (double qty for 60's)	2 halves
Fasteners	1/2" 8/32 SS machine screws with locking nuts	2 of each
Clamps	Used to attach the control lines to the CTL	2 halves
Fasteners	1" 8/32 SS machine screws with locking nuts	4 of each
Shackle	Attaches Jam Cleat or Jam Block to boom	1 total

B Systems

Block	Top of CTL	1 total
Jam Cleat	Triangular shaped part to keep CTL from rotating	1 total

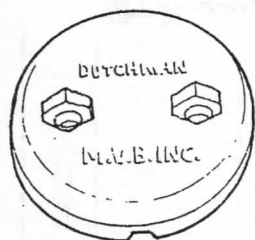
C Systems

Block	Ball Bearing block for top of CTL	1 total
Jam Block	Ball Bearing block with cams to hold line	1 total

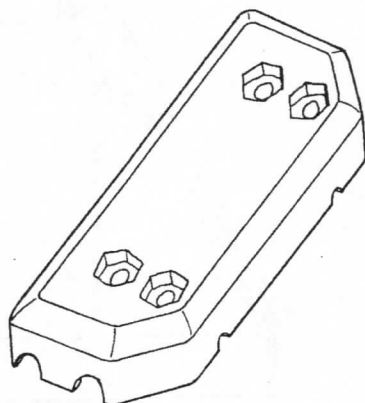
Control line Nylon Monofilament, UV Stabilized. Pound test and length as follows:

<u>System</u> -	<u>30-2</u>	<u>40-2</u>	<u>40-3</u>	<u>50-2</u>	<u>50-3</u>	<u>60-3</u>	<u>60-4</u>
Lbs test / Ft	300/50'	400/60'	400/80'	500/80'	500/110'	600/140'	600/180'
Kgs test / M	140/15	180/18	180/24	230/24	230/33	270/42	270/54
Dia - mm	1.9	2.0	2.0	2.5	2.5	3.0	3.0

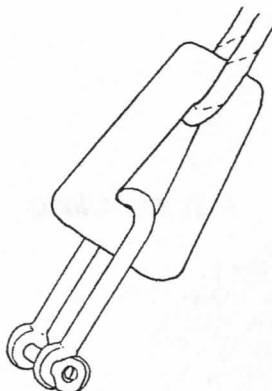
Length and size of the control line is based on the system type and boat size. The first number of the system refers to the maximum luff length, while the second number refers to how many control lines the system has. For example, a 30-2 System is for luffs up to 30', with 2 control lines. When ordering replacement mono, refer to your system number. We also sell mono in economical 100 yard, (120m) lengths.



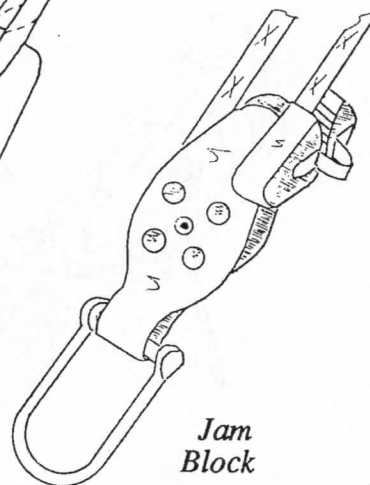
Disc



Clamp



Jam Cleat



Jam Block

Definitions

Boom Topping Lift -

A topping lift which is fixed to the masthead fitting. There is usually an adjusting line attached to the boom.

Halyard Topping Lift -

Topping lift is run over a sheave at the top of the mast. Can be a second main halyard.

Topping Lift Attachment Point -

The place on the topping lift where the control line should be attached.

CTL / Continuous Topping Lift -

The continuous loop of line that becomes part of the topping lift, which the control lines are attached to. With a halyard style topping lift, one end is attached to the end of the boom, and the other end is hoisted up by the topping lift line. With a boom adjusted topping lift, one end is fastened to the top of the mast, and the other end is normally attached to an adjusting line or block and tackle at the end of the boom.

Tools and Parts Required

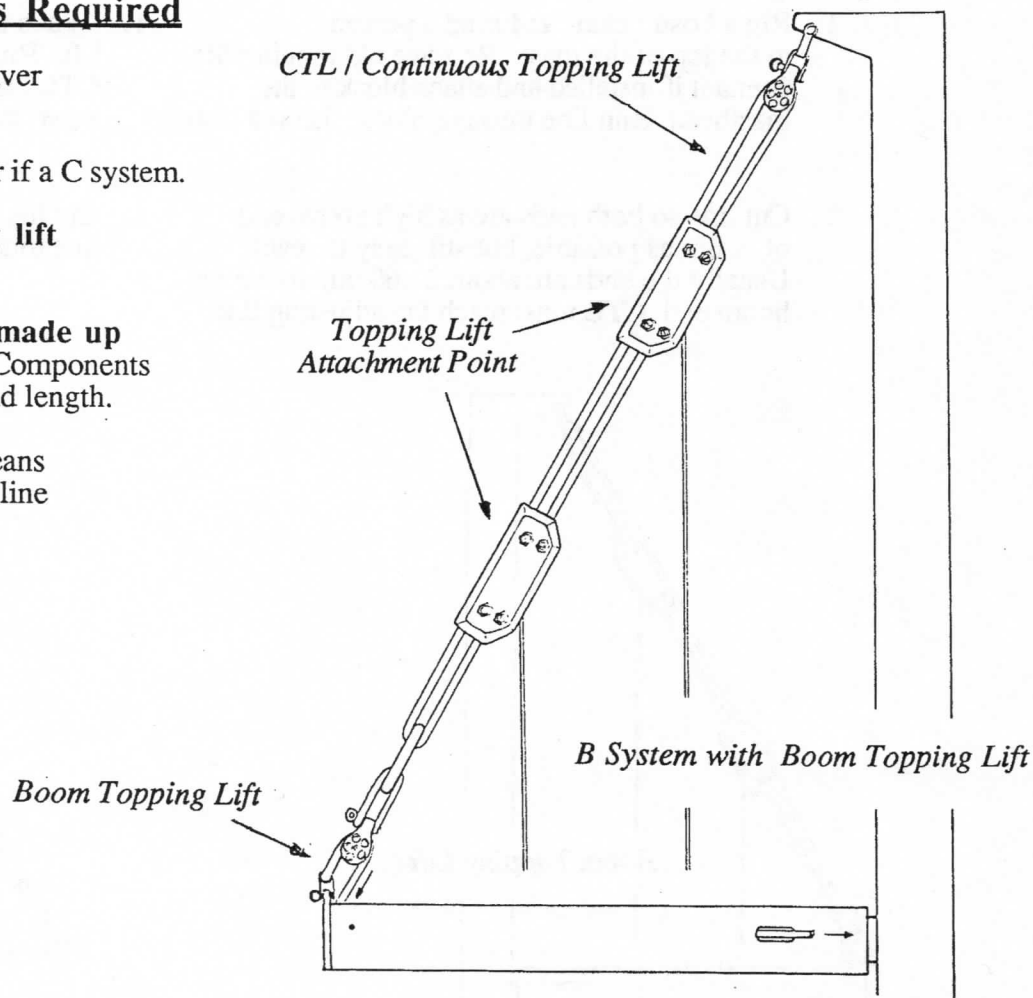
- #2 Phillips screwdriver
- Pliers
- Vinyl tape
- Indelible ink marker if a C system.

If a boom topping lift

- Bosun chair

If CTL is not yet made up

- Line for CTL - see Components Section for size and length.
- Knife
- Matches or other means to prevent ends of line from unravelling.



Installing the System

These instructions will take you through the entire process of setting up a Dutchman Sail Flaking System. You will be able to skip some of the sections, depending on how your system was set up. The first paragraph tells you if you need to do this step. The summary briefly describes what you will be doing. Have fun, and please, read the manual!

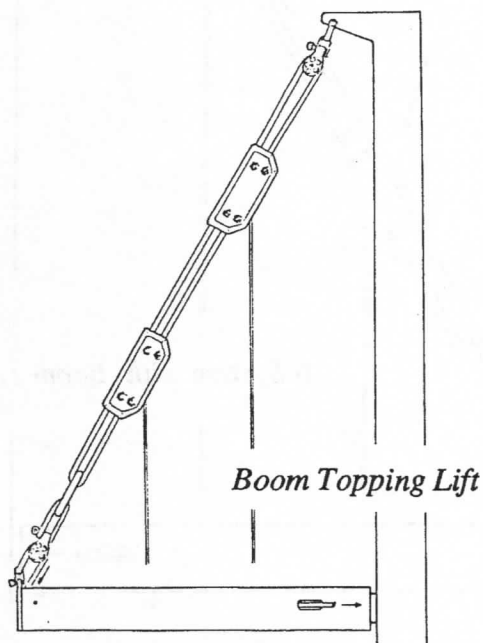
Making up or Replacing the CTL Line

If the topping lift pennant has already been made up (usually it is), skip to the next section, 'Rig the CTL' on page 7. If the pennant has not been made up, use the following instructions. If you need to replace the CTL line, rotate the CTL to drop down and disassemble the clamps, then carefully tape the new line to the old line (so the taped area will pass through the block up at the masthead) and pull the new line through. Skip to paragraph 2.

Summary: Run the CTL line through the upper block and lower jam cleat or block, then tie the two ends together with a square knot. Next, raise the sail and assemble the clamps with the mono. Be certain the clamps are above the uppermost grommets.

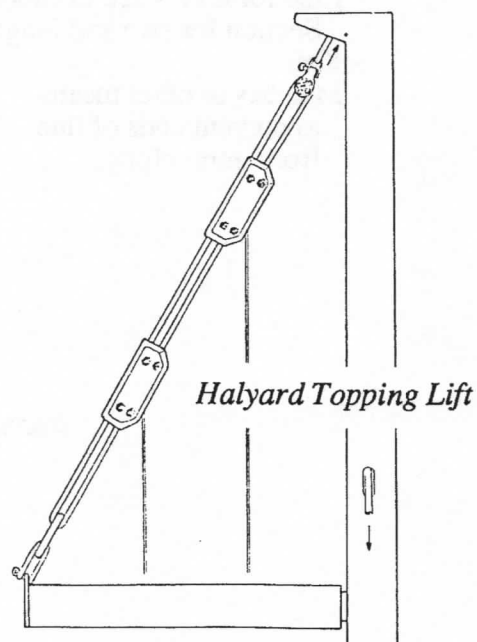
Boom Topping Lift

1. Rig a bosun chair and send a person to the top of the mast. Remove old topping lift pennant if installed and attach block to the masthead. Run line through block. Lower chair.
2. Cut line so both ends are as high above end of boom as possible, but still easy to reach. Usually the ends are about 2' (60cm) above the boom end. CTL must reach the adjusting line.

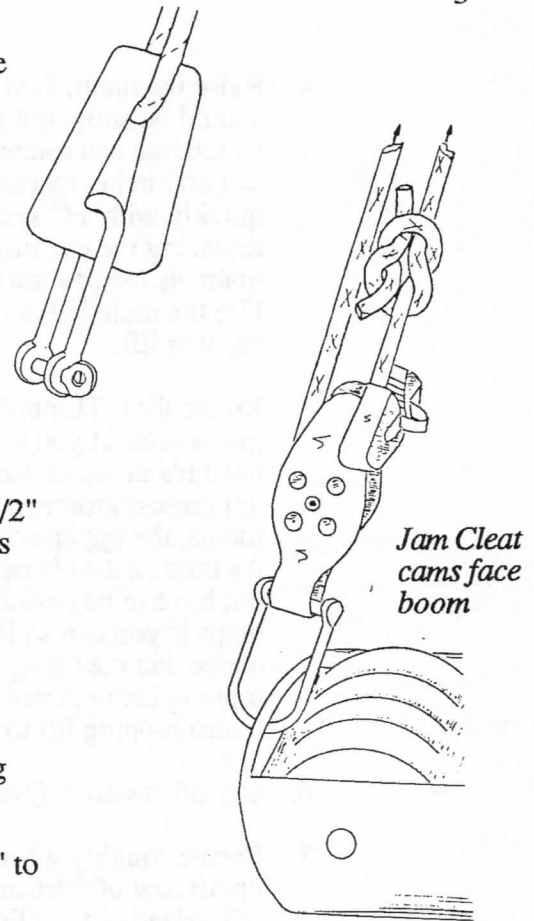


Halyard Topping Lift

1. Attach the block to the topping lift. Run line through it. Hoist CTL line up to 3' (1m) under mast top.
2. Cut the line so both ends can just touch the boom end.



3. Apply tension to the line and rotate it back and forth. Remove any twists which may develop. The CTL line that is closer to the mast is the mast side. Back half is the aft side.
4. Attach Jam Cleat or Jam Block to end of boom or boom height adjusting line if a boom topping lift. Position Jam Block so that the cams face the mast, or so that when the ratchet is on, a line running through block can only be pulled towards, not away from the mast.
5. Thread aft side of line through Jam Cleat or Jam Block from aft forward.
6. Tie the two ends of the CTL line together with a square knot. Knot must be on mast side of CTL. There should be at least 1/2" (15mm) of line free beyond knot after knot is pulled as tight as possible. This is so ends of line do not pull through knot.
7. Put the square knot into the cavity in the center of one of the black nylon clamp halves and lead the lines out of the clamp between the screw holes.
8. Aft side of line should be placed in the passage that runs along the straight side of the clamp.
9. Use the following instructions on 'Installing the Control lines' to finish the CTL. Start with paragraph 2.



Installing or Replacing the Control Lines

Summary You will be tying a figure 8 knot into the end of the control line and assembling the clamps onto the CTL Line, starting with the uppermost clamp, and working down.

1. If you are replacing the existing control lines, untape and mark the line at the jam cleat or jam block (if not already done), rotate the CTL to drop the clamps down, and remove all the clamps. You will start replacing the control line with the uppermost clamp and work down. Leave the old lines run through the sail. If the CTL Line shows any chafe, abrasion or UV damage, replace it. See the previous section.
2. Tie a figure 8 knot into the new monofilament control line. Place the figure 8 knot with the square knot that joins the two ends of the CTL line together into the center cavity of the clamp. Lead the control line out through the lower small passage.
3. Attach the other half of the clamp using the screws and locking nuts. Tighten the screws securely.

Jam Block with Fig 8 knot on Mast Side of CTL

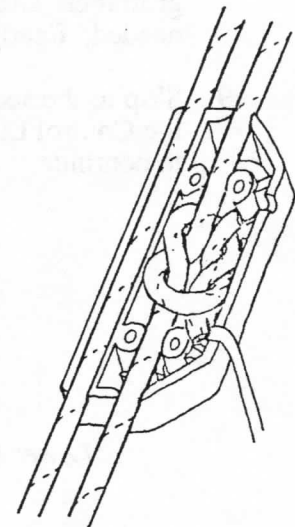
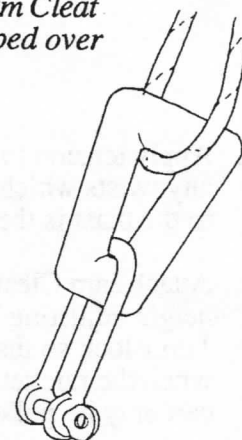
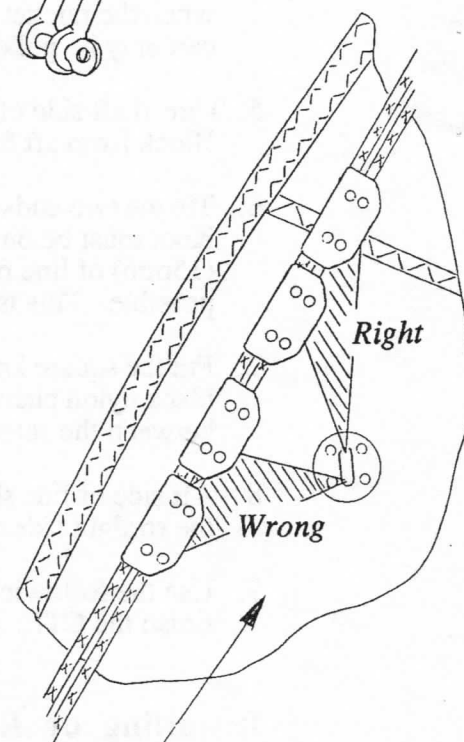


Fig 8 knot and mono in Clamp

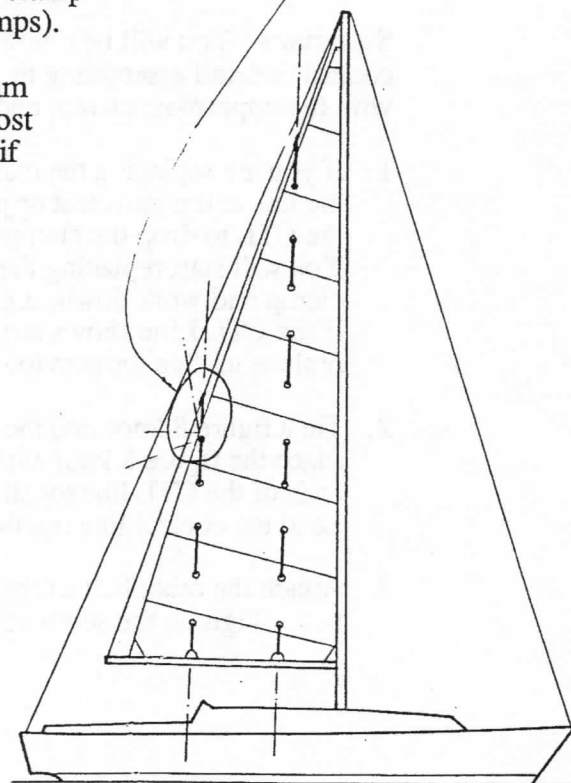
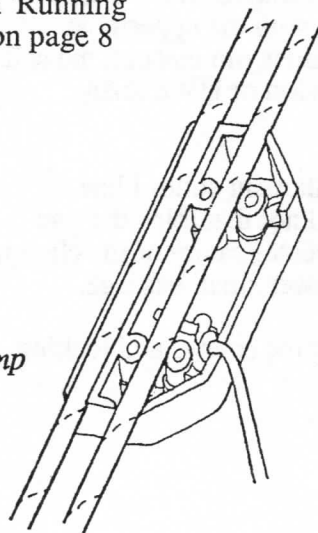
*Jam Cleat
flipped over*



4. Raise the main, then pull the main sheet in tight. The topping lift should be snug, not tight. The jam cleat must be flipped over, so the line can rotate, or, if a C system, pull line out of cams or switch ratchet mechanism off. Don't pull the line down too quickly with a C system - you'll catch your hand in the cams. If replacing the existing control lines, you do not need to raise the main, as long as the clamps were positioned correctly before. Use the main halyard to take the weight of the boom off the topping lift.
5. Rotate the CTL until the clamp is above the forward row of grommets. If you are replacing the mono, rotate the old CTL until it's in the raised position. Clamp **must** be above uppermost grommet of forward line. With very large roach mains, the uppermost grommet can be outside of the topping lift. As long as the clamp is above the uppermost grommet (it does not have to be perfectly in line), system will work properly. It helps if you can walk several boat lengths away from boat to check that the clamp is above the uppermost grommet. Mark topping lift with pen at jam cleat/block so you will be able to return topping lift to this location in the future.
6. Cut off mono 3' (1m) under boom.
7. Locate roughly where next clamp should go by sighting up aft row of fairleads (if a 2 line system), or middle row of fairleads (if a 3 line system). If replacing the mono, there should be a mark on the CTL where the clamp was before. Rotate CTL till you can reach this spot. Assemble next clamp with mono. Mast side of CTL will run straight through clamp between screw holes (no knot in CTL line in lower clamps).
8. Check position by rotating CTL until you come to the jam cleat/block mark. Again, clamp must be above uppermost grommet. Drop CTL, loosen screws, and move clamp if needed. Readjust as needed. Repeat for third line.
9. Skip to the section 'Running the Control Line' on page 8 to continue.



Lower Clamp



Rig the Continuous Topping Lift (CTL)

If the sailmaker has already made up the CTL, install it using the following instructions. If the lines have already been run through the sail, first bend on the sail.

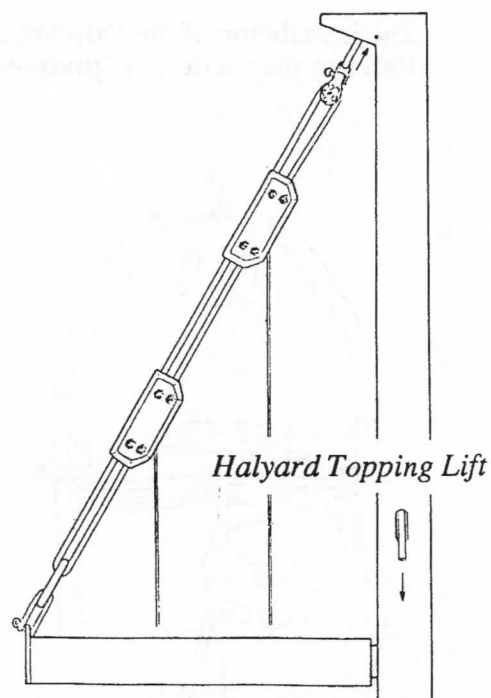
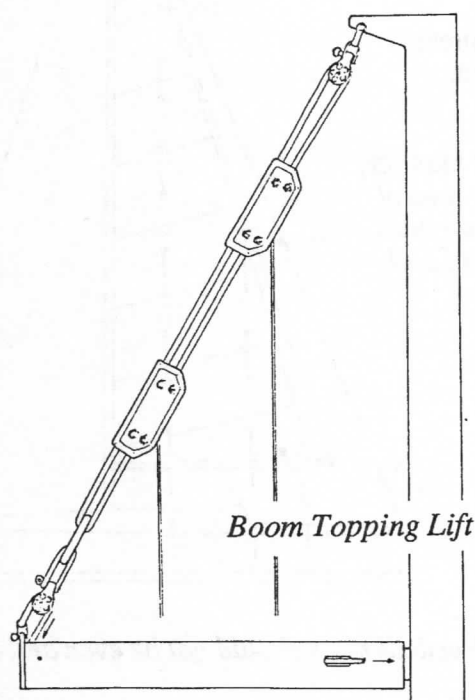
Summary: You install the CTL by replacing the old pennant (if a boom topping lift) with the Dutchman System pennant or hoisting up the System with a halyard topping lift.

Boom Topping Lift

1. Rig a bosun chair and send one person aloft with the CTL and pliers.
2. Remove old pennant if rigged and replace with CTL. Carefully uncoil CTL as person aloft is lowered back to the deck.
3. Remove any twists, then attach the jam cleat or jam block to the end of the boom or to the topping lift adjusting line. Cams of jam block should face boom.
4. Some twisting above the upper clamp is unavoidable with a halyard style topping lift, as a halyard topping lift itself may twist under load. Lower the CTL and countertwist the topping lift. In some cases, the topping lift should be replaced, especially if it is a 3 strand and not a double braid, or switch to the A System. Twisting can also come from the CTL, especially if it has been pulled off the top of a reel and not wound off. If countertwisting the halyard does not work, disassemble the clamps and straighten out the CTL Line. Mark where the clamps were before you remove them, then go to paragraph 3, page 5 on 'Making up or Replacing the CTL Line'. Adding a swivel to the upper block will not help.
5. Continue to the next section 'Running the Control Lines' to finish the installation.

Halyard Topping Lift

1. Attach the jam cleat or jam block to the end of the boom. Cams of jam block should face forward towards the mast.
2. Hoist up CTL with topping lift.
3. Remove any twists remaining after you tension the CTL by dropping the CTL down, unshackling and untwisting it.



Running the Control Lines

If the lines are already run through the sail, skip to the next section. If replacing the control lines, and the old lines are still run through the sail, tape the end of the new line to the top of the old line. Carefully pull the new line through the sail and into the tab.

Summary First, loosely attach the discs to the tabs while the sail is still raised. Then drop the sail, thread the control lines through the fairleads in the sail and secure the lines to the tabs.

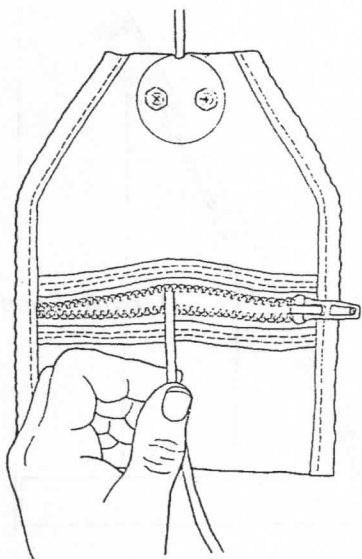
Threading the Control Lines

1. Attach the discs to the tabs. The nuts should face the sail. Do not tighten down on the screws. Drop the sail.
2. Count the number of fairleads in each vertical row. All the rows should be either even or odd in number. If this is not so, contact us. If there is an odd number of fairleads in the vertical rows, start the control line through the fairlead from the opposite side of the sail as the tab is on. If there is an even number in the vertical rows, start the control line on the same side of the sail as the tab is on.
3. Thread the control lines through the sail using 2 people, one on either side of the sail. Be careful not to miss a fairlead - it's easy to do.

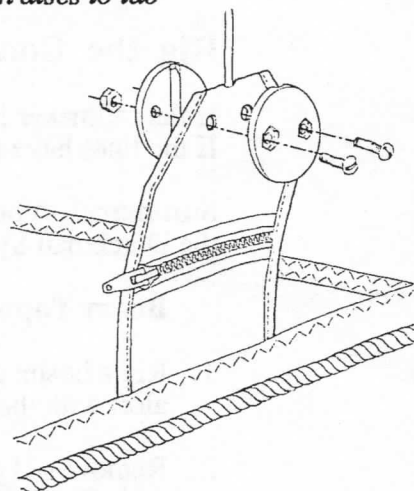
Fastening the Control Lines

1. Insert the control line into the attachment tab. Reach into the tab and pull the control line tight. Disc screws must be loose.
2. Tighten down the screws, coil up extra mono, place inside tab and close zipper.

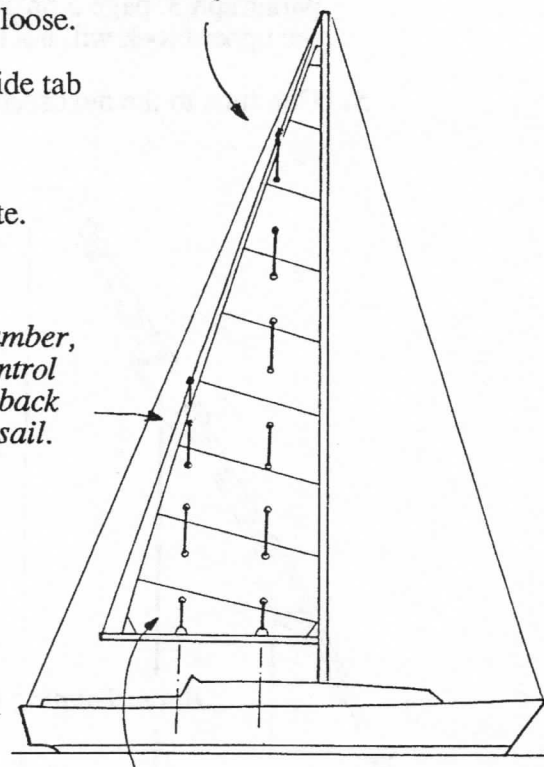
The installation of the Dutchman™ system is now complete. Refer to the section 'Adjustments' to adjust the system.



*Loosely
attach discs to tab*



*Even number,
control line
starts on tab
side of sail.*



*Odd number,
start control
line on back
side of sail.*

Vertical rows should not be even and odd like this!

Adjustments

Summary To check the adjustment of the system, the sail must be fully raised with the mainsheet tight. The topping lift should be snug. This can be done while sailing. The topping lift clamps **MUST** be above the uppermost fairlead. The clamp **CANNOT** be under the uppermost fairlead. If it is, it must be adjusted.

The control lines should have enough slack to allow one inch (2.5 cm) of play up or down. The control lines should be adjusted if there is more or less play.

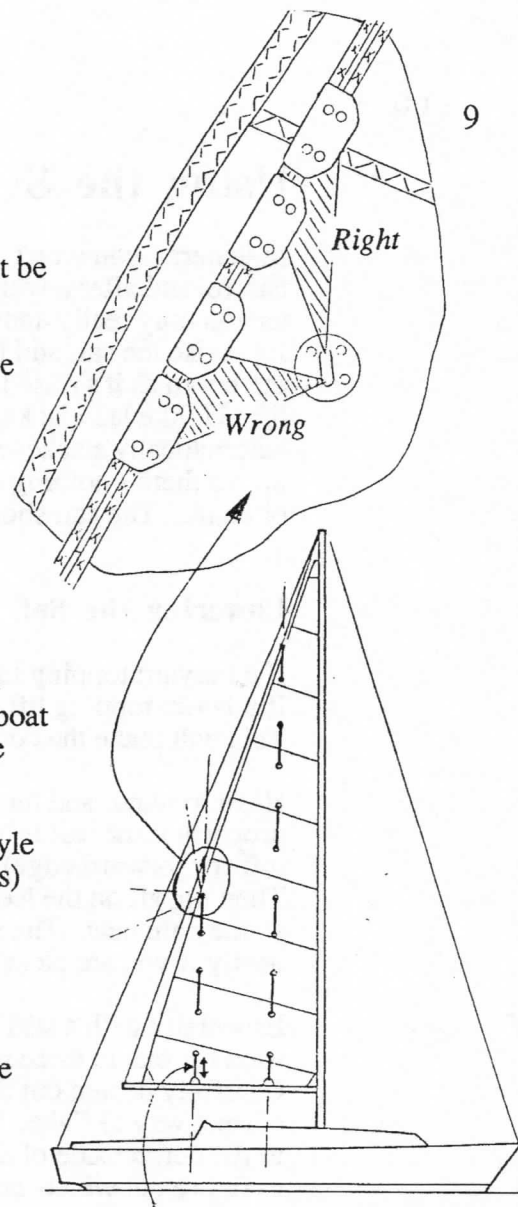
Adjust the Topping Lift Clamps

1. Raise the main. Make it tight. Slack the topping lift, pull the mainsheet in tight, then snug the topping lift. From several boat lengths away, if possible, check that the clamps are above the uppermost grommets.
2. Rotate the CTL until you can reach the clamp. If a halyard style topping lift, lower the pennant until you can reach the clamp(s) that need to be moved.
3. Loosen the clamp, slide it up or down, and retighten. Recheck the position. If ok, **wrap tape just above the jam cleat** if a B system. If a C system, mark the CTL Line at the block with an indelible ink marker, so you can rotate the CTL to this mark.

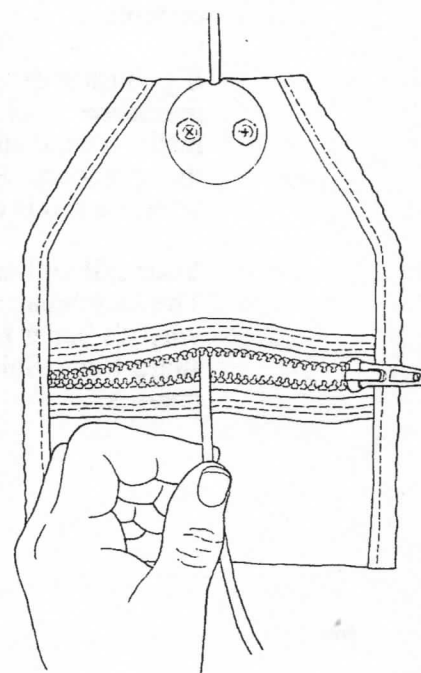
Adjust the Control Line Length

1. Raise the main. Make it tight. Slacken the topping lift, pull the mainsheet in tight, then retension the topping lift. This can be done while out sailing.
2. Loosen the screws. Open the zipper and adjust the control line until there is one inch (2.5 cm) of slack in the line and/or it is just slack with the tabs standing up. When the sail drops, it will force the tab down, tensioning the control line.
3. Tighten down the discs and check the tension again.
4. Tie a knot at the end of the control line to keep it from pulling out of the tab. Coil the mono, insert into tab, and zip it up.

If the sail falls off the boom, either the topping lift clamps are too low, or the control lines are not tight enough. If the tab is standing up more than 3" (8cm) when sail is down, loosen the control line.



1" of play in control line



Using the System

In general, you won't do anything differently. Using the system quickly becomes second nature, and after a while, you'll think every main should flake itself! Many customers tell us you only really appreciate the system after you go sailing on a boat that doesn't have it. Just raise the sail and let off the topping lift as you normally would. If the sail picks up the boom as it's raised the last few inches, you don't even have to slacken the topping lift. Unlike lazy jacks, the sail can't catch on the control lines. The control lines are automatically slackened as the sail is raised, because the tabs will be allowed to stand up, so there's nothing to adjust. With the control lines slack, there is no possibility of chafe. The sail should be luffing as you lower it.

Lowering the Sail

If a halyard topping lift, tension the topping lift **before** dropping the sail. If a boom topping lift, tension the topping lift **after** the sail is dropped. This will make the control lines tighter.

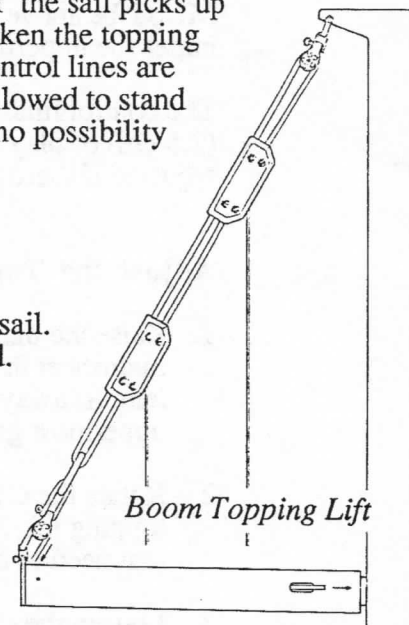
Head to wind, and let the sheet off. The system will only work properly if the sail is luffing. Lower the mainsail and straighten the luff (or forward edge) of the sail as it comes down if possible. Then tug aft on the leech to straighten it out and adjust the folds so they are neat. The sail will come down more easily and neatly if you are close to the wind.

Especially with a stiff main, the sail will develop a memory after it's used for one to three months, and become more automatic. Carefully neaten out the sail the first few times, and it will 'learn' the correct way to flake. It helps to have someone pulling the luff down to the correct side of the boom as the sail is lowered. Look at the tab to figure out which side of the boom the first flake should fall on (sail should fall away from tab), and then alternate the rest of the flakes. Straighten out the sail by tugging aft on the leech.

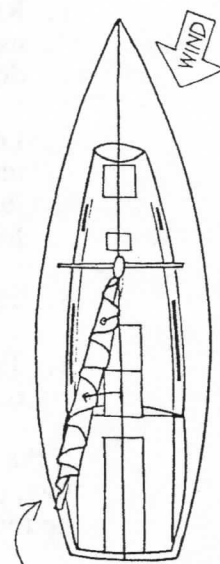
In winds of over 15 knots, you may want to head so the wind is 15 to 25 degrees off the bow. This will keep the boom clear of the cockpit.

If you must drop the sail while running off the wind, ease the mainsheet, and if possible, head up just enough so that the sail is luffing (wind slightly ahead of abeam). This will keep the sail off the spreaders. Ease the main sheet, and don't pull in the boom until after the sail is down.

Your sail will last longer if you avoid putting sharp creases into it. The Dutchman allows the sail to flake in large, loose folds, which is why it's better for the sail than lazy jacks, which induce many small sharp folds. Sail ties should be snug, not tight, to avoid all sharp creases.



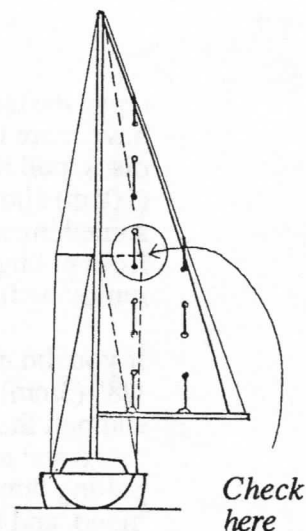
*raise the boom
after the sail is down.*



Head 15 to 25 degree's off the wind to keep boom clear of cockpit.

Downwind

There is a very remote possibility that when running downwind, a control line may become snagged on a spreader tip if the spreader tip is not well faired. If this were to happen, the sail could be damaged when jibing. Therefore, when initially running downwind, check how close the control line is to the spreader tip. We try to keep the control lines away from the spreader tip(s) when building the system into your sail to prevent this from happening. Avoid uncontrolled jibes, make sure your spreader tips are fair or add boots, and cover or remove anything that might snag a control line.

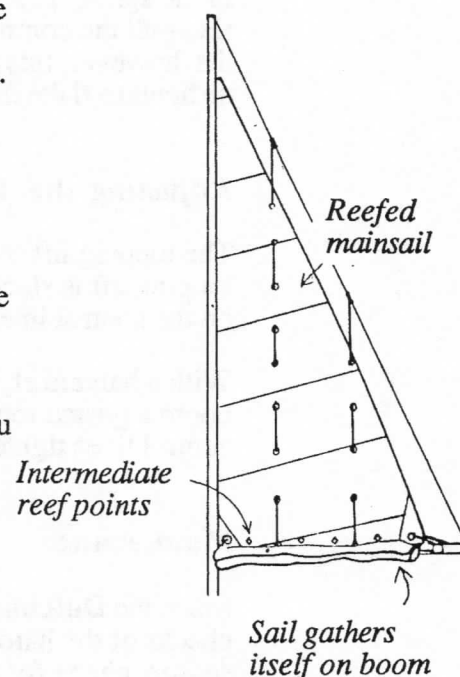


Reefing

Roller reefing only works with a C system. Pull the CTL out of the cams or switch off the ratchet and roll the sail up. Consider switching to slab / jiffy reefing, which gives much better sail shape.

Slab reef normally. You usually do not need the intermediate reef points, as the sail can't fall off the boom. We're not big fans of single line reefing. A separate forward and aft line for each reef is much simpler (can't tangle), easier to use (the loads are split between two lines), and usually cheaper, since single line reefing needs ball bearing blocks. Single line reefing will eliminate one line for each reef, which we don't think is enough of an advantage.

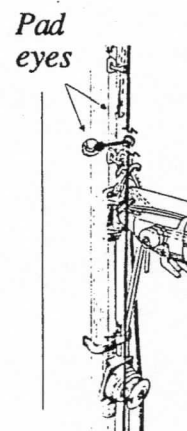
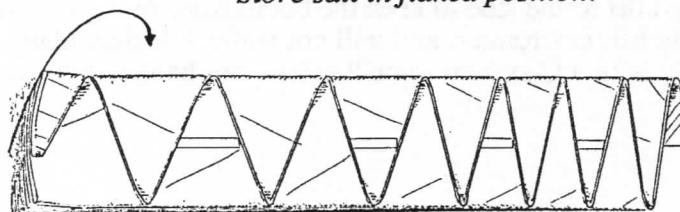
We strongly advise using forward reef lines instead of reef hooks, as they are much easier to use in heavy weather. In most cases, you only need a pad eye, a cleat, and enough line to run from the pad eye, up to the reef, and back down. The pad eye should be level with the reef when the sail is dropped, while the cleat should be under the reef. The pad eye and cleat for each reef should both be on the same side of the mast. The reef line must hold the sail the correct distance above the boom. Check this before installing the pad eye and cleat. Also consider running the lines to the cockpit.



Removing the Sail

The sail should be stored flaked as it lies on the boom. This helps the sail keep its 'memory'. If possible, do not roll the sail up, which puts sharp creases into the sail. If you have a Halyard Style topping lift, simply drop the pennant down and remove the sail with the pennant, which must be carefully coiled. The A system is much less likely to get tangled up, by the way. This is the best arrangement if you remove your sail periodically. Otherwise, continue on.

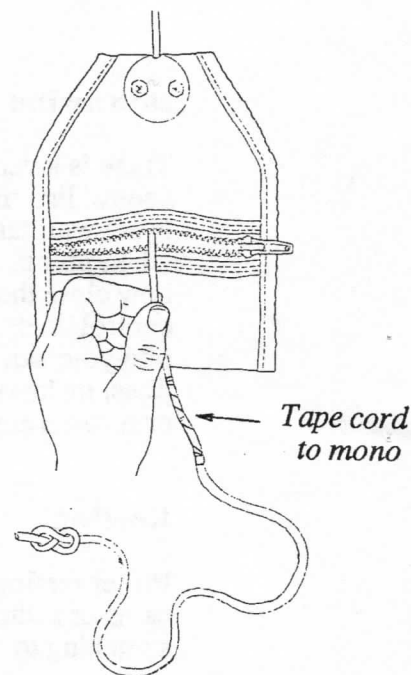
Store sail in flaked position.



Open the tab and measure the length of the extra control line. If you have more than 3 feet (1m), tie a figure 8 knot to the end, loosen the discs, pull the line through the sail, and cut the control line 4" (10cm) above the sail. Use this 4" to tie on a nut, stick, washer, or something similar which will prevent this end of the control line from pulling through the sail. This will keep the sail flaked when removing it from the boom.

If you did not have enough control line, tape a 3' (1m) length of 1/8" (3mm) cord with a figure 8 knot to the end of the control line, and pull this messenger through the tab and sail. Disconnect the mono and again tie something to the end of the cord to keep it from pulling through the sail. Then drop down the clamps, coil up the mono, and bag the clamps and mono, or just tie off the control lines.

In the spring, reverse this procedure to run the control line. You can also pull the control lines out of the sail and tape them to the topping lift, however, this will cause more work next spring, and make it difficult to flake the sail after you remove it from the boom.



Adjusting the Topping Lift

The topping lift must be slack while sailing, to allow the leach of the sail to twist off. When the topping lift is slack, the lines will not cause chafe or restrict the sail. You may want to give a tug on the control lines after you let off the topping lift.

With a halyard style topping lift, the topping lift should be tensioned before the sail is dropped. A boom adjusted topping lift should be tensioned after the sail is dropped. This will make the control lines tighter as the sail is dropped.

Maintenance

Since the **Dutchman™** has no moving parts, the only maintenance required is periodic checks of the hardware, CTL and mono for wear or UV degradation. At least once a season, check for wear, chafe or deterioration.

Replace the monofilament control line after 2-3 seasons or when it begins to show some wear. Replace the control lines as per the size and length given in the specifications section. You can purchase the mono from us, one of our distributors or sailmakers, or try a commercial fishing supplier. Only use mono that has UV inhibitors (most do).

Warning

Do not allow people to sit or hang off the boom. Put the halyard on the boom if it must bear a load over 200 lbs (90 kgs). **Do not** tighten down hard on the mainsheet when the sail is down, or you can damage the ball bearing blocks of the C system, and cause other problems. Use a separate line tied off to the side to keep the boom from swinging around. The A system, with a wire penant topping lift, is stronger, and will not suffer UV degradation. **Don't** pull the clamps down too quickly with a C system - you'll catch your hand in the cams.

Trouble Shooting Guide

Sail falls off the boom around control lines. 2 possible causes. Either the topping lift clamp is under the uppermost grommet, or the control lines are too slack. First check that the topping lift clamps are in the correct position, above the uppermost grommet. See the section on Adjusting the Topping Lift Clamps, page 9. If the clamps are in the correct position, the control lines are too slack. See the section on Adjusting the Control Line Length, page 9.

Sail falls off boom between control lines / does not flake neatly. First, are you allowing the sail to luff as you drop it? This is the most common cause. Also bear in mind that the system works better in more wind, so don't slow down the motor. If the sail is new, see the section below 'Just installed the system'. Occasionally, the control line spacing is incorrect or you may need an extra control line. The maximum distance between the control lines should be about 6.5' or 2m, while the typical spacing is around 5' or 1.5m. If the spacing is over the maximum, take a picture of the sail up and down, and measure the distance from the mast to each control line, to the clew, and to the shroud or upper stay. Sometimes you can add a third line. If the sail is soft, it will need more straightening than a stiff sail. A stiff sail, especially if fully battened, will need under 10 seconds of straightening, while a soft sail will need about 20 seconds of straightening.

Just installed the system, and it's not working. We sometimes hear from someone who has just installed the system into a new sail. They try it out at the dock, without the sail into the wind, and before the sail has any memory. It won't be that impressive. Allow the sail to luff when dropping it, and use it for a few months. The more you use it, the more effectively the system will operate (unlike many other things!). Carefully neaten out the sail the first few times, and it will 'learn' the correct way to flake. See the section on Lowering the Sail, page 10 for more info.

Sail does not drop easily. This is almost never the fault of the Sail Flaking System. To check, pull the lines out of the sail, and try raising and lowering it, or slide a fairlead up or down on the control line. If the control line is old and dirty, clean or replace it. Also check that the fairleads or uppermost grommets have no sharp edges or grooves. Friction comes from several sources. If a full batten main, push the batten against the mast and check that the battens slide up and down easily, and twist around freely. If not (which is very common), consider our End Batten Fitting, which has ball bearings wheels, a full universal joint, and a reasonable price. Ball Bearing Track Systems also work well, but are heavy and expensive. Friction also comes from the masthead sheave, obstructions inside the mast such as wiring which can rub against the halyard, turning blocks, in short, anything the line touches. The sharper the turn, the more worthwhile a ball bearing block will be.

CTL Twists. Many lines are not true balanced braids, in that they twist under load, which can affect both the CTL line and the halyard. Also, the line must be rolled off the reel, not pulled off the top. See the section Rig the Continuous Topping Lift, page 7, for info on how to untwist. A swivel will not help. Another solution is to use the A system with a halyard style topping lift.

The lines make the sail dirty. This can happen if the boat is near a source of pollution like an airport or power plant. Clean the lines periodically by dropping them down and wiping them with silicone spray. This is easier with a halyard style topping lift (the best solution) or a C system. The C system also allow you to store the control lines partly under the sail cover, which protects them, and prevents dirt from running down the lines through the sailcover slit when it rains. You can also do this with an A system and a rigid vang, or have the sailcover slit made more watertight.

Please, contact us if you have any questions or problems.