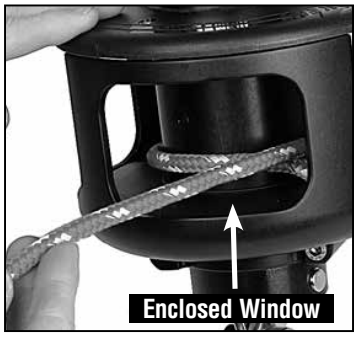


Run line through enclosed window in guard and into hole in bottom plate of spool. Tie a small overhand knot and pull it up under drum assembly.

WARNING! Lead line through enclosed window. If line is led through opening between two enclosed windows it can ride above lineguard and jam furler which can cause loss of control of boat.

Note location of sun cover. Charge system by rotating furler to wrap line on drum.

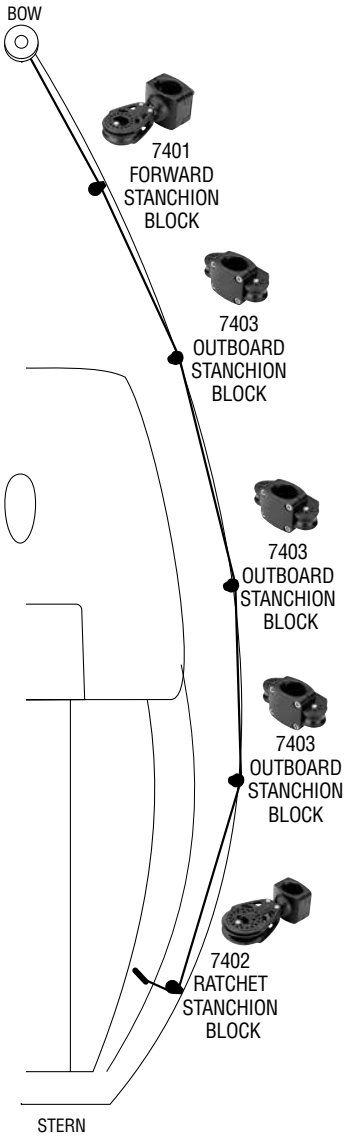
Tip: Sun cover to starboard—turn clockwise to charge. Sun cover to port—turn counter-clockwise. Tension line while charging.

Mount Lead Blocks

Furling line can be led down either side of boat. If boat is in slip, consider mounting opposite dock.

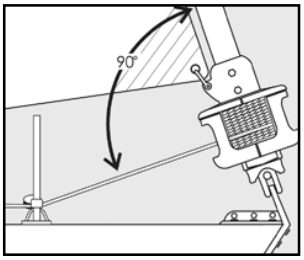
Remove four screws on stanchion blocks. Clamp blocks to stanchions. See instructions below.

Tip: Start all four screws before tightening.



7401 Forward Stanchion Block

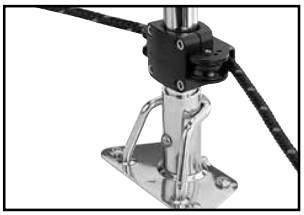
Position 7401 Forward Stanchion Block so line enters drum at right angles to headstay and centers vertically in opening. Install so line is inside stanchion.
Correct block position is critical to even line spooling and ease of furling.



7403 Outboard Stanchion Blocks

Install 7403 Outboard Stanchion Blocks so line is outside stanchions.

Number and placement of leads depends on boat length and number/configuration of stanchions.

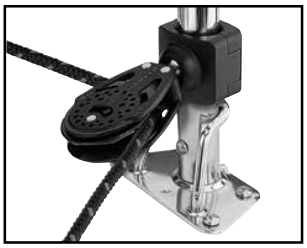


7402 Ratchet Stanchion Block

Mount 7402 Ratchet Stanchion Block as furthest-aft lead to prevent line overrides in drum when unfurling. Position ratchet block so line turns at least 90°.

Install so line is inside stanchion.

Lead line through block so ratchet makes clicking sound when pulling line to furl sail.

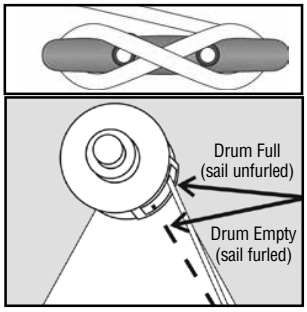


Tip: Make sure ratchet switch is in "ON" position. If there is no clicking sound, lead line through block in opposite direction.

Lead line to Furling Line Cleat in cockpit.

HCP168 Furling Line Cleat

Install so line is angled as shown.
Use #10 (5 mm) fasteners.



Note: As furling line lead changes, make sure line doesn't chafe against line guard. Rotate line guard if necessary.

Halyard Wrap

The most serious problem with furling systems occurs when the jib halyard wraps around the headstay foil. Halyard wraps will keep you from furling or unfurling and may cause serious damage to the unit and the halyard.

WARNING! In severe cases, a halyard wrap can cause loss of control of boat and/or headstay can break suddenly. Make sure halyard is clear of top foil before using system.

If Halyard Wraps

If halyard wraps, do not force unit to turn. Attempt to open sail by carefully furling in and out a little at a time. If sail will unfurl, lower it by releasing jib halyard. Severe halyard wraps can only be cleared by a professional going aloft and freeing halyard.

If sail will not furl or unfurl, try to remove jib sheets and manually wrap sail around headstay.

WARNING! Do not go aloft on boat's halyards if there has been a halyard wrap. Do not use boat. Damage to halyard, headstay, stay terminals, or connections as a result of a halyard wrap may cause these parts to break suddenly causing mast to fall down while person is aloft. Sailing or motoring with boat after a wrap can result in the headstay breaking and mast falling down. Before using boat, have a professional rigger inspect and replace parts as necessary using following methods.

A professional rigger must carefully inspect the masthead area using a secure hoisting method. Inform rigger that there has been a halyard wrap so they can avoid an accident by relying on standing rigging or halyards. Inspection must be done while rigger is suspended from a separate crane or mast must be lowered to perform inspection. Some professionals may rig a new line through internal masthead sheaves to serve as a temporary headstay to hold mast in place. Wire, rod rigging, terminals, toggles, clevis pins, or cotter pins must be inspected and replaced if they show any signs of damage.

Prevent Halyard Wrap

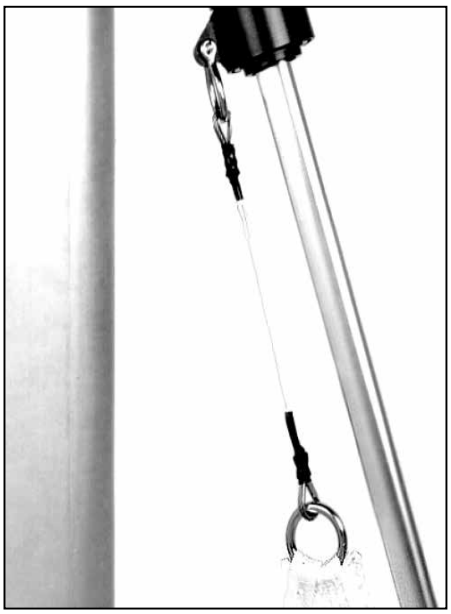
To prevent wraps, the halyard must exert a slight pull to the rear. This allows the foils to turn while halyard remains stationary.

WARNING! Sail must be fitted to foil length before using to prevent halyard wraps and possible headstay loss.

1. Halyard swivel should be within top 4–6" (100–152 mm) of foil unless a halyard restrainer is used.
2. Halyard must pull slightly to rear (8–10°).
3. Halyard must be snug, but not too tight.

Test furler at dock, but if water is smooth an incorrect lead angle may not be apparent. Halyard wraps usually occur in wave action when lead angle is not correct. The 8–10° angle shown at right is critical.

Pendants



If the your sail luff is not long enough to position halyard swivel high enough to create an 8–10° angle as shown, you must add a pendant. Pendants should be made of plastic-coated wire and be permanently attached so sail height will be correct. Adjustable- length pendants are not acceptable, as they might not be adjusted correctly during a sail change.

1. Raise sail, but do not attach tack shackle.
2. Position halyard swivel correctly near top of headstay.
3. Secure halyard.
4. Tie a piece of rope to sail tack.
5. Lead line through tack shackle on furling drum.
6. Tension sail.
7. Measure distance from tack shackle to sail tack and permanently attach pendant of this length to head of sail.
8. Repeat procedure for every jib in your sail inventory.

Halyard Deflector/Halyard Restrainer

Halyard Deflector

To prevent wraps, jib halyard must pull slightly to rear. On most boats, halyard lead angle is acceptable if halyard swivel is raised to top of foil.

On some boats halyard sheaves are located too close to headstay and a Halyard Deflector or Halyard Restrainer must be used.

Halyard restrainers should be used only when required by masthead geometry. Restrainers tend to limit sail luff length and may cause problems if not installed properly.

If your boat needs a Halyard Deflector, use Part No. 7302 or a Halyard Restrainer, use Harken Part No. 944.

Restrainer should be mounted as high as possible on face of mast. Position restrainer so that foils will not hit it when under load.

The restrainer should deflect halyard as little as possible or you may experience difficulty in tensioning sail luff, friction when furling, and possible damage to foils. To decrease deflection angles, shorten sail luff.

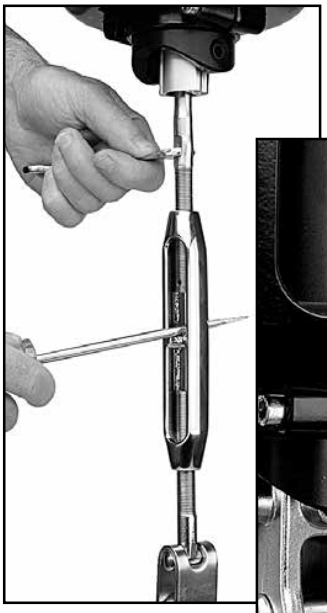
Tip: Boats used in charter service should have a halyard restrainer, regardless of masthead geometry.

Halyard Restrainer

Halyard Tension

The jib halyard should be firm, but not too tight.

Tip: The luff foil system supports sail along its length so halyard tension is used only to shape sails, not to support them. Use enough halyard tension to remove some wrinkles along luff of sail. Do not tension halyard enough to cause vertical wrinkles in luff of sail. Tension to adjust position of draft in sail to suit sailing conditions. Halyard should be firm but not tight. If in doubt, release halyard tension. To protect sail, ease halyard when boat is not in use.



Spinnaker Halyards

Spinnaker halyards occasionally cause problems with furling.

WARNING! In severe cases, spinnaker halyards can jam furler causing loss of control of boat. Make sure halyards are clear of top of foils and halyard swivel.

On many boats it will not be possible to attach spinnaker halyard to bow pulpit or it may be "sucked" into jib when furling.

On some boats the spinnaker halyard lays across headstay and will catch on halyard swivel, foils or jib halyard. To prevent problems it may be necessary to install a masthead bail to move spinnaker halyard block forward and to one side.

Boats with external halyards may find it necessary to flip both ends of spinnaker halyard behind spreaders to prevent fouling with furling system.

Headstay Tension

A furling system will work best if headstay is tight.

A loose headstay is difficult to rotate and can cause unusual wear on foil joints.

To adjust headstay tension, remove sail and furling line from unit and follow instructions on page 24.

Tip: Before adjusting headstay tension, slack mainsheet and vang.

Backstay Adjusters

Backstay adjusters allow headstay tension to be varied to change sail shape to match conditions. They permit a very tight headstay to be eased when boat is not in use. For best performance, consider adding a backstay adjuster; either a block and tackle, a mechanical adjuster like those offered by Harken, or a hydraulic adjuster.

Remember to keep headstay tight for best performance when furling or reefing.

If your boat is fitted with an adjuster be sure that it is tensioned **before** the halyard is tensioned. If not, backstay adjuster may increase halyard tension and could damage the sail or furling system.

Racing boats often slack the headstay completely when sailing downwind. Check to be sure that foil does not jam against upper headstay terminal when backstay is released. To prevent this, it may be necessary to shorten foil slightly.

Raise Sails

1) Install prefeeder by securely tying end of line to a deck fitting or to toggle below furler so it is 2' (610 mm) below feeder.
2) Shackle tack of sail to drum. Install shackle so screw pin head is on same side as sun cover.
3) Secure genoa sheets to clew of sail.
4) Attach genoa halyard to halyard swivel.
5) Pass luff tape through prefeeder and feeder into foil groove.
6) Attach head of sail or pendant at head of sail to halyard swivel.
7) Hoist sail.

Tip: New sails are often stiff and may hang up on prefeeder during raising. Do not force sail when it hangs up—lower and remove twist. Sails "break in" with use and will become easier to raise.

Storm Sails

Most people will use one multi-purpose genoa for all their sailing, but it is not good seamanship to go offshore without storm sails.

Heavy-air working jibs and storm sails may be used with your unit. These sails need to have luff tape added to allow them to be raised in headstay foils.

These sails will generally require pendants to ensure that halyard swivel is properly positioned at top of headstay. See page 26.

Remember that heavy-air working jibs and storm jibs may be reefed and furled like any other sail.

Furl and Reef

To furl or reef, ease the jib sheets and pull furling line.

In very light air, it may be necessary to place some tension on jib sheet to insure a tight furl.

In a breeze, you must **completely** luff sail by **totally** slacking jib sheets before furling.

The furling line should pull readily. The amount of force required is related to amount of wind, but a Unit 1 should never require use of a winch to furl. If the sail will not furl, or if furling requires a great deal of effort, there is a problem with system. Consult the Troubleshooting Guide on Page 33. Do not use a winch to force a system to turn. If you are certain that the system is operating properly, you may use a winch to make furling easier.

Reef

A sail may be partially furled before you resume sailing. This is known as reefing.

Many sailors find it helpful to place marks on foot of sail so that they can reef to a variety of predetermined jib sizes. This allows marks to be placed on jib lead tracks or toe rail so that lead block position can be changed to correspond to reefed jib.

Sails are generally reefed to balance boat and to reduce heeling moment. Sails may also be reefed to improve visibility or to slow boat while sailing in congested areas or entering or leaving harbors.

Secure Sail

When furling the sail completely, make sure sheets and furling line are secured. Check amount of line on the spool compared to the furled sail before using the system.

A furled sail must have:

a. Two to three wraps of jib sheet wrapped around sail.

b. Two wraps minimum of line wound on spool.

c. Furling line securely cleated.

d. Jib sheets securely wrapped on winch and held in self-tailing jaws.

Furl at dock with tension on sheets to duplicate furling in high wind.

Remember sails furled in light wind and left loosely secured can be a problem if wind increases.

IMPORTANT! Remove sail from furler if extreme winds are predicted, especially if boat is left unattended.

IMPORTANT! Check all points above—a, b, c, and d—when leaving boat to avoid damage to furler or boat.

A loosely rolled sail can catch wind in a storm. Sheets or furling lines can loosen as winds increase and allow furler to unroll. If no wraps of line are on spool, the line deadend can break the drum when the boat motors through waves.

Be sure mooring lines are not placed across furling line where they may cause chafe.

If you want to:			
Add more wraps of jibsheet on furled sail.	Untie jib sheets and keep sail completely rolled. Secure with sail tie.	Turn spool to unroll a couple of wraps of line.	Retie sheets.
Add more wraps of line on spool.		Turn spool to add a couple of wraps of line.	