

# Internally Threaded Bung

## REEFIT System C

### ASSEMBLY INSTRUCTIONS

For new stays, please ensure your rigger fits a toggle fitting to the top end to allow full articulation of the stay. At the bottom end, only a stud will be required (Ronstan RF 1510 recommended), since the rigging screw is built into the Reefit. The bottom end of the thread needs to be 235mm for 5/8" threads, or 250mm for 7/16" threads above the bow chainplate hole when the reefer is fitted so ask your rigger to allow for this when making up the stay. Remember that your Reefit system can be fitted over the stay after the bottom end is swaged.

If you are fitting your system on the existing stay, you will find it easier to remove the forestay and lay it out on the dock or ground. Lay the foils out in order, alongside the wire, starting from the bottom of the sail entry foil, which should be level with the swage fitting (Photo 1). The total length of all foils must be 130mm less than the total length of wire between the swage terminals (Photo 2). One plain foil may need to be cut to length. This will become the top foil. **TIP...** *If the cut foil is going to be shorter than 300mm then don't cut it yet. You will need to cut enough off the next foil down, in order to make the top foil a minimum of 300mm long. This means the fastener holes will need to be re-drilled in the cut foil. Hole centres are 19mm and 69mm down from the end of the foil. Hole size is 21/64" (8.4mm). Drill a pilot hole first. Remove the burrs from the holes and in the sailtracks.*

Strip the rigging screw parts off the bottom of the stay to leave only the threaded stud (swaged to the forestay wire). You will find a shroud spinner in the kit. It fits at the top of the wire, under the top swage fitting (Photo 3). Mate the two halves over the wire and snap them together. The top bearing is identified by having one end larger diameter than the other. Fit it and it's support sleeve onto the stay near the upper swage fitting.

Slide the top foil (the end you cut to length first) up the stay, engage the top bush assembly and push it home into the foil (Photo 4), then select a connector and bearing (Photo 5). Lay the connector down with the slot facing up, and one half of the bearing laid in the bottom of the slot with the wire groove facing up (Arrowed Photo 6). Position the wire so it lays correctly through the connector, in the groove of the bearing. Align the other bearing half at one end of the connector, then slide it through lengthways (Photo 7). Rotate the end lugs of the bearing so they face across the connector, then fit the assembly into the lower end of the top foil, and slide in until the connector holes align with the pre-drilled holes in the foil. Apply some Loctite 243 (supplied) to the thread of one grub screw and use the supplied hex key to screw it in loosely to hold the connector in place (Photo 8). **TIP...** *You will find the grub screws easy to handle if you stick them on the end of the hex key.* Fit a second grub screw in the same manner. Bring the next foil section up the wire, engage the connector, and align the holes before fastening as before. Now tighten all grub screws until they are firm.

Connect all foil sections together in this manner with the sail entry foil at the bottom, then fit the swivel unit onto the foils with the locking ring (Arrowed Photo 10) facing the bottom end of the stay.

Slip the torque tube onto the stay, and align the pre-feeder lug with the milled track of the entry foil (Photo 11). Slide the torque tube up to the top of the entry foil cutout.

Assemble the bottom bearing and support sleeve over the wire and fit it into the bottom of the entry foil (Photos 12, 13). Fit the forestay clamp loosely on the wire above the bottom swage fitting (Photos 13, 14).

Ensure the locknut supplied with the kit is fitted to the thread at the bottom of the stay with the tapered face downwards. At the top of the drum you will notice a small hole drilled in the side of the coupling nut of the rigging screw (Arrowed Photo 15). You must insert the thread at least far enough into the rigging screw to be able to see the end of the thread through this hole. You may unscrew it enough to get the stay back on the boat, but make sure that when the stay is re-tensioned, the thread is visible through this sight hole. Failure to ensure this means insufficient threads are inserted in the rigging screw to reach safe working

load. Bring the torque tube down and screw it home in the drum temporarily to allow the Reefit to be fitted to the boat (Photo 16).

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## INSTALLING THE REEFER

Hoist the reefer up the mast. Lift the lower end over the searails first then attach the top end to the mast.

Next attach the bottom toggle to the bow chainplate, (or linkplate if you're having a higher drum position). Unscrew and lift the torque tube to access the turnbuckle and adjust forestay tension and mast rake to your satisfaction, ensuring adequate thread engagement through the sight hole. A tight forestay is important, as it will make the reefer easier to use. If you are happy with the rig tension and rake, lock the locknut securely to the coupling nut of the rigging screw, then lift the foil assembly up the stay until you feel it bump against the shroud spinner at the top. Drop it down approx 10mm then tighten the bottom clamp under it. Lower the torque tube and screw it in to the drum. There is no requirement to lock the torque tube into the drum as the sheet and furling line loads will lock the thread.

When the reefer has been fitted to the boat, hoist the halyard swivel to the top of the foil, allowing accurate positioning and fitting of the re-direction block. Shape the re-direction block base to suit the mast and fit it on over the headsail halyard to deflect the halyard. The sheave in the block is made from high load engineering plastic, and is suitable for both wire and rope halyards. Four roundhead metal thread screws are provided and we recommend that you drill 3/16", and tap ¼" BSW to fit them. The halyard must not be parallel to the forestay. Use the block to deflect it so the halyard is vertical from the masthead down to the block, then angling out to intersect with the forestay at approx 15 degrees to the stay (Photo 17). Measure the available luff length (between tack and head shackle bearing surfaces) whilst a man is aloft to ensure that the swivel will not foul on the masthead or halyards. Photo 17 shows the top of the headsail clear of the spinnaker halyard, so there is no possibility of a foul-up while furling. Contrast this with the inset photo where there is a chance of the headsail catching up the spinnaker halyard and jamming. This is the most frequent cause of furling problems and you should anchor the bottom end of your spare halyards at the base of the mast to prevent it.

Tie a 10mm reefing line to the saddle on the drive cup. Wind the line on by turning the drum clockwise. The reefing line must pass through the cage formed by the stainless steel cross bars on the rope guide. The cage position can be easily altered to suit your deck layout to allow the line to feed on and off without friction. The drum capacity is 28m of 10mm rope. It is recommended that a longish reefing line is used so that the drum is loaded with rope when you start to reef (ie when the sail is unrolled, the drum is nearly full). This will give a greater mechanical advantage over the sail, making reefing easier. Try out the reefing line length with a spare line if desired, remembering that the sail will furl more tightly in heavier breezes. Do not cut the furling line unless the sail is unfurled.

Photo 18 shows the unit stripped down for use as a headfoil. Remove the drum top and bottom plates by unscrewing the small screws (4 each). Remove the rope guide by unscrewing the 2 socket screws in its base.

Use a block attached to the stanchion, pulpit, or deck to lead the reefing line off the drum. Stanchion bases can be used for leads or blocks purchased for the job (eg Ronstan RF 3 or Holt Allen # 450 or 455). Avoid excess friction in the leads. The reefing line should be easily accessible in the cockpit and lead to a convenient position and cleat. The line must exit the drum perpendicular to the angle of the forestay, which requires careful placement of the forward block. The sail is fitted when the rope is on the drum.

It is essential that stays to be fitted with a Reefit, or any reefing system, have a toggle or similar articulating fitting at the top, and that it and the bottom toggle are free to move *Don't squeeze the side plates into the masthead or bow fitting as they will jam up, preventing articulation and causing forestay failure.*

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## USING THE REEFER

Attach sheets to the clew of the sail. Connect the halyard to the swivel unit.

Set the halyard so the swivel is about 1 metre up the foil from the pre-feeder. Feed the bolt rope through the pre-feeder and into the sailtrack. Shackle the head of the sail to the halyard swivel. Hoist the sail and shackle the tack to the tack swivel. The bolt rope should not be in the pre-feeder when the sail is fully up.

Pull the rope until the sail is furled and has several turns of sheet around it too. Do not cut the furling line. It is intended that the drum be full of rope when the sail is unfurled. Then, when reefing commences, this increase in drum diameter gives the necessary mechanical advantage to make reefing easy.

When unrolling the sail, ease the reefing line out. If you let it go, the sail will unroll rapidly and stop suddenly. This won't damage the reefer, but it could tear your sail, and the shock loading is not good for your forestay.

The reefer should not need to be winched. The boat should be luffed, and/or the sheet eased so that the reefing can be done by hand. Once the desired sail size is achieved, the reefing line is made fast, and the sail re-sheeted.

Unlike furling systems, this unit is designed to be used with the sail partly reefed. You can deploy the exact amount of sail to suit the prevailing conditions, and the strong, custom foil and joiner will easily handle the loads.

The reefer is designed to give you years of trouble free low friction performance. When filling your water tanks, we recommend you squirt fresh water into the tack swivel and into the top of the torque tube (down the sail entry cutout). Rotate the furler a little back and forth by hand while flushing it through. This will dislodge any salt build-up around the balls and reward you with extended life and enhanced performance from the unit. The halyard swivel unit is unlikely to suffer any salt build-up due to its height and will be flushed by rainwater, however an occasional squirt will dislodge any build-up of airborne dust and dirt.

The ball bearing material has been carefully chosen to minimise any tendency for debris to stick to the balls. The ball races **must not** be lubricated/greased/WD40/CRC, etc as this will trap and hold grit. The use of petroleum based products will adversely affect the balls. If the system seems tight, flush it with fresh water as above, and look for other sources of friction like dragging sheets, friction in furling line on deck, or snagging other halyards at masthead.

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## REEFING SAILS

Ideally the assembled reefer should be measured by the sailmaker on the boat. If this is not possible, the luff length should be measured with the tape hauled up on the reefer halyard swivel. Position the swivel at the masthead and make sure that shackles or halyard eyes are not riding on the halyard re-direction block. Measure the luff between the tack and head shackles. The bolt rope should end 0.5 metres below the head of the sail and 1 metre up from the tack, to ensure that the bolt rope is not in the pre-feeder when the sail is up. This will also allow the independent tack and head swivels to work. The bolt rope should only be stitched into the top of the sail and should be free to move along the remainder of its length. This will prevent puckering when the sail is being hoisted. There is a spar sample supplied in the kit to enable the sailmaker to determine the bolt rope to be used. This may be affected by the weight of cloth in the sail. Webbing loops at the head are recommended for attaching the sail, as this will allow a tighter furl, and avoid chafe on the foil from a cringle. **Any UV stripping must be on the starboard side of the sail. Knock back measurements as per the sketch below, should be adhered to.**

A good reefing sail will have a relatively high clew to reduce the need to adjust the sheet lead position as you reduce sail. Talk this over with your sailmaker. To prevent any possibility of halyard wrapping, it is essential that the halyard swivel always hoists to its predetermined position at the head of the foil, regardless of the luff length of the sail. To ensure this, any shorter luffed cruising sails in your wardrobe, MUST have a strop permanently attached to make them up to length. This is not necessary with racing sails as they are hoisted with conventional halyards, not with the swivel unit.

When used as a headfoil for racing, allow the halyard swivel to drop down and rest on top of the torque tube, as it is not used to hoist sails in a racing situation. The tack of the sail is attached at a convenient position on the bow chainplate. Racing sails to be used with the Reefit system need to be cut with sufficient "knock back" at the tack to clear the halyard swivel and reefer bottom end and must have the bolt rope extending all the way to the head of the sail, but short at the tack so it is not in the pre-feeder when the sail is hoisted.

### SAIL KNOCKBACK MEASUREMENTS FOR REEFIT C

