

# **SAILSPAR**

## **Roller Reefing Manual**

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## Headsail Reefing Fitting Instructions

1) Check the forestay the gear is to be fitted to is 1 x 19 construction stainless steel and in good condition, if not replace with new. We recommend the stay is replaced if it is more than 8 years old. (The forestay is included with the complete package).

2) Check the stay is long enough. On an existing stay make sure that the distance from the bottom of the wire (ie the lowest part that can be cleanly cut) to the fixing hole in the deck fitting is less than:- 190mm on 'S' range, 225mm on the 'M' range and 345mm on the 'L' range. If this measures more than the above a replacement stay or toggle and link plates will be required.

3) The back stays must be loosened to allow the mast to be pulled forward.

4) The mast is now pulled forward by tensioning a spare halyard forward.

5) Disconnect the forestay from deck and remove old bottlescrew and terminal etc., leaving the wire end bare.

6) Attach the reefing gear drum unit to the deck fitting with the toggle provided. (This will be removed again later. It is a good idea to leave the reefing line in a tidy coil until para. 33.) (Tie gear to the boat to save an expensive splash!).

7) Ensure that the large plastic washer is seated on the top of the drum unit.

8) Screw the Sta Lok terminal, with the lock nut on, into the top of the drum unit. Screw in 15mm on the 'S' range and 20mm on the 'M' and 'L' ranges. Please note that at least this amount of thread must always remain in the gear. To ensure this, blacken the entire end of the stud with a felt tipped pen.

9) Pull stay tight by hand and hold along side Sta Lok terminal. Mark and cut wire as shown on figure (i). (If the stay is heavy tension with a rope tackle clove-hitched to wire.

10) Do not fit Sta Lok terminal to wire yet.

11) Mark the wire at a point 'B' above the cut end. The distance from the wire end is: - 'S' range 105mm, 'M' range 130mm and 'L' range 180mm.

12) Take the extrusion with the 'sail entry' and put it to one side — this is the bottom one. Slip the top white nylon bush onto the top extrusion — the foils are numbered, so match the numbers — (the short foil if provided or any except the one with the sail entry) and fix temporarily with a single screw (drill 3.8mm hole).

13) Slide on the stainless steel halyard swivel (swivel part uppermost) until it hits

the top bush. Attach a headsail halyard to the top eye of the swivel and a light line or the halyard tail to the bottom (this is to enable you to pull the swivel down once it has been raised to the top). Take some tension on the halyard and pull this top extrusion up a little way inserting the stay as you go. Insert a joiner into the bottom end once the wire has appeared (insert screws hand tight only as they will have to come out again). Attach the next extrusion and pull up on the halyard. Keep going until all the extrusions but the bottom one are on the wire.

14) Ensure that the extrusions are right at the top by pushing them up the stay any last few inches that you cannot get on the halyard. Hold the sail entry extrusion with the bottom end level with the mark 'B' on the wire. Mark the extrusion at the point the extrusions overlap — see figure (2).

15) Remove all extrusions and joiners from wire by lowering halyard swivel and releasing the join screws.

16) Remove the white nylon bush from the top end and then transfer distance 'X' to the top of the top extrusion.

17) Shorten the top extrusion by distance 'X'. Cut with a hack saw at this point and clean with a small file. Dispense with the offcut. (If short foil is supplied, be sure to cut undrilled end).

18) Slide the top white nylon bush onto the cut end of the top extrusion and attach with the two screws provided (drill 3.8mm hole).

19) Slide on the halyard swivel as before, keeping the halyard and halyard tail (or light line) attached. With the stay inserted in the top end, fix the joiners with screws and plenty of 'Torque Seal' as you slide on the extrusions, hauling them up on the halyard as before. Ensure that the bottom extrusion (the one with the sail entry) is the correct way up — the end with the most screw holes being at the bottom. Ensure the screws are well seated and secure with 'Torque Seal'.

20) Making sure that you have all the extrusions on the wire (they should now reach down to the mark 'B' on the wire) slide on the bottom aluminium bush (this looks like a short joiner with a few more holes in) making sure it is the right way up. Push it into the bottom of the extrusion to line up with the pre-drilled holes. Hold it in place by inserting the grub screw into any of the holes. Screw the grub screw in well to enable nylon sleeve to pass over it — see next para.

21) Slide the thin nylon sleeve over the bottom of the extrusion to line up with the pre-drilled holes. Hold it in place by unscrewing the grub screw a little. Still leave the grub screw well screwed in to enable the Torque tube to slide over — see next para. (NOTE: if the nylon sleeve is a tight fit in the Torque tube then leave it there).

22) Slide on the stainless steel 'Torque tube,' lining the track up with the 'T' stamped on the top edge. Slide right up as far as it will go to expose the wire beneath.

Fit the Sta Lok terminal as per the instructions in the packet. Be sure to use silicon sealant and 'Torque Seal'. Ensure lock nut is screwed on Sta Lok.

23) Remove the drum assembly from the deck.

24) Wind the drum assembly onto the Sta Lok. Screw to estimated length.

25) Reattach drum assembly to deck. (Do not at this stage fix the Torque tube or tighten the lock nut.) On the larger gears this may not be too easy as the extrusions are too heavy to be straight enough to enable you to insert the clevis pin. If this is so, tension a halyard forward of the reefing gear and then pull up a further halyard with a couple of loops around the extrusions to pull them more in line.

26) Loosen the halyard holding the mast. Tighten the backstays.

27) Check the mast rake — if it is not correct retighten, holding stay, loosen backstays, remove drum assembly from deck and adjust length by screwing or unscrewing the drum unit onto the Sta Lok terminal.

28) When the mast rake is correct, rigging tightened and holding stay released, tighten the lock nut hard, making sure that the thread is well coated with 'Torque Seal'.

29) Slide down the torque tube, insert all the top screws but one, loosely. Remove the grub screw. Insert the last screw and tighten. Be sure to use plenty of Torque Seal on the screw threads and tighten securely.

30) Release the halyard holding the halyard swivel and pull down using the halyardtailor light line. CAUTION: do not let it 'free fall'.

31) Locate bottom of Torque tube on drum assembly and fasten down with nuts and washers.

32) Ensure all split pins are in place both on the lower end of the reefing gear and on any bottlescrews that may have been loosened .

33) Uncoil the reefing line and attach the blocks to the toe rail or stanchion bases etc as required.

34) Adjust the rope lead at the drum assembly by loosening the allen screws beneath the drum. Do not undo the screw at the very bottom — see figure (i). On the 'L' range the bottom plate of the gear that houses the three nylon rollers for the reefing rope is allowed to 'tack' from side to side depending which way you roll the sail. If you decide always to roll the sail the same way this may be fixed by tightening in the appropriate screw.

35) Fix a deck cleat at a suitable position to fasten one line. (Only the 'live' line needs to be fixed.)

36) A lead roller is provided as a halyard lead to be fixed as shown on figure (4) for all gears.

**SPECIAL NOTE:** It is most important that the halyard swivel is always right at the top. If the sail luff is short a strop must be inserted between the sailhead and traveller. If the layout of your masthead box is dissimilar to the configuration in Fig(4) contact the Sailspar office for technical advice. Tel 0206 30 2679/3796.

**CHECK LIST** Make sure you have:

- 1) Used Torque Seal on all join screws and Torque tube top screws.
- 2) Tightened the lock nut firmly and used Torque Seal.
- 3) Fitted the Sta Lok terminal using silicon sealant and Torque Seal.
- 4) Fitted all split pins including backstay.
- 5) At least 15mm or 20mm of Sta Lok thread is screwed into the drum assembly.

**WINTER LAYING UP:** The halyard swivel and drum unit are easily removed by:

- 1) Hold up the mast with a halyard tensioned forward.
- 2) Loosen backstays.
- 3) Pull up the halyard swivel on a spare halyard with the halyard tail or a light line attached to the bottom of it, tension on cleat.
- 4) Remove one of the top torque tube screws and screw in the assembly 'grub' screw. Remove the other Torque tube top screws leaving the grub screw in place to hold the aluminium, bush which remains inside the extrusion. Also remove the nuts and washers at the lower end of the Torque tube.
- 5) Slide the Torque tube up and loosen the lock nut.
- 6) Remove the deck blocks from the boat or remove the rope from the blocks. Coil up the reefing rope.
- 7) Remove the bottom clevis pin and unwind the drum unit from the Sta Lok terminal.
- 8) When the drum is removed the thin nylon sleeve may also be removed from the bottom of the extrusion together with the Torque tube. Ensure that the grub screw is secure before going onto (9).

9) Gently loosen the halyard which is holding the halyard swivel, thereby allowing the extrusions to come down an inch or so until they hit the top of the Sta Lok terminal. Lower the halyard swivel on the halyard and remove it from the extrusions (do not let it 'free fall').

10) Ensure the mast is well supported. Special terminals are available from Sailspar which reconnect the Sta Lok terminal to the deck if required.

11) The drum assembly and halyard swivel can now be soaked in warm soapy water and then flushed through under the tap. Ensure both units are free running. Store in dry, clean conditions. When refitting halyard swivel lubricate with 'DRY' lubricant such as P.T.F.E. aerosol. (Do not grease).

#### STRIPPING DOWN

Remove the drum unit as described in the 'laying-up section'. The drum unit can be stripped in two ways:

- (1) The alloy casting removed leaving the ball bearings in place, or,
- (2) the ball bearings removed.

(1) Remove the machine screws by inserting a screw driver into the drain holes on the bottom of the stainless steel shield. Casting can now be removed. When reassembling remember to seal join of casting and stainless steel work with silicon sealant and use Torque Seal on all machine screws.

(2) Remove bottom toggle. Work over bucket or similar to catch ball bearings.

Remove the very bottom allen screw. Loosen the other allen screws just above it. Slide shield unit down over bottom end. Catch balls in bucket. When reassembling be sure to use Torque Seal on all screws, especially the bottom one.

**STORM JIB AND TWIN HEADSAIL SUGGESTIONS:** It is suggested that a storm jib be set up in either of two ways:

1) On a fixed inner forestay if available.

2) On a partly removable stay set just inside the roller reefing gear. A rigging wire attached permanently to a mast fitting just below the forestay and tacked down to the deck on a strong deck eye. The sail can then be hoisted on a spare halyard. When not in use it can be unshipped from the deck eye and moved aft to a suitable position where it can again be attached and tensioned.

System (2) can be used with a hanked on running sail in conjunction with the roller headsail. It means that the sails can be easily set

### THE SPECIAL SAILSPAR SPLICE

The roller reefing gear comes complete with the rope spliced to length and replacement ropes can be made up to length on request. However in case these options are not available to you, we give here details of the special splice:-

**TOOLS REQUIRED:** Swedish fid, hollow fid and pusher or Marlow type rigging needle, tape, Stanley knife with new blade, whipping twine and needle. This special splice is a modified standard braid line butt splice. The modifications entail the removal of some strands to taper the splice to enable it to pass around the reefing drum. The standard splice is too bulky. Cut the rope to length allowing an extra 2ft for the join. The rope type is 'Liros braid-on-braid'. Rope diameters 'S' range 8mm, 'M' range 10mm and 'L' range 12mm.

Thread the rope through the reefing gear and any deck blocks before starting the splice if these cannot be dismantled.

#### MEASUREMENT TABLE

Rope dia	Gear size	'A'	'C'	'D'
8	S	200	310	90mm
10	M	240	350	120mm
12	L	280	390	160mm

1) Bring rope ends together and 5 ft. from ends tie a single stopper hitch using both ends (remember this has to be undone when the splice is complete).

2) Mark a distance 'A' back from the ends of each rope.

3) Remove inner core at this point.

Photo 1 shows rope with stopper hitch, rope ends, mark 'A' with top rope showing core partly removed and bottom rope fully removed .

4) Mark inner cores at distance 'A' plus 1 in. (or 25mm) towards rope centre not rope end — mark with double line in felt pen. This point 'B'.

5) On outer cover of each end, mark a point 1 in. (or 25mm) from the inner core extraction point, towards the end of the rope.

6) Pick up one pair of double strands at this mark using the Swedish fid as shown on photo 2 and cut these two strands. Remove the two cut strands from the end of the rope, taking care not to pull or unlay the strands leading to the centre of the rope.

7) To taper outer cover ends:- Working around the outer cover from these two cut strands, leave the next two strands which are running in same direction, then

lift and cut the next pair of double strands. Remove strands as before. Repeat process all around the rope always leaving a double strand intact between cut strands. When you have finished you will have removed four sets of double strands, thereby tapering the outer cover. Do this to both ends of the rope. Photo 3 shows tapering strands removed but uncut.

9) Joining rope ends together:- Mark point 'C' on the inner cores measuring from point 'B' towards the centre rope. Using either a hollow fid or large rigging needle, the tapered outer cover of one end is inserted into the inner core of the other end at point 'B', and exits at point 'C'. Photo 4 shows the splice at this stage.

10) Pull outer cover strands through as far as possible, bunching up inner core as shown in photo 5. Separate strands of outer core cover, divide into three equal portions and cut two portions as shown in photo 5, thereby tapering the outer cover.

11) Pinching ropes at point 'B', slide back bunched inner core towards point 'C' as shown in photo 6. Outer cover will disappear neatly into the inner core. Grip firmly at point 'B' and carefully smooth out inner core until rope becomes as firm as possible. At this point tape firmly at point 'B' to prevent accidental removal of core.

12) Repeat steps 9, 10, and 11 on other end of rope.

13) To taper inner cores:- Mark a point 'D' from the outer cover insertion point, as shown in photo 7. Lift and pull a pair of shrouds at this point (similar to tapering outer cover in paragraph 6) Note — remove strands from loose end of rope, see photo 7. Working around the rope as before, unlay a total of three pairs of double strands or two pairs of triple strands depending on inner core lay up, on 12mm and 10mm ropes, but only two pairs of double strands on 8mm rope. Repeat for other end. Cut and remove these strands at distance 'D', thereby tapering the inner cores.



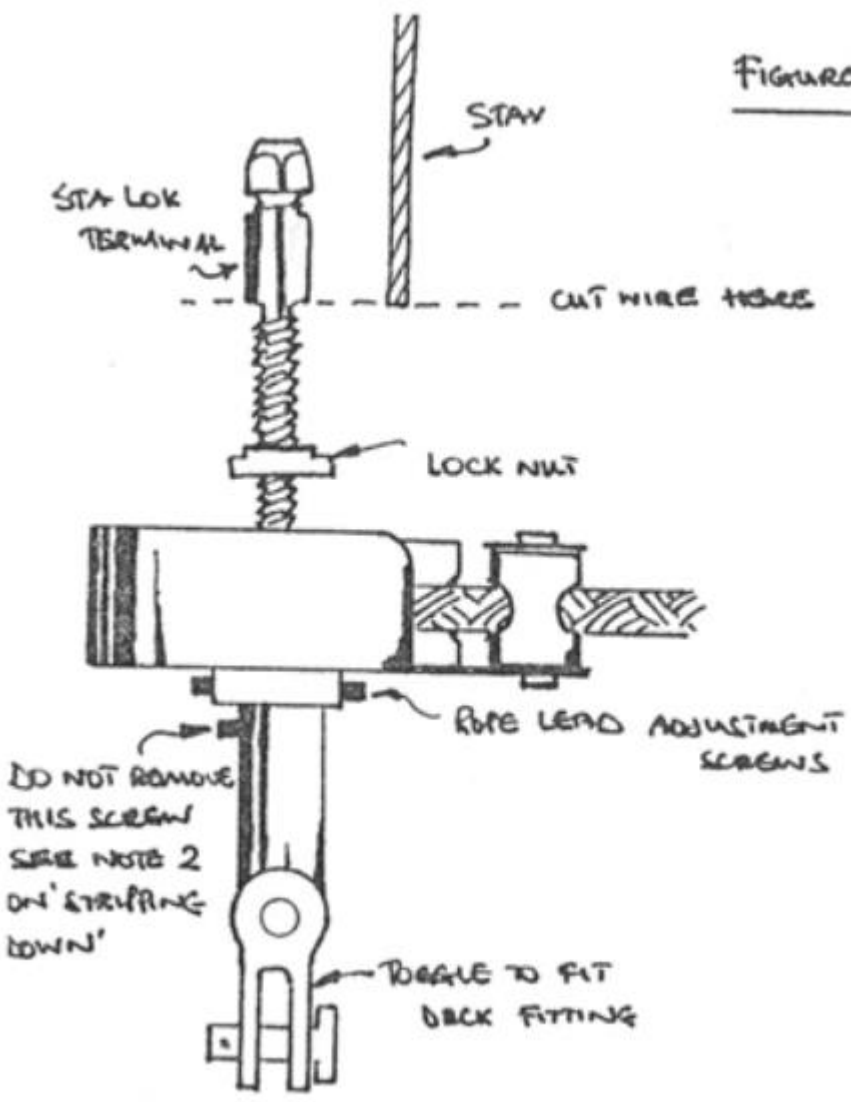
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14) At this point all the tapering is complete. Gripping the rope at the holding hitch, each outer cover in turn is pushed gently back towards the splice, the inner cores disappearing into the outers. As splice comes together remove tape fixed at stage (ii) and refix round loose tail section only at point where tail leaves core. This will stop tails unravelling and getting in the way.

Keep both loops fairly equal in length. Photo 8 shows the splice coming together and almost complete. Note — they will not completely come together by approx 1 in.

15) The inner core tails are now cut off 2 inches from splice, photo 10 shows one end cut and unlayed. The bunched ends of inner cores should now be unlayed into separate strands. Take care not to pull any strands of outer cores, only separate loose tail. It is now possible to pull splice completely together leaving only the loose strands sticking out. Pull about  $\frac{3}{8}$  in of these strands out of join and cut off. Cut a few at a time. This will avoid a large single bunch of strands making the splice join bulky. These strands must now be cut off as close as possible to splice, taking care not to cut any strands of outer core. Snatch splice tight from both ends and strands of inner core should disappear. When all slack has been removed from splice apply neat needle whipping for about  $\frac{3}{8}$  in on join. Splice is now finished.

FIGURE [1]



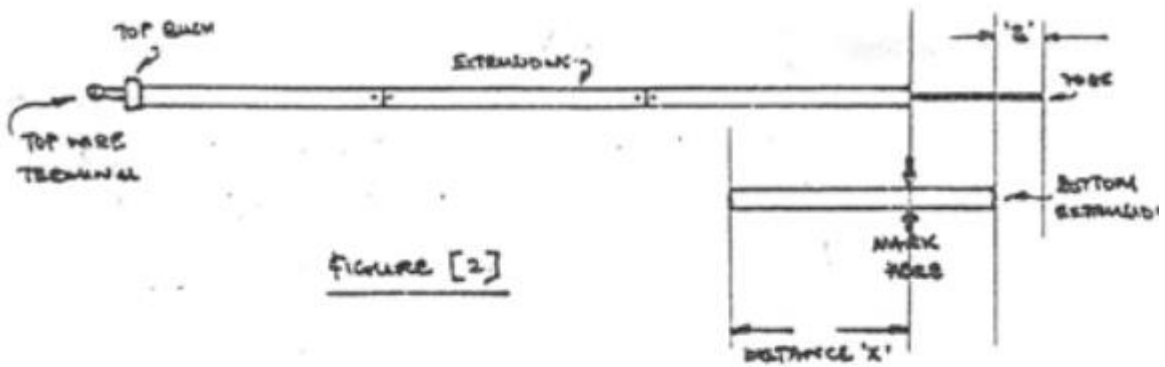


Figure [2]

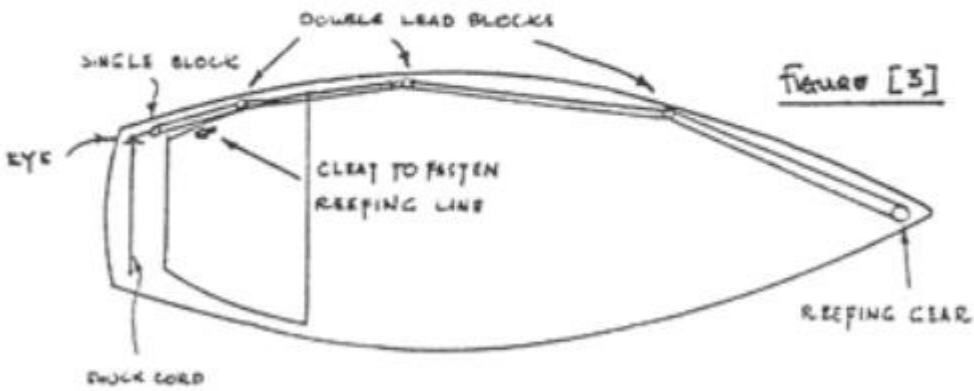
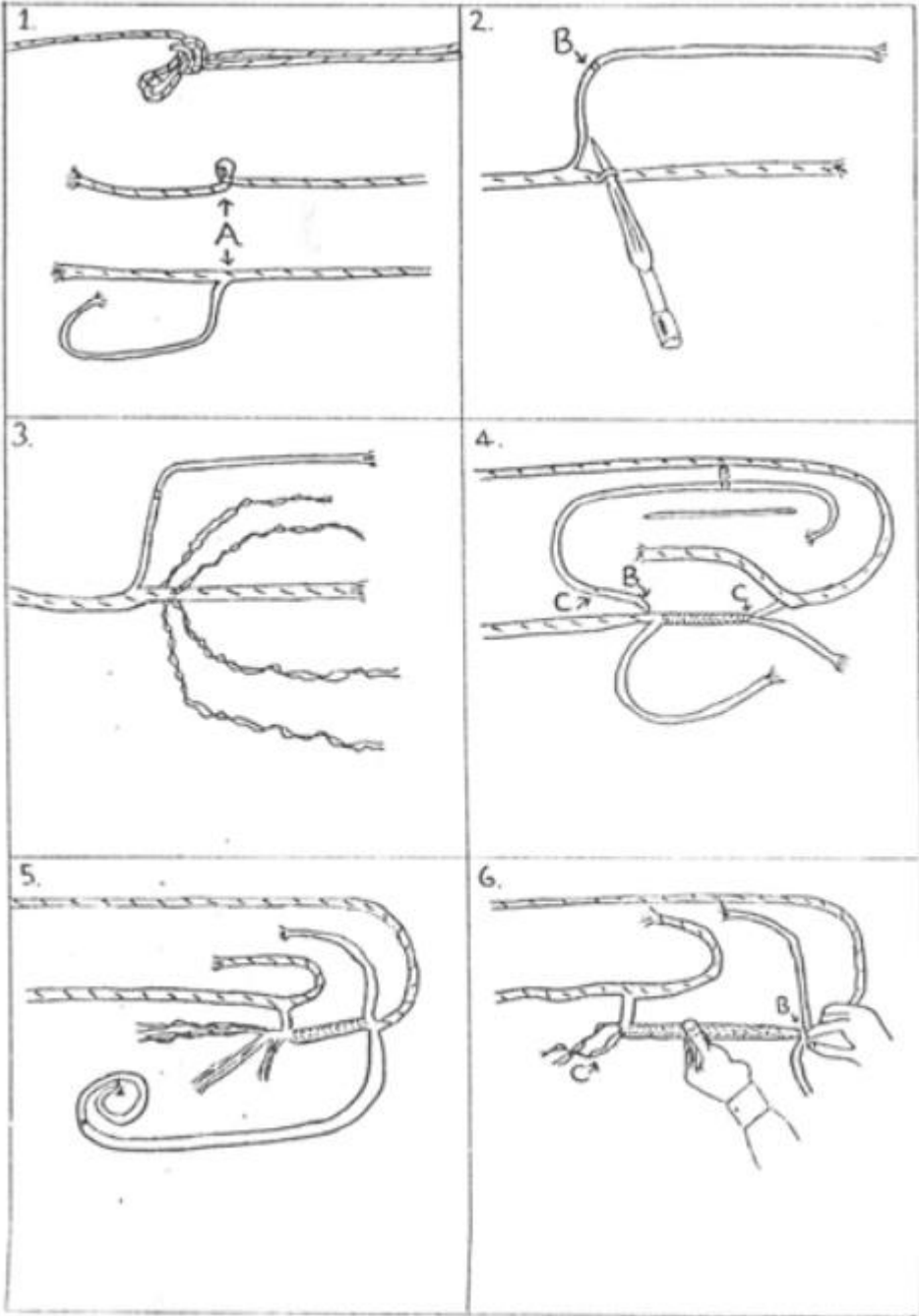


Figure [3]

SUGGESTED DECK LAYOUT OF SYSTEM TO KEEP REEFING LINE NEATLY OUT OF THE WAY UNTIL REQUIRED BY MEANS OF SHOCK CORD LEADING AFT WHICH SHOULD HAVE ADJUSTED TENSION TO KEEP LINE TIDY AND NOT PREVENT EASY WORKING



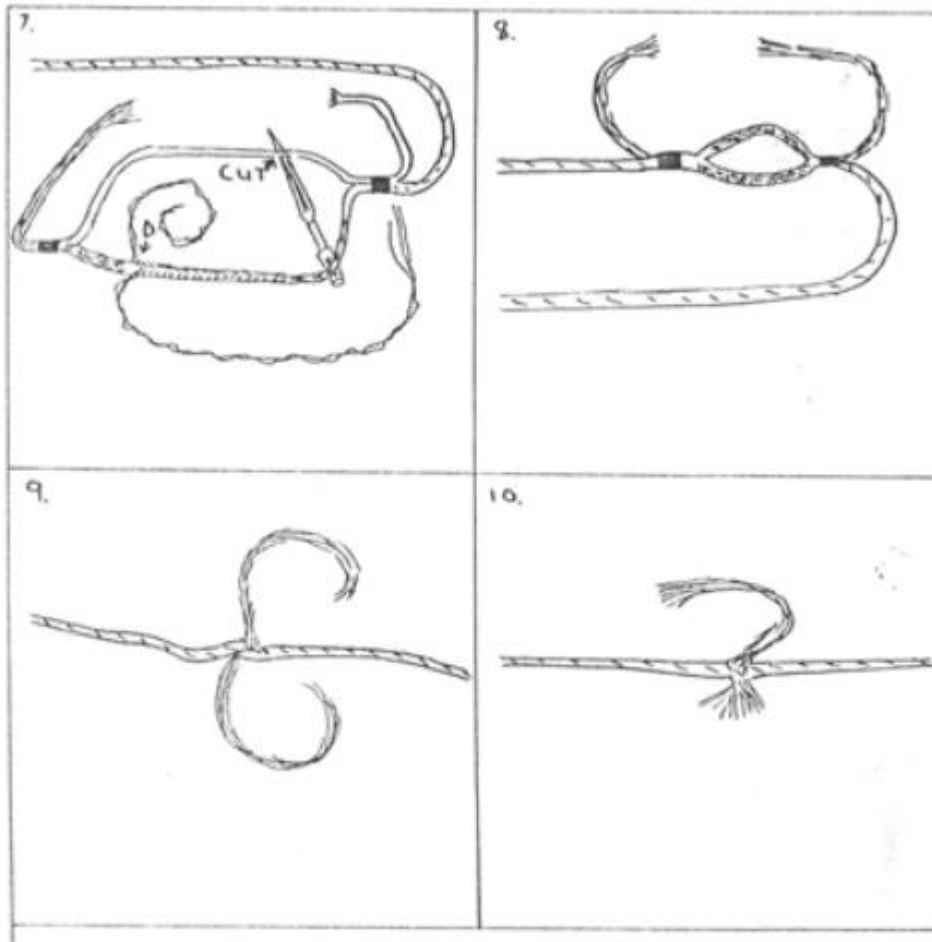


FIGURE (4)

HALLYARD LEAD ROLLER  
TO GIVE 20° - 30° ANGLE  
BETWEEN HALLYARD & FORESTAY

HALLYARD LEAD SET UP  
FOR ALL SYSTEMS.

