Double Braid Class I Eye Splice

Class I ropes are made from any or all of the following fibers: olefin, polyester, or nylon.
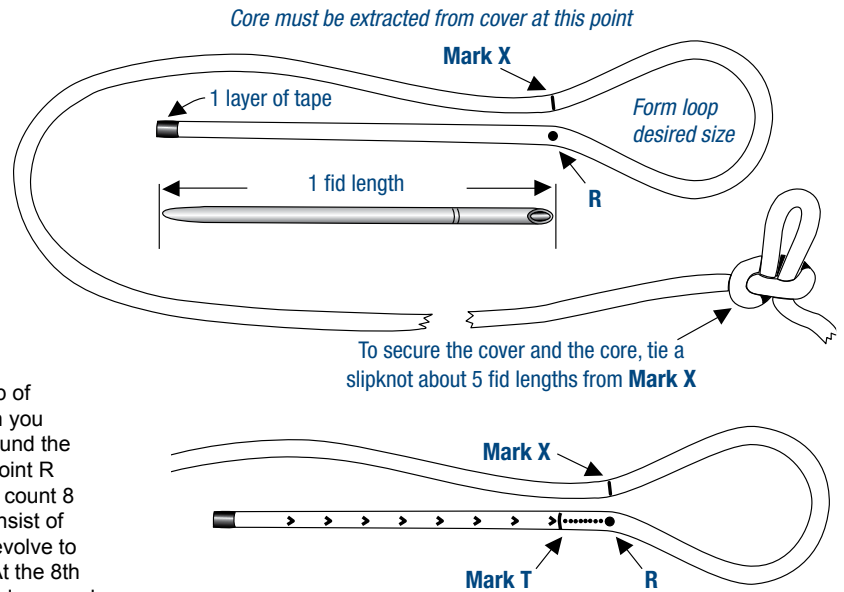
Note: This splice is not suitable for core-dependent double braid constructions (Double Braid Class II). For double braid Class I products over 2" in diameter, contact Samson for specialty splice instructions.

The eye splice is used to place a permanent loop in the end of a rope, generally for attachment purposes to a fixed point. An eye is also used to form the rope around a thimble, which is used to protect the rope, especially when it is to be attached to a shackle, chain or wire rope.

STEP 1 — MEASURING AND MARKING

Tape end to be spliced with 1 thin layer of tape. Then measure 1 tubular fid length or 2 wire fid lengths from the end of the rope and mark. This is Point R (Reference). From Point R form a loop the size of the eye desired and mark. This is Mark X where you extract the core from inside the cover. If using a thimble, form the loop around the thimble. Tie a tight slipknot, or use a pin to keep the core and the cover secure approximately 5 fid lengths from Mark X. At this point it is easier to anchor the rope to a secure point just beyond the pin.

Note the nature of the cover braid. It is made up of strands with either 1, 2 or 3 ends. By inspection you can see half the strands revolve to the right around the rope and half revolve to the left. Beginning at Point R and working toward the taped end of the cover, count 8 consecutive strands (where one strand may consist of 1, 2, or 3 ends depending on the rope) which revolve to the right (or left). Mark the 8th and 9th strand. At the 8th strand, this is Mark T. Make Mark T go completely around the cover. Starting at Mark T and working toward the taped cover end, count and mark every 5th right and left strand until you reach the end of the cover. For ropes with 20 cover strands, mark every 5th and 4th right and left strand until you reach the end of the cover.
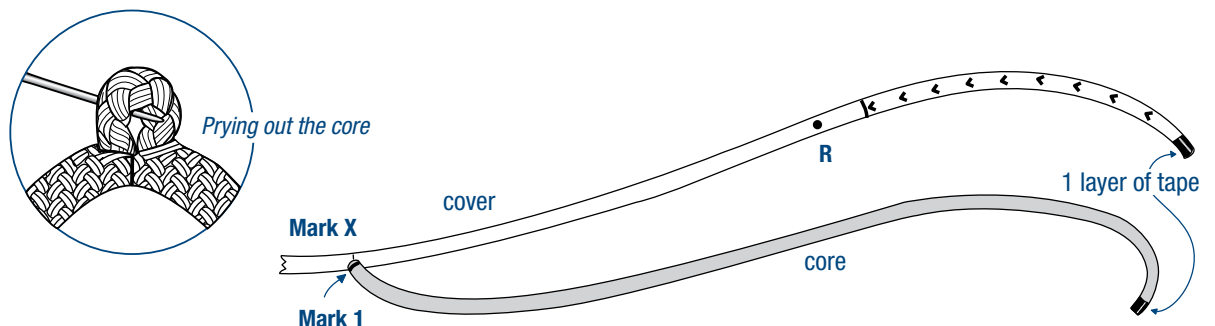
Core must be extracted from cover at this point

Mark X

1 layer of tape

Form loop desired size

1 fid length

R

To secure the cover and the core, tie a slipknot about 5 fid lengths from **Mark X**

Mark X

Mark T   **R**

STEP 2 — EXTRACTING THE CORE

Bend the rope sharply at Mark X. With a pusher or any sharp tool such as an ice pick, awl, or marlin spike, spread the cover strands to expose core. First pry, then pull the core completely out of the cover from Mark X to the taped end of the rope. Put 1 layer of tape on the end of the core.

Note: Do your best to avoid overstretching the cover strands.

To assure correct positioning of Mark 1 do the following:
Holding the exposed core, slide cover as far back as possible toward the tightly tied slipknot. Then, firmly smooth the cover back from the slipknot toward the taped end. Smooth again until all cover slack is removed. Then, mark the core where it comes out of the cover. This is Mark 1.
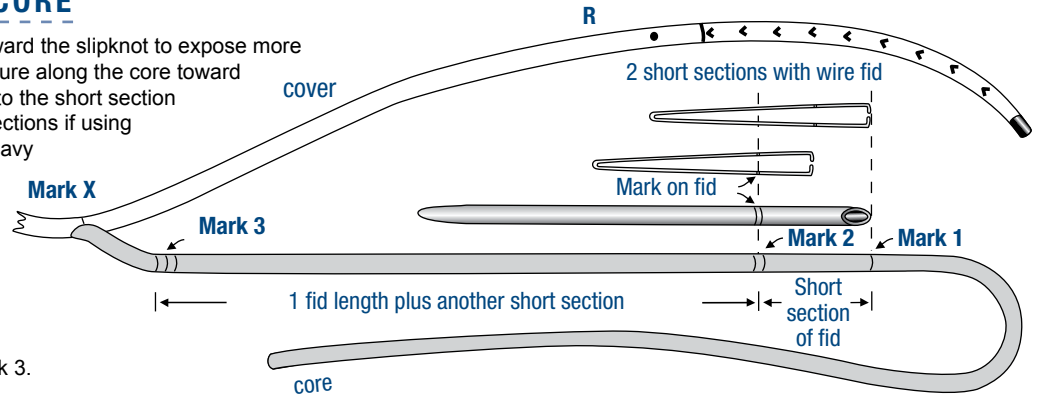
Prying out the core

cover

R

1 layer of tape

core

Mark X

Mark 1

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STEP 3

MARKING THE CORE

Again, slide the cover toward the slipknot to expose more core. From Mark 1, measure along the core toward Mark X a distance equal to the short section of a tubular fid (2 short sections if using a wire fid) and make 2 heavy marks. This is Mark 2.
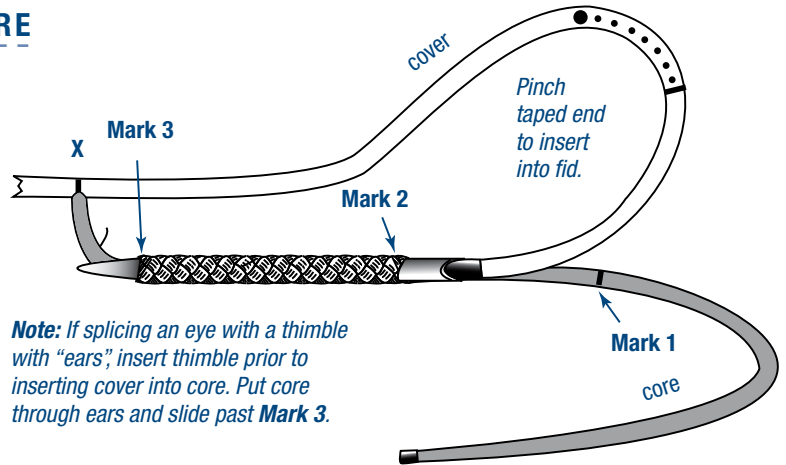
From Mark 2 measure in the same direction 1 fid length plus another short section of the fid (with a wire fid, double measurements) make 3 heavy marks. This is Mark 3.

STEP 4

REINSERTING COVER INTO CORE

Insert the fid into the core at Mark 2. Slide it through and out at Mark 3. Add extra tape to the cover end then jam it tightly into the hollow end of the fid (see diagram). Hold core lightly at Mark 3, place pusher joint into taped end and push fid and cover through at Mark 2 and out at Mark 3. (With a wire fid, first press prongs into cover, then tape over. Then, after fid is on, milk braid over fid while pulling fid through from Mark 2 to Mark 3.)

Take the fid off the cover and continue pulling cover tail through the core until Point R on the cover emerges from Mark 3. Then remove the tape from the end of the cover.
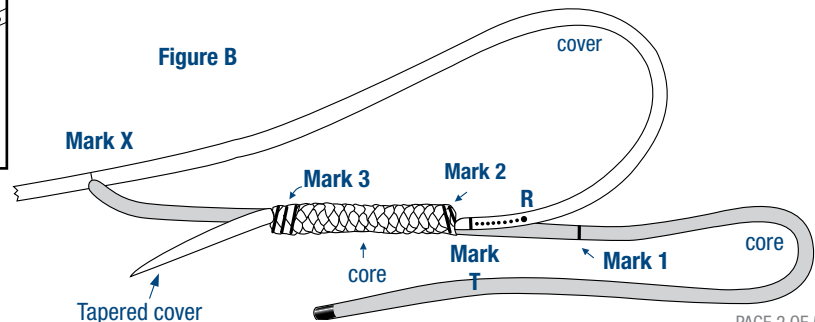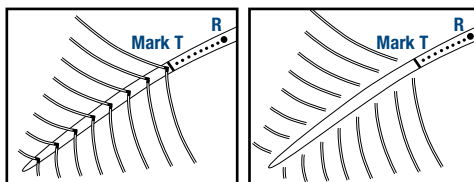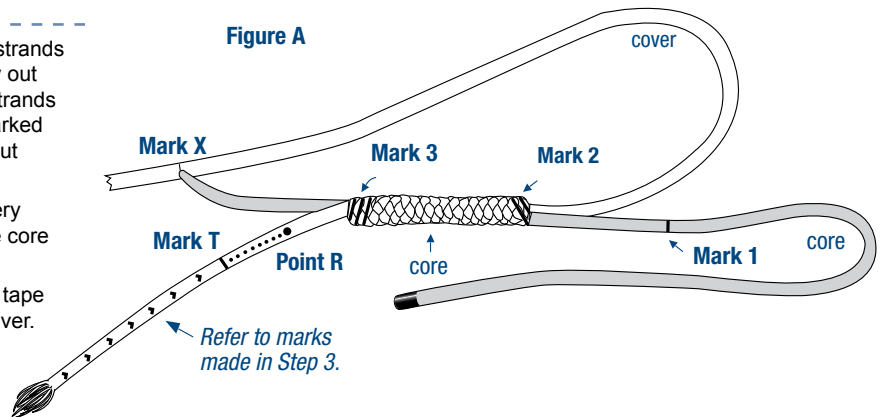
*Note: If splicing an eye with a thimble with "ears", insert thimble prior to inserting cover into core. Put core through ears and slide past **Mark 3**.*

STEP 5

PERFORMING TAPER

Start with the last marked pair of cover strands toward the end, pull one pair completely out (Fig. A). Cut and remove next marked strands and continue with each right and left marked strands until you reach Mark T. Do not cut beyond this point.

The result should be a gradual taper. Very carefully pull the cover back through the core until Mark T emerges from Mark 2.

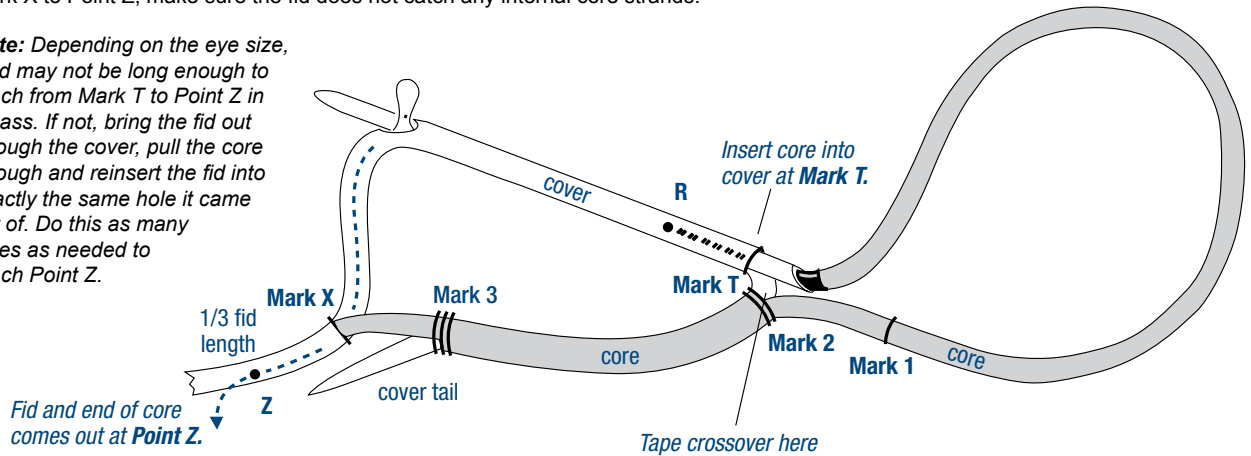Leave the tapered cover tail out. Tightly tape Mark T and Mark 2 to secure the crossover.

Figure A

Refer to marks made in Step 3.

Figure B

Double Braid Class I Eye Splice

THE STRONGEST NAME IN ROPE

STEP 6 — REINSERTING THE CORE INTO THE COVER

From Mark X on the cover, measure approximately 1/3 tubular fid length toward the slip knot on the rope and mark this as Point Z. Insert the fid at the point where the strands closest to Mark T were removed for the taper in Step 5. Jam the taped core end tightly into the end of the fid. With the pusher, push the fid and core through the cover tunnel, past Mark X and through the cover at Point Z. Alternatively, you can use tape to fasten the taped core end to the fid and feed the fid towards Point Z. When pushing the fid past Mark X to Point Z, make sure the fid does not catch any internal core strands.
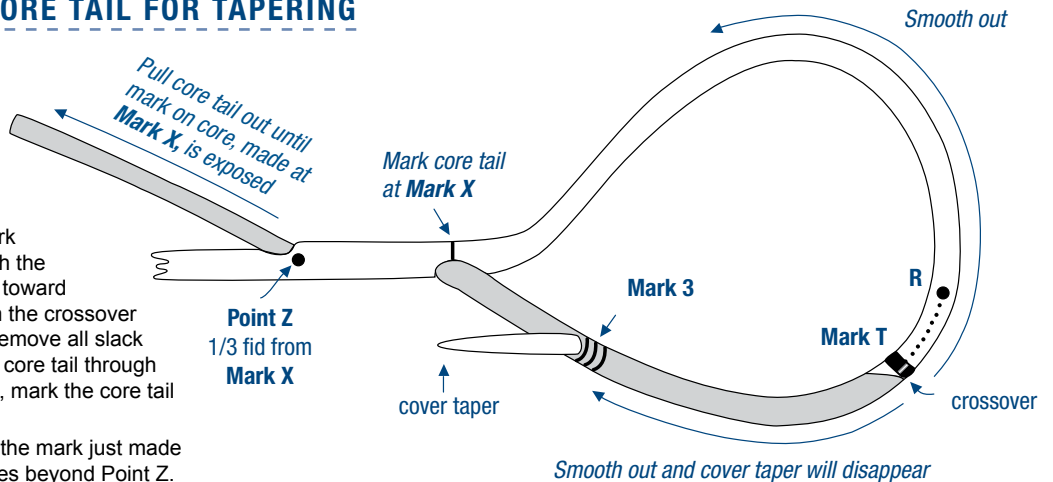
Note: Depending on the eye size, a fid may not be long enough to reach from Mark T to Point Z in 1 pass. If not, bring the fid out through the cover, pull the core through and reinsert the fid into exactly the same hole it came out of. Do this as many times as needed to reach Point Z.

Insert core into cover at Mark T.

cover R

Mark X Mark 3 Mark T

1/3 fid length

core Mark 2 Mark 1 core

Fid and end of core comes out at Point Z. Z

cover tail

Tape crossover here

STEP 7 — MARKING THE CORE TAIL FOR TAPERING

Pull on the core tail at Point Z, then pull on the tapered cover at Mark 3. The crossover should be tightened until it is approximately equal to the diameter of the rope. With the crossover at Mark T held tightly, smooth both the cover from the crossover toward Point Z and the core from the crossover toward Mark 3. This will remove all slack in the eye area. Mark the core tail through the cover at Mark X. Also, mark the core tail where it exits at Point Z.

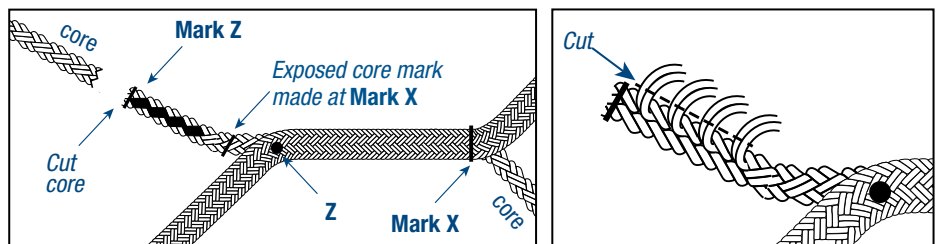Pull the core tail out until the mark just made at Mark X is about 6 inches beyond Point Z.

Smooth out

Pull core tail out until mark on core, made at Mark X, is exposed

Mark core tail at Mark X

Point Z 1/3 fid from **Mark X**

cover taper

Mark 3

R

Mark T

crossover

Smooth out and cover taper will disappear

7A — TAPERING THE CORE TAIL

Cut the excess core tail off at the exposed mark previously made at Point Z.

Mark the core strands for tapering based on the core construction.

- 8-strand core
- 12-strand core
- 16-strand core

Note: Each strand may be comprised of 1 or more yarns

8-STRAND CORE: Starting from the cut at Mark Z. Mark 4 consecutive right or left strand pairs. Pull out marked strands and cut at the mark (tape at the core end may cause resistance and should be removed). When complete half of the core strands should have been cut. Milk the cover over the tapered end until it disappears into the rope.
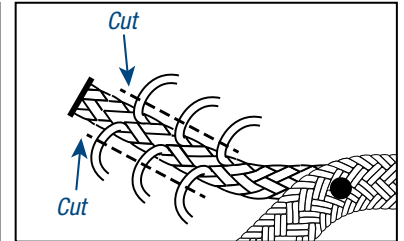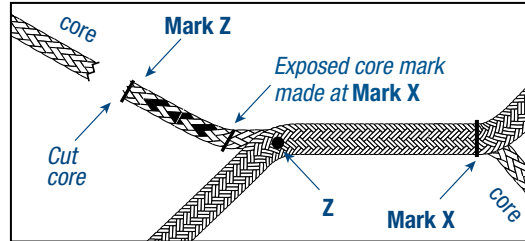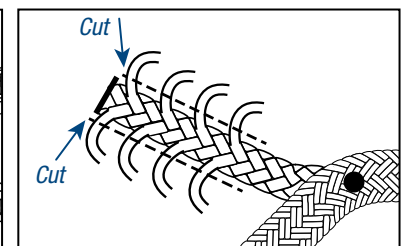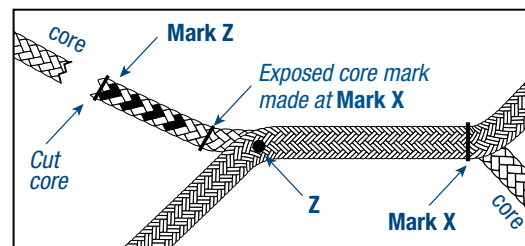
core **Mark Z**

Exposed core mark made at Mark X

Cut core

Z **Mark X** core

Cut

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7A TAPERING THE CORE TAIL *Continued*

12-STRAND CORE: Mark every second right and left pairs of strands toward Mark X on the core, for 3 strands. Cut every marked strand and pull out of line (tape at end can cause resistance and may have to be removed in order to pull out cut strands.) Tapered end will now have only 6 strands remaining. Milk cover over tapered end until it disappears into the rope.

16-STRAND CORE: Starting from the cut at Mark Z. Mark every other right and left strand toward Mark X for 4 pairs. Pull out marked strands and cut at the mark (tape at the core end may cause resistance and should be removed). Tapered end will now have only 8 strands remaining. Milk the cover over the tapered end until it disappears into the rope.
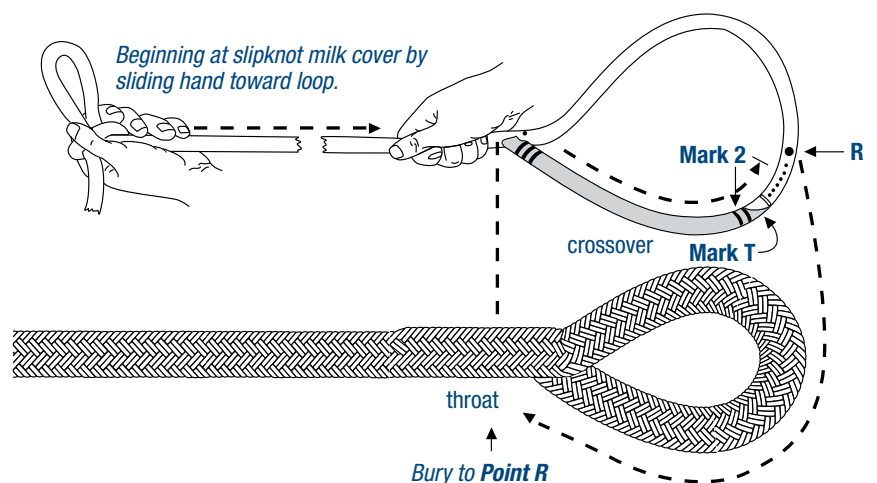
STEP 8 BURYING THE EXPOSED CORE

Hold the rope at the slipknot and with the other hand milk the cover toward the splice. The cover will slide over Mark 3, Mark 2 and crossover Mark T up to Point R (it may be necessary to occasionally smooth out eye during milking to prevent reduced volume tail catching in the throat of the splice.)

If bunching occurs at the crossover preventing full burying, smooth cover from Mark T to Mark X. Grasp crossover at Mark T with one hand and then firmly smooth cover slack (female side of eye) with the other hand toward the throat (Mark X). Repeat as necessary until bunching disappears. Remove tape from crossover.

Continue milking until there is no cover slack between the knot and Mark X.

See next page for a tip before burying the core.

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TIP: BEFORE BURYING THE CORE

A. Anchor the loop of the slipknot by tying it to a stationary object before starting to bury. You can then use both hands and the weight of your body to more easily bury the cover over the core and crossover (see Fig. A and B).

B. Holding the crossover tightly, milk all the excess cover from Point R to Mark X.

Flex and loosen the rope at the crossover point during the final burying process. Hammering the cover at Mark X will help loosen the strands.

With larger ropes it is helpful to securely anchor the slipknot. Attach a small line to the braided core at the crossover and mechanically apply tension with either a block and tackle, capstan, come-a-long, or power winch. Tension will reduce the diameter of the core and crossover for easier burying (see Fig. A).

In order to prevent no-load opening of your eye splice, Samson recommends lock stitching the eye.
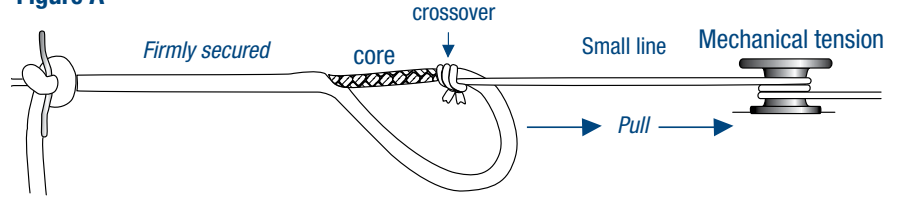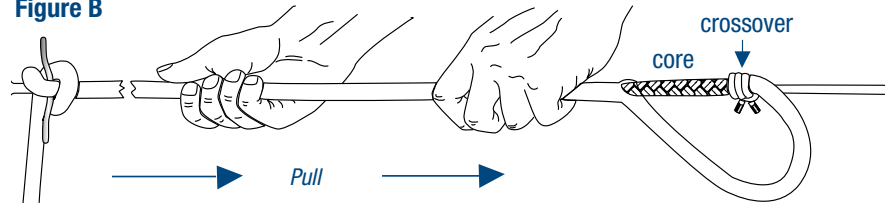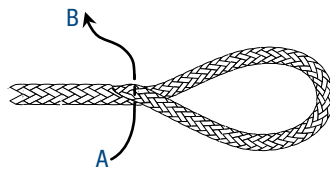
Figure A

Firmly secured • core • crossover • Small line • Mechanical tension • Pull

Figure B

Pull • core • crossover
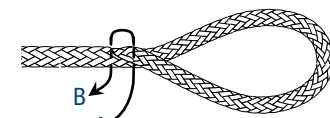
Lock Stitching Procedure

STEP 1
Pass stitching twine through spliced area near throat of eye as shown.
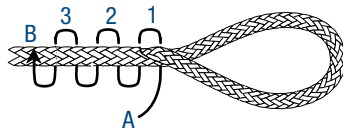
STEP 2
Reinsert twine through the rope. The twine should cover 2 strands from the exit point. Pull the twine snug, but not tight.
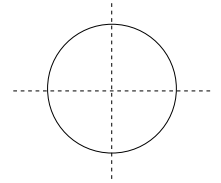
STEP 3
Continue to reinsert as shown until you have at least 3 complete stitches on each side of the rope. Each stitch should cross over 2 strands in the rope.

STEP 4
After completing Step 3, rotate spliced part of rope 90° and reinsert end A into spliced area in the same fashion as in Steps 1, 2 and 3. The splice will now be stitched on 2 planes perpendicular to each other. Make sure you do not pull the stitching too tight.

STEP 5
After stitching at least 3 complete stitches as in Step 3, extract both ends of the twine together through the same opening in the braid. Tie them together with a square knot and reinsert back into braid. For double braids, re-insert the knot between the cover and core.