



## 10 tips for onboard sail repair

**To be truly self-sufficient you need to be able to mend your sails wherever you are**

by George Day

### The bosun's bag

- Sailmaker's palm
- Variety of needles
- Sailmaker's thread
- Seam ripper
- Awl
- Vise grips
- Scissors
- Hot knife
- Straight edge
- Ample sailcloth of various weights
- Roll of webbing
- Roll of insignia cloth/tape
- Roll of Dacron/tape
- Prestretched cord
- Roll of seamstick (standard)
- Roll of seamstick (3M 950)
- 3M 5200 Fastcure
- Spare sail slides
- Spare batten (longest length)
- Spare O- and D-rings
- Grommet press
- Spare grommets of various sizes
- McLube spray lubricant
- White rigging tape

**W**e knew our old mainsail was in borderline condition when we set off from the Canary Islands bound for North America. The old sail had served us well for five years of tropical cruising and had driven our Mason 43 more than 30,000 miles. But the Dacron panels were getting so soft and the stitching so brittle that we kept our fingers crossed every time we jibed or let the sail flog for a moment.

It finally started to come apart in the mid-Atlantic when we were hit by a series of blustery trade-wind squalls. First one seam, then another began to unzip, leaving the sail looking like louvered blinds. Luckily, the Dacron panels, tired though they were, did not tear. The stitching was another matter.

Out came the bosun's bag, the sail thread, needles, palm and vise grips, and inch by inch we began the laborious process of re-stitching the panels together. All told during that 20-day passage we re-stitched more than 60 feet of seam, one backstitch after another. By the end we were getting pretty good at it. But there wasn't an hour spent with the needle and palm that we didn't pine for a sewing machine.

Over our time at sea we have mended many spinnakers that have blown out or been dragged under the boat; we have re-stitched mainsails and genoas, and repaired many a batten pocket. Although not sailmakers, we are heavy sail users and thus have had to develop a few basic skills to keep sails in working condition and the boat moving.

Most of our cruising and offshore racing friends have similar experiences and most, in time, develop a few skills in the sailmaking line. For most of us, the goal is to keep the sail together long enough to find a trained sailmaker down the road. For some, the craft of sail repair becomes an avocation as they learn the art. That is why it is common to find cruisers out there who are not only capable sailmakers and repair artists but also creative builders of dodgers, Biminis, awnings and dinghy covers. For the truly handy, basic sail repair can evolve into a fine way to maintain the cruising kitty.

But for most, simple stop-gap sail repairs are all we ever aspire to. The following few tips are designed to help you get home without having to motor all the way.

Photos courtesy of Sailrite

## Carry the right tools

The list of tools you may need to affect a repair at sea or in a remote anchorage is quite long (see the sidebar “The bosun’s bag”). There are several specific tasks you will need to undertake and the tools should fit the job. A lot of the work will have to be done by hand and in most instances you will be repairing a seam or a tear with stitching and a patch. Adhesives, seamstick and spare sailcloth in different weights should be on hand as well as a variety of hand tools including a sailmaker’s palm, various weights of thread and various sizes of needles. Vise grips and a sharp awl will help you get a stitch through multiple layers of cloth. A grommeting tool, spare grommets, spare O- and D-rings and sail slides all belong in the bosun’s bag.

## Sewing machines

Years ago offshore sailors used to scrounge through thrift stores and antique shops for hand-crank Singer sewing machines; some would even convert a treadle Singer by adapting a hand crank to the machine. Today the sewing machine of choice is supplied by Sailrite. Their machines are powerful, robust and designed to withstand the unfriendly marine environment. If you have 110 or 220 volts aboard, an electric machine will make repairs easy. But if you are a back-to-basics type,

then a hand-crank machine will suffice. We have sailed with and without sewing machines aboard and would always prefer to have one when the time comes to undertake major repairs.

## Understand your sails

To make repairs that work you need to understand how your sails were built in the first place and which direction the major loads flow through the sail. Before you set out spend some time with your sailmaker, who will be able to show you how the woven or laminated panels are put together and the how the heaviest stress loads are carried by the fabric, seams and laminations. He or she will also be able to recommend (and sell you) the weights of spare sailcloth you should carry and the supplies of seamstick (double-stick tape) that will help in many repairs.

## Bring knowledge with you

For our money four books on sails and sailing have places on any cruiser’s bookshelf. For sail care Dan Neri’s *The Complete Guide to Sail Care & Repair* and the more traditional *The Sailmaker’s Apprentice* will impart all of the knowledge and techniques you will need. If you are interested in really delving into how sails work, Wally Ross’s *Sail Power* remains the classic

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**Joyce Morin uses a Sailrite LSZ-1 sewing machine to repair her torn genoa after a squall in the Tuamotu atolls of French Polynesia**

while Brian Hancock's *Maximum Sail Power* offers a completely modern and in-depth treatise on sail design, cloth, sail technology and advanced sail trim. Armed with these four books, you will cruise with the combined knowledge of some of sailing's best sailors and sailmakers.

### Three basic stitches

Old seamen will have mastered a wide repertory of stitches from the days of cotton sails and iron men. Today these three stitches will do for most of us. The idea behind these stitches is to make them simple, redundant and strong, so all three require a certain amount of backstitching—i.e., passing through each needle hole twice in the same direction which doubles the thread and tends to lock the stitch in place. The straight backstitch works fine on seams, leech covers and vertical panels where the load is carried parallel to the leach. The Herringbone stitch is used to close small tears in the fabric without using a patch; the stitch starts and ends a

half-inch outside the tear and then snakes from side to side of the tear with stitches at small intervals and each stitch locked with an overhand knot. The zigzag stitch, which your sewing machine will do wonderfully, is a little tougher by hand because the zigs and zags need to be doubled to build in the strength and tightness the job needs. The zigzag is good for seams and for the edges of patches that will be perpendicular to the loads on the sail.

### Cleaning the sail

Sailcloth tends to become impregnated with salt and dirt and will hold moisture and mildew even in the bright sun. To get anything to really stick to sail cloth—such as a sticky patch—you will need to clean the area of the sail as well as possible. Diluted laundry detergent works fine as does Woolite when used with a stiff brush and then rinsed and dried thoroughly. For surfaces that are to be glued, author and sailmaker Dan Neri recommends cleaning the surfaces with acetone that is applied and then wiped off with a clean cloth; we have not tried this but will defer to Dan's extensive knowledge and experience.

### Patches

You can make a patch from cloth of similar or slightly lighter weight as the sail or sticky-back fabric (often called insignia cloth). In our experience, sticky-back fabric does not have enough "stick" to patch the sail without stitching.

### Adhesives

We have all heard tales of cruisers who have come home on duct tape, contact cement and a prayer. The better choices for adhesives used in sail repair will be 3M's double-sided 950 tape and 3M's 5200 Fastcure. Both are stronger than the fabric being joined; and both are messy to use and require attention

to spills and oozes. Surgical gloves will help keep these mighty goops out of your hair.

### A basic patch

If you have a straight tear in the sail you can fix it with simple glued patches on either side of the sail. Clean the area around the tear and dry it thoroughly. Cut two pieces of sailcloth (slightly lighter weight than the sail) and apply either 950 seamstick or 5200 to the patches. Put a piece of plastic wrap or tin foil under the sail and then apply the first patch, pressing out air bubbles and trying to avoid getting the goop everywhere. Framing the patch with tape that can be peeled away after gluing will help in the cleanup. Flip the sail over and apply the second patch. The goop will cure in an hour or so.

### A big patch

If you have a long tear or a jagged tear you will have to apply a larger single patch and then cut away the torn area. Cut the patch using the hot knife to seal the edges and then place it over the tear and stick it in place with doublesided tape (seamstick). The patch can then be sewn in place by using either your sewing



**Carrying a sewing machine aboard makes cruisers even more independent**

machine and a double row of zigzag stitches or by hand with a single row of zigzag (on the inside) and a single row of backstitches (on the outside). Flip the sail over and cut away the area of the sail inside the zigzag line of stitches on the patch using the hot knife to seal the newly cut edges.

Getting acquainted with the skills outlined above won't transform you into a sailmaker, but you will learn a lot about your sails and you will know that you will be able to sail home even if the sails are damaged.

An advertisement for Outbound Yachts. The background is a photograph of a white sailboat with a large white sail, sailing on a blue sea under a cloudy sky. The boat has an American flag on the stern. The text is overlaid on the right side of the image.

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