

Outfitting a Kayak: Rigging Seats and Seatbacks

By Ralph Heimlich

I am currently outfitting a new (to me) kayak and thought it might be useful to the larger community to share the process through a series of articles. This is the 10th or 12th boat I've outfitted, so I've learned a few things from many mentors and through experience itself.

Seats and seatbacks are one of the most important parts of outfitting your kayak because they largely determine just how comfortable (or uncomfortable) you will be over long periods of time in your boat. One of the first principles of outfitting kayaks is that all kayaks need a seat, but you DON'T have to settle for the seat that is currently in your kayak. It is usually (but not always) easy to remove one seat and install another, as long as it fits in the cockpit. Seat backs are even easier to replace.

Seats—Probably the simplest seat, and one used a lot with DIY boat builders, is a simple slab of closed cell foam about 2" thick and cut to fit into the kayak cockpit (A). It is then "carved" using [surform tools](#), knives, or other edged weapons to fit contours of your derriere. It may or may not be covered with some fabric, usually synthetic rayon or Dacron, secured using spray-on fabric adhesive, and helps protect the foam from ripping and tearing. The finished seat is then glued to the bottom of the kayak using simple contact cement. One step up from this is a commercial product (see sources below) that is closed cell foam finished with a tougher exterior plastic and usually incorporating side buffers that are glued onto the sides of the kayak to help reduce lateral movement of your body in the boat (B).



One of the big innovations of composite and roto-molded kayaks was the incorporation of a built-in "butt bucket" or molded fiberglass or polyethylene seat (C). These can be molded directly into the boat and not removable (without a saw), or molded separately and hung from seat hanger tabs molded into the boat, attached with nuts and bolts. These seats are handy, but have a few drawbacks: They are HARD and your butt gets numb sitting on them for long; they can be slick and you can slide side to side as you edge, brace and roll your kayak, and; they hold water, so you can end up sitting in a puddle for much of the day. Ameliorating these issues is pretty straightforward. They can be padded by contact cementing a thin (1/4" or so) thickness of closed cell foam to the seat surface, which also serves to increase friction and reduce sliding around. You can also use various thicknesses of closed cell foam to pad the space between your outer thigh and the seat hanger, thus giving you a much closer fit into the seat. Finally, you can drill holes in the fiberglass or polyethylene seat in several places to drain any water that ends up in the seat. Note to self: DON'T DRILL THROUGH THE BOTTOM OF THE BOAT! For many of these operations (especially the drilling, it may be advantageous to unbolt and remove the seat, do the work, and reinstall the outfitted seat.

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Finally, innovation in the kayak industry has resulted in a plethora of more or less complicated “mechanical” seats that incorporate foam padding, various ergonomic adjustments forward and back and with the thigh support going up or down, etc (E). These are often quite expensive to procure (\$150-\$500), of somewhat dubious value as far as I’m concerned and can be devilishly difficult to fit and secure in your kayak. I treat them generically because the devil is in the details of each particular brand and you need to do your homework on the manufacturer’s websites and customer support to insure that you can actually get it into your boat.

In addition to seats *per se*, the aftermarket industry has developed another whole flood of cushions that are attached TO the seat to make you more comfortable (or miserable). These run from simple foam pads, gel foam pads, integrated seat bottom and back cushions, inflatable cushions that can be adjusted, and on and on. The attachments are various webbing, snap hooks, bungees, etc. My general take is that this is just one more thing to keep track of, especially when you capsize. They shift around and are never quite where you want them, and won’t stay there for long if you ever do get them in the right place. In my opinion, it is worth far more effort to get a comfortable basic seat than continually experiment with a variety of dubious (and expensive) add-on solutions.

Removing and installing a new seat—Obviously, with this many options, this article cannot get into any details. A few generalities are in order. Glued-in seats can be removed, but it isn’t easy. If it is just a foam seat and you are replacing it, you can cut chunks out until you get to bottom of the boat, where you will have to scrape or sand. Generally, there is nothing that will release a well-done contact cement job. Sometimes fiberglass or hard plastic seats are glued onto foam that has previously been glued to the kayak bottom. Removing them is a two-step process and you need to take care not to muscle them too much if you want to reuse the hard seat part and to not damage the bottom of the hull. Installing new foam seats or foam pieces is a simple matter of good contact cement practice (proper cleaning of the area to be glued, working in the right temperature range, several applications of the cement with appropriate drying time, careful placement since you have zero working time and movement with contact cement). Once it grabs, it is there for good.



Removed bolted-in molded fiberglass seat showing support block and glue

By far the easier job is to remove a seat that is bolted unto seat hangers molded into the hull of the kayak. These should have used stainless steel bolts or screws with a nylon insert nut at the back and one or more stainless steel washers. If someone use regular old hardware store nuts and bolts (zinc, etc.) and they have corroded, it may take a liberal application of penetrating oil and elbow grease to get the rusted-on bolts and nuts to come apart. Let the lesson be learned!

Once the old seat is out, if you are installing another bolt-in seat, the main issues are getting holes to line up correctly and making sure the seat is properly supported underneath so it doesn’t stress and crack. Generally, at least one of the sets of holes will line up (two if you are lucky), and you may have to drill another hole into either the seat hanger tab, or the seat to have a second bolt. Two bolts on each side are all you need. If the new seat sits off the deck quite a bit (more than 1/2”) you may want to glue some small closed cell blocks to the bottom of the seat to support the seat a bit and prevent stress and cracking. For both types of seats, it is a good idea to ensure some drainage space fore and aft so water can move freely under the seat.

Seat Backs—Generally, folks want some kind of a back support to increase comfort while paddling. This can range from a solid block of closed cell foam glued in the center of the back of the seat (see A above) and carved to fit your lumbar region (minimalist) to fixed, high back seat backs with a variety of adjustments. Most newbie kayakers think they want a great big high seat back like a Lazy Boy recliner, but the reality is that anything protruding above the cockpit rim endlessly gets in your way and causes all kinds of headaches (you can’t put on your spray skirt, you can’t put on a cockpit cover, you can’t lay back enough to brace or roll, when you self-rescue, the seat back gets in the way of reentering the cockpit, etc.).

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The most common back rest is a simple suspended back band about 6" tall and 12-16" long that is suspended by two webbing straps (with adjustments) attached to the seat bolts on the seat hanger and held up by a loop of bungee secured between 4 loops on the back of the back band and a pad eye or other fitting on the back bulkhead. In terms of outfitting, this is the most common issue with seats and seatbacks that I see in folk's boats. In particular, the back band is not sufficiently suspended so it constantly droops, turns or flattens when you sit down in the seat. Over time, the fabric cover on the back band can wear and need to be replaced, often with the stiff plastic and closed cell foam cushioning still in good shape. Again, a good synthetic fabric (I've used remnants from the fabric store or scraps of ballistic nylon from other projects) can be used to re-cover the back band with a minimum of sewing.

Another type of back band is a flexible piece of plastic with foam glued onto it (B, F). This is attached via holes to the seat belts and forms a solid U-shape that accommodates the lumbar region of the back. It is also usually bungeed to a pad eye on the aft bulkhead. This gets around some of the problems of back bands twisting or flattening, but some people don't like the confining edges of the plastic, and it can be difficult to get the right length to give a comfortable shape.

Some seats come with an L-shaped metal bracket that is bolted onto a hard backing and a foamed seat back (D, E). This may have an adjustment that lets it be pulled up and laid down on the seat, or it may not. These fixed seat backs overcome the issues with loose back bands, but they can get in the way for self-rescues, the metal is often not corrosion-proof and deteriorates rather quickly, and parts can come loose and break off.

What I Did with My Kayak—Because there are so many options outlined above, I'm going to provide pictures and step-by-step discussion of what I did to outfit my kayak seat and back band.

The hard fiberglass factory seat in my kayak needed to be padded and have drainage holes drilled, and the nearly-new back band was not adequately supported. I toyed with the idea of replacing the back band with a padded U-shaped plastic one, but the only one I had didn't fit the curve of the seat very well. I unbolted and removed the seat from the boat in order to work on padding and drilling. In addition to the six bolts holding the seat, it was glued to a foam block in the front to support the seat and glued to the bottom of the hull. I had to pull and use a scraper to loosen the glue, then use a razor knife to remove all the old glue from the foam block and the bottom of the seat.

In order to cut the seat padding to shape, I recommend using a piece of heavy paper cut to the size of the closed cell foam sheet you have. It is easier to lie this in the seat, tape it in place, and trace the desired shape of the padding. You need only do one side, then fold the paper in half and cut to get a symmetrical pad. This is then secured to the seat using contact cement, following the directions on the can (I use one coat, drying for 15 min, followed by a second coat drying for 5 min, on both surfaces).

Once the seat pad is securely installed, you can then drill a series of drainage holes from the bottom of the seat through to the top and through the foam. Don't make the holes too large or you will feel them when you sit. You also don't want small objects going down the holes and getting caught under the seat (like the bolts and nuts that hold the seat on). Once the holes are drilled and any rough edges in the seat or foam



Cutting and installing foam pad: Roll of 1/4" closed cell foam, heavy paper for pattern, pattern traced and cut, pad cut but not glued. Note foam for seat bottom back cut but not glued.

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padding sanded smooth, reinstall the seat in the most comfortable position for you. You can move the seat forward or aft a bit to improve the trim of the kayak, but in order to accomplish this you really need to have the kayak in the water. If you have issues with the foot pegs or rudder pedals being too far forward or aft to adjust easily, you may want to move the seat forward or aft a bit to reduce those problems.

My back band has two straps with plastic adjustment buckles and brass grommets to attach to the seat bolts, and four webbing loops on the back to attach the bungee that secures to a pad eye screwed into the back bulkhead.

Having attached the two straps to the seat hangers with the seat bolts and adjusted the straps to get a comfortable fit, I was ready to place the bungee support to keep the back band in position. I ran the length of bungee through the pad eye, making both ends even, then ran the ends through the lower webbing loops on the back band, back to the pad eye, then through the upper loops on the back band, pulling everything taut to properly support the back band in an upright position, and tied them off with a square knot. I left the excess bungee rather than cutting it off exactly since I might want to change the adjustment of the bungee support in the future.



Removed seat with glued-in pads and drainage holes drilled.



Loose bungee on back band; Detail of bungee support for back band; Installed seat with pads, properly supported back band and "If found..." sticker.

Another topic related to the cockpit concerns safety "If found..." stickers. These are safety-orange rectangles that self-adhere to the inside cockpit or exposed front of the back bulkhead and provide contact information to the Coast Guard or other rescuers who find a lost boat adrift. By putting your name, telephone number and email on this sticker, authorities can determine if you are alive or the object of a potentially costly and dangerous search and rescue mission. While on the subject of lost boats, one thing you should definitely do is record the [Hull Identification Number \(HIN\)](#) generally stamped or engraved on the right rear stern of your kayak. This 12-digit number identifies the [manufacturer](#) (1st 3), serial number of the hull (next 5), date of manufacture (next 2) and last two digits of the year built. You should record this number, along with details of the boat and purchase, and keep it in a safe place in case your boat is ever stolen or severely damaged. It can definitely help prove your claim of ownership to law enforcement and insurance authorities if the need arises. I also record and keep details of boats I've sold or given to others. DON'T wait to do this, since the info won't be available if you lose your boat! Another trick is to write your name and phone number in permanent marker on the **UNDERSIDE** of the deck just forward of the front hatch. You may need a mirror to successfully do this. Having it there is proof positive that you own the boat in case it is stolen or lost.

Sources:

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