

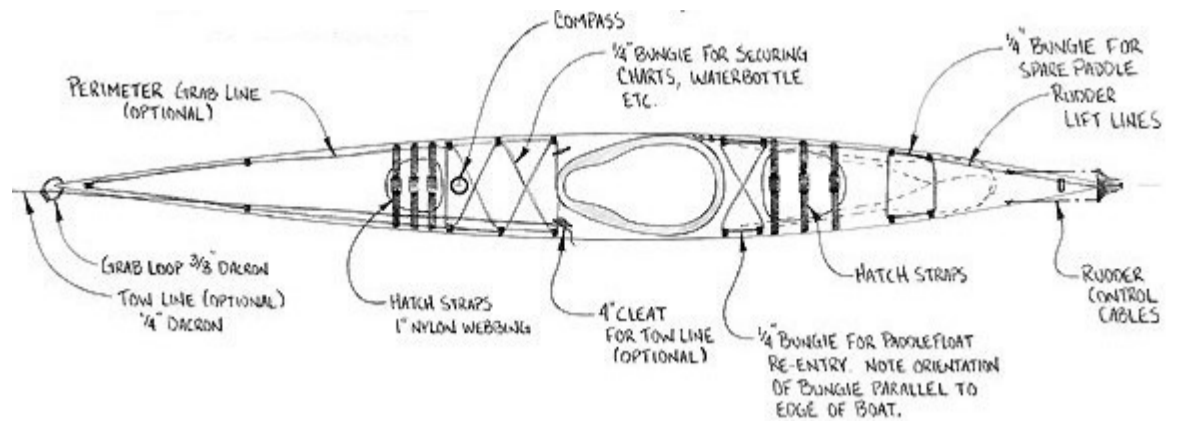
## Outfitting a Kayak: Renewing Your Bungees

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 10<sup>th</sup> or 12<sup>th</sup> boat I've outfitted, so I've learned a few things from many mentors and through experience itself.

Bungee (or shock cord) is a generic term for stretchy line that is used to hold items on your kayak deck. In outfitting kayaks, there is a distinction between the perimeter (static, non-stretchy) lines and the bungees (stretchy) lines on your deck. They serve different purposes and should not be thought of as interchangeable.

**Perimeter Lines: a digression:** I'm not going to deal with static, perimeter lines anywhere else, so permit a slight digression to get them out of the way. The reason for perimeter lines is to give you and others something on your boat to hold onto in an emergency or a capsize. They should be non-stretchy, static line that is secured at multiple places along both sides of the deck, usually at the edge. The fixtures they are secured or run through should be capable of taking moderate strain since they will be jerked around a bit by someone holding onto them while in the water. The line should be something that doesn't stretch (the Dacron polyester referenced in the Painter article is a good choice), and should not degrade too quickly under the sun's UV radiation, or rot in wet conditions (hence nylon, most polypropylene, cotton, hemp, etc. are poor choices). Many manufacturers don't provide enough perimeter line, often only at the very tip bow and stern. I advocate for full length perimeter lines (perhaps except for the very cockpit itself) since you need to be able to hang onto the boat when you capsize anywhere along its length, on both sides. Perimeter lines should not be so tight that you can't get your (gloved) fingers under them easily, but should not be so slack that they snag objects easily either. Enough said about perimeter (static) lines.



**Bungee:** Bungee is a bundle of long rubber strands covered by an abrasion-resistant braided fabric cover. Some of the same arguments about material for painters and static lines apply to the bungee cover material: It should hold up to the sun's UV radiation, salt and water and not rot. I have seen some people use solid rubber bungee, but I've seen too many solid rubber cargo bungees break catastrophically with no warning to want to trust them. Bungee comes in many diameters from 1/16" up to 1/2" or even larger. For kayak decks, the best size is 3/16" to 1/4" in diameter, and most deck fittings are made to fit this size. You should look for something like "Marine grade" for the covering, and that usually means Dacron polyester vs. cotton, polypropylene, nylon, or other materials (see sources at the end of the article).

**Color and Reflectance:** You can get suitable bungee in a wide variety of colors. Choose something that complements your kayaks colors, but the bungee should contrast with the deck color for easy visibility. One feature I like in deck bungee is Nite-iez, or reflective material, woven into the fabric covering. This will brilliantly reflect light back and make the bungees easier to see, and positively blazing if someone (a rescuer?) shines a light on it. Also helps to keep from tripping over beached boats when kayak camping.

**Deck Fittings:** It would be nice if kayak deck fittings were standardized, but innovation has led to a wide variety of ways to secure perimeter lines and bungee to the kayak. Different methods have strengths and weaknesses, so there is no "one best" deck fitting. It is probably not feasible to switch from one method to another because many of the features are molded right into the deck and can't easily be changed. Look at your boat...you are kinda stuck with what you've got.

Two basic types are **raised** (above the deck level) and **inset** (molded or cut into the deck surface).

**Raised deck fittings**—These can be pad eyes of various metal or plastic materials, cross- or T-shaped line guides, rings, or other types of fasteners that sit above the deck level. One strength is that they are easily interchanged or replaced. A major drawback is that the protruding fitting snags stuff, especially stuff on your PDF as you do rescue maneuvers. Another drawback is that the rivets, screws, bolts or other hardware securing the raised fittings pierce the hull, providing a potential leak point. This is usually ameliorated by using rubber washers or gaskets outside and inside the hull where the fastener (rivet head, nut, etc) is secured. Sometimes these can be difficult to access inside the hull if a leak develops.

**Inset deck fittings**—These are generally little semi-circular divots molded into the hull when it is manufactured. They may have a solid metal bar molded in at the same time, or may have a cross-, T- or other shape plastic or metal piece secured by nut and bolt through the hull. One system used by QCC kayaks was a 3/4" hole drilled in the hull and filled with a proprietary metal or plastic plug with a cross bar. This was great, until the glue holding the plug deteriorated and tugging on the line popped it out of the hull leaving a bloody great hole in your boat! When rigging with inset deck fittings it is sometimes difficult to work the bungee (or perimeter line) through the opening provided, especially if there are several lines and bungees using the same fitting. Those secured with a nut and bolt can be loosened for rerigging, but be sure the rubber washer or gasket is in place when you finish to prevent leakage.



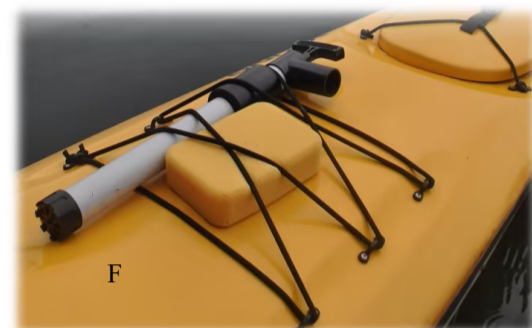
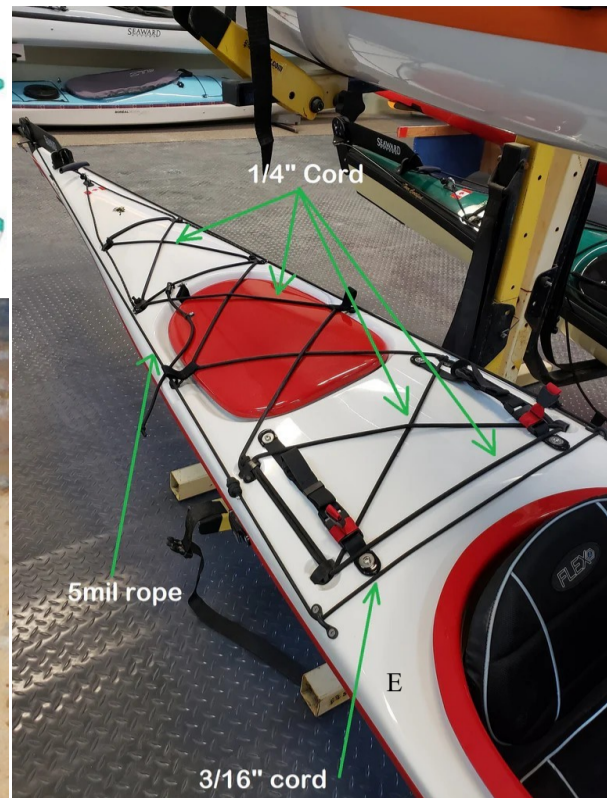
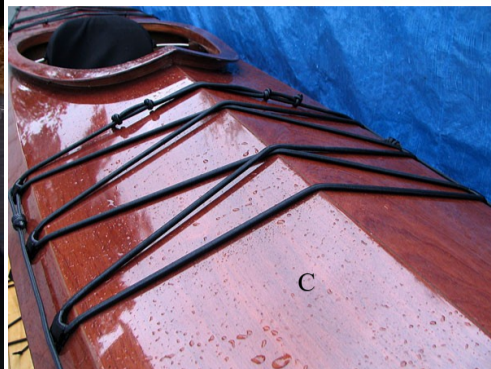
Variety of deck fittings, 1st row l. to r. metal pad eye, plastic pad eye, low-profile plastic pad eye, raised single-hole loop, raised 2-hole loop, raised ring, 2nd row raised mushroom line guide, raised round line guide, raised 4-hole line guide, inset 2-hole line guide, 2-hole line guide detail.

**Measuring Bungee:** Don't be too quick to pull off the old bungee, even if it is pretty decrepit. First, take some pictures of the way it is rigged, where it is secured and how it leads from one fitting to another. You don't necessarily have to repeat the same pattern, but if it has been working for you, it may be best to rerig it the same way rather than dream up something more complicated. Next, remove the old bungee, being careful not to cut it off. You can measure this old bungee to get a rough idea how much bungee to purchase for replacement, adding a generous safety measure (say 10-15%). Even short pieces of bungee can be useful for other projects, like paddle parks or for securing rudders during transit, etc.

**Bungee Patterns:** The way the bungee is laid out on the deck and secured from point to point is the pattern. Most kayaks have a two- or three- part criss-cross pattern just in front of the cockpit and one or two parts behind the cockpit, with some other pieces possible at the bow or stern for securing spare paddles or other gear (paddle parks; see another article on paddle parks). There are a couple of principles in laying out bungee patterns. First, there is a definite beginning and end and these become important when you consider how you are going to secure the bungee. Second, don't lay bungee where it will interfere with other rigging. For example, you don't want your bungee to cross over hatch covers or day hatch covers, and you may not want it to interfere with a deck compass, camera attachment or other fitting. It is a real pain to constantly have to move or stretch bungee to open or close a hatch, and you will be doing that hundreds or thousands of times.

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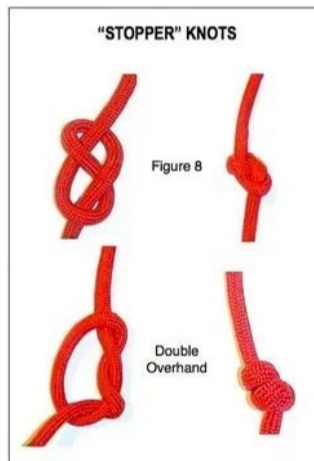
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**Bungee Patterns A:** 3 diamonds with a double paddle park **B:** 1 diamond forward, 1 criss-cross aft w/ triangles fore and aft note: no perimeter lines on this boat **C:** 3 diamonds on a very sharp deck note: uses loops of woven webbing as deck fittings and grapevine knots to secure **D:** 2 diamonds forward and paddle parks on both sides of the aft hatch **E:** 4 diamonds aft, but the one securing the aft hatch has looped latches to make it easier to release the bungees. **F:** 3 small diamonds using pad eyes and stopper knots on the bungee.

**Deck Protection Film:** While you are replacing bungee and if your boat's deck gel coat is relatively undamaged, consider placing self-adhesive clear protectant film under the area that will get the most wear from stowing items there. 3M makes a product available in 4", 6" and 12" widths and various lengths that you can cut and apply to the deck to protect it. A "poor man" solution is a layer of clear packing tape, which accomplishes the same thing but is less convenient to apply being only about 2" wide. Be sure to follow the application instructions, especially cleaning the deck as recommended (and within the recommended temperature ranges) to ensure that the stuff stays stuck.

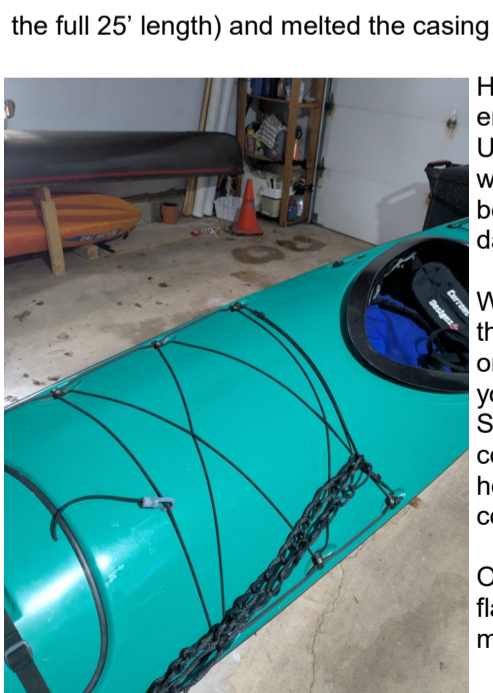
**Securing Bungee:** The simplest way to secure bungee is to tie a stopper knot in the end, run it through all the fittings in the pattern and tie another knot at the end of the pattern, stretching the bungee to get a little tension in the line. However, simplest is not always best. I'm not a big fan of knots in bungee because they protrude up above the deck and catch on things, even if you have inset deck fittings. Two other methods are: 1) using a grapevine knot (or double fisherman's bend) to secure the bungee so it can be adjusted; and 2) sewing the ends of the bungee together and covering the joint with heat shrink tubing (see Rigging a Painter article), essentially creating a single loop of bungee that has been run through the fittings in a pattern.



Sewn and shrink-wrapped bungee

The grapevine knot method uses a low-profile knot that sits right in front of the cockpit and can be adjusted over time as the bungee stretches or to accommodate larger objects than the elasticity of the bungee can accommodate (see C above or photos below). Sewing the ends produces a nice, finished looking joint that won't snag things and is durable.

For my new(ish) boat, the existing bungee was too thin (1/8" diameter) and had been original with the boat so was 25 years old and worn out. I replaced it with 3/16" reflective bungee in a basically black color. The old bungee measured 12.5 feet for the front pattern and 9.5 feet for the rear pattern, and I got 25 feet of new bungee to replace it. I put down a patch of 3M protective film where the ends of my Greenland paddle rests on deck at the cockpit and under the paddle park as that is the only object I routinely put under the bungees that is likely to cause wear. I did that BEFORE I started to rig the bungee.



My boat with original 1/8" bungee pattern

I have inset deck fittings with two 1/4" holes for rigging line (see ) and began with the aft-most fitting for the perimeter line, intending to use the grapevine knot method to secure the bungee. Following the front pattern, I arrived at the aft-most fitting on the opposite side of the deck and ran the bungee over to the starting point. I cut the bungee (I started with the full 25' length) and melted the casing on both cut ends using a lighter.

Here is a video that explains step-by-step how to tie the grapevine or double fisherman's knot (<https://www.animatedknots.com/double-fishermans-bend-knot>). Unlike in the animation, you DO NOT want to pull the two knots together, but want to pull them apart to take up the slack in the bungee. The amount of space between the two knots is the amount you can slack up the bungee to accommodate larger objects.

With the remaining piece of bungee (about 10 feet), I repeated the process for the bungee pattern aft of the cockpit. Notice that the two parallel runs of bungee on either deck edge are DOUBLED in this pattern. This is to allow you to put your paddle blade under the bungees when performing a paddle-float rescue. Some people put 3/8" clear tubing on one of the runs on each side to better accommodate a paddle blade. Some instructors discourage use of the bungees to hold the paddle, preferring you use your hand on the paddle shaft and back cockpit rim.

Once the two bungee patterns were repeated with the new bungee, I took a flash picture to demonstrate how bright the Night-ize bungee appears when illuminated.



3M paint protection film being fitted. The backing peels off and you spray a water-soap slip fluid to position the film and squeegee out air bubbles.

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Fore deck pattern before tying grapevine knot (double fisherman's bend)

**Alternatives to Bungees:** While bungees are the most common rigging to carry small items of gear on deck, there are a couple of alternatives or additions. Many manufacturers make kayak deck bags that attach to perimeter lines (or to the bungees) to hold small items. Some of these are mesh and let the water wash through, and others have a water-resistant (nothing is really waterproof) dry bag insert to keep items protected. The same deck bag can hold water bottle(s) inside or in holsters, a dry bag in the interior, and a chart case bungeed to the top.

Deck bags were more common before the advent of day hatches. Day hatches can be behind the cockpit on either side (hard for old guys like me to rotate around to) or in some later models smaller hatches on the centerline in front of the cockpit. Kits are sold so that you can retrofit your kayak with a dayhatch, which involves cutting a hole in the deck (YIKES!!), fitting a round plastic rim or spin-off, and using a fabric bag which attaches to the rim below the deck.

Another alternative to bungees is a deck netting. The non-elastic netting attaches to the perimeter lines or other fittings and holds small items. Prion kayaks seemed to be particularly fond of this solution. One drawback (for me) is that the netting is loose, so items shift around in the net, especially when waves wash over the kayak, potentially leading to loss of gear, or shifting weight and balance.



Aft deck bungee complete with grapevine knot. Note double bungee at deck edges.

**Sources:**

**Bungee (or shock) cord**—Bungee is available from a variety of sources online. I got mine from [West Coast Paracord](#) (through Amazon), but [Sargent Knots](#) is another reliable source. REI, West Marine and many local hardware stores sell bungee by the foot in their stores, but it may be difficult to verify the material used for the cover. [West Coast Paracord Nylon Shock Cord – 3/16 Inch in Diameter \(Black w/ 2 Reflective Tracers, 25ft\)](#) \$0.70/foot, cheaper in longer lengths.

**Protective Film**—3M is the name brand for this material and it is available online from various sources (check Amazon). [VViViD 3M Clear Paint Protection Vinyl Film 6 Inch x 25 Inch](#) \$9.99

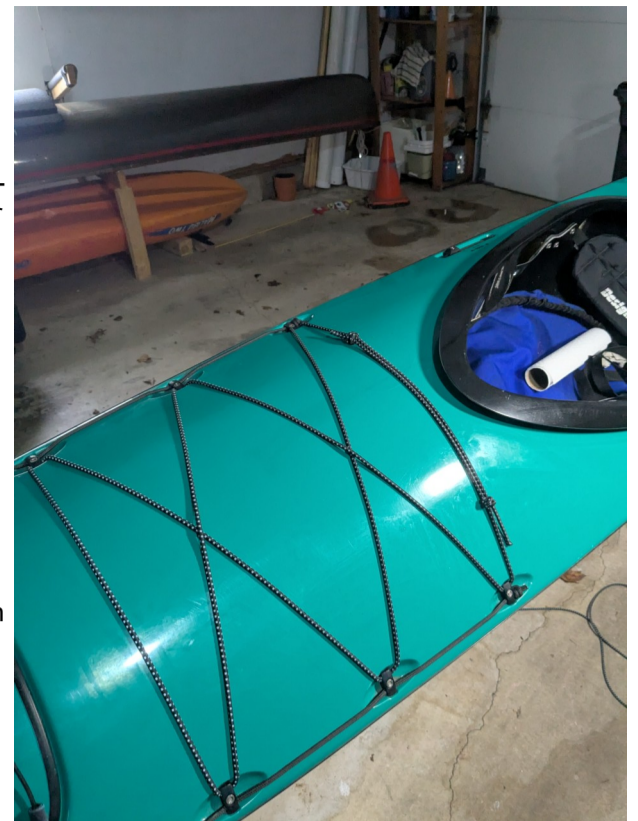
**Deck fittings**—To replace or add deck fittings (the pad eyes or the plastic or metal inserts in inset fittings) check a variety of sources online such as [TopKayaker](#), [Kayak Academy](#), or your kayak's manufacturer.



A kayak deck netting instead of bungee. Note the day hatch forward of the cockpit.



After market day hatch kit with dry bag



Fore deck bungee pattern complete with grapevine knot



Flash photo of completed bungee and paddle park reveals Night-ize reflective property of bungee.



A kayak deck bag attached to bungees