

How To Rebuild A Scupper Pro Kayak Rudder Assembly by Tom Holtey

Ocean kayak original parts: "rudder assembly" and "rudder blade", are no longer available. This page will instruct you on how to re-build your original Ocean Kayak brand Pro Rudder and offer some insight into how you might add a rudder to a Scupper Pro that has never had one before.

The Ocean Kayak Scupper Rudder assembly is fairly unique. It is one of the few rudders that holds up well in the surf zone. The blade housing has a 1/4 inch diameter pivot pin, secured with a ring and small nylon washers. The pin inserts through two "wings", upper and lower, that are welded to the main slot of the housing. The blade "rests" in a strait up position, or is deployed in a straight down orientation. The blade is secured to, and pivots on, a single nut and bolt, flanked internally with two large nylon washers. A 1/8 inch bungee tension line holds the rudder in the down position, while a 1/8 inch lifting line is used to raise the rudder into the parked position, secured with a jamb cleat at the cockpit.

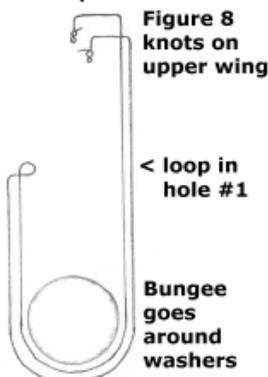


While the Scupper rudder assembly is robust the bungee cords are very likely to fail, and when they do so the rudder will not automatically deploy to the default position, straight down. There is a small chance of the lifting line requiring replacement too. The blade will rarely break, but may become bent and cracked. Bungee, lift line and blades are easy to replace. If one were to perform a rudder overhaul the anodized aluminum could be "repainted" at that time for cosmetic purpose.

To replace, or repaint, the blade you will need to remove the central nut and bolt. This may be difficult due to corrosion. A new nut and bolt can be purchased at a hardware store, just be sure to get all stainless steel parts; bolt, nylock nut, and lock washer(s). In addition, you will need to re-string the lifting line and bungee tension line.

Your Scupper rudder blade will have 5 small holes about 1/8 inch in diameter, drilled off set to one side. The hole closest to the edge is for the bungee tension line. The other holes are for the lift line. You may be able to re-string the bungee tension line without taking apart the assembly, but disassembly will be required to re-string the lift line.

Bungee Tension Line "Blade Up"



The small holes face sternward when the rudder blade is up and they face to the bow when the blade is down. Slip the bungee through 1st hole closest to the edge and center it with equal amounts on each side of the blade.

While re-installing the blade into the housing, be sure to run both ends of the bungee, one on each side of the blade, up to the top, inside the housing. (The top of the housing has wings with six holes on each side.)

There are three holes on each of the upper wings, which are parallel to the centerline, and closest to the blade slot. Secure each end of the bungee to these holes. Be sure the bungee does not cross inside the housing.

With the blade up, in park, apply as much tension as is comfortable, so that the blade will "spring" down in the deployed position when the lift line is released. The bungee can be "stitched" through all three top holes on each side, or only one as you see fit. Finish each end with an over hand or figure eight knot. Trim excess.

The lift line is "stitched" through the small holes on the rudder blade not occupied by the bungee cord. (Leave

the 2nd hole open.) One end of the lift line goes through the 3rd hole, closest to the bungee, then the lift line is "stitched" back through 4th hole.

Next, "stitch" the lift line through the 5th hole.

The end is then slipped under the "stitch" between hole 3 and 4.

The lift line should be pulled very taunt through these holes with the end of the line secured very snug under "stitch". No knot is required. Do not leave a long loose end inside the housing, trim it as closely as you dare.



When finished, with the blade deployed in the down position, the lift line should start below the large nylon washers, come up on the stern side of one washer, up through the housing, through the open slot in the upper wing, directly over the pivot pin and then on toward the cockpit.

On its way to the cockpit it will pass through several guides some being the looped end of the cargo/hatch straps. The lift line is tied off to a strap eye in front of the jamb cleat along side the cockpit.



At this time you may wish to check your rudder control lines. Original Scupper rudder control line is a very strong string. These lines run internally through rudder cable tubes that poke out of the kayak at the stern end and in the cockpit sides. These strings can be replaced with any synthetic cordage that is very strong. I recommend that you replace the control lines with stainless steel rudder cables. To do so you will need a standard rudder cable kit, plus some thimbles and shackles.



Standard Stainless steel rudder control cables have an eyelet on one end of the cable. This is often secured with a small nut and bolt, or a clevis pin and ring. In most cases the eyelet is secured to the wings of the rudder assembly.

On a standard Scupper rudder system the control lines are secured to the foot controls with a 10-32 screw and tied on the other end to the rudder wings. There are two ways to approach retrofitting with cables; "eye forward" and "eye rearward".



"Eye Forward": If the screws in the foot controls can be removed, the cable eyelets can be secured to the foot controls with these same screws. The free ends of the cables are then slipped back to the stern through the tubes.

To connect the cables to the rudder wings you will use a shackle on each wing, tighten the bolt very snugly. A thimble connects to the shackle. The stainless steel rudder cable is placed in the groove along the thimble, pulled very tight and secured with one or more swags (aka crimp, swage, ferrule), kind of like tightening a necktie knot. See the TopKayaker replacement rudder cable kit instructions (included with kit) for more details.

"Eye Rearward": If the screws in the foot controls cannot be unscrewed you can use a shackle and thimble to connect to the existing screws. (Possibly just a thimble, opened wide and re-closed with pliers around the screw in the foot control.)

The stainless steel rudder cables are to be slipped into the tubes from the stern, and then secured to the foot controls, with the shackles and thimbles, in the same method as described above.

The cable eyelets can be secured to the wings with small nut and bolt, or a clevis pin and ring. Once again, please see the TopKayaker replacement rudder cable kit instructions (included with kit) for more details on how to install replacement rudder cables.

The upper wings of the Scupper rudder have three holes on the outer edge, each side. The center hole of each group of three is the recommended control cable position. If desired the outer most holes can be used a looser feel, while the inner most holes can be used for a tighter feel of control. Be sure to use the same holes, balanced on each side, for even control of the rudder. You may or may not find a tiny plastic bushing in each of the center holes.

Suggested parts list (pick and choose as needed):

- About 2 feet of **Bungee Cord, 1/8 in.**, (sold by the foot)
- About 12-15 feet of **Rudder Rope 1/8 in. X 20 ft.**
- 1 set **Replacement Rudder Cables**
- 1 **Rudder Shackles**, pack of 4
- 1 **Stainless Steel Thimbles**, pack of 4
- 2 **Clevis Pin** for Rudder
- 1-3 **Rudder Pin Ring Rudder Cable Holders**
- 2 pack 2 **Cap Nut**
- 2 **Stainless Steel Phillips Machine Screw 5/8 inch**

Complete Scupper Pro Rudder Kits, or Pro Rudder Assemblies, are discontinued and no longer available. There is a **SmartTrack** alternative. While this theory has not been tested by me personally, it is possible to use the Smart Track **Performance Blade Housing, Threaded Pin** and **Foil Blade, Solo** as your rudder assembly. The trick here is to remove the pin from the Smart Track Blade Housing and replace it with a longer bolt that can accommodate the molded rudder bracket on the stern of the Pro. Be sure to select stainless steel. Any **SmartTrack** "pin" version blade housings can be used in this manner. Many paddlers may elect to use the larger **Foil Blade, Tandem**. I do not normally recommend the application of the smart Track Toe Pilot Foot Controls for most sit-on-top kayaks. Other parts to needed for a complete Scupper Pro Rudder System are available.

Many of the original parts are available, some are not and I replaced them below. Optional parts are marked with *.

Use the list below:

- **Werner Foot Brace Kit, for rudder**
- **Replacement Rudder Cables**
- **Rudder Tube Clamps 1/4 in., 2 pack**
- **Black 1/4 in. Rudder Cable Tube, 16 ft.**
- **Rubber Rudder Grommets, 4 pack***
- **Werner-Yakima Cable Thimble Kit***
- **Black Aluminum Rivets, pack of 20***
- **Oversize Well-Nuts, 4 pack**

Use the link below to the **Original Scupper Pro Rudder Kit Instructions**.

Rudder Related Articles and Links:

- **When To Get A Rudder And How To Use It**
- **The Basics of Strap Eyes, Rivets & Well Nuts**
- **How To Install A Rudder On A Sit-on-top Kayak** (molded bracket)
- **Installing a Rudder on a Sit-inside Kayak and Using a Gudgeon**(add a bracket)
- **The SealLine Smart Track Rudder System**
- **Rudder Cable Connection Options** Several ways to connect control cables to your rudder system.
- **Hurricane Rudder Vidoe Part 4** connect control cables to Yakima-Werner foot controls.
- **Ocean Kayak Video part 1**
- **Ocean Kayak Video part 2**
- **Confluence Rudder Install Video part 1** (rudder mount, lift line, foot braces & control cables)
- **Confluence Rudder Install Video part 2** (rudder tubes)
- **Smart Track Video** (fit guide)
- **Parts tools and supply: Kayak Parts, Rudders + Skegs**