

WaterTribe Rudder

Installation Instructions

The WaterTribe Rudder is a custom component and may be installed in any manner you feel appropriate for your application. Under no circumstances does WaterTribe, Inc. or any associates assume any responsibility for the installation, fitness for service, or performance of the rudder. These instructions assume the boat is a Kruger Dreamcatcher or Sea Wind. The following instructions are one way to install the rudder, but not the only way.

Please read all instructions a few time before beginning to install your rudder.

Tools Needed:

- Hand operated electric drill with a pilot bit
- Grinding or sanding wheel for the drill
- Hammer and block of wood
- Phillips screw driver
- Needle nose pliers

Material Needed:

- 3M4200 – DO NOT Substitute
- WaterTribe Rudder Installation Kit
- Duct tape
- Medical exam style latex gloves

Instructions:

1. The top gudgeon controls the location of the rudder head on the stern and is mounted inline with the seam between the deck and hull. You must grind away the black plastic seam far enough back from the stern so that the gudgeon can be mounted tight against the stern. Grind it away such that there is at least 1/8" clearance between the end of the gudgeon and the back of the seam. The gudgeon straps need a smooth surface for mounting but you should not have to remove any actual hull material.
2. Slide the top gudgeon into position and check for fit on the stern. Note that the gudgeon may have to be "formed" to your stern just a bit. Use a hammer and block of wood (to protect the gudgeon) to form the gudgeon by pounding straight back inline with the center line of the boat. Tap lightly and increase force a little at a time until the results you want are obtained. If the outer strap of the gudgeon gets deformed, try to form it back in place using a vice. Then recheck the fit of the gudgeon on the stern. Repeat as necessary until the fit is OK – it doesn't have to be perfect but it should be pretty darn good.
3. Mount the entire rudder system to make sure the top gudgeon will lineup properly with the bottom gudgeon. You don't need the blade mounted for this. In fact it's

- better to not have the blade mounted. Use duct tape to hold the system in place. Check it for fit all around. Check it again. Check it a third time.
4. Once satisfied with the location of the top gudgeon go ahead and drill pilot holes for the gudgeon mounting screws. You will drill 3 holes on each side. Only drill deep enough for the screws. Drill perpendicular to the hull. Try not to drill all the way through and out the other side. Wrap masking tape around your drill bit to the depth you want to drill. Note that the first hole closest to the stern is shorter than all the other holes. Make sure nothing shifts while drilling the holes. Check everything. Check it again. Check it again.
 5. OK, the top gudgeon is where you want it and the holes are lined up perfectly for the mounting screws. Take everything apart and mount the top gudgeon. Put on your latex gloves. Squirt a dab of 3M4200 into each pilot hole. Place a bead of 3M4200 on each strap of the gudgeon. Be sure not to get 3M4200 in the gudgeon pivot pin hole. Slide the gudgeon into place. This will get a bit messy. You want the 3M4200 to squeeze out the sides of the straps all the way around but you don't want too much of this. Start with the hole closest to the stern. Cover the threads of the screw with 3M4200. Put in the first screw most of the way but not all the way. Do the same with all five other screws. Now tighten all screws. **DO NOT OVER TIGHTEN.** Remember that some of the screws are going into mostly a few layers of Kevlar. If you over tighten, they will just spin in the Kevlar and reduce strength. You want them fully screwed in but not over tightened.
 6. Use paper towels, the tip of a screw driver or what have you to clean up excess 3M4200. Anything left to dry will have to be removed with a soft wire brush. Be as neat or as messy as you want with this cleanup.
 7. OK, go have a few well earned beers. Wait till the next day before starting on the bottom gudgeon.
 8. Next comes the bottom gudgeon which will be easier since you have some practice.
 9. Assemble the rudder control head onto the top gudgeon to locate the position of the bottom gudgeon. Note that the bottom gudgeon will not require as much forming as the top gudgeon. Also, the bottom gudgeon may or may not go in as far as the top. This all depends on your boat. A small gap between the stern and the pivot hole of the bottom gudgeon is OK as long as the first mounting hole is still able to be used.
 10. When locating the bottom gudgeon the rudder control head should be fully assembled. The parts should be snug but move freely. It is OK if one washer is removed (the second from the top) or another washer inserted (anywhere) in order to get the type of fit you want.
 11. Duct tape the gudgeon into place.
 12. Drill the pilot holes using the same care as before.
 13. Check it. Check it again. Check it again.
 14. Remove the rudder head and mount the bottom gudgeon using the 3M4200 as before.
 15. It's time for another beer. Wait a day before starting to rig your rudder.

Congratulations! You are done.

Rudder Head Assembly during Mounting Procedure

1. Install the top clevis pin in the top hole of the pivot pin. It is OK to bend the clevis pin all the way around on each side at this point because it does not have to be removed to remove the control head.
2. Slide on one washer
3. Slide the pivot pin thru the top gudgeon
4. Slide a washer onto the pivot pin (this one may be moved later) but put here during the mounting process.
5. Slide the control head onto the pivot pin
6. Slide a washer onto the pivot pin
7. Slide the lower gudgeon onto the pivot pin
8. Slide a washer onto the pivot pin
9. Install the bottom clevis pin but do not bend all the way around because you will want to remove it a few times.

Notice that 4 washers have been used with one on each side of each gudgeon.