



INSTALLING THE TRIDENT™ 11, 13 OR 15 RUDDER

Parts Included:

Steering Parts:	Foot Rail Parts:	Rudder Parts:	Retraction Parts:
4 - Rubber Grommets	2 - Rail Assemblies (includes steering cable)	1 - Rudder Body	1 - Rudder Retraction Line (Deploy Line)
2 - Lengths of Tubing	4 - #10x $\frac{3}{4}$ " washers	1 - Rudder Blade	1 - Bungee
2 - Oval Copper Crimps	4 Machine Screws $\frac{1}{2}$ "	1 - Rudder bracket	1 - Clam Cleat
2 -1" pieces black shrink tube		6 - Machine Screws $\frac{1}{2}$ "	2 - Self Tapping Screws
		1 - Rudder Catcher	4 - Cherry Rivets
		1 - Rudder Retainer	2 - Strapeye
		Bungee	

Tools Needed:

Drill	Safety Goggles	Hot Glue Gun	3/8" Wrench
13/64" Drill Bit	Lighter	Soapy Water (as lubricant)	Knife or Scissors
3/8" Drill Bit	Crimper or Pliers	#2 Phillips Head Screwdriver	
Rivet Gun	Wire Cutter	7/16" Wrench	
Long Strip of Wire, 3 to 4 feet (ex: straightened coat hanger)			

Please read the instructions thoroughly before installing the Trident™ Rudder. If you have questions, do not hesitate to contact Ocean Kayak (800-8-KAYAKS or service@oceankayak.com) or your nearest Ocean Kayak dealer for more information.

Drill Tubing Holes:

1. There will be a total of 4 tubing holes through which the steering lines will run. You will find 2 vertical notches at the rear of the foot well ledge and 2 vertical notches at the stern of the kayak. Using a 3/8" drill bit, drill straight into the vertical surface of these notches. Drill into the center of these notches, being careful not to drill too high where the notches narrow. See photos A (stern) and B (rear of foot wells).
2. Insert the 4 rubber grommets into each of the drilled holes. See photo C.



A



B



C

Install Tubing:

1. Using scissors, cut the ends of the tubing at an angle to make inserting the tubing easier.
2. Straighten a coat hanger (or use another length of straight wire), and insert it through the tubing to keep it straight as you are inserting it.
3. Spray the tubing with soapy water (or another lubricant) and insert it into one of the stern grommets. See photo D. Continue pushing the tubing through the grommet, keeping it in the space between the scuppers and the outside wall of the kayak. (Tilting the boat to the side that you are working on may help keep the tubing in place.)
4. Spray tubing with lubricant as needed.
5. Reach inside the center hatch opening to pull the tubing through the hull and guide it through the foot well grommet. Hold your fingers over the grommet as you pull the tubing through so the grommet stays in place.
6. Remove the wire.
7. Pull tubing taut. Rub the tubing immediately in front of the grommets with a dry cloth to remove the lubricant and finish, creating a dull, sticky area. See photo J. Position the tubing so the dull part is at the grommets. This will prevent the tubing from sliding through the grommets.
8. Pull tubing taut. Cut tubing 1" from grommets on both ends.
9. Repeat for other side.



D



E

Install Foot Rail Assemblies:

1. Position the rails so the bungee knot is at the bottom. See photo F.
2. Secure the track to the boat with 10-32x $\frac{1}{2}$ " machine screws and #10x $\frac{3}{4}$ " washers .
3. Repeat for other track.



F



Install Steering Lines:

1. Unwind and straighten steering cable.
2. Feed cable through tubing so all excess is out the stern grommet. See photo L.
3. Adjust the pedal on the track using the tri-glide, so the strap loop is centered over the rear mounting screw.

See photo G.



G

Install Rudder Body:

1. Attach the bracket to the stern using 4 10-32x1/2" machine screws. See photo H.
2. Remove nut, washer, and 4" screw from front of rudder body. Insert rudder body between mounting tabs. Re-install 4" screw, washer, and nut. Using a 7/16" wrench and screwdriver, tighten self-locking nut until screw is flush with nut. Do not over-tighten. The rudder body should be able to swivel freely. See photo I.



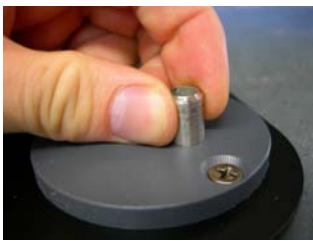
H



I

Install Rudder Blade:

1. Disassemble the larger screw/nut/washer/bushing.
2. Insert the bushing through the center hole of the blade. See photo J.
3. Insert the rudder blade into the rudder body, lining up the center holes of the body and the cam.
4. Insert the screw through the bushing, and tighten washer and self-locking nut with 7/16" wrench and screwdriver. Do not over-tighten. Stop when the screw is flush with the nut. See photo K.



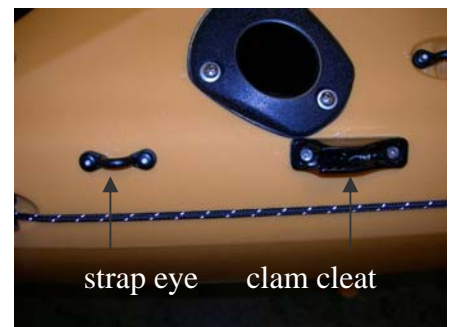
J



K

Install strap Eye and Clam Cleat:

1. See photo L for strap eye and clam cleat placement on left side of boat where seat well and tank well meet (where deck line was just removed). There will be four '0's marking the spots where the rivets and screws will be placed.
2. Using 13/64" drill bit, drill the front two '0's where the strap eye will go.
3. Place strap eye over the holes, insert rivets, and use rivet gun to install. Using wire cutters, cut the top of the rivet off.
4. Position clam cleat so slope is going towards the rear of the boat and the left hole is lined up with the left '0'.
5. Using one of the self tapping screws, drill the screw into place. Do not over-tighten.
6. Position the clam cleat so it is straight along the side of the boat. Using the second self tapping screw, drill it into place. Do not over-tighten.
7. Drill out the '0's for the line guide. Attach with rivets. Photo M
8. Install rudder catcher with 1/2" machine screws. Photo N



L



N



M

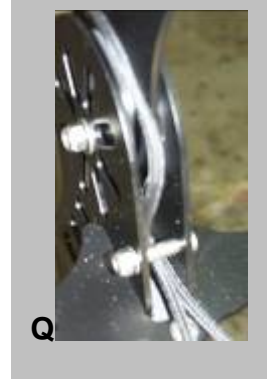
Install Rudder Retraction Line:

1. Insert the rudder retraction line through the line guide strapeye then the middle left hole of rudder catcher.
2. Feed half of the retraction line under the roller guide on



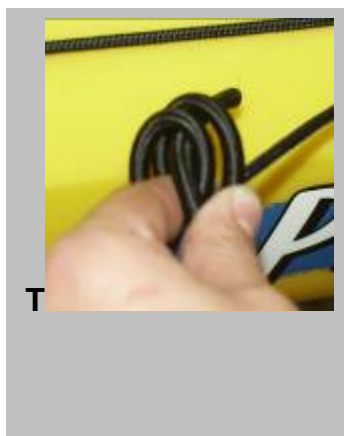
the rudder body. See photo O.

3. Keep the retraction line to the left side of the rudder blade. Bring it under and then up and around the gray cam (on the rudder blade).
4. Thread the retraction line through the holes on the top of the rudder blade. Starting on the left hand side, insert the retraction line from left to right through the middle hole. Then insert the line from right to left through the front hole. Then insert the line a final time from left to right through the rear hole. See photo P.
5. Thread the retraction line back under the roller guide. See photo Q.
6. Thread the line through the right middle hole of the rudder catcher then the line guide strapeye. Insert the bottom line in the clam cleat.



Knotting retraction line and bungee together:

1. There will be two knots that will hold the bungee and retraction line together: one on the top retraction line (knot #2) and one on the bottom (knot #1). Each knot is made up of two knots which are positioned side by side. Photo R shows what the finished attachment will look like.



2. With rudder blade in down position, begin first knot by taking the bungee and looping over the bottom retraction line two times,

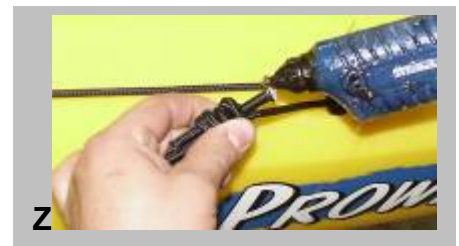


from left to right. See photo S.

3. Then take bungee and insert it through the loops, from left to right. See photo T.
4. Then take right loop and place over the top of the left loop and tighten. The first half of knot #1 is finished. See photo U.
5. Slide the knot along the retraction line until it is about one inch in front of the clam cleat.
6. Working to the left of the previous knot, begin the second half of knot #1 by taking the retraction line and looping it over the bungee two times, from right to left. See photo V.



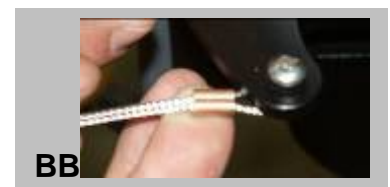
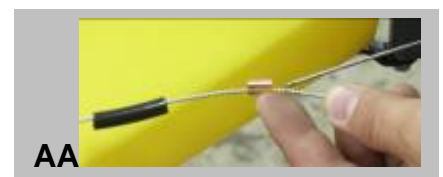
7. Then take retraction line and insert it through the loops, from right to left. See photo V.
8. Then take the left loop and place it over the top of the right loop and tighten.
9. Slide this knot over so it is snug up to the previous knot. Pull long ends of retraction line and bungee to tighten. See photo W.
10. Take the bungee on the left side (long end) and insert it through the bottom of the strap eye, up through the top. See photo X.
11. Move the rudder blade to the up position.
12. Take the bungee that has passed through the strap eye back to the clam cleat and begin the second knot (same procedure as the previous knots).
13. Photo Y shows what the knot attachment should look like now.
14. Cut the excess retraction line and bungee about one inch from each knot.
15. Use a lighter to seal the ends of the retraction lines and bungees to keep them from fraying.
16. Then use a hot glue gun to seal ends of the bungee. See photo Z. Note: You can see samples of this on other bungee already installed on boat.



NOTE: When the rudder blade is in the up position, the top knot should be about one inch behind the clam cleat. When the rudder blade is in the down position, the bottom knot should be about one inch behind the clam cleat.

Attach Steering Lines:

1. Unscrew the nut and remove it plus the 2 washers from left wing of the rudder body.
2. Take one of the pieces of black shrink tube and insert it onto the cable that is on the left side.
3. Insert one of the copper crimps onto the same cable.
4. Take the end of the cable and re-insert it through the copper crimp creating a loop. See photo AA.
5. Place this loop around the screw on the wing.
6. Tighten loop using copper crimp until crimp is just in front of the wing. See photo BB. Make sure rudder blade is secure in the cathcer and that the cable is pulled straight.
7. Hold crimp in place and remove the loop from the screw.
8. Using the crimpers (or pliers), crimp in 3 places, both ends and the middle, to secure the cable. See photos U and V.
9. Cut the loose cable end, close to the copper crimp.





10. Slide the black shrink tube over the copper crimp and the cut end of the cable. Using the lighter, heat the shrink tube until it shrinks and molds over the crimp and the cut end of the cable. Do not overheat! See photo DD.
11. Put one washer back onto screw. Place cable loop on the screw.
12. Add the other washer and self-locking nut, and tighten using 3/8" wrench and screwdriver. Do not over-tighten. Stop when the screw is flush with the nut. See photo EE.
13. Tighten the pedal strap, using the tri-glide, to take up any loose cable, keeping the cable loop at the end of the track. See photo FF.
14. Attach the other side the same way.

