



INSTALLING THE PROWLER 13™ RUDDER

Parts Included:

Steering Parts:

4 Rubber Grommets
2 Lengths of Tubing
2 Oval Copper Crimps
2 1" pieces black shrink tube

Foot Rail Parts:

2 Rail Assemblies (includes steering cable)
4 ½" screws & washers

Rudder Parts:

Rudder Body
Flat Bracket
Stepped Bracket
4 Machine Screws ½"
1 Assembly of Screw/Nut/Washer/Bushing (large)
1 Assembly of Screw/Nut/Washer/Roller Guide (small)
Rudder Blade

Retraction Parts:

1 Rudder Retraction Line (Deploy Line)
1 Bungee
1 Clam Cleat
2 Self Tapping Screws
1 Strapeye
2 Blind Rivets

Misc. Parts:

1 Round Paper Template
1 Round, Black Plastic Disk
8 Rivets

Tools Needed:

Drill	4" Hole Saw	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	Tape
Rivet Gun	Wire Cutter	7/16" Wrench	Silicone
Long Strip of Wire, 3 to 4 feet (ex: straightened coat hanger)			Safety Goggles

Please read the instructions thoroughly before installing the Prowler 13™ 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.



Cutting Rear Access Hole:

1. Center the paper template on the circular flat surface at the rear of the tank well. Tape in place. Mark all nine holes with a pen. Remove template. See photo A.
2. Using 13/64" drill bit, drill all holes. See photo B.
3. Using 4" hole saw, cut a hole using the drilled center hole as a guide. See photo C and D.



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 E (stern) and F (rear of foot wells).
2. Insert the 4 rubber grommets into each of the drilled holes. See photo G.

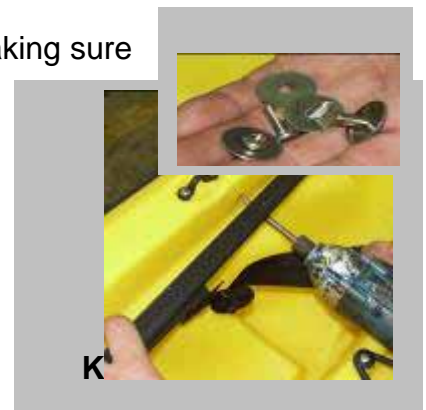


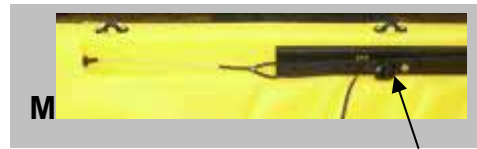
Install Tubing:

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 foot well grommets. See photo H. Continue pushing the tubing through the grommet, keeping it in the space between the tank well 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 rear access hole to pull the tubing through the hull and guide it through the stern grommet. See photo I. 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.

Install Foot Rail Assemblies:

1. Place one rail assembly on the ledge above the foot well making sure the pedal is toward the bow of the boat.
2. Note how the two pre-drilled holes in the track line up with the two gold-colored screw inserts on the boat.
3. Using two 1/2" screws and washer sets, attach track to boat using the inserts. See photo K. Do not over-tighten!
4. Repeat for other track.

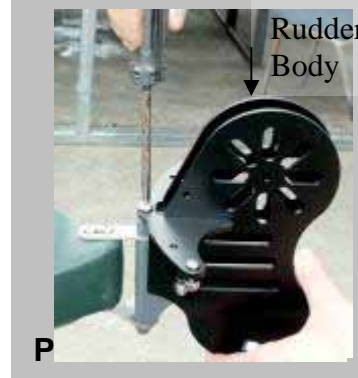




tri-glide

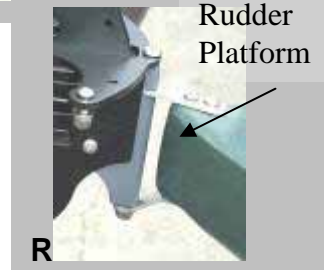
Install Steering Lines:

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 that the cable loop is at the back edge of the track when it is pulled straight. See photo M.



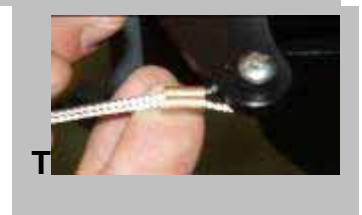
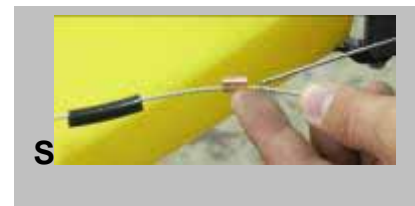
Install Rudder Body:

1. Attach flat bracket to top of rudder platform using 2 machine screws ($\frac{1}{2}$ " long). Lightly tighten, allowing for adjustments. See photo N.
2. Attach stepped bracket to bottom of rudder platform using other 2 machine screws. Lightly tighten, allowing for adjustments. See photo O.
3. Remove nut, washer, and 4" screw from front of rudder body. Insert rudder body between brackets. Put 4" screw, washer, and nut back in place. Using $\frac{7}{16}$ " 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 P.
4. Position the rudder body so that it is straight, in line with the molded-in valley that the rudder blade rests in, shown in photo Q. Also make sure that the rudder body is parallel with the rudder platform, as in photo R.
5. When the rudder body is properly aligned, tighten the 4 machine screws that are holding the flat and stepped brackets.



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 S.
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 T. Make sure rudder body is still properly aligned (see step 5 above) and that the cable is pulled straight.



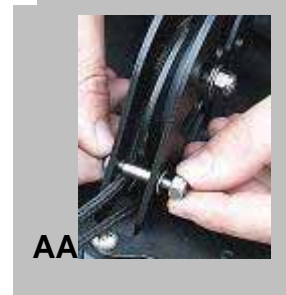
7. Hold crimp in place and remove the loop from the screw.
8. Using the crimpers (or pliers), crimp in 3 places, both ends and the middle, to secure the cable. See photos U and V.
9. Cut the loose cable end, close to the copper crimp.
10. Slide the black shrink tube over the copper crimp and the cut 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 W.
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 X.
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 Y.
14. Attach the other side the same way.



Install Rudder Blade:

1. Disassemble the larger screw/nut/washer/bushing.
2. Insert the rudder blade into the rudder body, lining up the center holes of the body and the cam.
3. Insert the bushing through the center hole.
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 Z.
5. Disassemble the smaller screw/nut/washer/roller guide.
6. Insert the roller guide between the two holes in front of the rudder body. Insert the screw through the holes, keeping the roller guide in place. Use 3/8" wrench and screwdriver to tighten the washer and self-locking nut. Do not over tighten. Stop when the screw is flush with the nut. See photo AA.

Center Hole

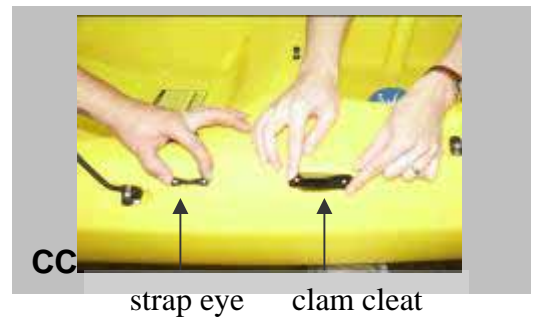


Install Strap Eye and Clam Cleat:

1. The rear deck line on the left side of the kayak needs to be removed before rudder installation can continue. Cut with scissors to remove. The removable deck fitting (RDF) is then left empty and will be used later to install the rudder retraction line. See photo BB.



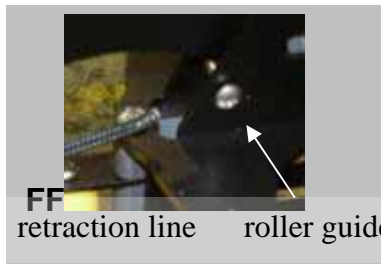
2. See photo CC for strap eye and clam cleat placement on left side of boat where seat well and tank well meet (where deck line was just removed). There will be four backward 'R's marking the spots where the rivets and screws will be placed.
3. Using 13/64" drill bit, drill the front two 'R's where the strap eye will go.
4. Place strap eye over the holes, insert rivets, and use rivet gun to install. Using wire cutters, cut the top of the rivet off.
5. Position clam cleat so slope is going towards the rear of the boat and the left hole is lined up with the left 'R'.
6. Using one of the self tapping screws, drill the screw into place. Do not over-tighten.
7. 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. See photo DD.



strap eye clam cleat



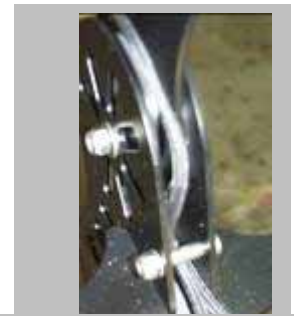
Install Rudder Retraction Line:



retraction line roller guide



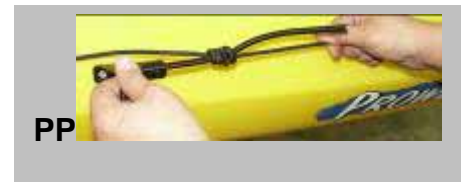
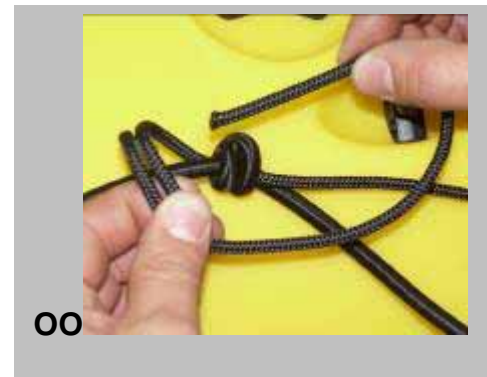
1. Insert the rudder retraction line through the bottom half of the now empty removable deck fitting (RDF). See photo BB on previous page and photo EE.
2. Then feed the retraction line under the roller guide on the rudder body. See photo FF.
3. Keep the retraction line to the left side of the rudder 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 GG.
5. Thread the retraction line back under the roller guide. See photo HH.
6. Thread the line through the top half of the RDF used earlier. See photo II.
7. 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 JJ 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 KK.
3. Then take bungee and insert it through the loops, from left to right. See photo LL.
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 MM.
5. Slide the knot along the retraction line until it is about one inch in front of the clam cleat. See photo NN.
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 OO.
7. Then take retraction line and insert it through the loops, from right to left. See photo OO.
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 PP.
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 QQ.
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 (which is the same as the first knot).
13. Take bungee and loop it over the top retraction line two times, from left to right. See photo KK above.
14. Then take bungee and insert it through the loops, from left to right. See photo LL above.
15. Then take right loop and place over the top of the left loop and tighten. The first half of knot #2 is finished. See photo RR.
16. To tighten, slide knot towards the rear, along the retraction line until it is about one inch past the clam cleat.

17. Move the rudder blade to the down position.
18. Working to the left of the previous knot, take retraction line and loop it over the bungee two times, from right to left. See photo OO above.
19. Then take retraction line and insert it through the loops, from right to left. See photo OO above.
20. Then take the left loop and place it over the top of the right loop and tighten.
21. Slide this knot over so it is snug up to the previous knot. Pull retraction line and bungee to tighten.
22. Photo SS shows what the knot attachment should look like now.
23. Cut the excess retraction line and bungee about one inch from each knot.
24. Use lighter to seal the ends of the retraction lines and bungees to keep them from fraying.
25. Then use hot glue gun to seal ends of the bungee. See photo TT. 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.

Sealing Rear Access Hole:

1. Do this step last! Before starting, make sure there is nothing left in the hole. A vacuum can be used to suck up any small debris.
2. Silicone around the edge of the hole. See photo UU.
3. Insert four rivets into the four smaller holes of the black plastic disk.
4. Position disk over access hole, lining up holes and rivets. See photo VV.
5. Then insert additional four rivets. See photo WW.
6. Rivet into place, using wire cutter to remove tops of rivets. See photos YY and ZZ.



Finished Rudder:



Rear Access Hole Template

