



INSTALLING THE PROWLER BIG GAME™ RUDDER

Parts Included:

Steering Parts:	Foot Rail Parts:	Rudder Parts:	Retraction Parts:
4 Rubber Grommets	2 Rail Assemblies (includes steering cable)	4 10-32x 1/2" screws	1 Rudder Retraction Line (Deploy Line)
2 Lengths of Tubing	4 10-32x1/2" screws	Rudder Bracket	1 Bungee
2 Oval Copper Crimps	4 washers	Rudder Blade	1 Clam Cleat
2 1" pieces black shrink tube		Rudder Body Kit:	4 10-32x1/2" screws
		1 Assembly of Screw/Nut/Washer/Bushing (large)	4 10-32 Nylok nuts
		1 Assembly of Screw/Nut/Washer/Roller Guide (small)	2 Strapeye
		Rudder Body	2 Blind Rivets
Misc			
1 paper template			
8 Rivets			
1 Round, Black Plastic Disk			

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	Safety Goggles
Long Strip of Wire, 3 to 4 feet (ex: straightened coat hanger)			

Please read the instructions thoroughly before installing the Prowler Big Game™ 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.



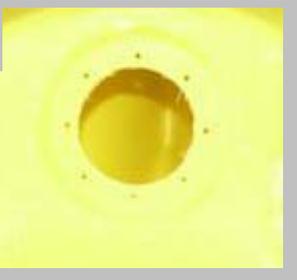
1.1



1.2



1.3



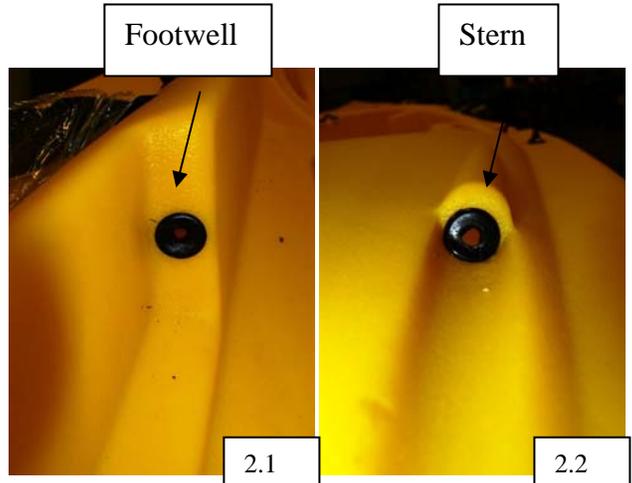
1.4

1_Cutting Rear Access Hole:

- Center the paper template on the surface at the rear of the tank well. Mark all nine holes with a pen. See 1.1.
- Using 13/64" drill bit, drill all holes. See 1.2
- Using 4" hole saw, cut a hole using the drilled center hole as a guide. See 1.3 & 1.4.

2_Rudder Tubing:

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 2.1 & 2.2



2. Insert the 4 rubber grommets into each of the drilled holes. Using scissors, cut the ends of the tubing at an angle to make inserting the tubing easier.
3. 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.
4. Spray the tubing with soapy water (or another lubricant) and insert it into one of the footwell grommets. Continue pushing the tubing through the grommet, keeping it in the space between the tankwell 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.) See 2.3
5. Spray tubing with lubricant as needed.



6. Reach inside the stern access hole to pull the tubing through the hull and guide it through the stern grommet. Hold your fingers over the grommet as you pull the tubing through so the grommet stays in place. Remove the wire. See 2.4
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. 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.



3_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 brass screw inserts on the boat.
3. Using two 1/2" screws and washer sets, attach track to boat using the inserts. Do not over-tighten! See 3.1 & 3.2
4. Repeat for other track.

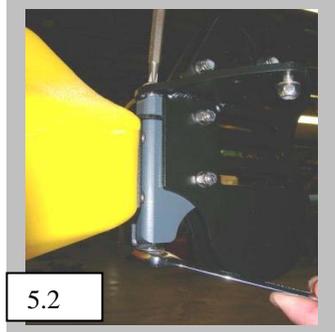


4_ Install Steering Lines:

1. Unwind and straighten steering cable (4.1)
2. Feed cable through tubing so all excess is out the (4.2) 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 4.1 & 4.2



5.1



5.2

5_ Install Rudder Body:

1. Attach the rudder bracket to the transom using 4 machine screws (1/2" long). See 5.1
2. Remove nut, washer, and 4" screw from front of rudder body. Insert rudder body between bracket mounting tabs. Put 4" screw, washer, and nut back in place.

Using 7/16" wrench and screwdriver tighten self-locking nut until screw is flush with bottom of nut. Do not over-tighten. The rudder body should be able to swivel freely. See 5.2.

6_ Install Rudder Blade:

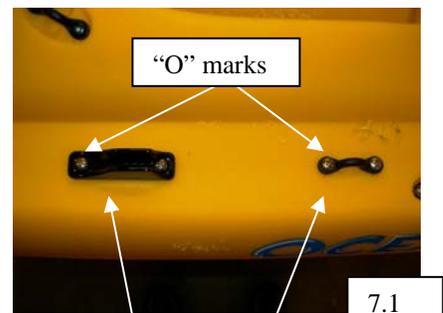
1. Disassemble the larger screw/nut/washer/bushing.
2. Insert the bushing through the center hole of the rudder cam.
3. Insert the rudder blade into the rudder body, lining up the center holes of the body and the cam.
4. Insert the screw through the bushing, and tighten washer and self-locking nut with 7/16" wrench and screwdriver. Do not over-tighten. Stop when the screw is flush with the nut. See 6.1.



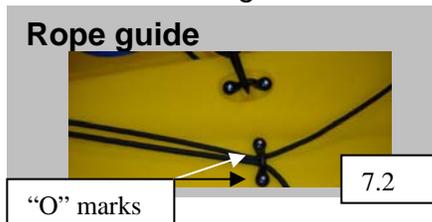
6.1 Center Hole

7_ Install Strap Eye and Clam Cleat:

1. See 7.1 & 7.2 for strap eye and clam cleat placement on right side of boat where seat well and tank well meet (where deck line was just removed). There will be four "O" marking the spots where the rivets and screws will be placed.



Clam cleat strap eye



Rope guide

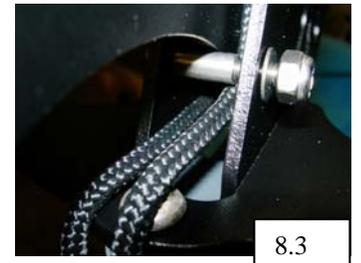
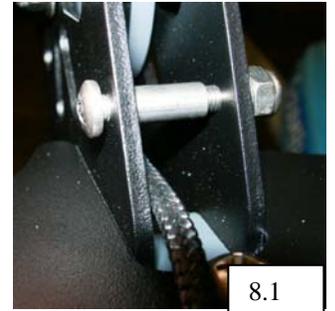
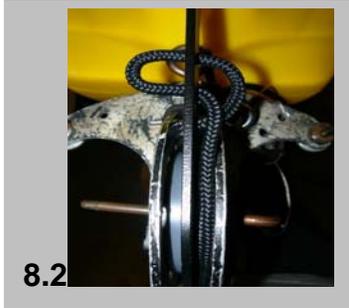
"O" marks

7.2

2. Using 13/64" drill bit, drill the two "O" where the strap eye and cleat will go. Drill out the 2 "O" for the rope guide.
3. Attach the cleat and strap eye using a 10-32x1/2 screw, o-ring, and nut. Align the cleat and strap eye in a straight line and drill out the other holes. Attach as before.
4. Mount the rope guide strap eye using blind rivets.

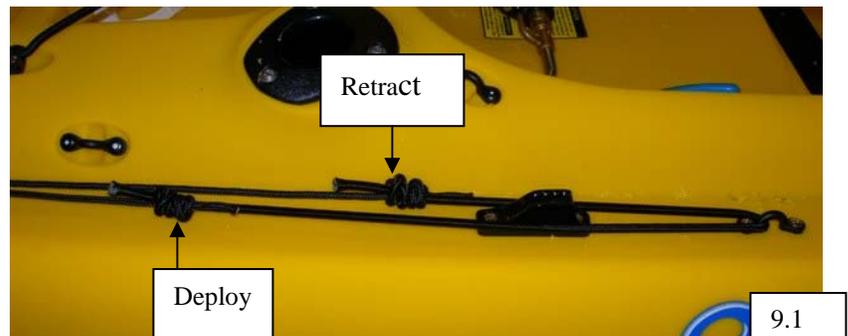
8_Install Rudder deploy/retract Line:

1. Feed the retraction line under the roller guide on the rudder body.
See 8.1
2. Keep the retraction line to the right side of the rudder blade. Bring it under and then up and around the gray cam (on the rudder blade) pulling enough rope to touch the clam cleat.
3. Thread the retraction line through the holes on the top of the rudder blade. Starting on the right hand side, insert the retraction line from right to left through the middle hole. Then insert the line from left to right through the front hole. Then insert the line a final time from right to left through the rear hole. See 8.2
4. Thread the retraction line back under the roller guide. See 8.3
5. Thread both lines through the rope guide strap eye



9_Knotting deploy/retraction line and bungee together:

1. There will be two knots that will hold the bungee and retraction line together: one on the retraction line (Top) and on the deploy (bottom). Each knot is made up of two knots which are positioned side by side. Photo 9.1 shows what the finished attachment will look like.



2. With rudder blade in up position, begin first knot by taking the retract line and looping over the bungee line two times, from left to right in a crisscross pattern. See 9.2. Then take the rope and pass it through the loops, from left to right and tighten. The knot should be 1" from the clamcleat.



3. Working to the left of the previous knot, begin the second half of knot #1 by taking the bungee and looping it over the retract line two times, from right to left in a

crisscross pattern. See 9.3. Then take the bungee and pass it through the loops, from right to left and tighten.



- Slide this knot over so it is snug up to the previous knot. Pull long ends of retraction line and bungee to tighten. See 9.4.



- Take the other end of the bungee and pass it through the strap eye, from the top.
- Move the rudder blade to the down position.
- Take the deploy line and tie the same knot as before about an inch from the clam cleat around the bungee. See 9.5
- Pull the other end of the

bungee to apply tension. Keeping the tension, tie the free end of the bungee around the deploy line as before. See 9.6



Pull the knots together. Refer to 9.4 Cut off the excess rope and bungee leaving about an inch. Use a lighter or other heat source to melt the ends of the rope. Use hot glue to seal the ends of the bungee.

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.

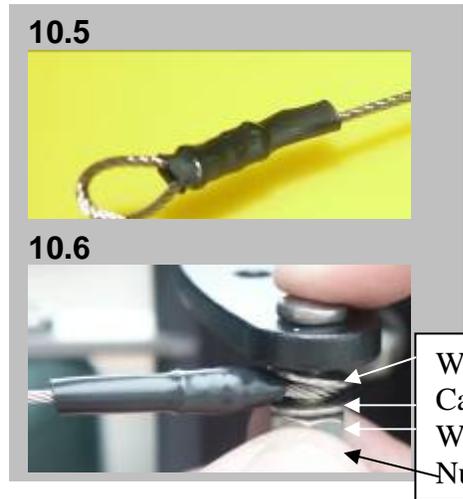
10_Attach Steering Lines:

- Unscrew the nut and remove it plus the 2 washers from left wing of the rudder body.
- Take one of the pieces of black shrink tube and insert it onto the cable that is on the left side. Followed by a copper crimp. See 10.1
- Take the end of the cable and re-insert it through the copper crimp creating a loop. See 10.1
- Place this loop around the screw on the wing.
- Tighten loop using copper crimp until crimp is just in front of the wing. See 10.2. Make sure rudder body is still properly aligned and that the cable is pulled straight.
- Hold crimp in place and remove the loop from the screw.
- Using the crimpers (or pliers), crimp in 3 places, both ends and the middle, to secure the cable. See 10.3 & 10.4





8. Cut the loose cable end, close to the copper crimp.
9. 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 10.5
10. Put one washer back onto screw. Place cable loop on the screw. 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 10.6.
11. Tighten the pedal strap, using the tri-glide, to take up any loose cable, keeping the cable loop at the end of the track.
12. Attach the other side the same way.



11 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 11.1.
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. Then insert additional four rivets. See photo 11.2.
5. Rivet into place, using wire cutter to remove tops of rivets. See 11.3 & 11.4

