

### **Alternative technique for inserting expansion clips into FirstLight Folding Kayaks.**

As with other folding boats, there is a step in the assembly of your FirstLight Folding Kayak which requires a bit of practice in order to get it right. With our boats it is inserting the expansion clips.

The assembly instructions delivered with each FirstLight boat list one method of inserting these clips, which works well for most people. However we have identified another method which some people have found works better for them. This alternative method is set out below.

The key principle to have in your mind is that each rod needs to bend wide or high outside the normal confines of the boat in order to insert the expansion clips. You can bend the tubes quite wildly, way outside of the skin of the kayak. Note that each of the rods is referred to below using the color of the plastic tip at the bow end of the rod. Note also that the photos below show only one side of the boat however the same principles apply for the other side of the boat.

Method:

Step 1. Complete steps 1 to 15 in the instructions. At this stage, the 8 longitudinal rods should be clipped into the end frames with the seat attached to the two green rods. The forward small cross rib should be in position and the partially assembled frame along with the two foam end caps should be in position inside the skin.

Step 2. Ensure that the seat is positioned well forwards, and that the skin is opened out wide so as not to restrict the expansion of the rods. See figure 1.



Figure 1, looking from the stern towards the bow. Note the position of the seat.

Step 3. Kneel by the boat at the stern end. Place your hands on either side of the expansion joint on the red rod closest to you. The expansion joint is the joint in the rod that is closest to the stern of the boat. Your hands should be close together, with both thumbs pointing towards the stern of the boat. Using a smooth, continuous motion, pull backwards towards your body with the hand closest to the bow, pulling the expansion joint apart by pulling towards the bow and towards your body at the same time. Use moderate pressure to push your other hand towards the stern, so as to stop the boat itself from being pulled around on the floor. Take care not to rotate the rods as this could cause them to come out of the end frames. See figure 2 below.



Figure 2, showing the opened expansion joint (covered in white powder). Note how far the rod is bent outside the skin of the boat.

Step 4. You should find that you can remove the hand closest to the bow from the rod and the expansion joint will remain in its open position; however it may close up slightly. This is OK. Pick up the cord with the expansion clips on it, take the expansion clip that is at the appropriate end of the cord and clip the stern end of the clip (away from the eyelet) onto the stern end of the expansion junction. Make sure that the correct expansion clip is attached to the correct tube so that the cord passes naturally from eyelet to eyelet without interference. See figure 3 below.



Figure 3, showing the correct positioning of the first expansion clip with the eyelet at the bow end and the remaining expansion clips on the far side of the rod.

At this stage, you will find that the expansion joint is either open wide enough to allow you to clip the remainder of the expansion clip into the joint, or that it is not. If it is wide enough, use the thumb of the hand nearest the bow to clip the bow end of the expansion clip in place and proceed to step 5. If however the expansion joint is not wide enough open, hold the stern end

of the expansion clip in place with the heel of the hand closest to the stern and repeat the pull with your other hand. When the expansion joint is open wide enough, use the thumb on your hand closest to the bow to clip the bow end of the expansion clip in place.

Step 5. Ensure that the expansion clip is clipped in place all along its length. See figure 4 below.

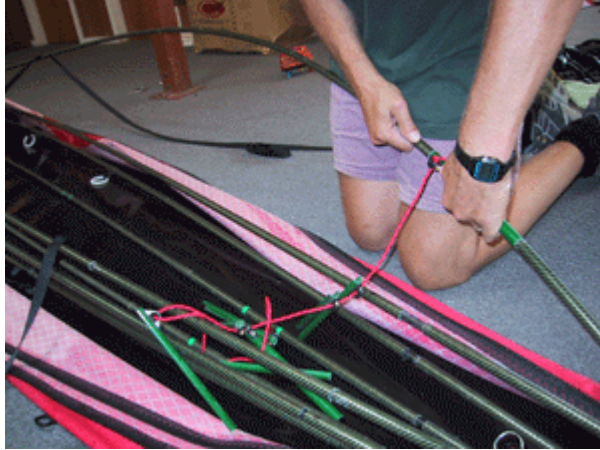


Figure 4 – pressing the expansion clip in place. Again, notice how wide the rod is bowed.

Step 6. Repeat step 3 for the second red rod, on the other side of the boat.

Step 7. Repeat steps 3, 4 and 5 for firstly the yellow, then the blue-coded rod on one side of the boat, then switch sides and do the yellow and blue rods on the other side of the boat. Be careful to insert the correct clip in each rod, otherwise the cord will become entangled in the rods and make the job more difficult. See figures 5, 6 and 7 below for different views of the yellow rod and figure 8 for a view of the blue rod.



Figure 5. The yellow rod is underneath the red rod, which already has the expansion clip in place.





Figure 6. Inserting the clip in the yellow rod.



Figure 7. Opening out the yellow rod.



Figure 8. Inserting the clip in the blue rod. Note that the blue rod is above the yellow and red rods. This makes it easier to work on and the rods can be put back in their correct position (blue below red and yellow) once all the expansion clips are in place.

Step 8. Check again that the seat is positioned well forward of its eventual position. Expand one of the green rods by lifting it vertically, and attach the expansion clip. Repeat for the second green rod. See figures 9 and 10 below.



Figure 9. Inserting the green rod. Note the red, yellow and blue rods with the clips already in place, and that the seat is positioned well forwards to allow the green rods to bend and separate as the expansion clips are inserted.



Figure 10. Inserting the expansion clip in the green rod.

Step 9. Repeat Step 5 for each of the green rods.

Now return to the instruction manual, starting at Step 21.

As another alternative to the process above, you can align your thighs parallel to the boat rather than perpendicular as illustrated above. Some people have found that this gives greater leverage. This technique is illustrated below:

