

CLEAR BLUE HAWAII

Napali Kayak Assembly Instruction Manual



- FORTUNE MAGAZINE



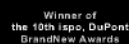
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CAUTION

Paddlesports can be dangerous and physically demanding. The user of this product should understand that participation in paddlesports may involve serious injury or death. Observe the following safety standards whenever using this product

- obtain paddlesports instruction specific to this type of craft
- obtain certified first aid training and carry first aid and rescue/safety equipment
- always use a nationally approved personal floatation device
- always wear a helmet where appropriate
- dress appropriately for weather conditions; cold water and cold weather can result in hypothermia
- check your equipment prior to use for signs of wear or failure
- never paddle alone
- do not paddle in flood conditions
- be aware of appropriate river water levels, tidal changes, dangerous currents and weather conditions
- consult your physician prior to beginning your paddlesports training
- you must not use alcohol or mind altering drugs prior to using this product
- follow the manufacturer's recommendation for the assembly and use of this product
- if additional outfitting is required, use manufacturer's approved materials only, do not impair entry or exit access
- read owner's information packet prior to using this product

The user of this product acknowledges both an understanding and an assumption of the risk involved in paddle sports; for more information contact Clear Blue Hawaii at discover@clearbluehawaii.com or phone toll free 1-707-317-5367.



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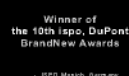
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ASSEMBLY INSTRUCTIONS

Please read these instructions carefully: some changes have been made to the process for assembly of the coaming (steps 41-46, pages 7-8).

1. Remove and identify all the components. See Figure 1.
2. Unfold each of the 8 longitudinal rods and 2 deck rods. These rods are shock-corded for easy assembly. Ensure the joints on each rod are properly engaged with each other.
3. Each of the 8 longitudinal rods (part 4) has a color-coded tip at the bow end. The photographic images in the assembly manual have colored tapes to clearly show the positions of the different rods. These tapes will not be present in your kayak but the different rods are identified by the colored end locking units. Place these 8 rods so that the colored ends are together. The colored ends are always located at the bow of the kayak.
4. The seat has two fabric tunnels underneath for attachment to the frame. Slide the seat onto the two green coded rods so that the seat faces the colored (bow) ends. The seat should initially be positioned forward of centre, this aids expansion of the structure for ease of installation of the expansion clips (see Steps 16-20).
5. Attach the forward end frame (part 3) to the colored ends of the longitudinal rods. The forward end frame is one of the two frames marked as part 3 and does not have any stainless rings attached to it. The colored tip on each rod clips into the convex face of the end frame. It is important to put the longitudinal rods in the correct slots in the end frame. See the colored bands in Fig 2 for clarification of tube position, and the orientation of the end frame. The individual tube positions are red (top center), yellow (top side), blue (mid point on the end frame) and green (at the bottom). This pattern is repeated on the other side of the end frame. Check that each tube is located in the correct position and locked in place by rotating the tube by 90 degrees to prevent it pulling out of the end-frame.
6. The green longitudinal rods are each marked with 4 pairs of green tape bands. These indicate the approximate position of the cross ribs. Clip a small cross rib (part 7) onto the longitudinal rods onto the two green rods, in between the bow end pair of green tape bands. Ensure that the side-release buckles on the frame face towards the bow. For the first assembly the frame should be positioned mid way between these bands (which are about 2 inches/5 cm apart) however this can be adjusted later to optimize skin tension. Sliding the frame forward increases the tension of the skin, backwards decreases skin tension.
7. Clip the remaining longitudinal rods into their respective positions on the cross rib. NOTE: do not attach the 3 remaining cross ribs at this stage – this is done in steps 28-31.



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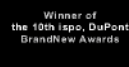
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8. Attach the second end-unit frame (part 3, with stainless rings) to the stern end of the longitudinal rods by bending the rods around and inserting them into their respective positions in the stern end frame (Fig 3). Lock the rods in place by rotating 90 degrees. Check that no rods have become entwined with each other during the process and that each tube is locked in the correct position at both bow and stern ends.
9. Connect the bow deck rod (part 5, with red bands) onto the bracket at the bottom of the bow end-frame. Rotate 90 degrees to lock in place. Lower the rod and clip it into the clip on top of the small cross rib. The connector on the cross rib is designed to flex.
10. Spread out the skin. The bow end of the skin can be recognized by the bow lifting cord. The outer zippers run down the starboard side of the boat – if you stand at the stern and look to the bow, the outer zippers should be on the right of the center.
11. A colored foam end unit (part 2) can either be attached to the bow end frame (see Figure 2) or inserted directly into the bow end of the kayak skin. Note how the foam end unit engages into the end frame. The stern foam end unit must be inserted into the kayak skin.
12. Check that all the joins in the longitudinal rods are fully closed.
13. Pick up the kayak structure and insert the bow end into the bow end of the skin. Check the bow end-frame correctly aligns with the locating knobs on the rear of the foam cap and push the structure as far forward as possible into the kayak canopy.
14. Ease the stern end-frame into the kayak skin carefully past the zippers. There is just enough room to ease the stern end frame passed the zippers provided all the junctions in the tubes are fully closed, the zippers are fully opened and the structure pushed forward in the skin as far as possible.
15. Check that the sliders for the internal zippers are easily accessible and have not become caught between the end frame and the skin.
16. Locate the expansion joints in the longitudinal rods. These are the joints nearest the stern. By pulling each rod upwards or outwards (you need to experiment a little to find which direction works best for you with each rod), these joints will open up and allow the expansion clips (part 18) to be inserted. The insertion of the expansion clips does not require a lot of effort. Initially this may appear difficult but once the technique is mastered it is straightforward. The correct technique involves:
 - Start with the top tube (red coded) on one side. Kneel by the expansion joint so that your knees are close enough to the kayak to enable you to brace your knees against the kayak when pulling the expansion joint open.
 - Place one hand on the rod on the stern side of the expansion joint, close to the joint. Grip the rod with the other hand – this hand is positioned further from the expansion joint, at a distance that gives you the best combination of leverage on the rod and comfort.



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- By pulling outwards and/or upwards with the hand closest to the bow, open the expansion joints as wide as possible. This will usually involve part of the rod bending outside the skin, so you need to ensure that the rod does not become caught in the skin. See Figure 8: the outermost two tubes in this image have been forced out wide and the expansion junction has opened up. Make sure that the expansion joint is opening up and not one of the other tube junctions. If the rods pop out of the front frame this does not matter at this stage. Avoid rotating the tubes as this can result in separation of the tube from the end frames.
- Although you may find that you can do this first time with no problems, inserting the expansion clips (part 14) is the assembly stage that most people find is the hardest part of assembling a Napali kayak. Please remember the following points:
 - This can be done by a wide range of people. Brute force is not required and if you find yourself huffing and puffing you're going about it the wrong way.
 - If you are having difficulty, check that the rods are able to bend freely outside the skin. Check also that the foam end-units are fully inserted into the bow and stern of the skin, and that the end frames are properly engaged with them.
 - The carbon Kevlar rods will not split or break – they need to be bent some distance outside the skin.
 - You do not have to open the expansion joint fully the first time you pull on the rod. Repeat the process a few times. Although they will tend to contract back on release, each time you do this the structure is elongating and the end-units are moving further apart. Try not to rotate the rods as you do this as you may inadvertently unlock them from the end frame.
 - You will find that for some of the rods it is easier for you to lift the rod vertically, while for other rods you may prefer to pull the rod horizontally.
- Take the expansion clip that is at the appropriate end of the cord and clip the trailing 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 (Fig 11).
- Snap the eyelet end of the expansion clip into position. It is very important to check that the expansion clip is fully snapped in place throughout its length.

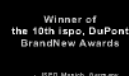
17. Using the process in 16 above, insert the expansion clip into the second red coded rod.

18. Using the process in 16 above, insert the expansion clip into the yellow and blue rods. Do the yellow, then the blue on one side. Repeat the process on the other side.

The yellow coded tube can be the most difficult to fully expand as this tube is the longest. If difficulty is encountered with fully expanding this tube (or others), attach the clips to the other tubes first. The gradual elongation of the structure will make attachment of these final clips easier.

19. Check 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.

20. Make sure that all the clips are in position and are fully snapped in place over the full length of each clip.



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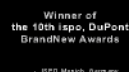
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21. Slide the seat backwards to the middle of the cockpit.
22. Unravel the tensioning webbing (part 12) and lay it alongside the kayak with the karabiner at the bow end.
23. Attach the karabiner to the bow end-frame. The correct position of this is shown in figure 5. Hold the karabiner with the opening facing down. Open the karabiner and hold it open with one finger. Reach into the bow and clip it over the horizontal strut in the middle of the bow end frame. This is done “blind” but is not difficult.
24. Ensure that the short lengths of webbing sewn onto the main length of the tension webbing system near the bow are uppermost and are not twisted round the rest of the webbing. Attach the clips on the short lengths of webbing to the side release buckles on the small cross rib. (Figure 6 – shown without the skin in place.).
25. Lay the long lengths of tensioning webbing out beside the kayak – see figure 7. Take one of these lengths and put it inside the skin. The webbing must pass between the small cross rib and the skin and fits into a notch in the cross rib between the green and blue rods. Take the webbing to the stern and check that it is not twisted.
26. Locate one of the two stainless rings attached to the stern end frame. Pass the webbing through the ring from top to bottom and pull it tight. Take the end of the webbing back towards the bow and thread it up through the ring in the webbing near the cam-lock. (see Fig 12) Now pass the webbing through the cam-lock and pull the webbing tight. To prevent relaxation of the tension, position the cam-lock as close to the ring as possible and close the cam. The webbing must be tight to effectively control the rocker and the tension should be applied now.
27. Repeat step 26 with the webbing on the other side.
28. The small stern cross rib (part 7) can now be positioned and locked in place with the short webbing and the side release buckles (Figure 12). The small frame is positioned to optimize the skin tension. Once the owner has assembled the kayak a few times the optimal position will become clear and only minor adjustments will be required depending upon temperature, i.e. under warmer conditions the urethane will be more relaxed.
29. Identify the forward large cross rib (part 8). It has 2 cleats riveted into it. Align this cross rib between the green bands on the green rods at the front of the cockpit with the cleats on the cockpit side of the rib. Snap the cross rib into position in line with the skin tensioning straps (straps and rings inside of the canopy - see Fig 13).
30. Repeat this process with the other large cross rib. It has no cleats and can be placed with either side to the front or rear.
31. Check that the two large cross ribs are connected to the same central Kevlar segment on the green and red color coded tubes and should not span a join in the Kevlar tubes.
32. Check that the webbing tensioning system passes outside of the green coded tubes on both sides of the cross ribs.



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33. Insert the rear deck rod (part 5, with blue bands) into the pivot unit on the stern end frame. Rotate the rod 90 degrees to lock in place and snap the tube into the upper recesses in the small cross rib. Note that the upper recess on the small cross ribs are very flexible and are designed to flex to the required angle to accommodate the deck rods.

34. Slide the connector unit on the cockpit end of the rear deck rod forward slightly and push the rod down until the connector unit fits into place in the rear large cross rib.

35. Locate the rear skin tightening strap. This can be found attached to the skin at one end of the large cross rib. Take this strap across the top of the large rear cross rib, through the plastic ring attached to the other side of the skin and back across the top of the rib. Pull it tight and clip into the side release buckles – see figure 13.

36. Repeat steps 34 and 35 for the front large cross rib.

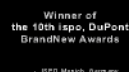
37. Check that side seams of the skin at the chine are close to equal height relative to the Kevlar tubes. In other words, the line where the hull joins the deck should be at similar height on both sides of the kayak. If the skin is off centre, correct this before proceeding. To achieve this, loosen off the skin tension straps, pin the skin to the ground with one hand and slide the structure sideways relative to the skin to correctly centre the skin relative to the

frame. Then re-tighten the tensioning straps. If the ends of the kayak appear twisted to one side, the adjustment of the skin relative to the large and small frames can correct this.

38. Insert the recommended tapered dry/storage bags into both ends of the kayak and position the pack. Figure 14 shows a Napali kayak with a tapered dry bag and a larger dry back in the aft compartment. If the compression struts are used then the dry bag will have to be pushed aft to allow insertion of the compression struts (see below).

39. Install the footrest. Pass the webbing that runs through the footrest tube around one or more Kevlar tubes to control the lateral position. Initially we suggest you pass the webbing round the blue and yellow rods on both sides (these are the middle two rods on each side of the boat) however this can be varied to give a higher or lower footrest position if required. The fore and aft position of the footrest is controlled by the longer webbings which run between the large forward cross rib and the skin, and attach to the seat with cam-locks (Figure 15, 16).

40. Install the two bracing rods (part 19) by placing the rear (without string) end between the seat and the rear large cross rib. Place the forward end of the rod into the recess in the front large cross rib so that it is 1 to 2 inches above the cleat. Connect the webbing and side release buckle around the frame. The exact height of the bracing rods can be controlled by inserting the cord into the cleat on the frame (Fig 16). To lower the height of the rods, pull the string down through the cleat and then pull the string towards the stern to hold the rod at that position. Note that the bracing rods must sit inside the cavity of the aft central frame (Fig 17); they must NOT be placed between the frame and the kayak skin



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41. The short Kevlar compression struts (parts 17) can now be inserted behind the cockpit and forward of the foot rests (Fig 18, Fig 19). These struts increase the rigidity of the hull by maintaining skin tension as the hull flexes. The compression struts snap onto the central deck tubes and the two lower keel tubes. Each pair of struts are colour coded, the blue ones sit about 30cm behind the cockpit (Fig 18). The red ones sit forward of the footrest (Fig 19). The struts with two coloured bands are fractionally longer than its same coloured mate and sit fractionally closer to the cockpit on the deck tube. The position of the compression struts can be varied to optimize skin tension and the recommended range of positions is marked by the colour coding on the deck tubes. The struts must be locked in place by webbing straps attached to the deck tube and the longitudinal tension straps (see Fig 18, 19).

42. The Napali kayak uses Paskal semi dry suit zippers. The zipper teeth are moulded to form a G-lock under pressure and the zipper may require periodic lubrication. A new zipper may feel more resistant to closure especially on the curved regions. It helps to feed the leading edge of the open zipper (with one hand, or finger leading under the slider or just in front of the slider) into the slider as you close the zipper with the other hand. If the slider binds, do not force it, lubricate the zipper and use a finger leading before the slider to help

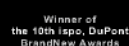
feed the zip into the slider. NOTE: in cold weather the skin will be tighter because of shrinkage of the material. Also, in cold weather, with a brand new skin, it may be difficult to close the skin. Do not force the zippers!!! It is best to perform the initial assemblies in warm weather and allow stretch to occur before assembling in the cold.

Close the rear zippers as follows. The internal rear zipper MUST be closed to near the frame before proceeding to close the external rear zipper. However, it may not want to close to the very end of the zipper track. Do not force the zipper if it really doesn't want to close. If the skin tension is too tight or loose near the ends of the kayak, reposition the small mid-frames. If the zippers are hard to close near the rear compression struts, reposition the struts to reduce the tension. If the zippers are hard to close near the large frames, do not force them. Instead increase the tension on the rear mid frame skin tensioning straps which will stretch the urethane around the hull and enable this internal zipper to be closed. Do this a number of times to stretch the skin around the frame. Now carefully retry to close the inner zipper. Once the internal rear zipper is closed the outer rear zipper can also be closed.

43. Insert the two fibreglass rods (part 10) through the sleeve in the coaming (Fig 18). Feed them through the sleeves carefully, guiding the leading edge of the rod through the sleeve. Push the fibreglass rods into the small black aluminum connector (part 11 small) which is placed in the webbing loops sewn into the skin at the rear of the cockpit.

44. Close the inner front zipper. If there is too much tension to close this zipper back to near the large frame, adjust the compression strut position or increase the tension on the forward mid-frame tensioning strap to stretch the urethane. (the same process as in section 42 applies to the closing of the forward zipper. Do it carefully. Do not close the external forward zipper yet.

45. Attach the coaming connector (part 11 large) onto the other end of the fiber glass rods at the front of the cockpit (Fig 20). The ends of this alloy tube will extend slightly into the coaming side pockets.



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46. Pull the front flap around the side of the cockpit capturing the front coaming connector (Fig 21). On the end of the front flap there is a strap with a side release buckle. The male end of the buckle should be fed through the D ring on the end of the rear flap and clipped into the female part of the buckle. This 2:1 webbing system enables you to tension the flaps against the pressure of the coaming rods. Pull the front flap back so the zipper ends are parallel and the forward flap zipper edge is wrinkle free. Now close the external front zipper.

47. Fit the sea sock over the cockpit coaming, tighten the bungee using the barrel lock and tuck the free end of the bungee under the coaming at the rear of the cockpit.

TUNING THE KAYAK

- The seat can be slid fore or aft to trim the kayak depending upon loading and wind conditions.
- When assembled completely, the webbing tension system should be drum tight to minimize rocker. However the degree of tension can be reduced fractionally to increase rocker if so desired.
- The hull urethane film is extremely tough and highly elastic. The seamless hull will exhibit subtle changes in elasticity with large changes in temperature (e.g. tropical to subzero). The small frame position can be altered to compensate for elastic changes. The compression struts can be repositioned to optimize skin tension.

DISASSEMBLY

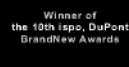
The disassembly should be performed as follows.

1) Brush or wash all sand away from the zippers, release the flap buckle and undo the zippers. Remove the deck tubes. Store all small parts immediately in the pack to prevent loss.

2) Leave the bow small frame in place to maintain curvature of the tubes. The other frames can be removed.

3) Release the tension on the webbing tension system by opening the cam-locks. **DO NOT TRY TO REMOVE THE EXPANSION CLIPS UNTIL THE TENSION ON THE WEBBING IS RELEASED.**

4) Once the expansion clips are removed the tension webbing can be retightened and clamped off using the cam locks. Make sure that there is not sand or grit present in the expansion junctions. The tensioned webbing is very useful to contract the expansion units. After tensioning the webbings, generally all that is required is a gentle manipulation of each expansion tube to facilitate contraction. The frame can then be removed from the skin and fully dismantled. If the structure is locked extended and doesn't want to contract, this is usually because of salt crystals in the joints. Wash out the end of the kayak with fresh water and if necessary disconnect each rod from the end frame and contract each expansion joint individually.



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5) Remove the foam caps from the skin. Wash and dry the skin. Leave the zippers unzipped when the canopy is to be folded or rolled up.

6) All parts should periodically be washed in tap water with detergent and then dried before storage to maintain condition. It is advisable to frequently wash out the composite tubes to remove sand and salt within. The composite tube joins should periodically be lubricated using a silicon spray.

7) The webbings should be replaced if they are showing signs of wear. Replacements can be purchased from your Clear Blue Hawaii dealer.

8) The kayak is best stored disassembled rather than assembled. Long term assembly especially in hot conditions will result in warping of the Kevlar tubes. For instance Kevlar warping may occur if the kayak is left in hot conditions on the beach, also the skin will lose clarity if the kayak is left in the sun and the urethane will eventually yellow.

DIAGRAM: SHOWING THE FUNCTION OF THE WEBBING TENSION STRAP TO CONTROL HULL ROCKER

The tension strap (**black band**) has a breaking strain of up to 1100kg. It should always be used when kayaking and replaced if it is showing signs of wear.

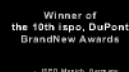
Upper image: the tension strap (black band) is very tight, hull rocker is minimal on the water with the weight of the person in the kayak on board, slight reverse camber of the hull may be evident on assembly.

Middle image: using a taut tension strap without high tension, hull rocker can be increased.

Lower Image: The tension strap is loose and functionally absent. Excessive rocker occurs on the water. Never do this. With wave action lower spigot joins may open and result in loss of continuity of some of the Kevlar rods.

REPAIR OF YOUR KAYAK

- For holes and tears use McNett Aquaseal with McNett sealing tape or patches. These are usually available from your local kayak shop. Aquaseal adhesive can be applied on either side of the fabric. For nearly invisible repairs, create backing with one of the supplied patches to the outside of the fabric. Apply adhesive to the tear from the inside, filling the void and 1/4 inch beyond. Apply the second patch over the adhesive. The repair is now ready for use. The patches will reach full strength in 24 hours, but can be used immediately. If desired, the patches can be removed after the adhesive has fully cured. Addition of a small amount of Cotel-240 reagent to the Aquaseal will accelerate the curing.
- If the skin is severely damaged, replacement skins can be purchased from Clear Blue Hawaii.
- Lubricate your zipper frequently with the zip care reagent after using the brush to remove sand etc



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- CLEAR BLUE HAWAII RECOGNIZED FOR WATERSPORTS INNOVATION & DESIGN