

## Inner Tube Removal and Fitting – Original System

The buoyancy tubes add significantly to the stability of the craft. It is the owners' responsibility to ensure that the various components that make up the buoyancy tubes are correctly installed and maintained. If in any doubt, contact Naiad Inflatables Ltd for further guidance.

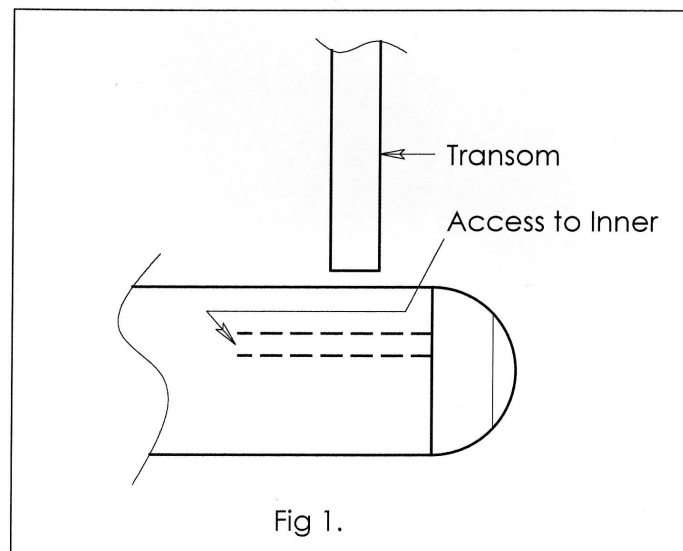
### 1.0 Inner tube Removal;

- 1.1 Deflate the inner tubes by removing the valve cap and depressing the valve spindle. One quarter turn counter-clockwise will lock the valve into the open position. The inner tubes must be fully deflated.

The valves may be located approx. 300mm from the bow and / or approx. 500mm from the transom depending on the type and size of craft. Larger craft (especially those with a cabin) will probably have the valves positioned amidships (approx. 300mm apart).

- 1.2 Loosen the valve nuts so that they can be easily removed by hand. Do not fully loosen the valve nuts or the valve body will slip inside the inner tube and the valve washer will fall within the outer cover.
- 1.3 Pull down the tag positioned at the bow and unfasten the bow-lace and/or zip so that the inner tubes can be accessed.
- 1.4 The valves must be carefully detached from the alloy inwale. For valves positioned at the bow, slip a hand between the inner tube and the outer cover and firmly hold the valve body and large washer. With your other hand, fully remove the valve nut. Keeping the large washer in place, extract the valve body through the alloy and thread the nut back on so all the valve components are attached to the inner tube.

For valves positioned aft, slip a hand between the alloy inwale and the outer cover to access the valve body, as shown below.



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For valves positioned amidships, unfasten the Velcro flap in the outer cover and slip a hand inside to access the valve body.

- 1.5 With the valves detached from the alloy inwale, the inners can be removed. For "2 Tube" systems (i.e. one inner tube per side), slip a hand between the inwale and the outer cover (at the transom) and reach forward until the inner tube can be felt. Work the inner tube forward until it is free of the pocket and then pull back until a rope can be tied around the tube. See Figure 1.

Working at the bow, pull the inner tube forward until it is free of the outer cover and untie the rope. The rope is required to reinstall the inner tube.

*Tips: If the outer covers are to be removed, it is not necessary to tie a rope to the inner tube.  
If the inner tube is hard to remove, try inserting a paddle between the inwale and the inner tube and / or shaking the outer cover.*

- 1.6 For craft with more than one inner tube per side, it will be necessary to work the end of the inner tube out of the slit in the outer cover. Once free, tie a rope to the end, push the tube back inside the outer cover and remove the inner tube from the bow or stern, as appropriate.
- 1.7 Store the inner tubes in an area that is clean and free of any objects or fluid that could compromise the integrity of the fabric.

## 2.0 Preparing the Inner Tubes

### 2.1 NOTES FOR CRAFT WITH MORE THAN ONE INNER TUBE PER SIDE;

The inner tubes must be folded correctly where they meet along one side of the craft. The end of the tubes should be folded back in on themselves so that they butt-up and do not overlap. An overlap will not allow the inners to inflate fully leaving an impression and potentially placing the seams / fabric under undue stress. Pull apart either side of the tube so that the tapered edge may be pushed in so that approx. 150mm of the flat edge has been folded inside. The tapered edge must not be visible (see Fig. 2).

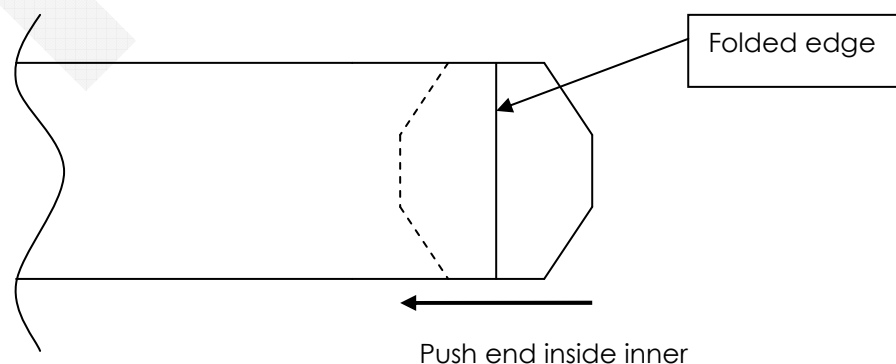


Fig. 2

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*Tips: An even application of talc to the inner tube (using a soft brush) will help when fitting and inflating the tube.*

*It may help to slightly inflate the tube before attempting to make the fold.*

*Check that the valve nut can be easily loosened by hand to avoid problems when fitting the inner tube.*

## 3.0 Inner Tube Fitting

3.1 If a rope was not laid in place during removal of the inner, pass a rope between the outer cover and the alloy inwale so that it exits at the bow and the stern. Generally, it is easiest to use one rope per inner tube. If the valves are positioned amidships, the ends of the rope must exit through the slit in the outer cover as well as the bow and stern.

The inners can either be inserted from the bow or stern. For craft with one tube per side, it is easiest to insert the tube from the stern.

3.2 Spread the untwisted inner tubes on the ground in the position in which they will be fitted, ensuring that the area is clean and free of any objects or fluid that could compromise the integrity of the fabric.

3.3 Tie the rope to the end of the inner and feed it into the outer cover (seam side against the alloy) whilst another person pulls on the rope. The rope should be pulled steadily and not tugged as this could twist or damage the inner.

3.4 Pull the inner tube through until the valve lines up with the valve hole in the alloy inwale.

3.5 Hold the back of the valve through the inner tube (and whilst securing the valve washer), remove the valve nut. Ensure that the large plastic washer is seated correctly over the unthreaded portion of the valve stem (the shank) that protrudes from the inner. Push the valve stem through the valve hole and replace the valve nut.

Do not let go of the valve until the nut is in place or the valve may fall inside the inner tube and the washer may fall inside the outer cover. If the valve does fall inside, the inner tube will need to be removed to reposition the valve.

3.6 Fully tighten the valve nut using a spanner or grips. It should not be possible to unscrew the nut by hand.

3.7 Untie the rope and position the inner tube(s), as follows;

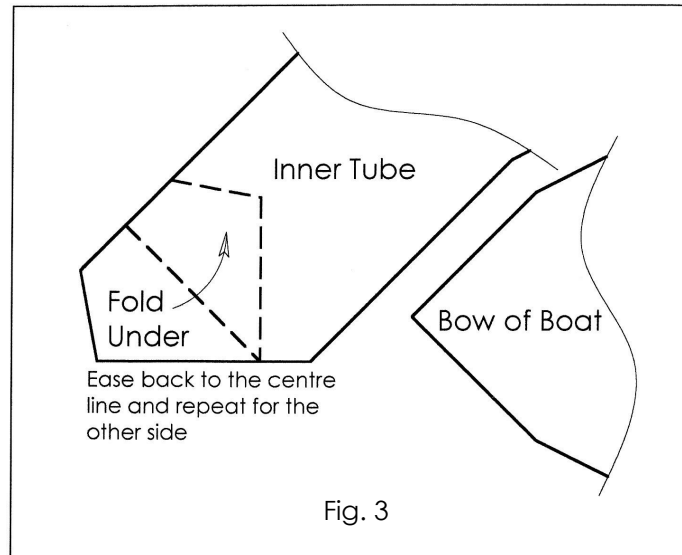
**Aft** – push the inner tube forward of the pocket in the outer cover and then push back into the rear of the cone. See Figure 1.

### **Fore – POINTED BOW**

Working at the bow, fold the inner tubes to form a join. See Figure 3. Craft with a pointed bow have inner tubes with a long tapered edge. For the starboard tube, hold the top piece of the inner tube (at the taper) in your left hand, and hold the small tapered edge in your right hand. Whilst pulling gently with your left hand, fold the "nose" of the inner tube back underneath so that your right hand passes under your left arm.

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The fold should form a mitre type join between the inners which follows the ridge at the joining of the inwales at the bow. Do not let them overlap as a misshape will be caused at the bow, potentially placing the seams / fabric under undue stress. Reverse the procedure for the port tube.



- 3.8 With the inners correctly positioned at the bow, refasten the zip and / or lace and secure the velcroed bow tag.

## 4.0 Inflation

- 4.1 Ensure that the valves are in the closed position (i.e. spindle out).
- 4.2 Working in sequence, half-inflate each inner tube, and then three-quarters inflate each tube. Finally, fill each tube to approximately 2.5 to 3 PSI and replace the valve caps. Check that the tubes are evenly inflated with no indentations or hollows.

As a guide, 1.5 PSI will feel firm but soft whereas 2.5 PSI will feel hard and over 3 PSI will start to feel drum hard. When at an acceptable pressure, the buoyancy tubes will provide good support whilst standing on them and yet still be soft enough to absorb shock and reduce the amplitude of the ride.

**TIPS:** Sometimes a "hollow" may be created at the bow (or at any point where inners meet) during inflation. Often, this is caused by uneven inflation resulting in one inner tube starting to creep. Removing some air from the tube will allow it to recede and the other tube should then fill the void.

A twist in the inner tube will usually appear as a vertical indent and can be felt running from track to track. With the tubes deflated it may be possible to reposition the inner although it will normally be necessary to remove the inner and re-install it.

If the rear cone feels hollow, deflate the tubes and pull the inner tube back as far as possible.

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## 5.0 Air Pressure Loss - Troubleshooting

NB - If the tubes deflate after installing the inner tube, the most likely cause is that the valve has not been installed correctly.

Possible cause	Resolution
Valve nut is loose.	Tighten nut and reinflate. It may be necessary to remove the nut and check that the valve is seated correctly. See 3.5 above.
Valve is not seated correctly.	Inspect valve. If necessary, reseal the valve. See 3.5 above.
Spindle not correctly turned to closed position.	Remove valve cap, press spindle and rotate clockwise until firm.
Grit / sand trapped in cup diaphragm.	Inflate fully and release air on short bursts by pressing the spindle down several times.
Valve is damaged / worn.	Replace or repair valve.
Inner tube has a puncture.	Remove inner tube and inspect / repair.
Ambient temperature has dropped causing air pressure to fall.	None. Pressure will return to normal with temperature rise. Inflate only if boat required immediately and reduce pressure accordingly.

**WARNING!** *The craft must not be used in an under-inflated state as this will reduce the effectiveness of the buoyancy tubes and may cause damage to the fabric. On cold days the pressure may drop and more air may be required.*

**WARNING!** *Over-inflation will only strain the seams and will not assist performance at all. An increase in atmospheric pressure and direct sunlight will increase the air pressure in the tubes. Care must be taken by letting some air out in hot situations to avoid the pressure reaching the drum hard stage.*