

FC Yacht Cradle Assembly and use Instructions Iss 7

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Tools / Facilities required

- 19 mm A/F socket and wrench and / or 19mm A/F spanner or suitable adjustable spanner.
- 24 mm spanner or suitable adjustable spanner.
- Water-proof grease.
- Reasonably level piece of ground (ideally at the precise location that the yacht will be stored).
- Hammer, maybe needed to insert pins due build up of zinc from galvanising.
- Tape measure



6 leg (FC3)



4 leg FC 1 or FC2

This how the cradle will arrive with you.



FC 3 Only – Cut the straps and remove the two legs from the top of the bundle, also locate the “H” shaped 6 leg adapter from the centre.

Using the two M12 bolts, washers and nylock nuts build the centre leg assembly as shown. A bulk of timber is used to enable fitting the M12 bolt from below.

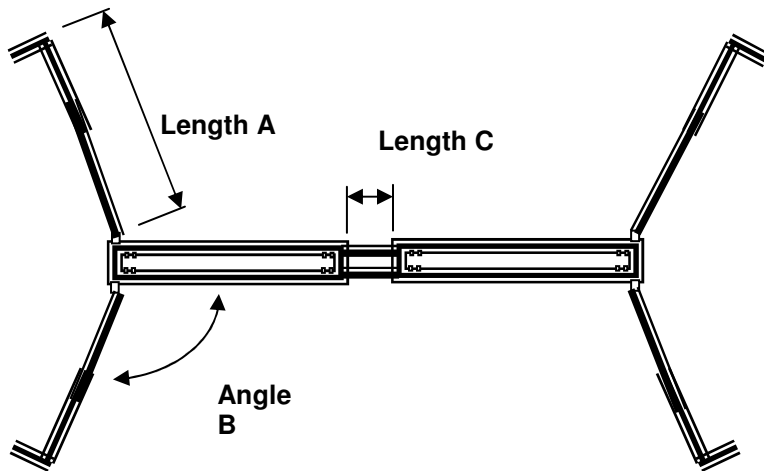
All FC cradles

There are many length adjustments, each leg can be telescopically extended (Length A) The base (Length C) can be telescopically extended in the same manner.

The locking of these adjustments is by two or four locking screws per inner section, for the integrity of the cradle all of these locking screws must be tightening against the inner section and not fresh air!!!

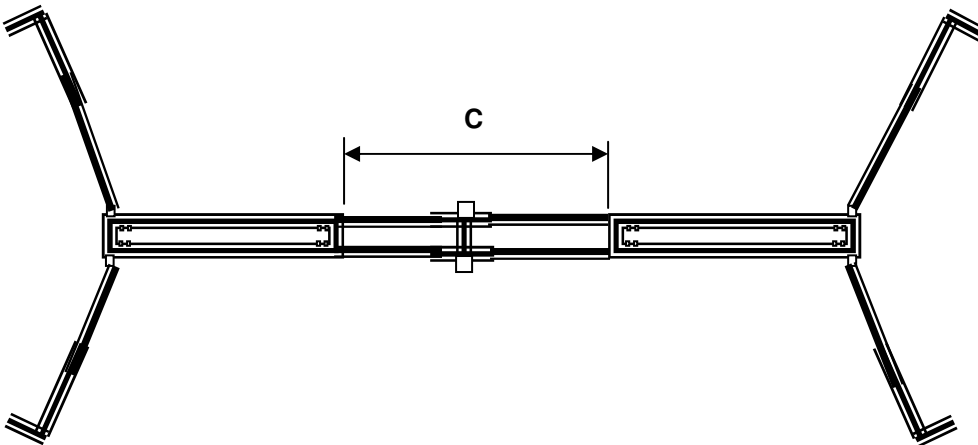
Base Layout

Setting the overall cradle length is a combination of length "C" and angle "B" the cradle length is affected by yacht shape, any hard points within the hull (for placing of pads) and the level of vertical support needed at the hull ends to prevent pitching movement. The length of the central frame is likely to be between 25% and 40% of LOA.



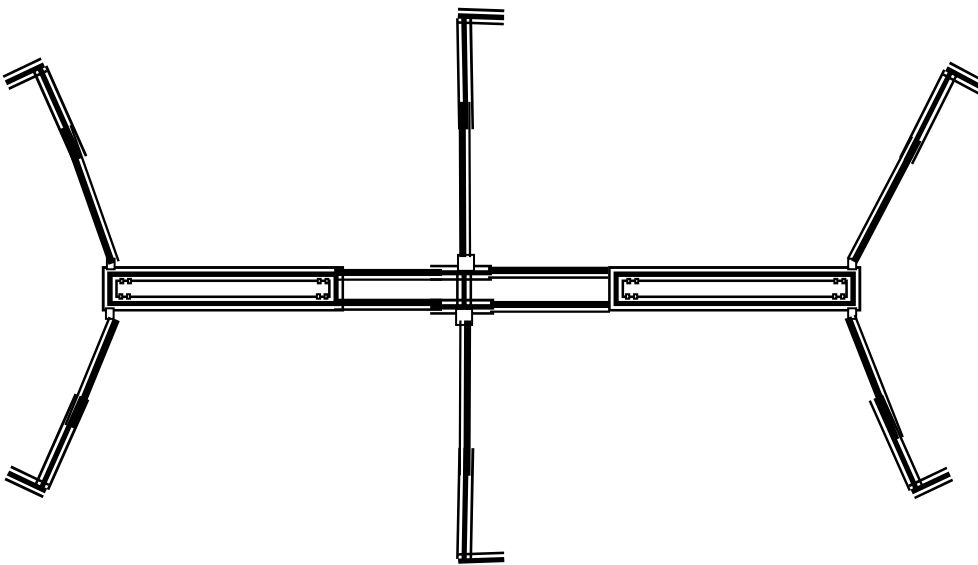
FC1 Initial ground layout

Set length C before the yacht is lowered into the cradle. The 8 locking screws need to be greased with suitable water-proof grease and tightened so that you can feel the screw bite into the galvanising of the inner section. Before final tightening, sight along the base to ensure that it is straight. Adjust as required. Leave the "A" dimension of each leg slightly long and the adjustment screws loose at this stage.



FC2 Initial ground layout

Set length C before the yacht is lowered into the cradle. The 16 locking screws need to be greased with suitable water-proof grease and tightened so that you can feel the screw bite into the galvanising of the inner section. Before final tightening, sight along the base to ensure that it is straight. Adjust as required. Leave the "A" dimension of each leg slightly long and the adjustment screws loose at this stage.



FC3 Initial ground layout

Set length C before the yacht is lowered into the cradle. The 16 locking screws need to be greased with suitable water-proof grease and tightened so that you can feel the screw bite into the galvanising of the inner section. Before final tightening, sight along the base to ensure that it is straight. Adjust as required. Leave the "A" dimension of each leg slightly long and the adjustment screws loose at this stage.

The adjustable pads should be prepared by lightly greasing the main thread and placing the large washer beneath the adjustment nut. The nut should be positioned just below the pad (as shown) to provide maximum screw adjustment. At the same time also grease the two screws per leg that set adjustment "A".

Note The jack nut arrowed must be seized once set to avoid loosening due to wind vibration.



Positioning of Yacht in Cradle

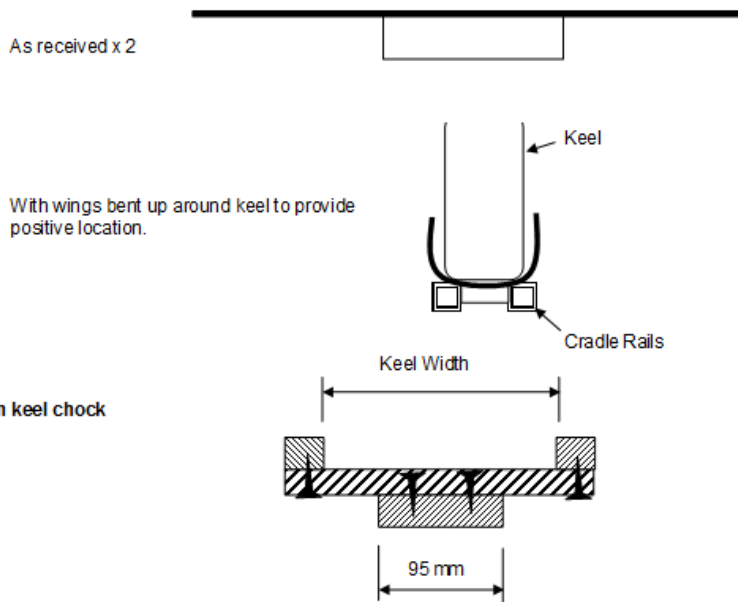
The keel should be lowered onto the central frame as shown. Precise level of the yacht can be adjusted with strong hardwood packing (shown). Keels with a particularly narrow foot-print may require a more substantial bulk of timber or use of Atlas keel supports.



Keel Location

When laying up for the winter or extended periods the keel must be constrained from moving side ways, this can be done in a number of ways. Two possibilities are shown below.

Atlas Keel support made from Galvanised steel



Leg Setting

Legs can only be accurately set once the yacht has been lowered into the cradle and most of the displacement is being taken by the centre frame. Legs can be approximately set before placing the yacht.

The procedure below assumes that the legs are being set-up from the folded position while the yacht is steadied by the lifting strops.

Procedure (each pair of legs)

1. Refer to figure 1 to set angle "B" this angle MUST be visually the same to legs opposite each other across the beam.
2. Normally start with aft pair of legs, then forward pair of legs, where fitted the mid legs should be set up last.
3. Using a combination of the length "A" adjustment and the adjustable tie, set the angle of the leg to horizontal, see figure 2. As a rule of thumb the pad should be placed as close to the waterline from below as possible consistent with figure 2 (See tip below).
The "A" dimension and the leg angle setting MUST be identical to the setting of the opposite leg.
4. The leg extension can now be set by removing the "R" clip and clevis pin and extending the inner leg so that the pad comes as close as the pin adjustment allows to touching the hull before re-inserting clevis pin and "R" clip.
5. The two "A" dimension lock screws can now be tightened until they can be felt to bite into the galvanising of the inner section. **For cradle integrity both screws must be tightened onto the inner section.**
6. Tighten the adjustment nut so that the pad is firmly supporting the hull,
7. Repeat steps 2 – 5 above for opposite leg.
8. Final tightening of pads against the hull should be done incrementally with opposite pad to ensure even support.

Tip, when it come to anti-fouling your boat the following procedure can be followed to enable full coverage on most hull types, this should only be done if you are fully confident in the means of temporary port.

1. Anti-foul the boat as normal working around the pads, then leave to dry fully.
2. Choose a calm day.
3. Using a temporary support (we recommend an AS3 or AS4 boat stand) support the hull next to one of the pads, to avoid slippage the stand must be braced by a strong tensioned rope attached from the opposite side of the cradle.
4. Back-off the cradle pad, and lower leg angle using the pin adjustment for the adjustable tie. Re-tighten the pad against the hull onto an area that has already been painted.
5. Repeat for remaining pads.
6. Anti-foul bare areas.
7. If the yacht is to be left for a period before launching consider reversing above for optimum hull support.

Fig 1

When considered in plan view the leg angle "B" should be set close to an imaginary radial line through the hull curvature.

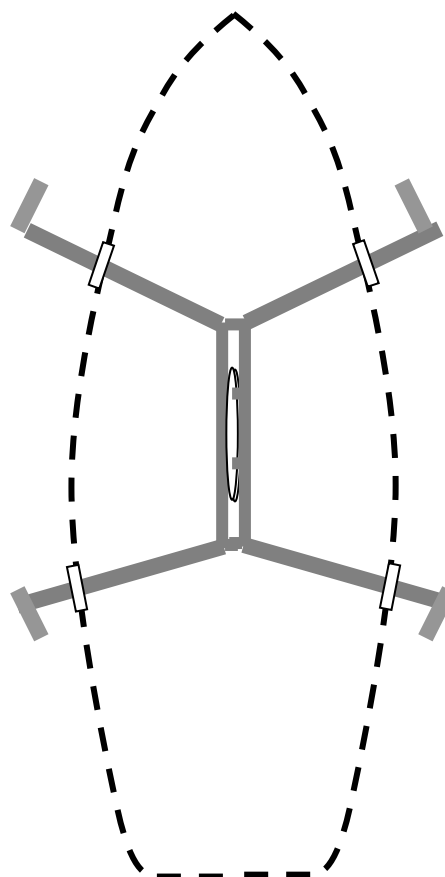
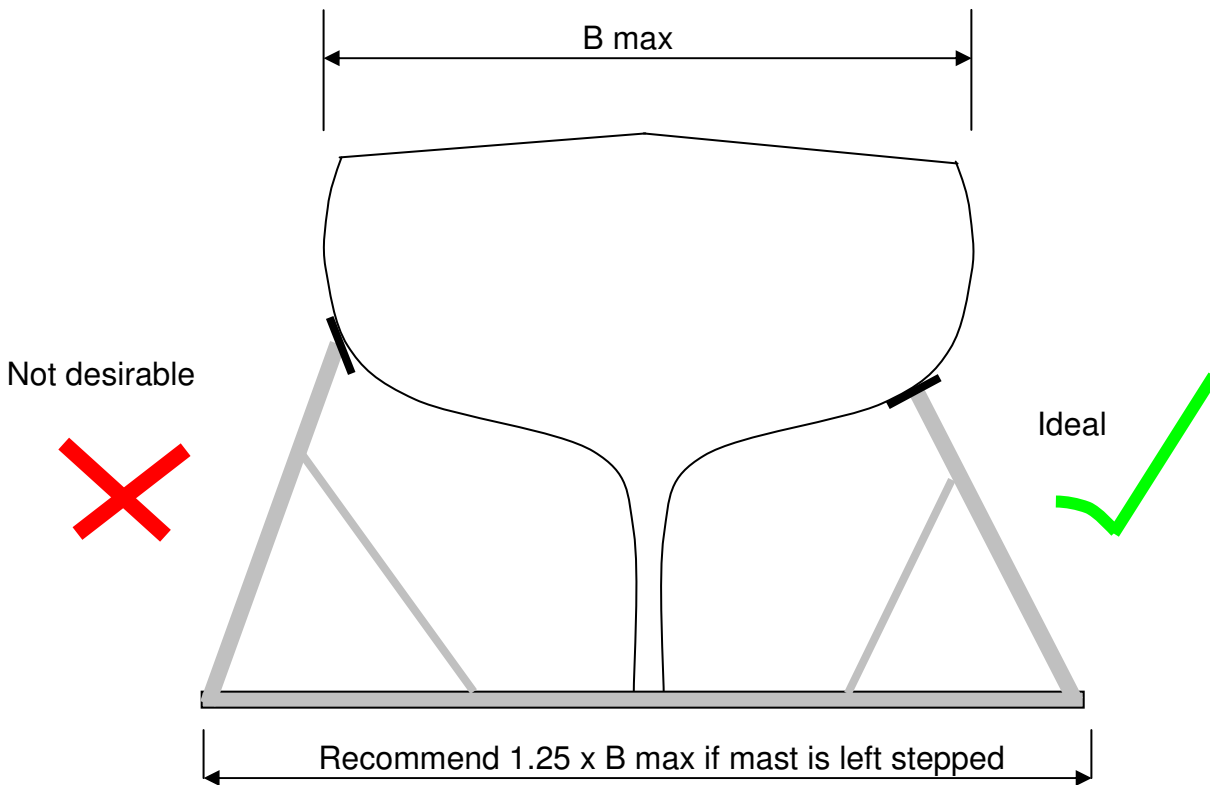


Fig 2



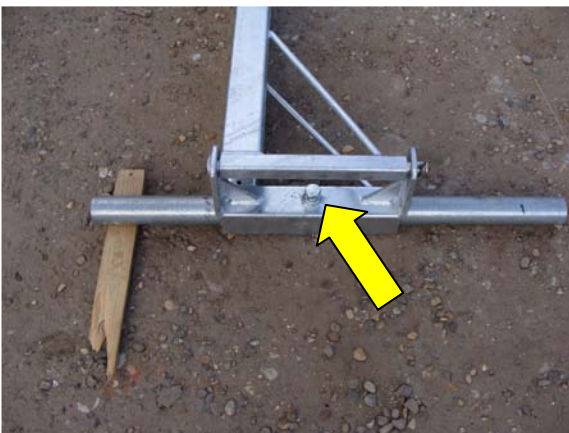
The legs should be set up as close to the situation shown on the right as possible, with the leg close to an imaginary radial line through the hull curvature.

The situation shown on the left will induce high bending stresses in the leg and while the leg design has ample strength in normal situations this is not advised. The left hand situation also makes fine adjustment of the pads very difficult.

Once the above process has been followed with all the locking screws tightened and the pads firmly held against the hull the cradle / yacht combination become a strong structure, however there are some further points that need to be addressed.

1. The pad adjustment nuts can become loose with constant wind induced vibration. So they should be lashed to prevent loosening.
2. When the rig is left in place, and/or the yacht is laid-up in an exposed location, strong ground anchors are essential.

Improved stabiliser with screw location.



The stabiliser is made from galvanised steel tube that is closely constrained in the vertical plain and located by a clamp screw arrowed.

The tube should be located to provide best support in the forward direction (bow legs) aft direction (aft legs) and equal in both directions (centre legs).

Where uneven ground results in a gap between the stabiliser and the ground suitable packing material (shown) should be used.

Finally check that all accessible friction bolts are tight, that each leg is supported, that all pad jacks are tight and have been seized.

IMPORTANT – If your yacht is being placed on the cradle by a boat yard or other party these instructions must be made available to the people concerned. In all cases the individuals undertaking the work must be competent in the required skills.

The following requirements are not specific to Atlas Cradles they should be followed for all types of cradle.

Safety Guide-lines

1. The cradle must be free from physical damage that may impair strength, must be free of structural corrosion and be complete as supplied.
2. The cradle should be positioned on firm reasonably level ground.
3. The position should be as sheltered as possible.
4. Again where possible the boat should be pointing into the prevailing wind.
5. The cradle base sections must be adequately supported by the ground, any areas where there is a significant gap between the base and the ground must be packed with good quality supporting material. With the cradle empty there should be no perceptible movement if any section is stood upon.
6. The yacht should be placed centrally in the cradle.
7. The keel must transfer all the displacement of the yacht to the base frame. The legs purely provide resistance to rolling, pitching and wind forces.
8. For centre plate or drop keel yachts stored with the keel / plate down, the weight of the hull must be supported by a suitable structure that transfers the hull weight to the cradle rails.
9. If the keel does not rest on the frame a suitable piece of timber should be used on top of the base frame to support the keel.
10. For boats with wing keels or other types suitable chocking must be provided.
11. For normal fin keels chocking must be provided to eliminate the possibility of sideways movement of the keel during high side winds (see keel location above).
12. Setting up cradle legs is critical. The leg is far stronger in compression than in bending.
 - a. Legs should never be set at an angle to horizontal of greater than 70 degrees.
 - b. The screw jack at each pad assembly should be tightened sufficiently to prevent movement of the yacht.
13. The cradle legs offset must be pointing forward for the bow legs and aft for stern legs.
14. Yachts with a high draught to keel ratio (Racing Type Yachts) are particularly vulnerable to high winds, for such yachts additional fore and aft centre line support should be considered (See atlas accessories).
15. Where possible yachts should be laid up with masts un-stepped, however if this is not possible windage should be reduced by removing sails, covers, spray hoods and other high windage items.
16. Further precautions should be taken for yachts laid up in known exposed positions.
 - a. Cradle leg storm chains should be used (See atlas accessories).
 - b. The yacht can be strapped into the cradle using strong tensionable webbing straps over the superstructure (See atlas accessories).
 - c. A more secure alternative, that must be used in very exposed locations, is to secure the above straps to 4 strong permanent ground anchor points fore and aft each side.

Atlas Yacht Cradles or Quality-on-Time Ltd are unable to accept responsibility for damage caused as a result of not following these instructions.