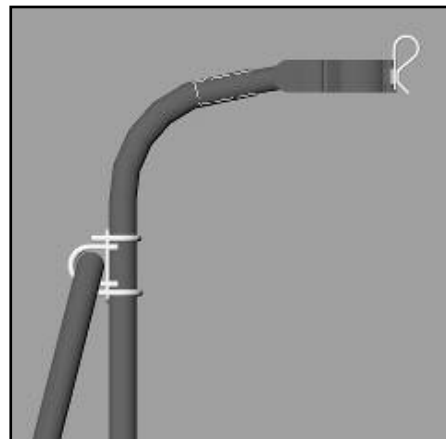
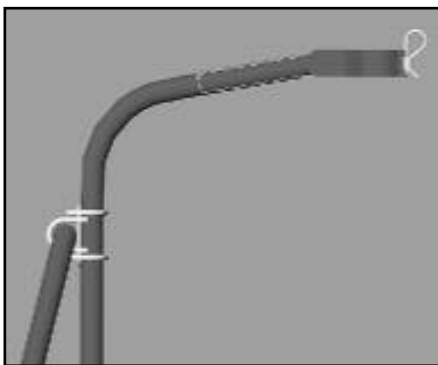
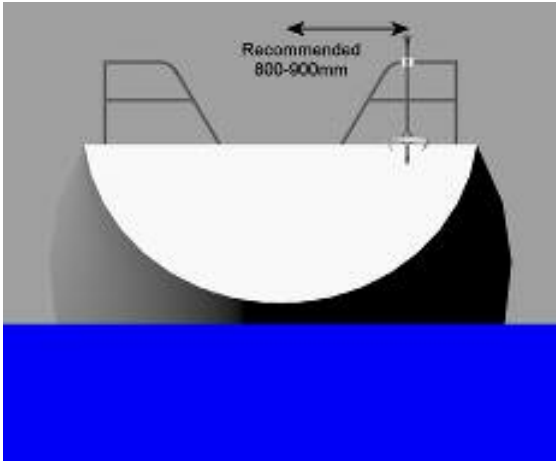


DuoGen Universal Mount Bracket Installation

1. Read all the instructions carefully before commencing installation and familiarise yourself with the components.
2. Allow yourself plenty of time, at least four hours. Fitting DuoGen is not difficult, but it is unfamiliar, and rushing doesn't help! If you can enlist an assistant the job will be much easier.
3. There is nothing worse than dropping tools or fasteners overboard! It is usually well worth the effort of inflating the dinghy and securing it across the transom so you can tackle the job from both sides. Alternatively, bring the yacht in stern to so her transom can be reached from the pontoon.
4. You will see that, when installing using the universal bracket, the bracket becomes a new vertical pushpit member.
5. Consider the diagrams and photographs and decide how best the universal bracket can be attached to your yacht.
6. It is often useful to offer the bracket up to the rails in a variety of positions before beginning to attach it with rail clamps. Note that some drilling and sawing operations may be required. The universal bracket is made of 316 stainless steel and is very hard. Make sure you have a new high speed steel hacksaw blade available and a new high speed steel 5mm drill bit. It will save a lot of frustration!
7. Depending on the architecture of the yacht and the tower length of the DuoGen, it may be necessary to shorten the universal bracket at one or both ends. This is easily done by simply sawing a length off. In some rare cases, notably where an extra long tower machine is being fitted and where the universal bracket foot falls a long way down a transom, the universal bracket may require extending. An extension kit is available to achieve this.

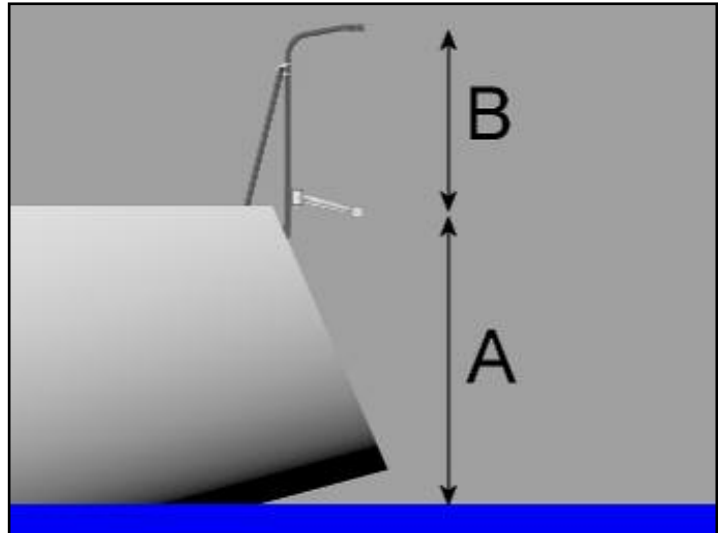


8. Check the pushpit rail diameters. The clamp plates and U bolts supplied with the mount kit are designed to fit 25mm (1 inch) rails. If your rails are 32mm (1¼ inches) you will require 4 larger U bolts to suit. You will also require a larger rail clamp to secure the end of the lateral brace strut. These parts can be sourced locally or via Eclectic Energy Limited.



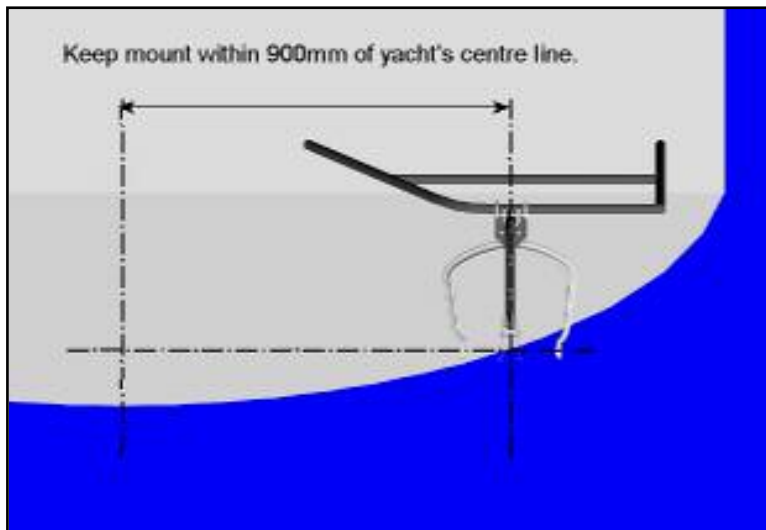
9. Where possible, keep the mounting within 800 – 900mm of the yacht's centre line. This minimises the difference in running depth of the water mode from tack to tack and optimises performance. If the mounting has to be made further out on the quarter, the machine will still work perfectly on most points of sail. With DuoGen on the windward quarter, the impeller may occasionally break the surface when the yacht is close handed with her rail hard down. It will rebury immediately as soon as the angle moderates.

10. Aim to secure the universal bracket such that it is vertical when viewed from the stern and the beam. The upper part of the bracket should be aligned fore and aft. Refer to the appropriate mounting schematic for the tower length of your machine and ensure that dimensions A (alternator pivot point to static water line) and point B (alternator pivot point to upper tower clamp) fall within the given parameters.



11. Where it is possible to clamp the universal bracket on both the upper and the middle pushpit rails, it may be sufficient to bond the bracket foot to the deck or coaming with Sikaflex or similar. Through bolting remains preferable. Substantial screws could also be used. However, if for practical or aesthetic reasons you prefer not to drill the boat, bonding is an option provided there are two solid mechanical joints above.
12. Where the universal bracket is clamped to the upper rail only, the foot must be through-bolted to the deck, coaming or transom, depending on where it falls. The bracket should be secured with M6 stainless steel nuts and bolts. As drilled holes are permanent, it is a good idea to secure the bracket using the rail clamp and temporarily mount DuoGen. Once you are confident that all is correct, the holes can be marked and drilled.
13. The swivel foot at the base of the universal bracket can be re-orientated through 90°. To achieve this, remove the foot, drill a new 6mm hole at 90° to the existing one and re-assemble.
14. On some installations, the universal bracket foot may not meet the deck coaming or transom squarely. In these situations, a simple wedge-shaped packing piece should be made up from hardwood, plastic or aluminium.
15. Where the universal bracket foot is through-bolted, it is advisable to fit a backing plate to spread the load. Alternatively, large 'penny' washers can be used.
16. Having secured the universal bracket to the boat, attach the 'c' bracket using the M25 aluminium clamp blocks.

17. Temporarily fit the alternator yoke by installing the 10mm hinge pin. Centralise the yoke and tighten the pivot lock mini wing screw. Measure the distance from the alternator pivot point to the static water line. Slacken the clamp bolts slightly and slide the 'c' bracket up or down to bring the measurement within the parameters specified for the tower length of your machine. Note that the alternator yoke is reversible and that this has the effect of raising or lowering the pivot point. Ensure that the yoke is square to the yacht and the upper part of the universal bracket when viewed from aboard and tighten the clamp bolts.
18. Temporarily fit the upper tower clamp by sliding the 7/8 inch tube inside the upper part of the universal bracket. Take care to re-fit the rubber anti-rattle ring.
19. Enlist an assistant to help in mounting DuoGen using the short 10mm pins, passing them through the bushes in the yoke. The machine is quite heavy and the holes need to be accurately aligned for the pins to slide home. This is why the job is best undertaken with two pairs of hands.
NOTE: when properly fitted, the alternator/ tower retaining screw and plunger hole at the top of the tower should be pointing forward towards the bows.
20. Slide the yaw arm up the tower and raise the tower up to the vertical, locating the tower in the upper tower clamp. DuoGen's tower should be vertical when in wind mode. The upper tower clamp can be slid backwards and forwards in the universal bracket in order to achieve this. If DuoGen's tower still leans aft with the tower clamp pushed fully into the universal bracket, estimate how much further in the clamp would have to go to bring the tower vertical. Remove the upper tower clamp and cut the estimated length off the end of the 7/8 inch tube. Remove the anti-rattle ring from the universal bracket and cut a similar amount of the 1 inch tube. Reassemble and pivot DuoGen back and engage the tower in the tower clamp. Check for vertical alignment and repeat the process if necessary.



21. When satisfied with the tower alignment, close the locking strap on the tower clamp. Visually check the clamp is square to the tower tube, and using first a centrepunch, then a sharp 5mm drill, drill a hole through the universal bracket and into the 7/8inch tube of the upper clamp. Then fit the pop rivet supplied.

22. Next, fit the lateral brace. Offer this up between the bolt which passes through the upper tower clamp assemble and the pushpit rail. The flattened 'ear' attaches at the tower clamp end, and may require bending slightly in order for it to mate squarely. This is best done in a vice, but a large shifting spanner or vice grip wrench could be gripped onto the 'ear' and used instead.
23. Push the lateral brace rail clamp over the pushpit rail and secure the end of the lateral brace with the 5mm nut and bolt provided. Unscrew the nut from the upper tower clamp assembly,

attach the lateral brace and resecure the nut.

24. Tighten all fasteners.
25. Check that DuoGen pivots freely from wind mode position to water mode. Release 'C' bracket pivot lock mini wing and ensure DuoGen pivots freely from side to side. Centralise the alternator yoke, retighten the 'C' bracket pivot lock. Raise DuoGen back to wind mode position. Ensure that the upper tower clamp strap closes properly and securely with an audible snap. If it does not, or requires undue force to close it, re-check alignment.
26. Fit nut covers and Tower lock warning sticker.
27. Decide where to bring the cable into the yacht and fit a deck gland. (Do not use deck plugs and socket.) Allow a reasonable loop of cable so that the cable is not strained as DuoGen pivots between modes. Raise and lower the machine to make sure the cable runs free.
28. Make the electrical connections in accordance with the guidelines in the manual, and ensure you fit the in-line fuse. If in doubt, seek qualified assistance.
29. If at any point you experience difficulty or are unsure about how to proceed, give us a call
30. (+ 44 1623 827 829). We will do everything we can to assist you.

November 2003

Installation without existing pushpit rails.

