Installing Arch Hinge System.

Introduction:

The hardware supplied is intended to be adaptable to a wide range of boat types and applications, so a little “backyard” engineering may be in order for some applications. The kit we supply includes everything you should need except for a few items that are commonly available at any hardware, or ships store.

Things you need:

1) 16 1/4”-20 oval or flat head mounting screws with lock nuts and washers. Length will vary from boat to boat, and circumstances of the installation. Lengths between 1 1/2” & 2 1/2” will cover most situations, but it’s a good idea to have an assortment handy before you start. (these bolts are supplied with “Tower in a Box” arches as Kit #17)

2) Marine grade (not bathtub stuff) silicone caulk

3) 1/4-20 tap for installing the fittings into the legs of the arch. (if you have a battery drill, it can be used to quickly and easily tap a hole in aluminum, use a lubricant, WD 40 works fine. A number 7 or 3/16” drill bit can be used for the hole (most hardware stores sell them packaged as a set)

4) An extended length 1/4” or 9/32” drill bit is handy for drilling as you can use the fitting as a template and drill all the way thru the side of the boat with hitting the fitting with the drill chuck.

Installing the Hinge: Kit 2

(See "Installing M100…" for info on attaching the fittings to your arch structure)

The thing to keep in mind is the objective, which is to allow the arch to fold (typically aft by installing the hinge on the aft legs) so you want to pick a spot that allows the arch to fold without any interference from rails, tops, seats, deck fittings, etc. The second is that the bolts which form the "axle" on both sides of the boat on which the arch pivots must be aligned across the boat. (i.e. they want to be sticking straight out from the side) This will be accomplished when the mounting plates are "vertical". Some boats may present a nearly vertical mounting surface, in which case the Mounting plates may be secured directly to the fiberglass surface. In most cases however, the mounting surface will be canted inward, or be curved, in which case you will need to shape the underside of the supplied plastic fairing pads to mate with the surface and provide a flat "vertical" surface for the hinge mounting plate.

The plastic fairing pads can be shaped with any wood working tool, a belt sander is usually quick if the surface is not too complex, but files, planes, etc, can also be used. Don't worry about an exact fit, The trick is to apply silicon caulk liberally between the boat and fairing pad and install it with bolts just snugged up, but not tight. Clean up the squeezed out caulking and allow to cure for at least 24 hours, Now, go back and tighten up the bolts. The silicone caulking will have cured and formed a custom made gasket filling all the voids between the fairing pad and the fiberglass surface.

You will need to drill a "relief" hole larger than the 1/4" one in the fairing pad to accommodate the head of the 3/8" bolt which forms the axle. If you think that you may want to completely remove the arch at some future time, then you should drill a 1" hole all the way thru, the fairing pad, the boat and the back up plate. This will allow you to remove or adjust the tension on the bolt without removing the mounting base of the hinge assembly.

If the surface you are mounting to, is relatively flat, but angled, or only slightly curved, the standard backing plate can be installed without difficulty, If the fiberglass mounting surface is significantly curved or is a complex shape, here are a few suggestions. 1) use silicone caulk on the inside also, to form a custom fit gasket, 2) cut the backing plate in half, using each half for two bolts, 3) eliminate the backing plate, and use large “fender washers” on each bolt.

Don’t forget as mentioned in the general arch install instructions and the “TIAB” video, you want to “pre-load” the arch by “squeezing” the legs together when you mount to the boat sides. This “tension” in the arch structure will greatly increase it’s resistance to side to side motion. Also try and choose mounting locations the make the arch legs as short as possible, typically high on the sides of fly bridge boats, or high on the sides of express and walk around boats close to the underside of the windshield sides.

Installing the forward mounts, Kit 2.2

The forward mounts come supplied with 2” diameter rotating wedges which stack together and fit into a recess in the forward fitting (M456C) These allow you to compensate for the angle of the side of the boat. By rotating them together, you can adjust for angles up to about 15 degrees.

On some boats the beam dimension between the forward mounts may be less than the after mounts (the hinge). It is desirable to have to push the forward legs inboard a small amount to engage the slot in the M456C fitting. The outward pressure on the legs will help prevent side sway and rattles. If you feel the difference is to great (typically more than a 1” or so) use the supplied 4” round fairing pad to move the M456C fitting outboard.

If this combination is not sufficient, you may order additional 4” round pads, and “stack” them. Or you may bend the forward legs of the arch together slightly to bring them closer to the sides of the boat. Please call us at 800-831-8889 for information on how this may be done.

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