Baier Marine Internal Hinge Round and Square Hatches
Installation, Maintenance, and Operation Guide

Thank you for choosing Baier Marine for your vessel hardware. This guide applies to the following models:

MODEL:	TYPE	SHAPE / SIZE	DECK RING
BFHHQTH20A/A	HINGED	ROUND 20" CLEAR OPENING	ALUMINUM
BFHHQTH20A/S	HINGED	ROUND 20" CLEAR OPENING	STEEL, GALVANIZED
BFHHQTH24X24A/A	HINGED	SQUARE 24"x24" CLEAR OPENING	ALUMINUM
BFHHQTH24X24A/S	HINGED	SQUARE 24"x24" CLEAR OPENING	STEEL, GALVANIZED

1. **Inspect the Hatch Assembly**
    a. Baier hatch assemblies are shipped completely assembled. Note: Baier hatches are checked and adjusted at our facility prior to shipment.
    b. DO NOT DISASSEMBLE OR ADJUST THE HATCH MECHANISM UNTIL YOU HAVE FULLY READ AND UNDERSTAND THESE INSTRUCTIONS.
2. **Finishes, paint and lubricants**

    IMPORTANT:

    a. Do not coat, paint, or apply lubricant to any part of the hatch assembly UNTIL INSTALLATION IS COMPLETE, and you know the hatch functions properly.
    b. Do not coat, paint, or apply lubricant to ANY PART OF THE SEALING SURFACE of the deck ring or ANY PART OF the cover gasket EVER.
3. **Preparing the Opening**
    a. Opening size: See http://www.baiermarine.com/product-category/cut-out-dimensions/ for specific cutout dimensions for your hatch. There you will find drawings and CAD files.
    b. Inspect the installation area on the deck for flatness. A deck that has high or low spots at the deck ring area can cause the deck ring to warp and compromise the gasket's ability to seal.
4. **Important Considerations Prior to Installing Deck Ring**
    a. If you are NOT welding the deck ring but are attaching the deck ring to a fiberglass or wood surface with adhesive, you may not need to detach hatch cover assembly. skip to step (6) below
    b. If you ARE welding the deck ring to the deck or bulkhead surface, proceed to Step (5)
5. **Remove the Hatch Assembly from the Deck Ring**
    Required if welding the deck ring, to protect nylon bushings from excessive heat, and ease of handling the deck ring.

a. This is a two-step process: First you will remove the hatch cover assembly, then second, you will remove the hinge assembly.

b. To remove the hatch cover assembly, refer to Figure 1.

   i. Unscrew the four hex bolts as shown by blue arrows,

   ii. then unscrew the smaller single hex bolt shown by a red arrow in center.

      1. Note: This single smaller hex bolt is used to lock the sliding hinge feature so that the hatch will open only to 110 degrees. If your application requires a full 180 degrees swing on the hatch you should remove this single bolt.

   iii. Remove the hatch and store it, along with the hardware, in a safe and secure environment.

c. To remove the hinge assembly, refer to Figures 2a & 2b.

   i. Unscrew the four Allen head cap bolts.

   ii. Remove the hinge and store it, along with the hardware, in a safe and secure environment.

d. The deck ring is now ready for attaching to the deck.

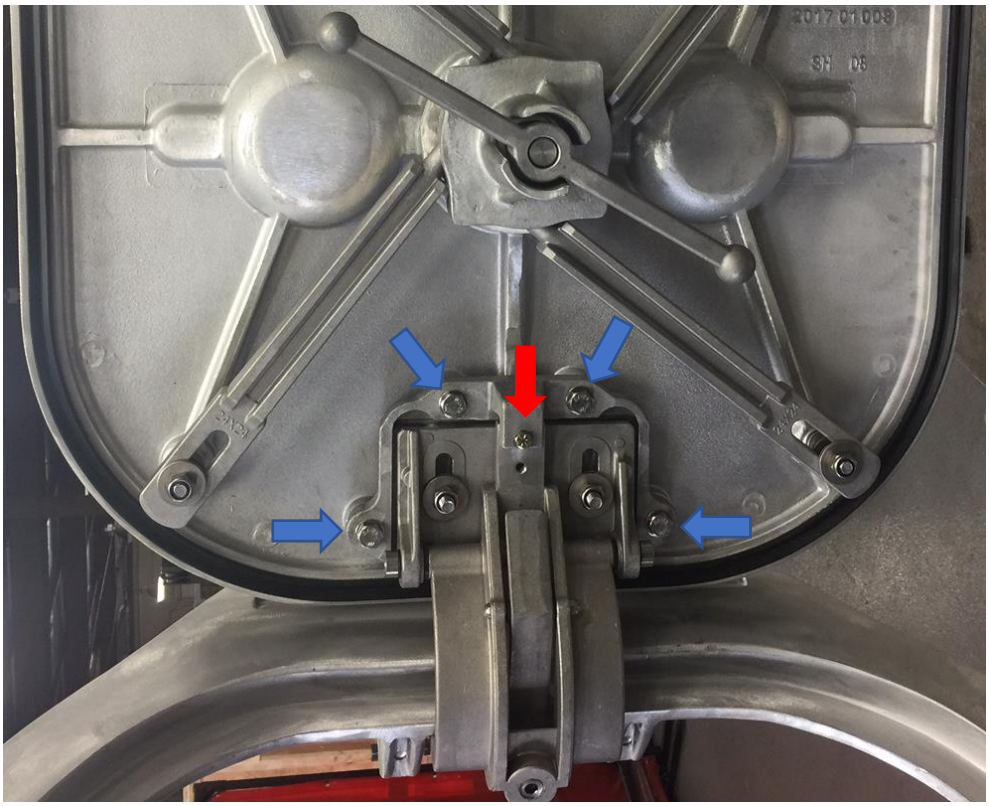
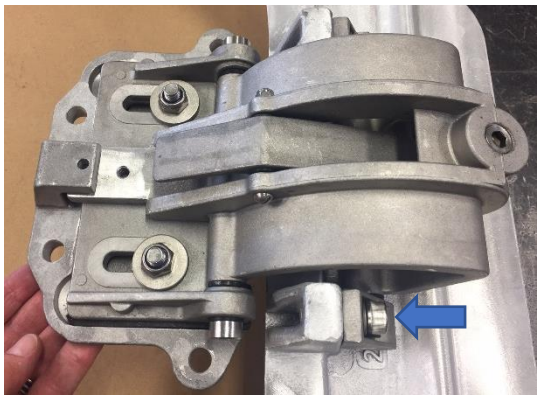
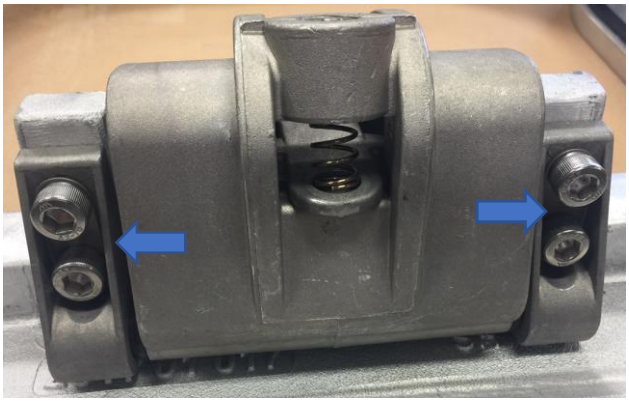


Figure 1 – Hatch Removal

Figures 2a & 2b – Hinge Removal and Installation

6. Attaching the Deck Ring to the Deck of the Vessel

a. Welding

i. Follow "Welding Installation Tips for Flush-Hatch Deck Rings" at http://www.baiermarine.com/wp-content/uploads/Welding-Instrs-2008-09-19c.pdf.

b. Bonding – Boat yards typically use a marine grade adhesive such as 3M™ Marine Adhesive Sealant 5200

c. Fasteners – in addition to sealant above, boat yards may also drill and tap screws or machine screws for positioning and securing the deck ring to the deck. There may be cast "indents" on the underside of the cast deck ring that indicate suggested placement of these holes.

7. Installing the Hatch into the Deck Ring

a. Horizontal (flat) Position

i. Attach the hinge using the four Allen head cap bolts as shown in Figures 2a & 2b. Leave the bolts loose so that they can be adjusted after the hatch is attached.

ii. Attach the hatch to the hinge using the four hex head bolts as shown in Figure 1. Torque the bolts to 50-60 in-lbs.

iii. If desiring to limit the hatch opening to 110 degrees, reattach the small hex heard bolt as shown by red arrow in figure 1. Torque to 50-60 in-lbs.

iv. Close the hatch and clamp shut using the center handle.

v. Torque the four Allen head cap bolts as shown in figures 2a and 2b to 50-60 in-lbs.

b. Vertical Position

i. Follow Horizontal Position Installation, except, prior to torquing the four Allen head cap bolts, wedge a shim material approximately ¼" thick between the hatch and the deck ring to keep the hatch centered and minimize sagging, (see figure 3).

ii. If your application only requires the hatch to swing to 110 degrees, not the full 180 degrees be sure to reinstall the small hex head bolt as shown by the red arrow in figure 1, as this will help keep the hatch from sagging under its own weight.

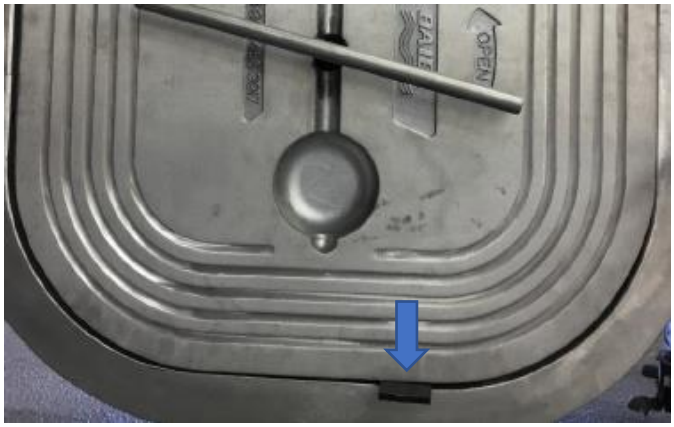


Figure 3

8. Adjustment Tips to Improve Operation and Seal

a. Dog Arm adjustment

i. The Dog Arms are factory set; however, tension can be altered by adjusting the self-locking nuts as shown by blue arrows in Figure 4.

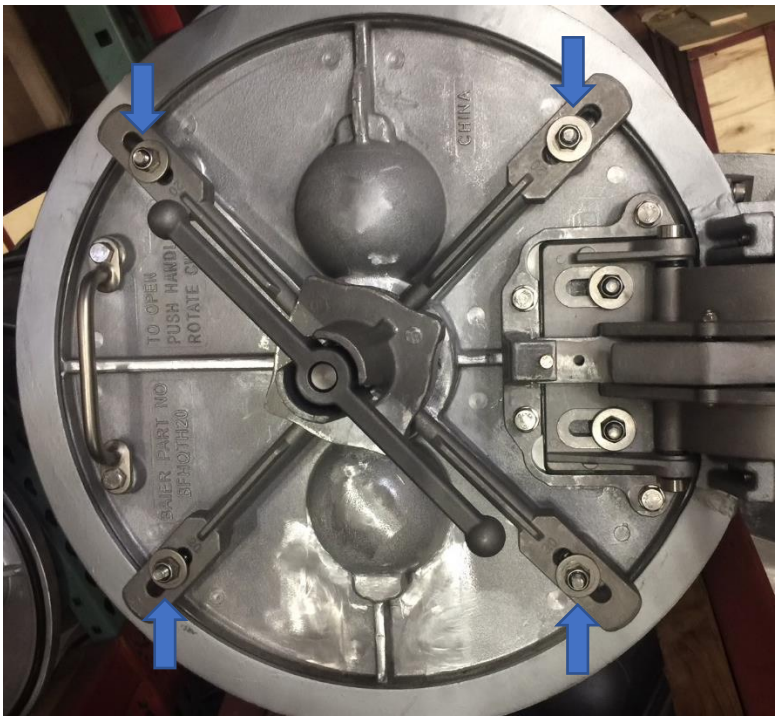


Figure 4

b. Manual check for seal using feeler gauge: Run feeler gauge around underside of hatch seal, looking for gaps between cover gasket and deck ring. Feeler gauge should not push through easily. Significant gaps must be addressed.

Appendix A:

Welding Installation Guide

1. Position the Hatch

It is important to install the hatch ring in proper alignment into its location. The ring must remain flat in all applications for the gasket to form a good seal. To find the cut-out dimension for your specific hatch, please refer to our catalog and/or scribe your cutout from the actual piece.

2. Tack-Weld the Deck Ring in a "Star" Sequence

From below deck, after positioning the ring, uniformly tack-weld the ring to the deck with 1" or shorter welds. These welds must be made in the sequence shown here to avoid heat-distortion (See final page for visual reference). Start your short tack-welds at position #1 (see right). Then tack-weld at position #2 across from #1. Tack at position #3 and so on. Continue tack welding, as far as possible from the last tack and in the order shown at right. (Also see note at bottom: BLANK COVER)

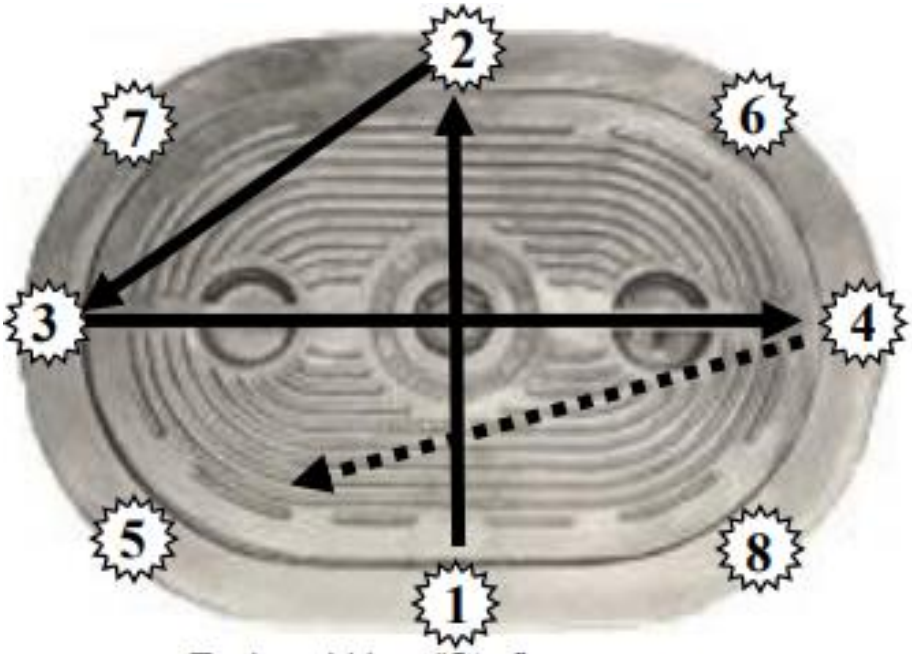
Heat build-up caused by weld-filling a gap can cause the ring to distort. Tack-welding, a necessary preliminary step in installation of your hatch, performed correctly, can help achieve optimal results from the final weld and can prevent distortion. Each tack should be 1" or less. Tack-welding is complete when the welds are 6" apart along the entire perimeter of the ring. This alternating spacing is critical to prevent distortion of the ring.

3. Skip-Weld Outer Edge of Deck Ring

Attach this weld to deck from topside while also using a "star" pattern with your skip-welds to minimize heat-generated distortion. Fully weld the perimeter of the ring on top using skip welds. Many shops will also completely weld the underside of the deck ring as well to ensure deck integrity.

Further NOTES and TIPS:

- Let ring and deck cool naturally. Do not quench with cool water.
- ALUMINUM RING REPAIR: If aluminum deck ring should crack for any reason, notch out the crack and use ER 4043 MIG welding wire to affect a repair. The ring is cast from ASTM-B26 Alloy 356 aluminum and will not respond well to a harder (e.g. ER 5356) welding wire which you might be using on deck plate.
- BLANK COVER: Some builders will use a "blank" hatch cover with the neoprene outer gasket removed to clamp into the deck ring and keep the ring flatter while it is being tacked into the deck cutout.



Tack-weld in a "Star" sequence.

This diagram is an example only — to demonstrate the principle.
Each size hatch will vary.