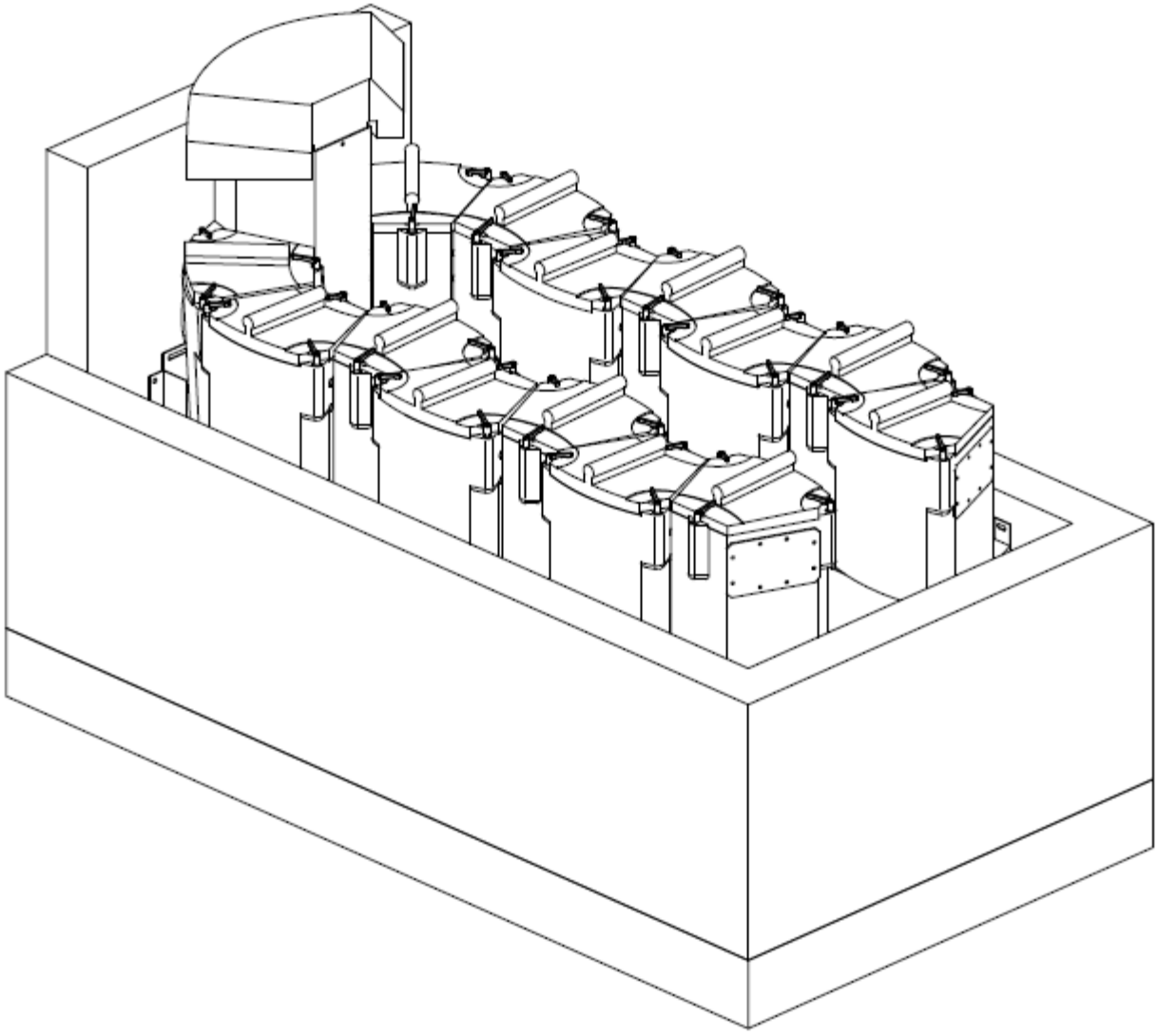
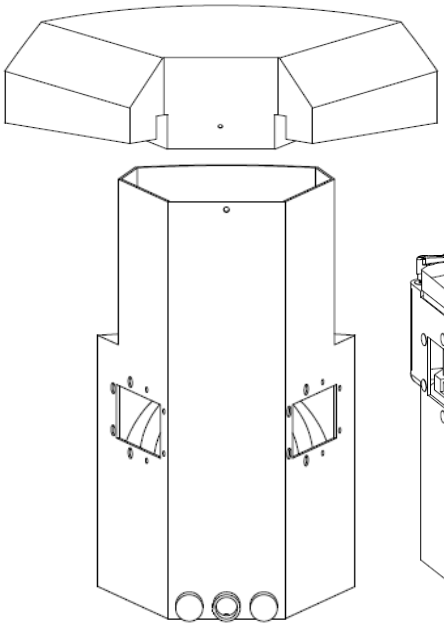
Up-Flo® Filter Handling, Storage and Pre-Assembly Instructions–Vault Configuration



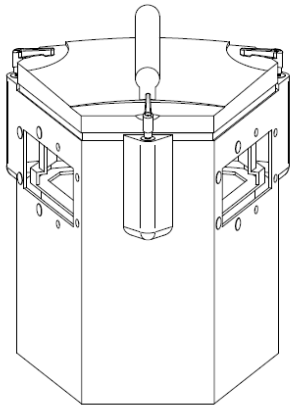
Hydro International, 94 Hutchins Drive, Portland, Maine 04102
Tel: (207) 756-6200 Fax: (207) 756-6212 Web: www.hydro-int.com

Materials Supplied By Hydro International

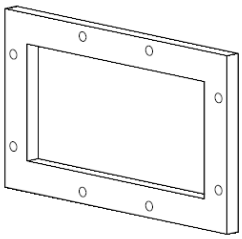
Filter Module Components:



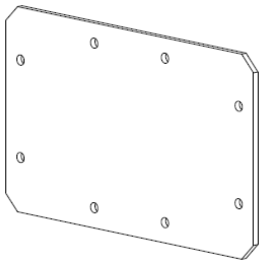
Outlet Module with Bypass Hood



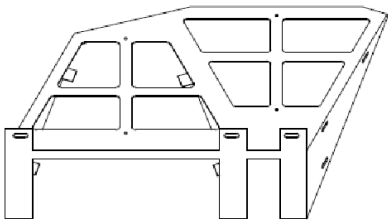
Filter Module with Lid



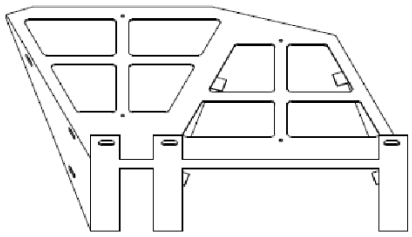
Filter Module/ Conveyance Channel Gasket



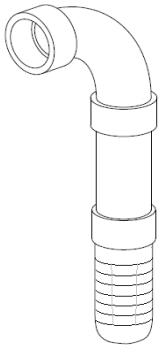
Filter Module End-plate



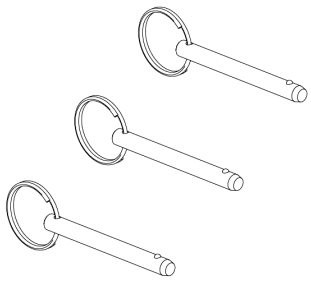
Dual Support Frame (Right-Hand Taper)



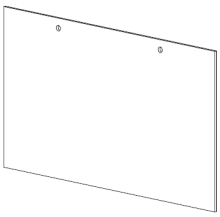
Dual Support Frame (Left-Hand Taper)



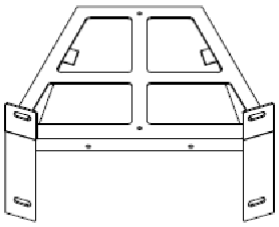
Drain-Down Filter



Quick-Release Pins



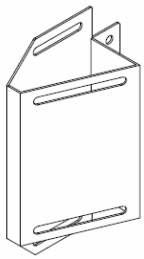
Support Frame Backer-Plate



Single Support Frame

Stencil Kit

Applicable Frames, Lids and/or Grates (as detailed by Hydro Shop Drawings)

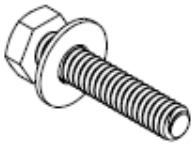


Triangle Support Brackett

Hydro International, 94 Hutchins Drive, Portland, Maine 04102
Tel: (207) 756-6200 Fax: (207) 756-6212 Web: www.hydro-int.com

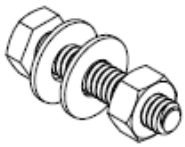
Assembly Hardware:

Hardware Configuration 1: Required for module-to-module connections, module to support frame connection, module-to-cover plate connections



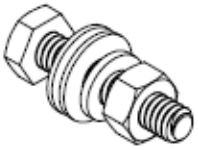
- A-304 SS 1/4 in.-20 UNC x 1 1/4 in. Fully Threaded Bolt
- A-304 SS Flat Washer
- As pictured x10 per Filter/Outlet Module, x4 per Cover Plate

Hardware Configuration 2: Required for module to cover plate connections



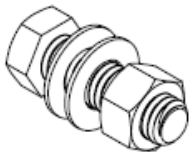
- A-304 SS 1/4 in.-20 UNC x 1 1/4 in. Fully Threaded Bolt
- A-304 SS Flat Washer (x2)
- A-304 SS 1/4 in.-20 UNC Hex Nut
- As pictured x4 per Cover Plate

Hardware Configuration 3: Required for support frame-to-support frame and support frame-to-backer plate connections, connections



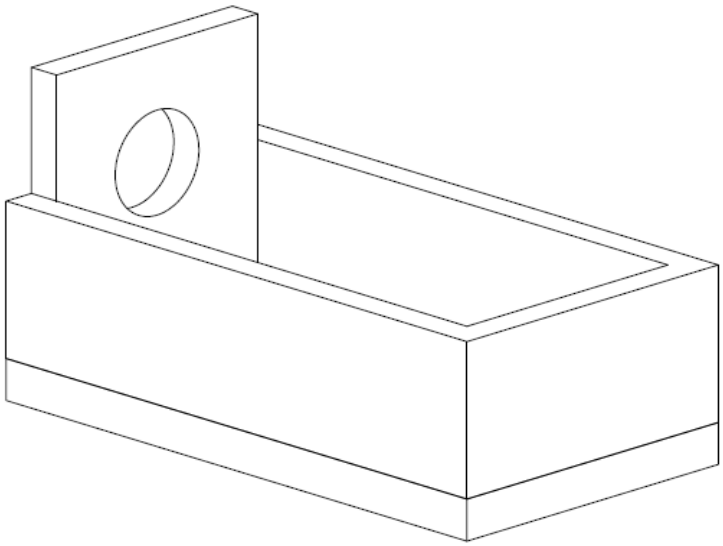
- A-304 SS 1/4 in.-20 UNC x 1 1/4 in. Fully Threaded Bolt
- A-304 SS Flat Washer (x2)
- A-304 SS 1/4 in. Lock Washer

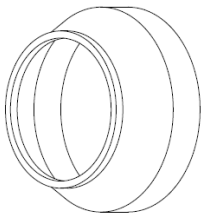
Hardware Configuration 4: Required for support frame-to-triangle support bracket connections, support frame to support frame connections (x1 per connection)



- A-304 SS 3/8 in.-16 UNC x 1 1/4 in. Fully Threaded Bolt
- A-304 SS 3/8 in.Flat Washer (x2)
- A-304 SS 3/8 in.-16 UNC Hex Nut
- As pictured x2 per triangle support bracket and x2 per backer plate

Materials Supplied By Precaster





Hardware Supplied by Precaster:

- A-304 SS 3/8 in.-16 UNC x 3 3/4 in. Expansion Anchor*****
- A-304 SS 3/8 in. I.D. Flat Washer
- A-304 SS 3/8 in.-16 UNC Hex Nut
- As pictured x3 per dual support, x2 per triangle support bracket

***** Minimum embedment depth of the 3 3/4 in expansion anchors is 2 1/2 in.

Required Tools and Equipment

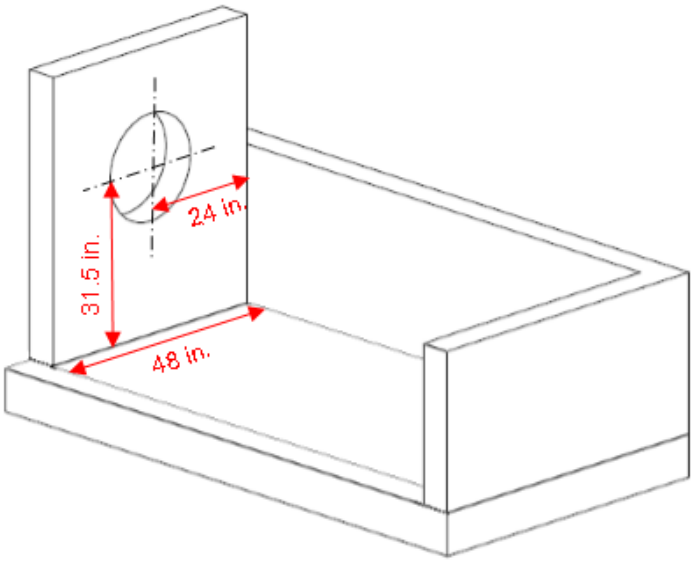
- Measuring Tape
- 7/16 in. and 9/16 in. Sockets and Socket Wrench
- 7/16 in. and 9/16 in. Box Wrench
- Wood Blocking
- Hammer Drill with 3/8 in. Masonry Drill Bit
- Hammer
- Thread-Locking Agent
- Blue Spray Paint
- Production Detail Drawings
- Camera
- Level

Pre-Assembly

Step 1: Verify all Vault Dimensions

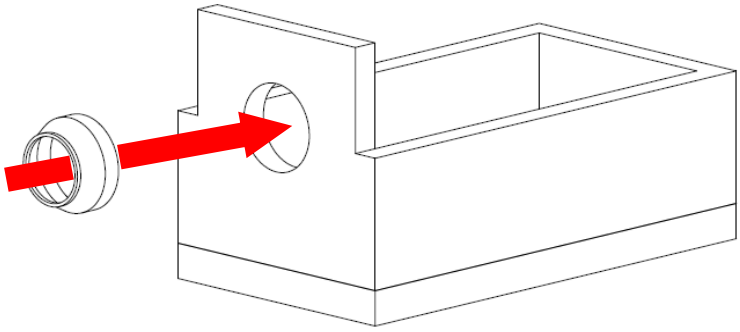
Ensure all dimensions of the concrete vault and cut-outs align with those specified by Hydro shop drawings. Unless specified otherwise by Hydro shop drawings, the center of the outlet cutout should measure 31.5 in. from the sump floor and 24 in. from each wall in the filter bay.

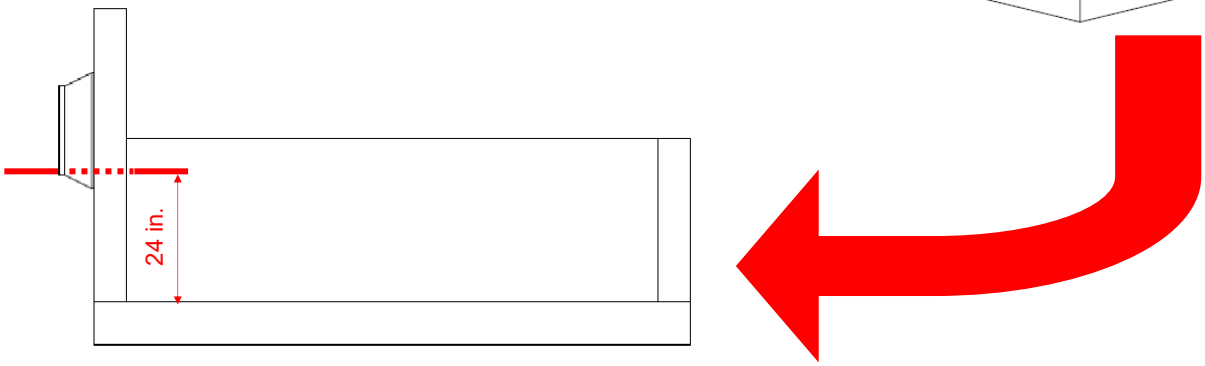
Note: If cutout(s) are not centered modules will not install correctly



Step 2: Install Pipe Boots

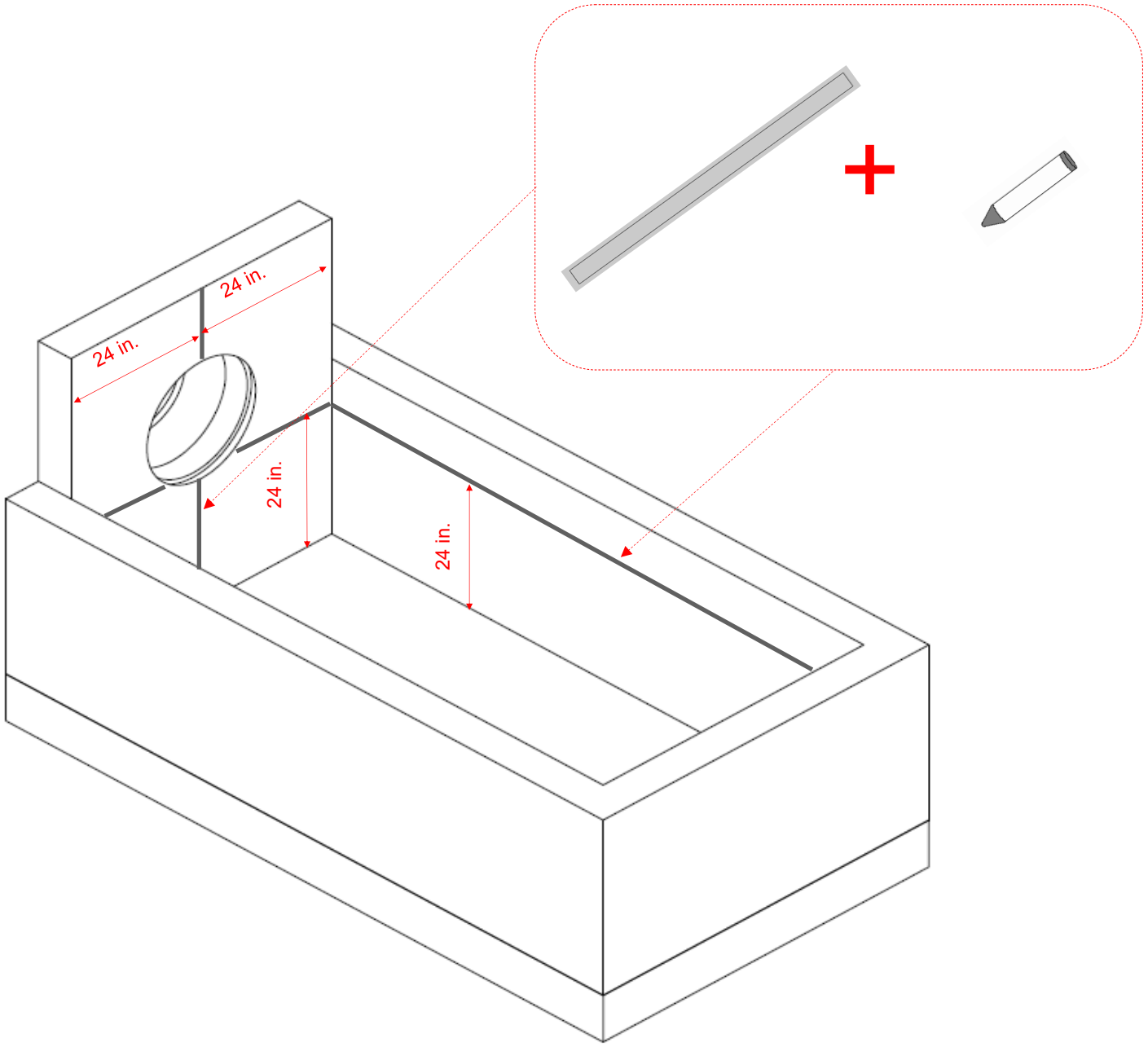
Install pipe boot(s) in each outlet module cutout and ensure invert of reduced diameter is 24 in. above the vault (sump) floor.





Step 3: Mark Elevation of Support Frame Surface:

Using a straight edge measure and mark the Support Frame surface elevation (24 in. or as otherwise specified by Hydro approved shop drawings) around the perimeter of the filter bay. Measure and mark the vertical center line of the baffle wall. This center line should bisect the cutout passing through the crown and the invert.

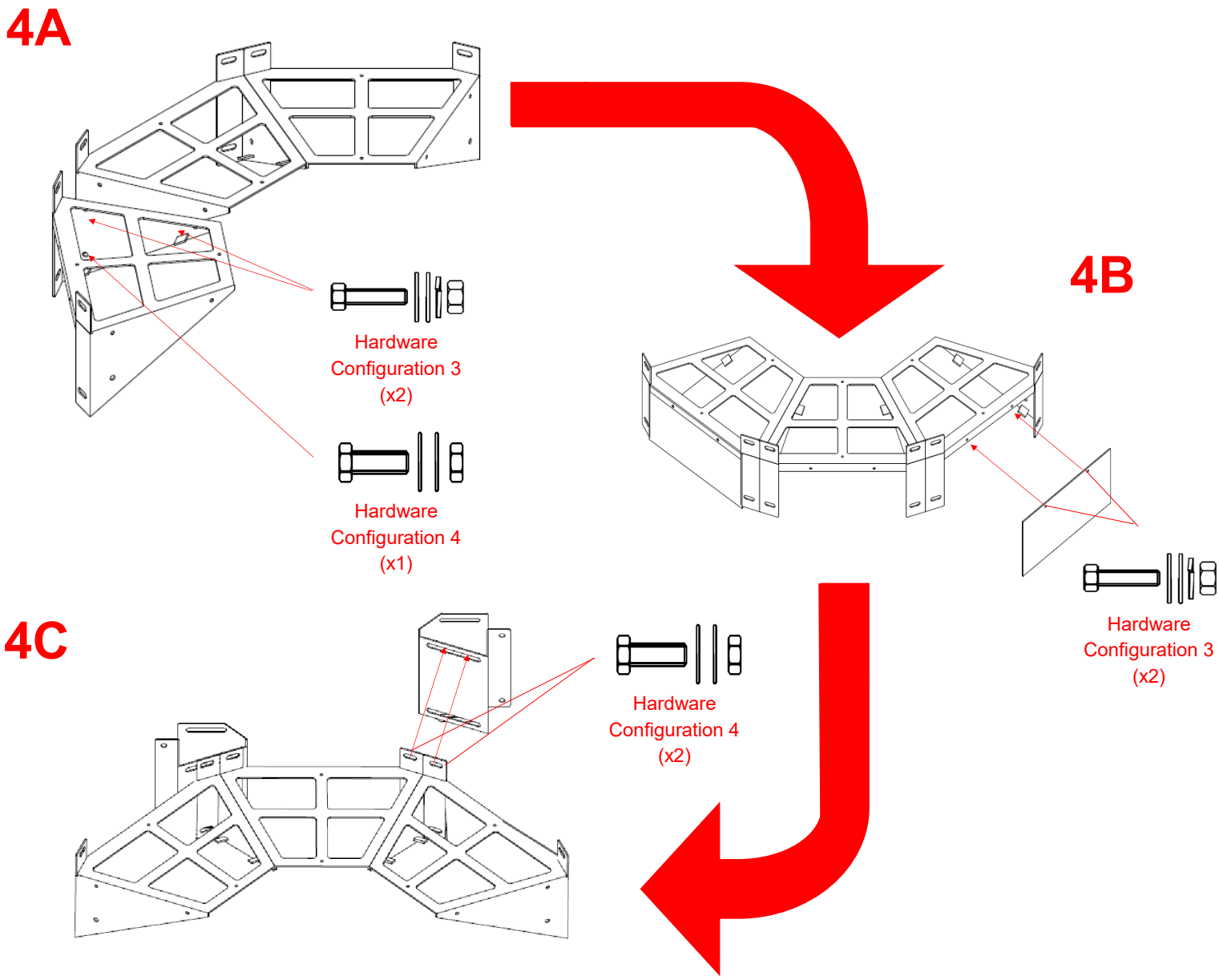


Step 4: Assemble Semi-Circular Support Frame Segment

A. Connect single support frame sections into a single assembly using hardware configurations 3 and 4 (hardware configurations are detailed on page 2). **Refer to "Frame Layout" detail on Hydro approved shop drawings for number of segments and configuration**.

B. Using hardware configuration 3 secure plastic backer plates to the outward facing edges of the single module support frame assembly.

C. Also using hardware configuration 4, loosely secure triangle supports to support frame mounting tabs with the large horizontal slot located above the support. **See Hydro International Shop drawings for positioning of triangle support brackets**.



Step 5: Install Semi-Circular Support Frame Assembly in Vault

Using wood blocking cut to length brace the semi-circular support frame assembly in the vault such that:

A. The center of the support frame holding the outlet module is aligned with the vertical center line from step 3.

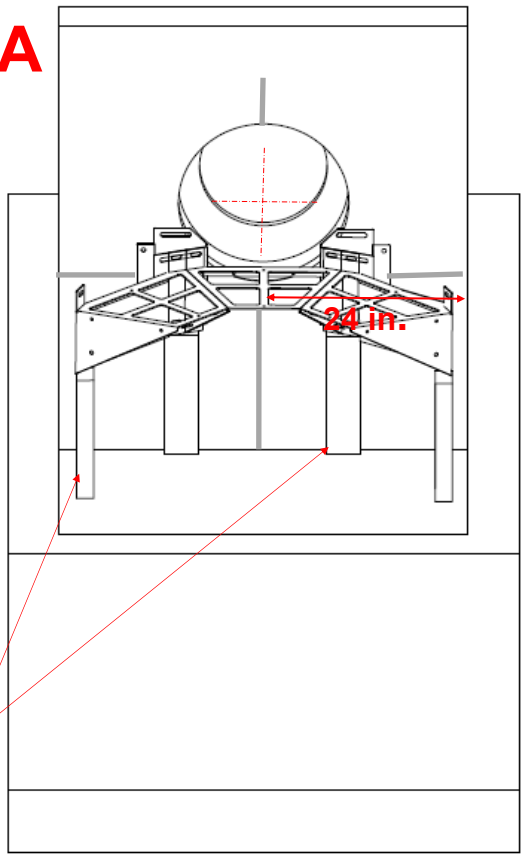
B. The top surface of the support frame assembly is level with the horizontal markings from step 3.

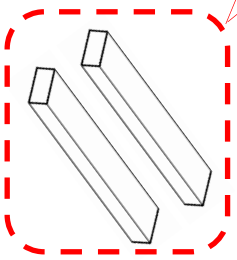
C. The support frame is approximately 1 in. from the outlet baffle wall. Adjust triangle support brackets to secure position.

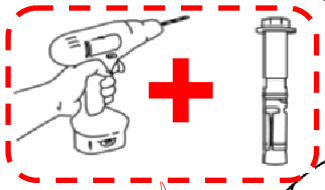
Once assembly is positioned **exactly** as specified secure position by tightening bolts connecting assembly to the triangle support brackets and installing anchor bolts in slotted mounting tabs*. Realign and center as necessary using slotted mounting channels. Once positioned exactly in alignment with marks secure by installing the remaining anchors. **Take picture of installed assembly including marking alignment and vault walls on either side.**

***Note: Ensure all anchor bolts are stainless steel and installed to a minimum embedment of 2 1/2 in. After installing each anchor bolt check dimensions and ensure assembly remains level before installing and tightening the next. If exact positioning is not maintained then remaining components will**

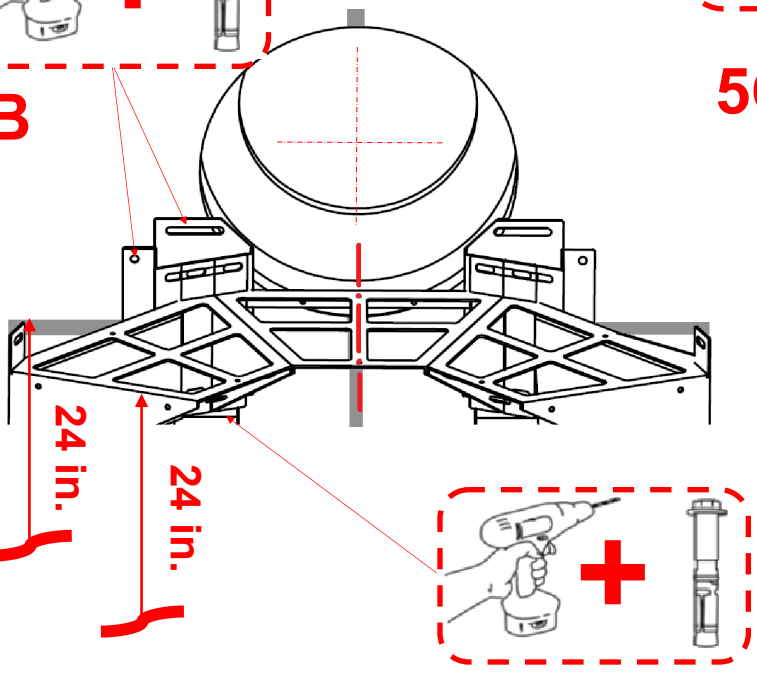
5A



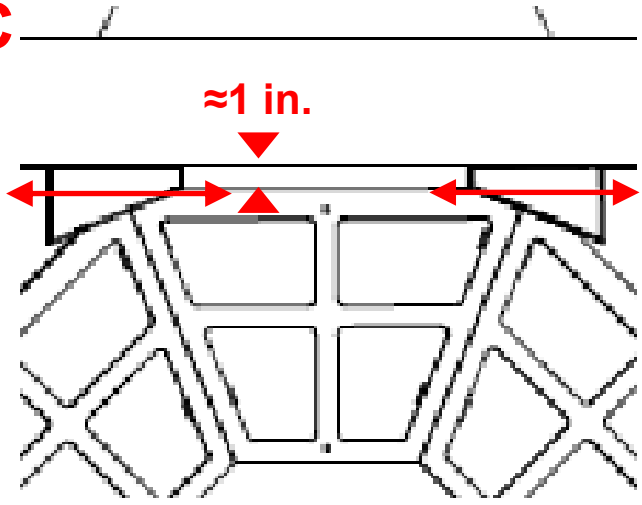




5B

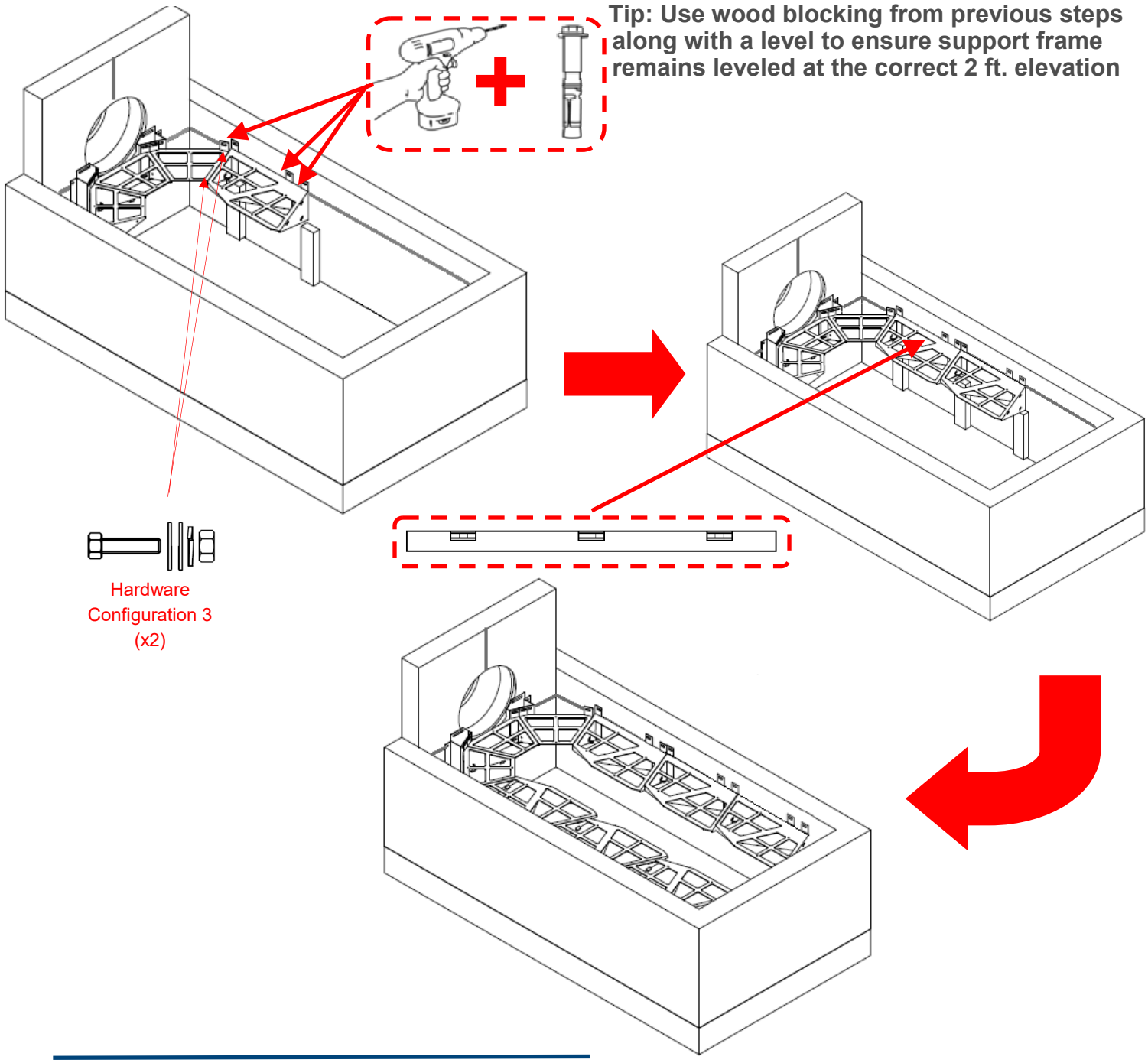


5C



Step 6: Installation of Support Frames:

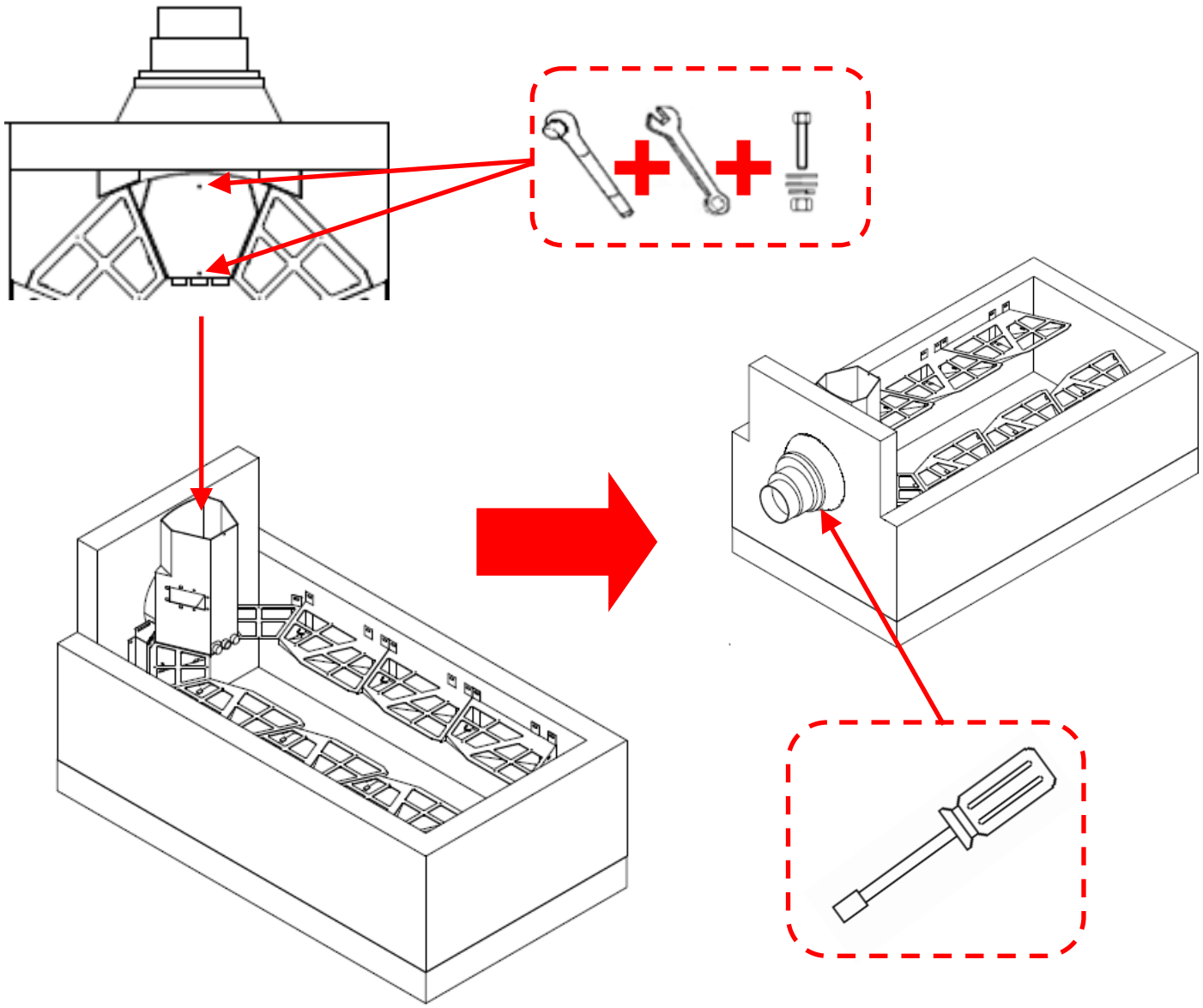
Connect one side of the dual support frame section to the installed section by aligning holes in the sides of the support frames and attaching with hardware configuration 3. Once attached ensure surface plain of the dual support frame is level with the previously installed support frame assembly and with the horizontal markings from step 3. Once verified permanently secure the dual support frame by installing 3/8 in.-16 x 3 3/4 in. stainless steel wedge anchors through the 3 mounting tabs. Complete installation of remaining dual support frames (per Hydro shop drawings) using this same procedure (Connecting to adjacent installed section > leveling in position at 2 ft. above the sump floor > securing to the vault wall). **Take photograph(s) from top showing installation of entire support frame and orientation between vault walls**



Step 7: Installation of Outlet Module:

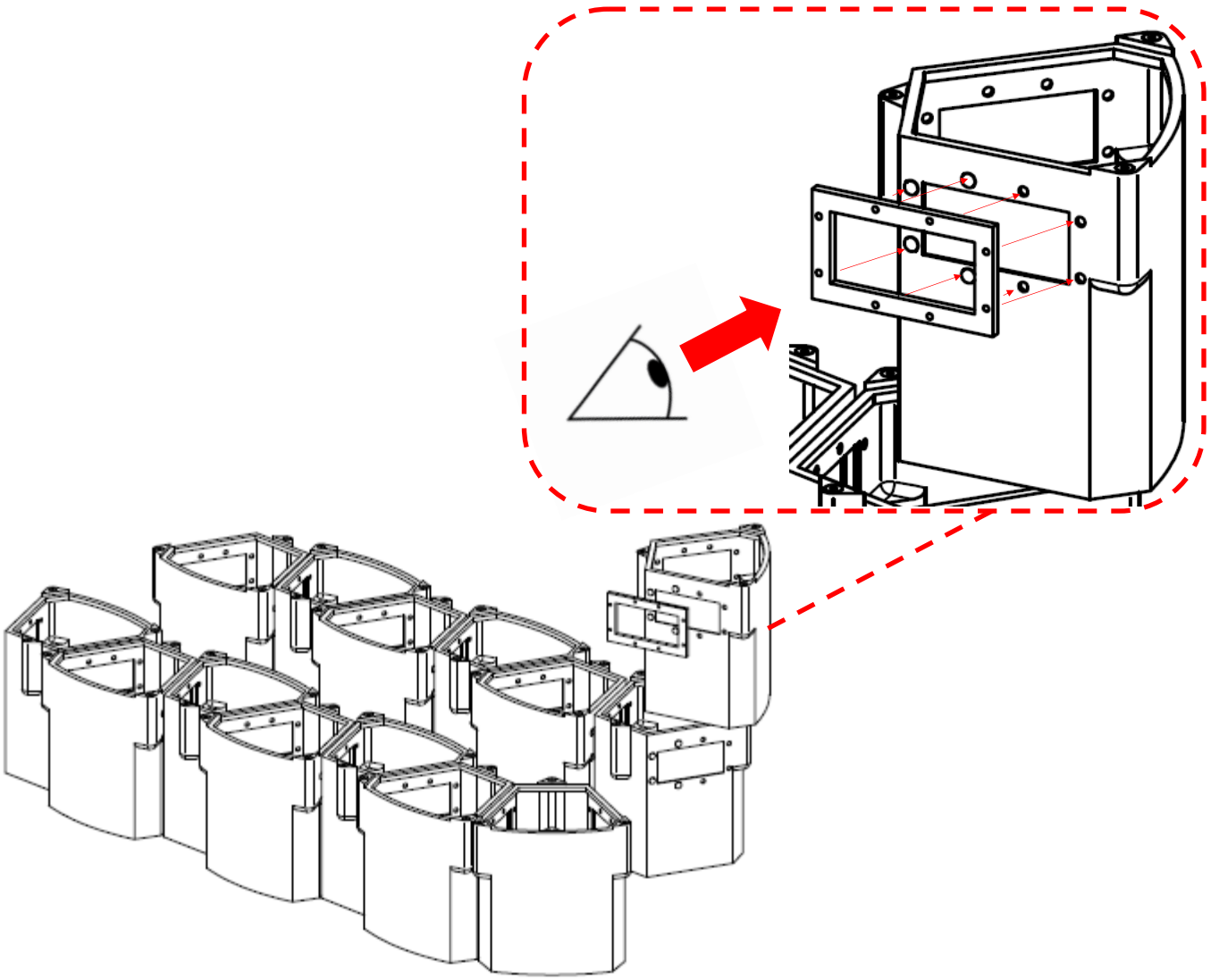
Install outlet module with pipe stub extending through the pipe boot and verify of 2 ft. elevation of outlet invert*. Secure outlet module to support frame by installing hardware configuration 1 through the guide holes in the bottom of the outlet module into the threaded inserts mounted in the support frame. Tighten the pipe boot band clamp around the outlet pipe stub to seal the outlet. **Take a photograph of outlet module from inside of the vault and one directly facing the outlet pipe stub including the surrounding cutout**.

Note: If locations of the outlet cutouts do not match Hydro shop drawings exactly or if support frame is installed incorrectly outlet pipe stub may not align with the pipe boot or cutout.



Step 8: Installation of Filter Modules Gaskets:

Outside of the vault loosely arrange filter modules as detailed by hydro shop drawing. ensure all bolt holes in gaskets are free and clear of punched gasket material and all threaded inserts in modules are free of plastic. Apply adhesive side of gasket carefully to one face of either a filter or outlet module so that one gasket is located between any two surfaces. Ensure that the punched bolt holes in the gaskets correctly align with the drilled holes or molded in fasteners in the modules. (Note: If gasket does not properly align with holes in module rotate 180 degrees).

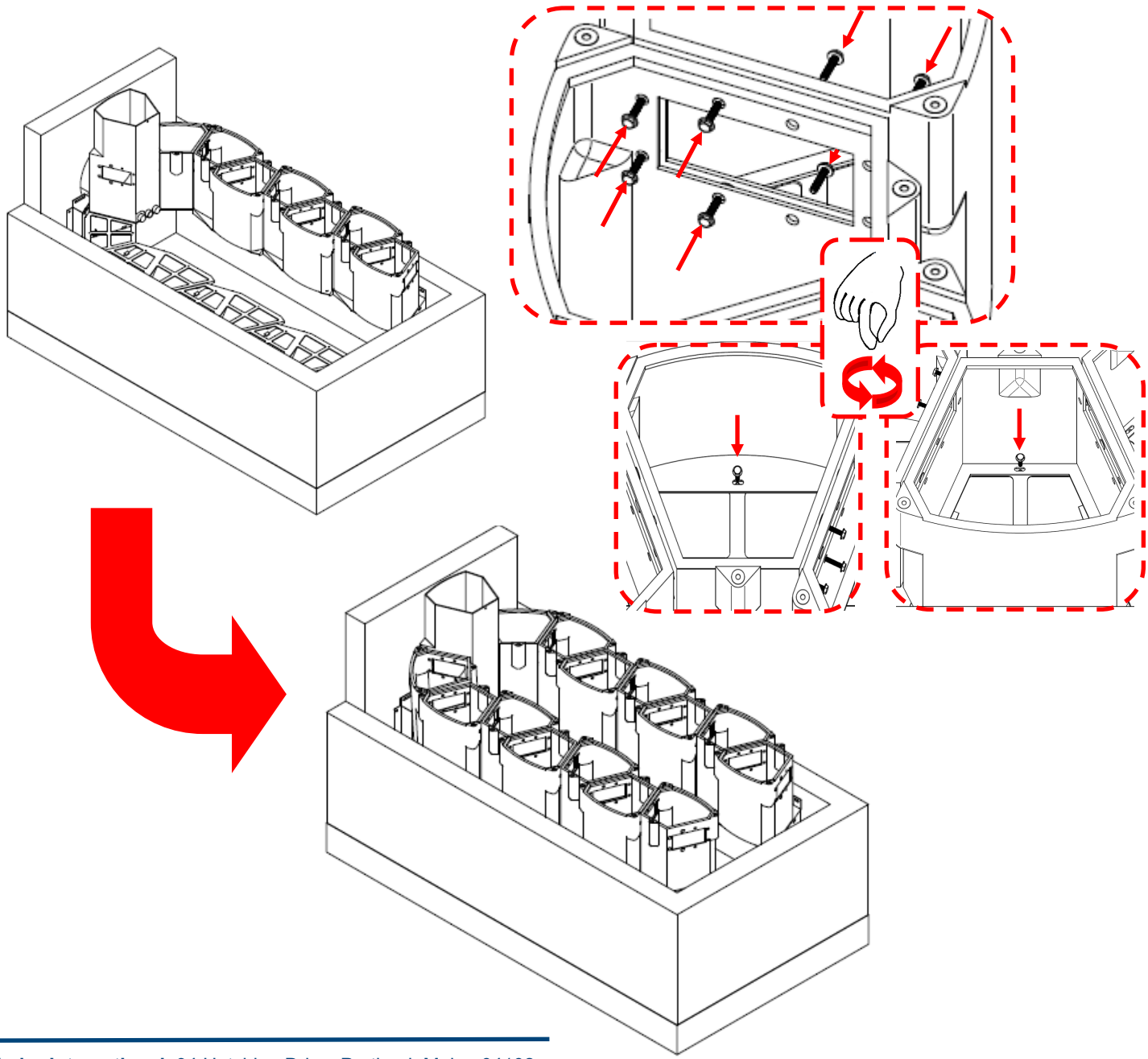


Step 9: Loosely Install Filter Modules:

Set filter modules on corresponding support frame sections as detailed in Hydro shop drawing. To aid in a trouble-free assembly follow these instructions carefully:

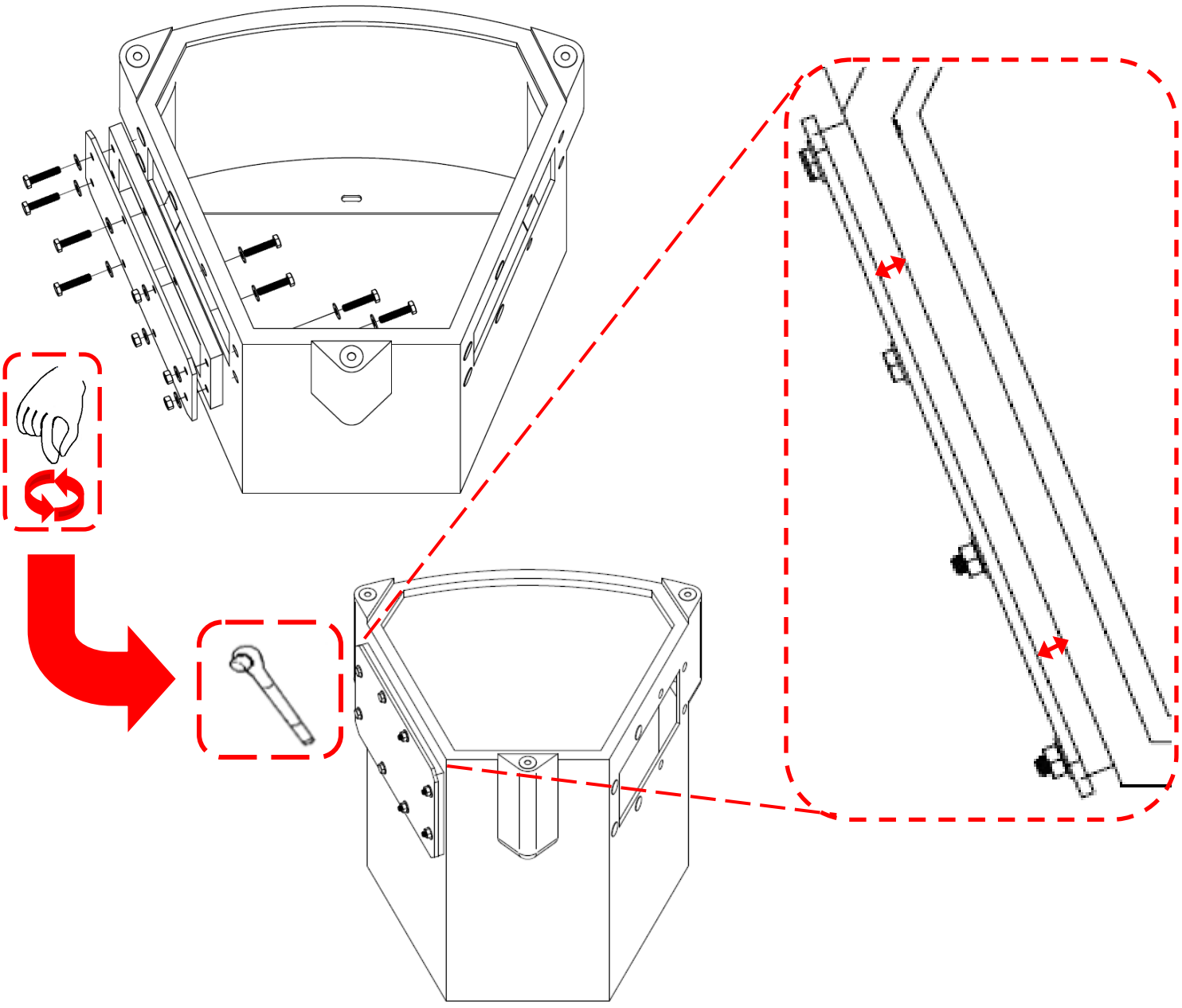
- Starting with a filter module connecting to the outlet module Insert and loosely thread Hardware configuration 1 from inside the module without the attached gasket through the gasket on the other module and into the molded-in nut.
- Loosely thread hardware configuration 1 through front and rear mounting holes in the bottom of the filter module into the threaded insert in the support frame.

Complete these steps for each filter module successively moving away from the outlet module on one side then the other.



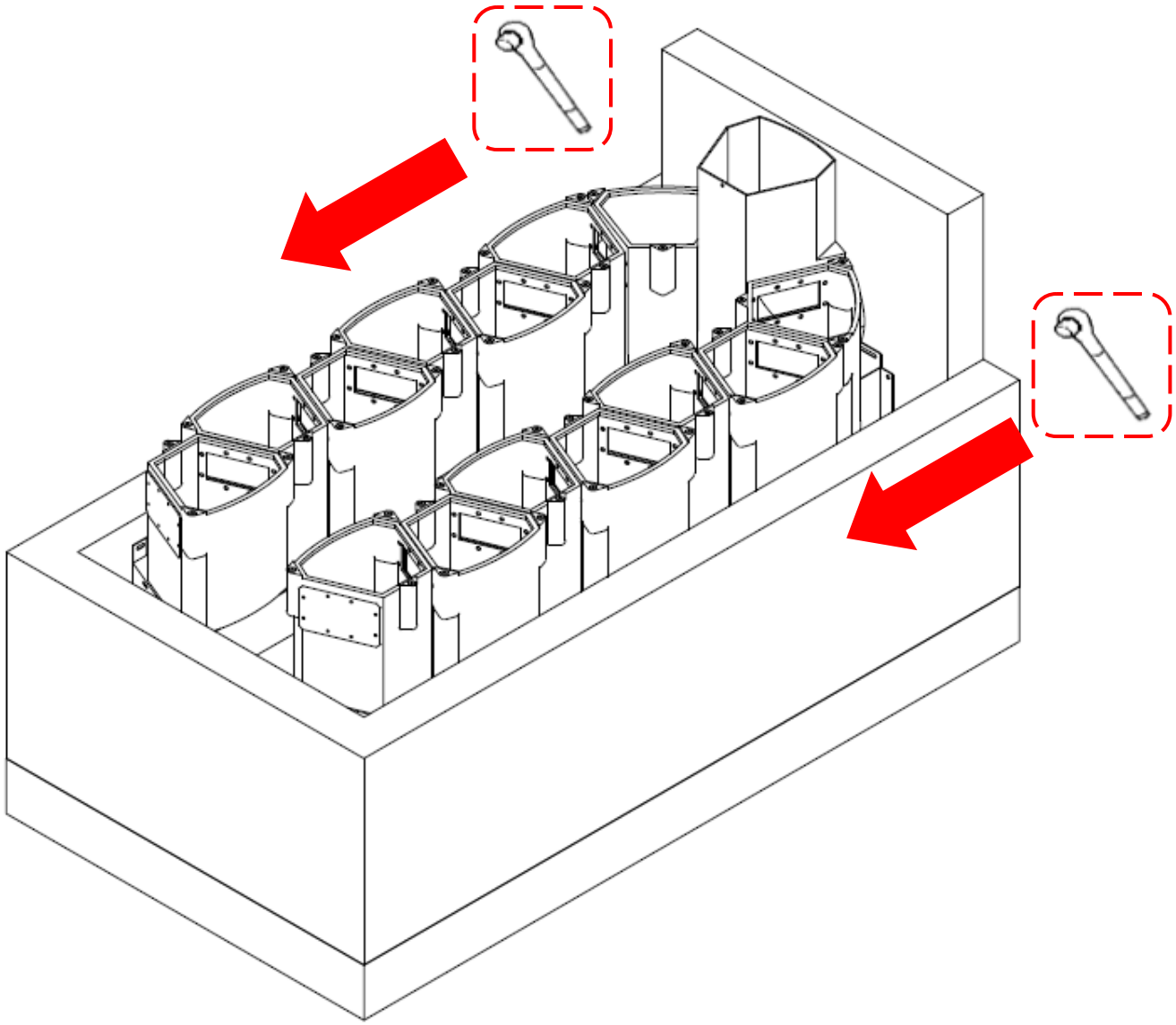
Step 10: Install End Plates:

On the last module on each side of the filter bay ensure a 1/2 in. gasket is adhered to a surface between the cover plate and the open end of the module. Loosely thread hardware configuration 1 through the corresponding holes in the cover plate and into the threaded inserts inside the filter module. Once all 4 bolts have been loosely threaded fully tighten all bolts ensuring they are “bottomed out” in the threaded insert. Next install hardware configuration 2 in cover plate and secure hex. nuts with a thread-locking agent. Hex nuts on the bolts of hardware configuration 2 should be tightened to provide compression consistent with that provided by the bolts seated in the threaded inserts.



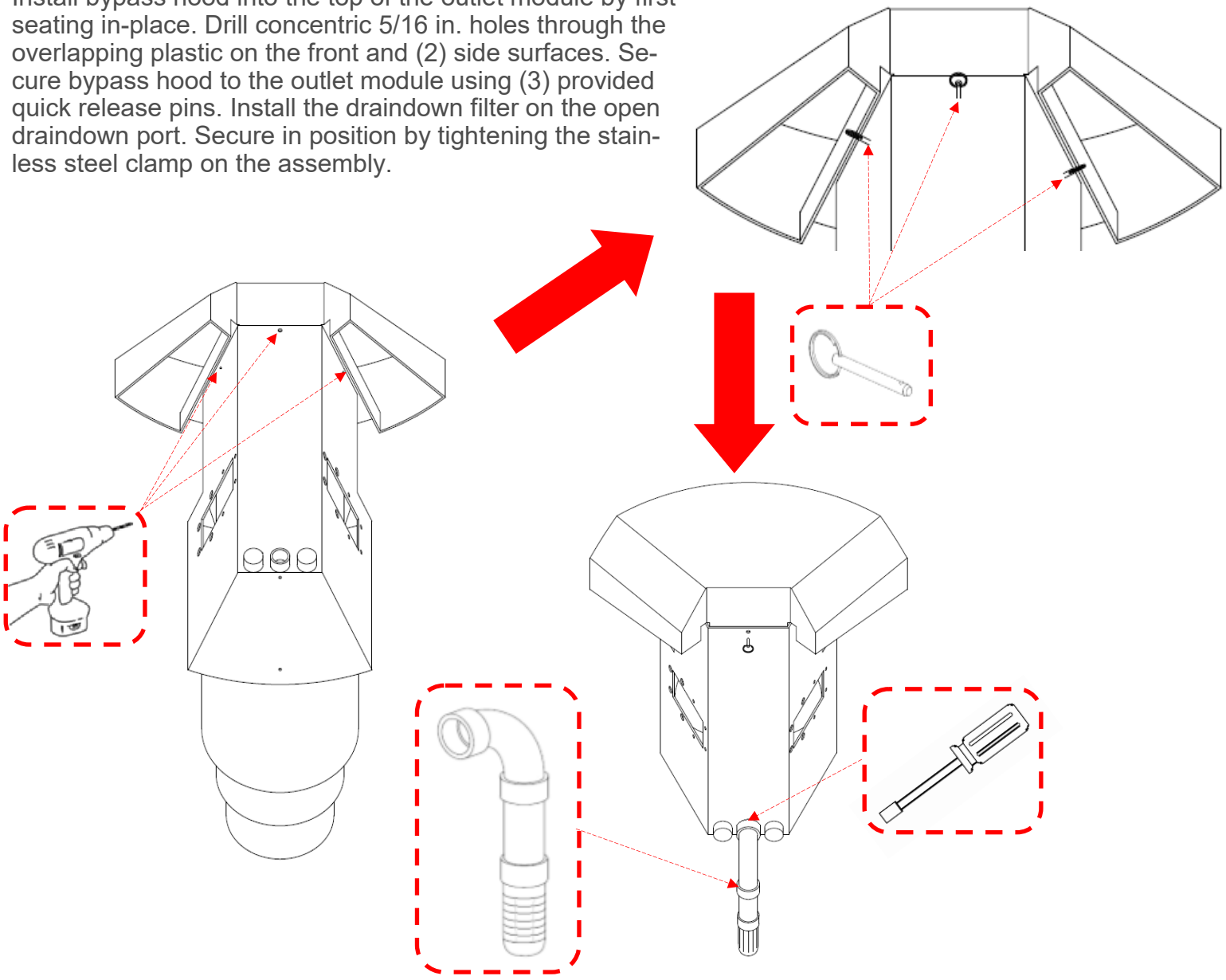
Step 11: Secure Filter Modules:

Once all bolts in the filter module assembly have been loosely threaded fully tighten bolts in the modules closest to the outlet module first and continue successively in connections moving away on each side of the outlet module. In each module bolts securing the module to the support frame shall be tightened first followed by those securing the filter module-to-module seals. **With covers off of the filter modules take photograph of filter modules installed on the semi-round support frame including the vault walls on either side**.



Step 12: Install Outlet Module Bypass Hood:

Install bypass hood into the top of the outlet module by first seating in-place. Drill concentric 5/16 in. holes through the overlapping plastic on the front and (2) side surfaces. Secure bypass hood to the outlet module using (3) provided quick release pins. Install the draindown filter on the open draindown port. Secure in position by tightening the stainless steel clamp on the assembly.



Step 13: Check Connections and Secure Lids:

Ensure all bolts have been installed in filter module assembly and that no holes have been left open. Ensure all module to module gaskets have fully sealed against modules and no gaps are exposed. Place lids on each module and secure with by positioning each 1/4 turn handle in the center of the indented seat in the module lid. Using an Allen key tighten bolt securing handle until the base of the plastic handle is nearly touching the filter module. Ensure that filter module lids are sealed completely against the filter module rim and there are no direct pathways into the filter module. Ensure sump is clean of any hardware, empty hardware boxes, broken pieces of concrete or any additional debris from preassembly.

Step 14: Completion:

Repeat steps 2B-12 for all filter bays in Up-Flo® Filter

Using the stencils provided, spray paint the Hydro International logo on exterior sides of precast vault.

Upon completed assembly for each filter bay take pictures of:

- Each side of installed filter components capturing seals between modules
- Installed cover plates
- Installed draindown filter and plugs
- Installed quick release pins and hammerhead bypass
- Outlet module pipe stub and reducing pipe boot

Label pictures and e-mail to astevens@hydro-int.com with reference to vault number/designation and job name.