Ship Stair Crossover Assembly Instructions

STEP 2: ASSEMBLE HANDRAIL TO GUARDRAILS

A) Attach the stainless steel handrail brackets to the 1-1/2 inch dia. round handrail tubes using two #14 x 1 inch self-tapping screws per handrail bracket. The pilot holes for the screws are shop drilled into the handrail tubes. Be careful not to over-torque the screws to prevent stripping the holes. Note that you will be assembling a left hand and a right hand set of handrails for each ship stair.

B) Attach the handrail to the guardrail by following Details 701, 702, and 703 in Drawing B-02822 (on page 11). The stainless steel handrail brackets connect to the 2-1/8 inch (54 mm) post and 1-3/4 inch (44.5 mm) rail with a 3/8” x 3” hex head bolt assembly (3/8” x 2” bolt, 2 each flat washers, and 3/8 nut), and backer plate. A 1/4 inch (6 mm) thick FRP spacer plate is used between the stainless steel handrail bracket and the 1-3/4 inch (44.5 mm) square tube rail. Apply blue thread locking compound to the bolt threads prior to installing the nuts. Torque nuts until the assemblies are tightly clamped together.

C) The 90° elbow at the top of the handrail connects to the 1-3/4 inch (44.5 mm) square tube rail by fitting it into the pre-drilled hole and securing it with a 1/4” x 2-1/2” round head bolt assembly. Refer to Detail 703. Apply blue thread locking compound to the bolt threads prior to installing the nut. Torque nuts until the assemblies are tightly clamped together.

STEP 3: REFER TO GUARDRAIL ASSEMBLY ILLUSTRATION ON PAGE 3

INSTALL GUARDRAILS

A) Assemble Guardrails - Slide the two halves of each Guardrail Assembly together at the splices as shown in the diagram. Holding the joints tightly together, drill each side of the top and bottom rail with a 1/8 (3 mm) diameter drill bit and install 1/8 inch diameter pop rivets as shown.

B) Install each finished Guardrail Assembly to the Crossover by sandwiching the 2-1/8” x 3/16” Square Tube Post Spacers between the Guardrail Assembly and the Crossover and Installing the 1/2” x 5-1/2” hex head bolt assemblies (1/2” x 5” bolt, 2 each flat washers, and 1/2” nut) in the holes indicated. Where the post falls on a splice plate, use the shorter spacer. The longer spacers are for the locations where the post is bolted directly to the web of the channel. Use a flat washer under the bolt head and the nut. Hold Post Spacers in alignment before torqueing nuts. Torque the nuts to 45 ft-lb (5.1 N-m).

C) Repeat for second Guardrail Assembly.

FRP Ship Stair Crossovers

Estimated Installation Time: 2 Man Crew, 2 Hours

ASSEMBLY INSTRUCTIONS

<table>
<thead>
<tr>
<th>ITEM DESCRIPTION</th>
<th>PART NUMBER</th>
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<tbody>
<tr>
<td>FRP Ship Stair Crossover - 10” Clearance</td>
<td>866110.01</td>
</tr>
<tr>
<td>FRP Ship Stair Crossover - 19-1/2” Clearance</td>
<td>866119.01</td>
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<tr>
<td>FRP Ship Stair Crossover - 29” Clearance</td>
<td>866129.01</td>
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<tr>
<td>FRP Ship Stair Crossover - 38-1/2” Clearance</td>
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<tr>
<td>FRP Ship Stair Crossover - 48” Clearance</td>
<td>866148.01</td>
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<tr>
<td>FRP Ship Stair Crossover - 67” Clearance</td>
<td>866167.01</td>
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A) Slide channels of Ship Stair Assembly inside of Splice Plates on Platform Assembly and line up the holes. Refer to Drawing B-02822 Rev 1 dated 4/5/17 for the exact configuration of the crossover. The illustration shown in these instructions may vary from the crossover you are assembling. B) For the 19-1/2 inch (495 mm) (PN866119.01) clearance crossover only: At each splice plate, install two each 1/2” x 2” hex head bolt assemblies (1/2” x 2” bolt, 2 each flat washers, and 1/2” nut) and one each 3/8” x 2” head bolt assembly (3/8” x 2” bolt, 2 each flat washers, and 3/8 nut) in the holes indicated. Where the post falls on a splice plate, use the shorter spacer. The longer spacers are for the locations where the post is bolted directly to the web of the channel.

C) For the 10 inch (254 mm) (PN 866110.01) and 29 inch (736mm) clearance crossover (PN 866129.01) and deeper: At each splice plate, install three each 1/2” x 2” hex head bolt assemblies (1/2” x 2” bolt, 2 each flat washers, and 1/2” nut) and one each 3/8” x 2” hex head bolt assembly (3/8” x 2” bolt, 2 each flat washers, and 3/8 nut) in the holes indicated. Use a flat washer under the bolt head and the nut. Torque the 1/2 inch nuts to 45 ft-lb (5.1 N-m), the 3/8 inch nuts to 30 ft-lb (3.9 N-m). Leave the holes for the guardrail posts open until Step Three.

D) Repeat for second Ship Stair Assembly.
A) Prior to use, the Ship Stair Cross Over must be anchored to the supporting surface to prevent tipping. Anchor holes are 9/16 inch (14.3 mm) diameter and located at the bottom of the ship stairs in four locations. Anchoring hardware is not included.

B) Concrete Floors: Anchor Ship Stair Cross Over to concrete floors using 4 each 1/2" diameter expansion or adhesive concrete anchors. A minimum embedment of 2-1/2" is required.

C) Wood Floors: Anchor Ship Stair Cross Over to wooden floors with four each 1/2" x 3" lag bolts.

D) For other support conditions, contact a qualified engineer to develop adequate anchoring details. For installations on roofs or other areas where the supporting surface cannot be penetrated by fasteners, install the Roof Plate Kit following Step Five below.

STEP 5:

OPTIONAL ROOF PLATE KIT

A) Remove the four 3" x 3" x 3/8" x 6" long angles at the bottom of the ship stairs by removing the two factory installed 3/8" x 1-1/2" hex head bolts at each angle. Retain the bolts, discard the angles. The angles removed in this step will have a total of three holes each.

B) Attach the four 3" x 3" x 3/8" x 6" long angles supplied with the kit to the bottoms of the ship stairs stringers using the 3/8" x 1-1/2" hex head bolts assemblies removed in Step 1. The angles installed in this step will have a total of four holes each.

C) Turn the ship stair onto its side and attach the 1'-4" x 4'-9" x 1/2" thick FRP plate to these angles using the 3/8" x 1-1/2" long flat head bolts supplied with the kit. Repeat for the second plate. Torque the bolts to 30 lb-ft (3.9 N-m).

D) Before placing the finished crossover onto the roof surface, protect the roof from abrasion following the roof manufacturer’s recommendations. Add ballast as required to the locations indicated in Drawing B-02622.

ROOF PLATE KIT OPTION

COMPLETED FRP SHIP STAIR CROSSOVER WITH OPTIONAL ROOF PLATE (POST ASSEMBLY ILLUSTRATION)
866119.01 FRP Ship Stair Crossover
19 1/2" Clearance
Weight = 111Lbs
866129.01 FRP Ship Stair Crossover
29" Clearance
Weight = 125Lbs
866138.01 FRP Ship Stair Crossover
38 1/2" Clearance
Weight = 158Lbs
866148.01 FRP Ship Stair Crossover
48" Clearance
Weight = 174Lbs
866167.01 FRP Ship Stair Crossover
67" Clearance
Weight = 204Lbs
FRP Ship Stair Crossover
Additional Details

LEGEND:
- GUARDRAIL
- GUARDRAIL POST
- GUARDRAIL RETURN
- HANDRAIL

NOTE: pilot holes for screws are shop drilled

FRP Ship Stair Crossover
Additional Details

LEGEND:
- GUARDRAIL
- GUARDRAIL POST
- GUARDRAIL RETURN
- HANDRAIL

NOTE: pilot holes for screws are shop drilled
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