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AAR Alternate Standard 2-Bay Hopper

CAR HISTORY AND DECORATION

The design of the AAR Alternate Standard 2-Bay hopper dates to 1935. Cars were manufactured up to 1949. The car is an open top, self clearing design, AAR class HM, including off-set sides, and has 50 ton capacity. One distinguishing feature between the AAR Standard design and the AAR Alternate Standard design is the nine evenly spaced 'hat' section side stiffeners and 'hat' section gussets along the top of the sides. Class I railroads owning the AAR Alternate Standard hopper include ATSF, C&O, ERIE, NKP, NP, and WLE. Reference information for the cars has been published in the Railway Prototype Cyclopedia, Vols. 1, 2, 4, 8, 9, 13, and 25, RPC Publishing Co., Chesterfield, MO.

Most of these prototype hopper cars were painted black, with white lettering. InterMountain Railway Co. would like to thank Ed Hawkins for his assistance with this model project.

GENERAL COMMENTS

Please read all instructions and study the images and parts before beginning assembly of this kit! Many of the parts are very delicate, in order for your completed model to be as attractive and authentic as possible. **DO NOT ATTEMPT TO BEND, TWIST, OR BREAK PARTS FROM THE SPRUE.** The most effective tools to use in removing parts from their sprue are an X-ACTO knife, fine clippers, or a sharp, single edge razor blade.

It is best to test fit ALL PARTS before applying glue. The locators sometimes are slightly damaged when removing them from the runner and must be trimmed before the locator holes will accept them. It may be helpful to open locator holes with a drill or reamer. We recommend a gap-filling cyanoacrylate glue for joining the parts, plastic-to-plastic, and the metal parts to the plastic. Generally very small amounts of glue are needed to affix parts, so we recommend that glue be used sparingly and applied with a small applicator.

The connecting point between the part and the "runner" to which it is attached is called a "gate". The gates have been designed to be trimmed completely flush with the part, except in those cases where the part itself is used as the gate.

This model has been designed to accept 'new' Kadee® No. 178 couplers. For modelers wanting a larger coupler head, the Kadee® No. 148 coupler can be installed. The Kadee® coupler is not included in this kit.

ASSEMBLY SEQUENCE

This is a craftsman level kit that includes parts to assemble any one of seven variations of this car. There are six different end designs: two flat ends, three ends with arched heap shield, and an end with angular heap shield. There are two bolster designs. Determine which details to include on your model before beginning assembly.

Step 1. Remove any flash from the die cast Slope Sheet and die cast Center Sill using a fine file. **Note: do not remove the locating edges at each top end and along the sides of the Slope Sheets.** Those edges will fit into the slots in the plastic ends and sides of the body. Test fit the die cast Center Sill into the slope sheet.

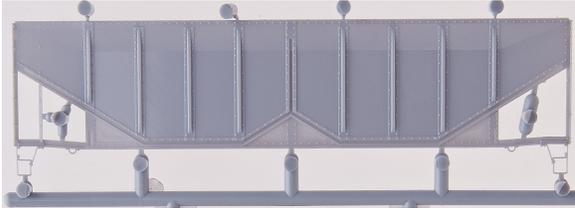
The 'B' end of the center sill has a rectangular pad above one coupler, to attach the Triple Valve. Additional weight is not required as the die cast parts provide sufficient weight for the car.

Center Sill and Slope Sheet 'B' End is to the Right



The Slope Sheet follows the angled slot at the bottom of the Side Panel. Match the slope sheet to the Side Panel, and if necessary bend the Slope Sheet a bit to conform to the Side Panel.

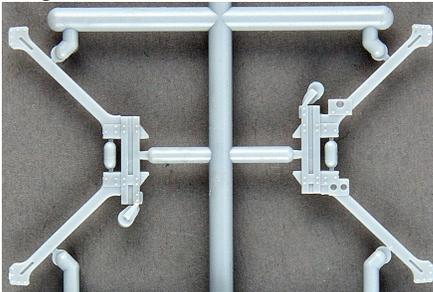
Side Panel



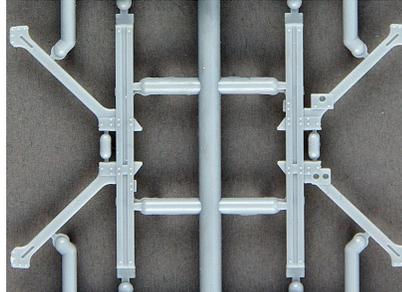
CENTER SILL ASSEMBLY

Step 2. Locate the 'B' end of the Center Sill. It has the rectangular pad to attach the Triple Valve. Then select the bolster design for your model. The most often used is the Extended Bolster design. The Northern Pacific cars had a slimmer designed bolster which is included to model the NP car. Locate the Diagonal Braces for the bolster.

Diagonal Brace - Extended Bolster



Diagonal Brace - NP Bolster



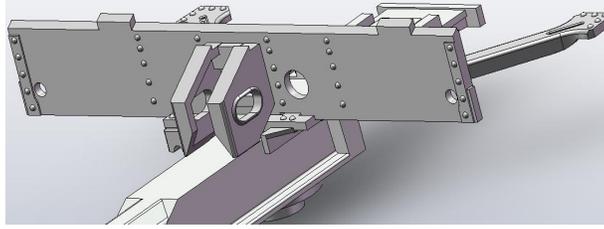
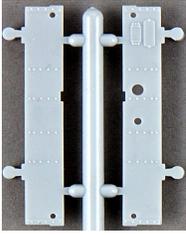
The 'B' end Diagonal Brace is shown to the right in both photos.

Assemble the Diagonal Brace to the 'B' end of the Center Sill. The 'B' end Diagonal Brace has two locator holes for attach of the Brake Cylinder. The pin molded in the center of the Diagonal Brace inserts into the hole in the Center Sill. Then attach the other Diagonal Brace to the 'A' end of the Center Sill.

Step 3. Attach the 'B' end Bolster to the Diagonal Brace. The 'B' end Bolster has two holes in its center. The notch at the bottom side locates into the slot of the Diagonal Brace.

Bolster

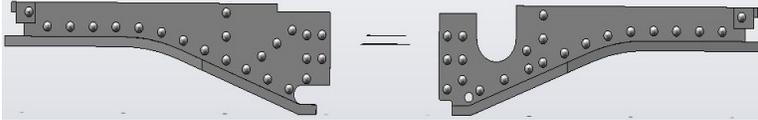
Bolster with Bolster Braces



'B' end Bolster is shown to the right in the first photo.

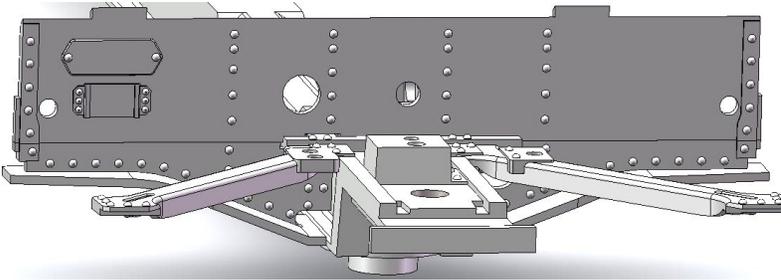
Then attach the Bolster Braces to the Bolster and the Center Sill. Then attach the other Bolster and Bolster Braces to the 'A' end of the Center Sill.

Step 4a. If assembling with the Extended Bolster, attach the Bolster Webs below the Bolster at the 'B' end.



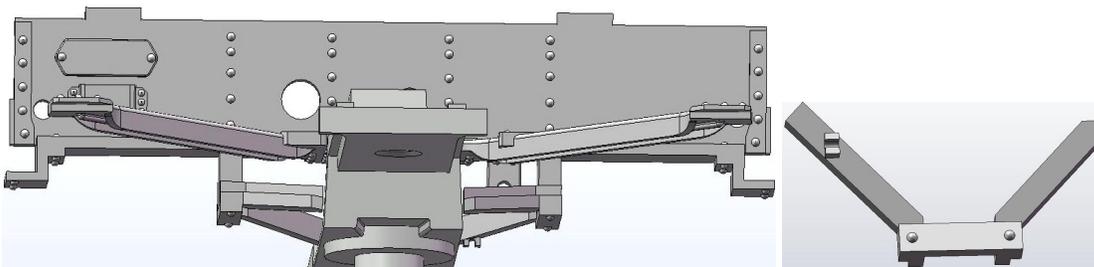
The web with the large curved cut-out feature (shown to the right) aligns with the Train Line support that is molded into the Diagonal Brace. The web with a small curved cut-out at the flange, is also attached at the 'B' end. Then attach the other two Bolster Webs to the 'A' end of the Center Sill.

Extended Bolster

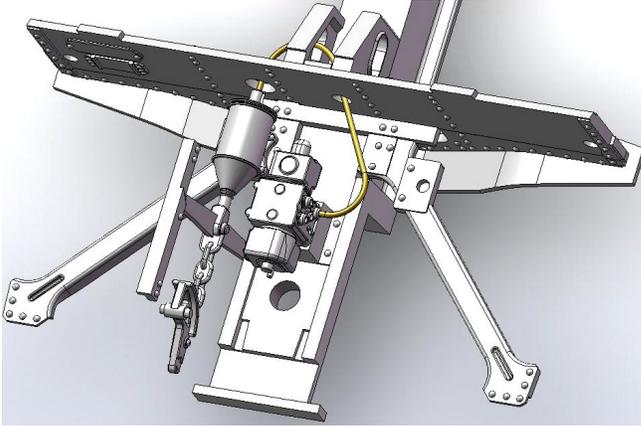


Step 4b. If assembling with the NP Bolster, attach the Bolster Side Bearing Braces to the 'B' end of the Center Sill. Note the Bolster Side Bearing Brace with the wire guide (shown to the right), aligns with the Train Line support. Then attach the remaining Bolster Side Bearing Braces to the 'A' end of the Center Sill.

NP Bolster



Step 5. Attach the Triple Valve, the Air Cylinder, and wire line between both, to the 'B' end of the car. The wire wraps through the Bolster and one Bolster Brace.

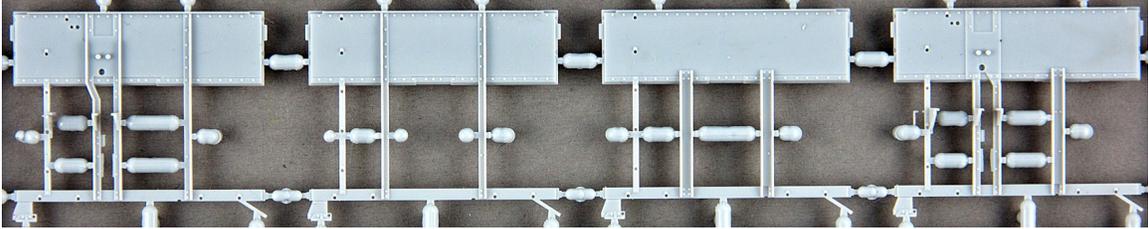


BODY ASSEMBLY

Step 6. Select the End Panel design for your model. The six different End Panel designs are:

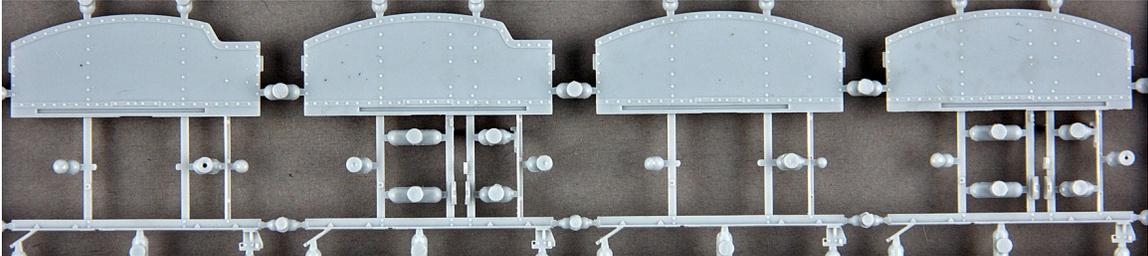
Flat End Panel

Flat End Panel with U Channels



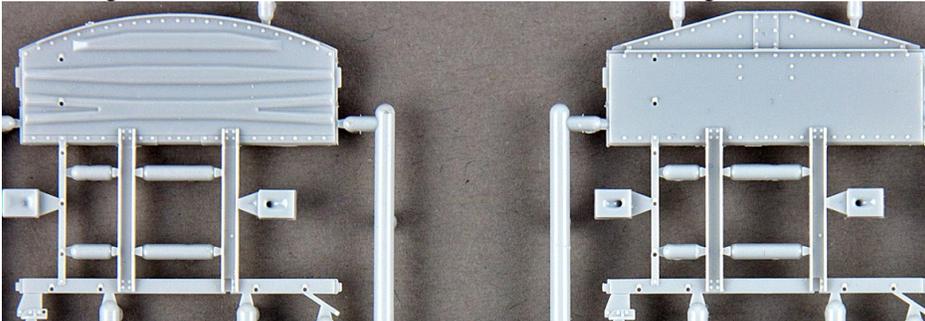
Notch Arch End Panel

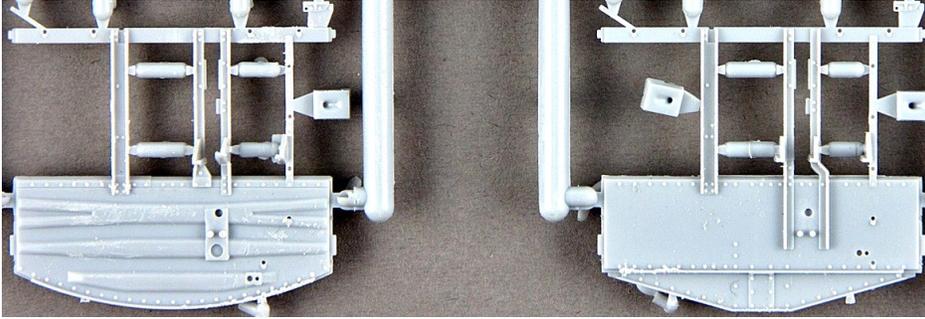
Arch End Panel



Dreadnaught End Panel

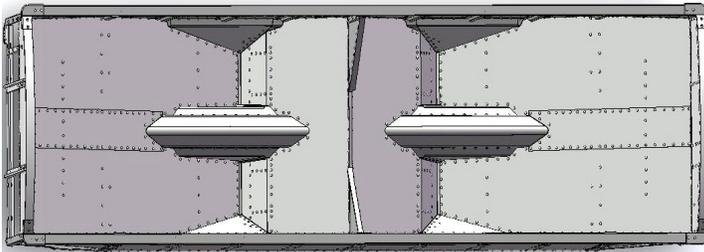
Angular End Panel





Trim the gates and flash from the End Panels and the Side Panels, and test fit the locators on the ends into the slots in the sides. Glue one End Panel to one Side Panel at 90 deg. Then test the alignment of the Slope Sheet to the slot in the End Panel and the slot at the bottom of the Side Panel. Note one locating edge at the top of the Slope Sheet fits into the 'B' End Panel, and the other edge fits into the 'A' End Panel. Glue the Slope Sheet to the Side Panel and the End Panel. Then assemble the other Side Panel and End Panel to the Slope Sheet.

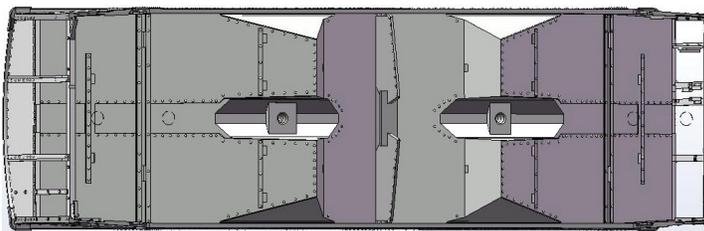
Step 7. Attach the Interior Center Brace, and the Corner Caps. The Slope Sheet and the Side Panels have slots to receive the Interior Center Brace. Note there are different Corner Caps for Flat End Panels and for Arch End Panels.



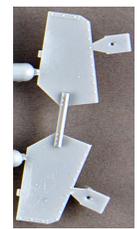
Interior Center Brace



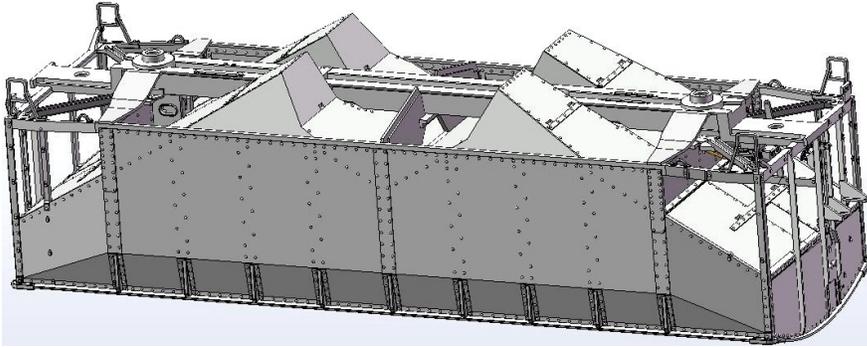
Step 8. Attach the Underside Center Brace. The Slope Sheet has two locator holes to receive the Underside Center Brace.



Underside Center Brace

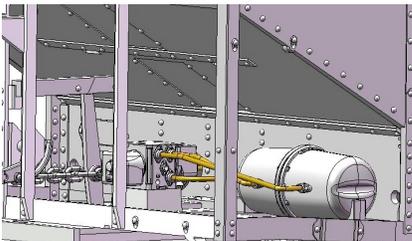


Step 9. Carefully insert the Center Sill assembly to the body. Align both 'B' ends. Then push the Bolsters between the Side Panels. Locator tabs on the Bolsters fit into holes in the Slope Sheet and slots in the bottom of the Side Panels. Push the Side Panels apart by a small amount to allow the Bolsters to move into position. The ends of the Diagonal Braces rest on tabs inside the End Panels. The bell crank on the Air Cylinder fits between two vertical posts of the 'B' End Panel. The lever bracket for the Air Cylinder rests on a boss molded inside the 'B' End Panel. The Center Sill rests on the bottom of each End Panel. Attach the Center Sill to the Slope Sheet with the two screws provided. Then apply small amounts of glue to the mating surfaces of the parts.

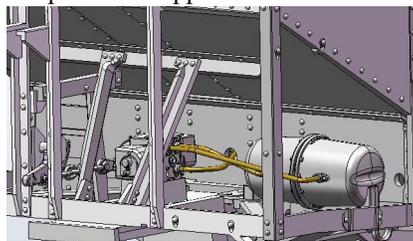


Step 10. Attach the Brake Reservoir to the 'B' end of the car. Then attach the two wire lines from the Triple Valve to the Brake Reservoir.

Brake Reservoir and lines



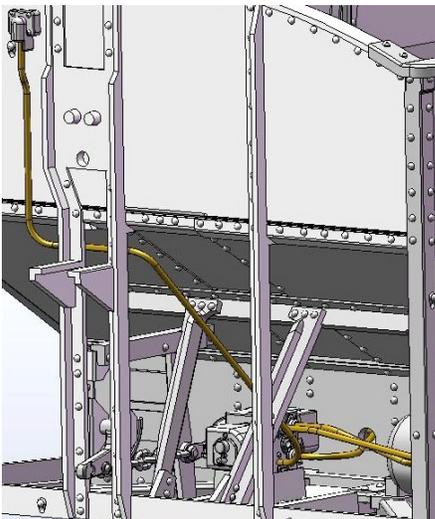
Slope Sheet Support



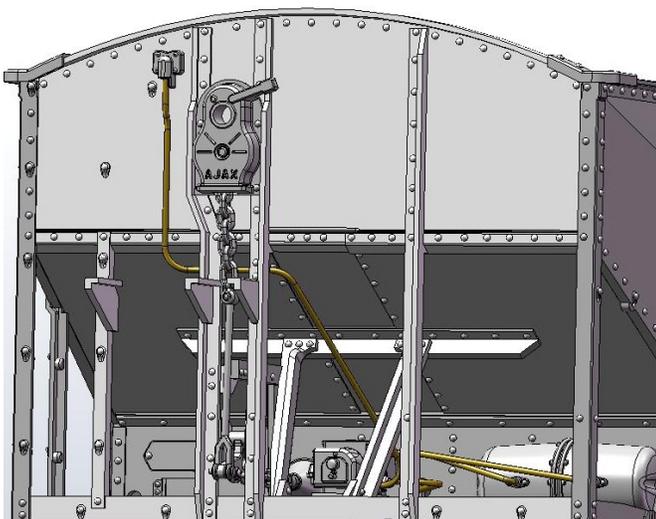
Step 11. Attach the Slope Sheet Support to the 'B' end of the car, between the small locator slots in the Slope Sheet and the small locator slots in the top of the Center Sill. This 'B' Slope Sheet Support has a tab molded to rest against the horizontal bracket for the Air Cylinder. Then attach the other Slope Sheet Support to the 'A' end of the car.

Step 12. Attach the Retainer to the 'B' End Panel and the wire line from the Triple Valve to the Retainer. Note there are different wire lines to the retainer because the position of the Retainer is not the same on each End Panel.

Retainer



Brake Chain and Brake Mechanism

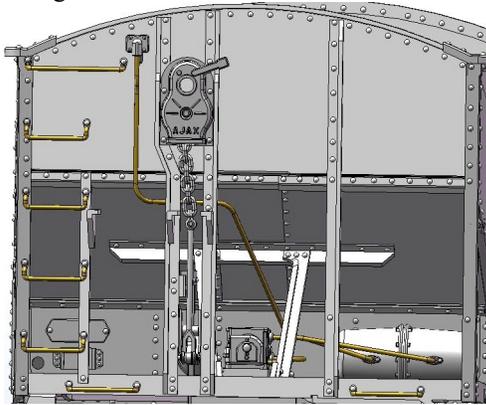


Step 13. Attach the Brake Chain and the Brake Mechanism. Note there are two Brake Chains because the position of the brake Mechanism is not the same on each End Panel. The clevis of the Brake Chain fits

over the end of the bell crank of the Air Cylinder.

Step 14. Attach the grab irons to the ends of the car. Note the top grab is straight, but of different lengths depending on the design of End Panel.

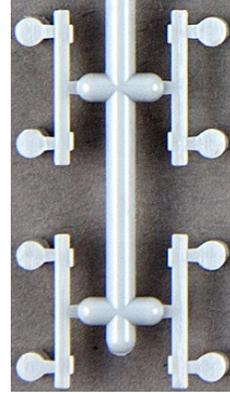
End grab irons



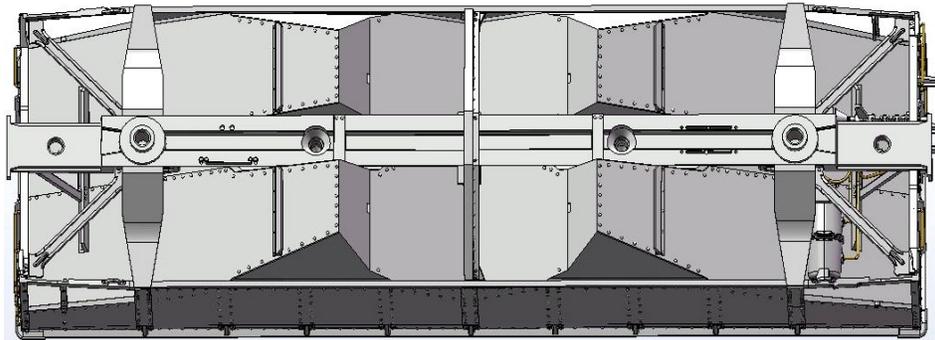
Cross Ridge Tie



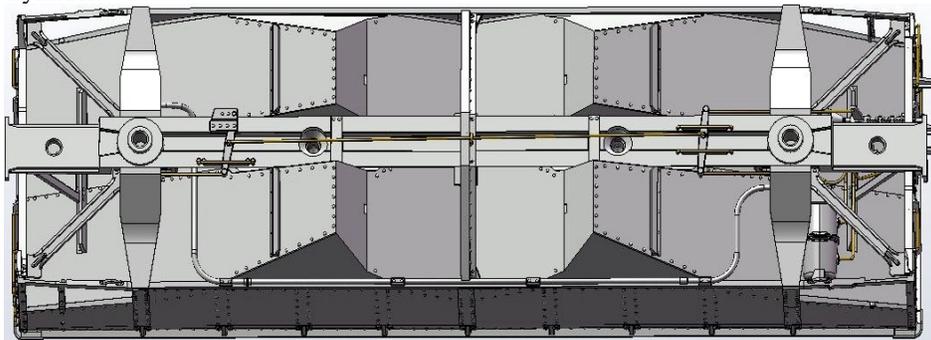
Slope Sheet Stiffeners



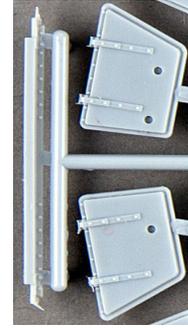
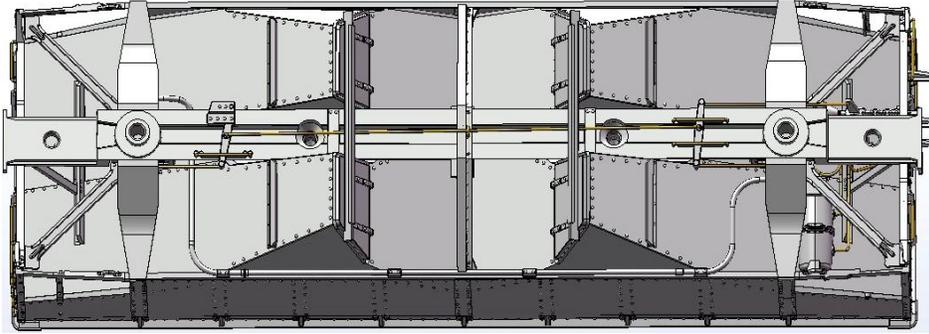
Step 15. Attach the Cross Ridge Tie to the Underside Center Brace and the Slope Sheet Stiffeners. There are locator holes in the Slope Sheet for the Stiffeners.



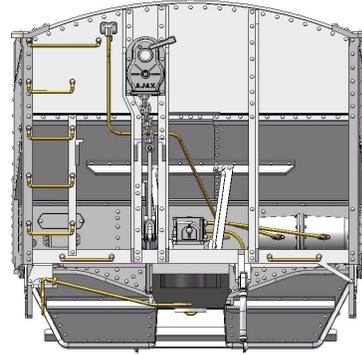
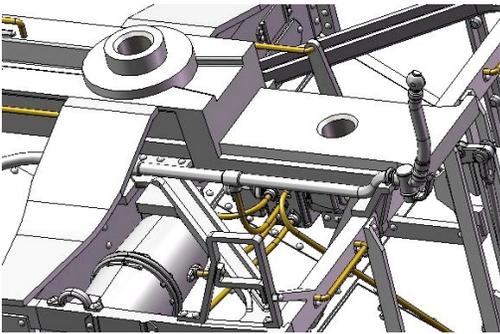
Step 16. Attach the Train Line, and Brake Rods and Levers. Note there is a wire loop attached to the Cross Ridge Tie, that surrounds the long center Brake Rod. One Brake Rod attaches to the lever on the Air Cylinder.



Step 17. Assemble the Hopper Doors and Cross Bars to the Slope Sheets.



Step 18. Attach the Air Hose and wire line to the 'B' end of the car. The 'B' end Air Hose has a 'T' to accept the wire line to the Triple Valve. Then attach the other Air Hose to the 'A' end of the car.



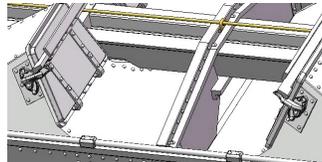
Air Hose - 'B' end

Coupler Box and Coupler Lift Bar

Step 19. Attach the Coupler and Coupler Box to the 'B' end of the car. Then attach the Eyelet and Coupler Lift Bar to the 'B' end of the car. Then attach the Coupler, Coupler Box, Eyelet, and Coupler Lift Bar to the 'A' end of the car.

Step 20. Attach the hopper Door Locks, located to the side of each hopper and against the Cross Bar. Note attach one of the three designs of Door Locks.

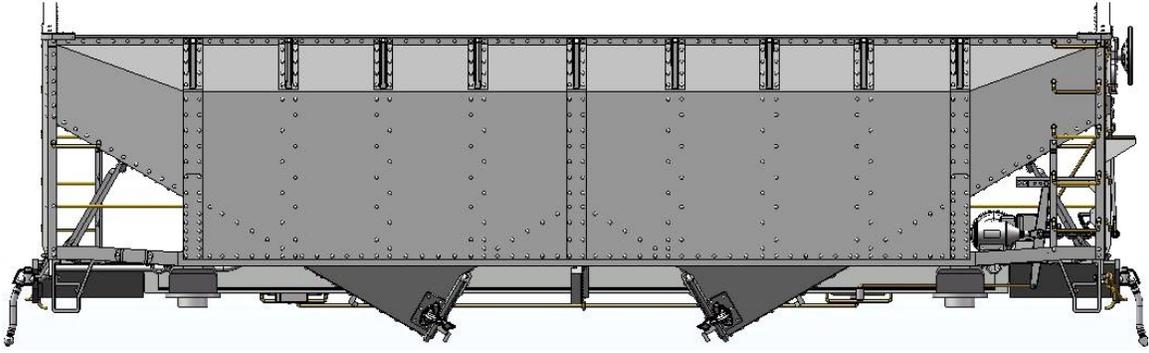
Door Locks



Step 21. Assemble the wheel sets into the truck bodies, and attach the trucks to the bolsters with the screws provided. The thin round washers fit between the truck and the bolster to adjust the height of the car, if necessary. The car can now be set on its trucks.

Step 22. Attach the grab irons to the sides of the car. Then attach the two 'L' shaped corner grab irons.

Step 22. Attach the Brake Wheel and Brake Platform to the 'B' end of the car. Note to choose between the plastic or etched metal Brake Platform.



The assembly of the car is complete. If you find that the coupler is a little low, included is a pair of .010 inch washers to install above the trucks, to raise the car. Thank you for adding the InterMountain Railway AAR Alternate Standard 2-Bay Hopper to your roster.

