

# ■ PLEASE NOTE!

**ALL Roofwalk / Running  
Board parts are VERY  
SHARP!**

**Please take GREAT  
CARE when handling!!!!**

# Instructions: Pullman-Standard 4750 Covered Hopper Kits

## August 2012



### History

Think of this Tangent Scale Models PS4750 model as the EMD SD40-2 of covered hoppers. Similar to the SD40-2, the Pullman-Standard (“PS”) 4750 covered hopper began production in 1972 and was the most popular seller within its peer group with more than 56,000 cars produced (*not* including clones from other builders and railroads). The 4750 followed upon the successful “high hip” design of Pullman’s earlier designs, the 4740 covered hopper, also offered by Tangent. When Pullman ceased production of 4750s in 1981, the amassed fleet was the largest covered hopper fleet of any of builder, and was one of the most prolific productions of a singular design during *any* era.

Like previous offerings, our PS4750 is a state of the art, dimensionally-accurate scale replica with highly accurate “true-to-life” colors and precise letter stencils. Our PS4750 offers our most ambitious effort yet to include a multitude of detail variations to replicate the different phases of production and customer specifications. Example variations include: brake systems, outlet gates, roof hatches, jacking pads, roof overhangs, running boards, crossover platforms, end ladders, brakewheel housings, and brakewheels. This replica includes our fine “near-scale” draft gear box with side “key” detail. We recommend Kadee® #158 scale couplers and include sufficient hidden weights to ensure the model operates as good as it looks.

### Our PS4750 Kit

This is a kit of moderate difficulty. It has a combination of parts of varying materials: plastics, wire, and etched metal. Because Pullman Standard built these prototypes over such a long span of time, the appearance of many details can change from car to car. To make your model accurate, just build the kit as shown in these instructions. Think of this kit like a Highliner F unit, if you ever built one of those. It is a kit that has multiple redundant parts. By redundant we mean the kit might call for one part, but we offer 5 different possible part matches so you can model it accurately. To make your model extremely accurate, reference good prototype photos and follow along as we show you just how you can model virtually any version of the PS4750 from our kits. When you are complete, you will have a highly accurate replica, as well as a host of extra parts for future projects!

### Think before you print

Like all instruction guides for Tangent Scale Models kits, the goal of this document is to make it thorough. It includes lots of photos and large text to make the process as painless as possible. Printing of these pages can be done should you want to, but we advise using this document electronically at a PC or tablet where you can enlarge the images and view them clearly.

As always, your feedback and corrections are welcome and will improve this building experience for others.



## Preparations

### **Not supplied:**

- Couplers – we recommend Kadee® #158

### **Tools needed/recommended:**

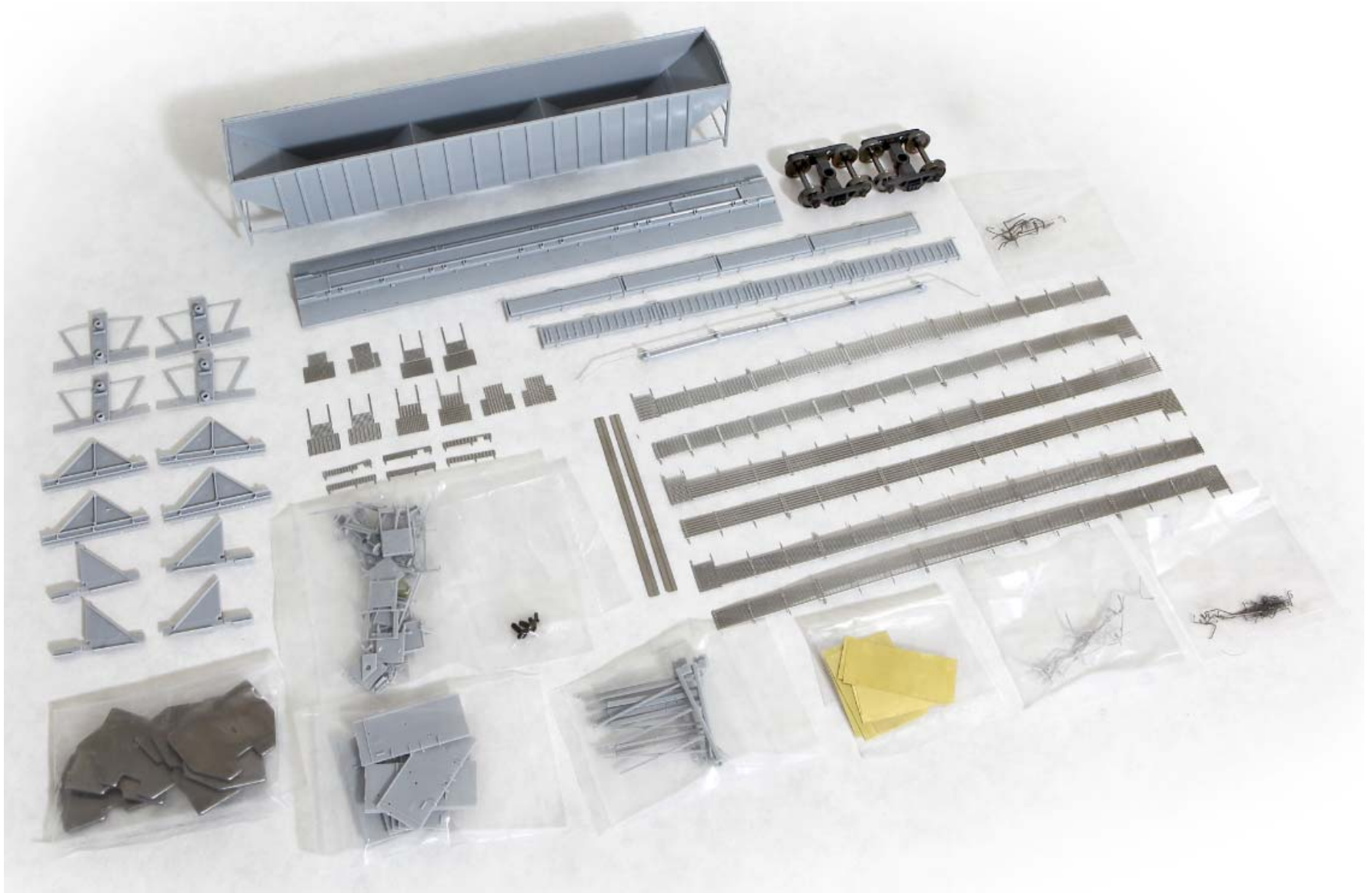
- Liquid Styrene cement
- CA-type cement
- Hobby knives - #11 and #17 are ideal
- Sprue nippers speed things up!
- Small screwdrivers
- Something to affix metal weights to body – self stick tape, contact cement, etc.

### **A few quick notes before starting:**

- The roofwalk pieces made from etched metal are VERY SHARP. Use extreme care when handling these parts.
- This kit is not recommended for children aged 14 and under.
- Photos of PS4750s can be found at [www.tangentscalemodels.com](http://www.tangentscalemodels.com) under the “Photos and Info” tab. They can also be found in many books and other websites.

## Contents

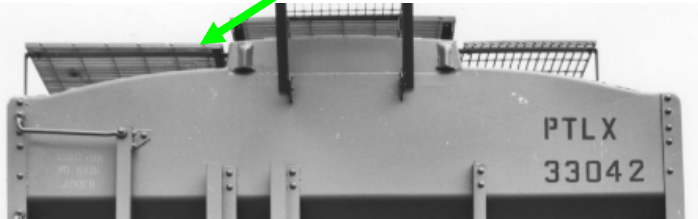
Kit contents and count of parts needed will be discussed within the instructions



## Kit bodies = roof variations

Version 1 - Pre-1975

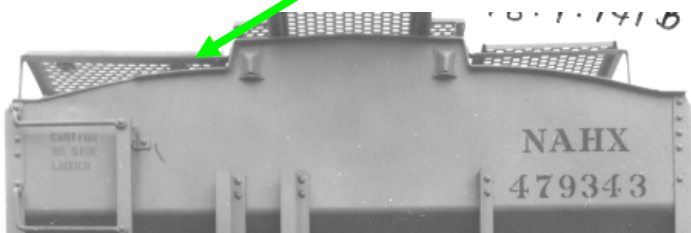
No Overhang



or

Version 2 – Post 1975

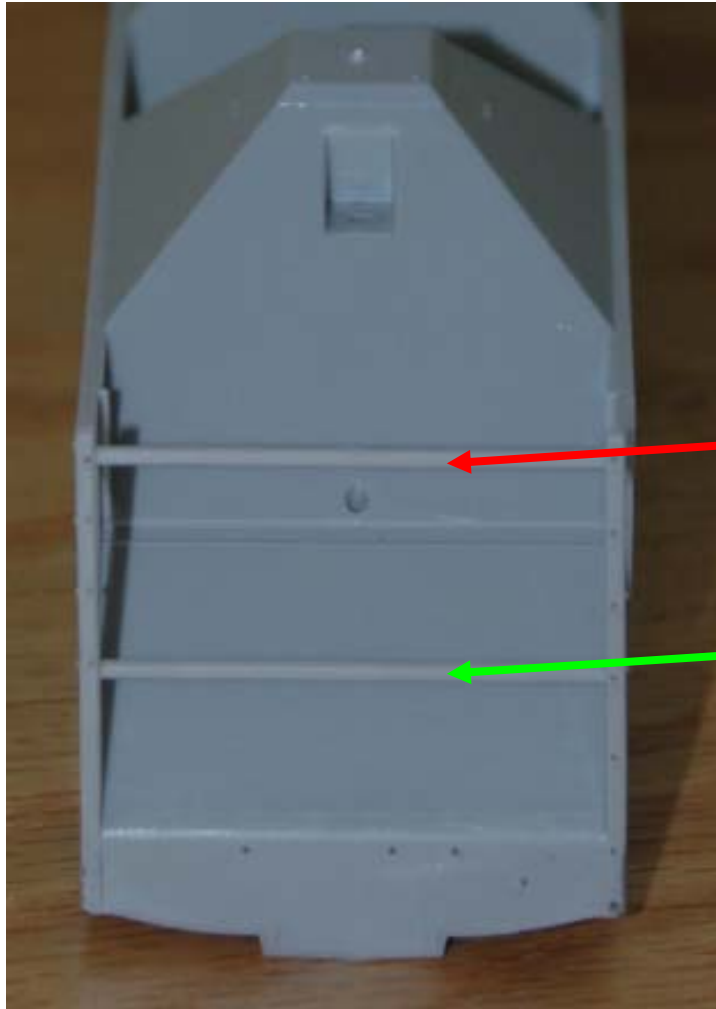
Overhang



- For pre-1975 kits, your box comes with a no-overhang body.

- For post-1975 kits, your box comes with an overhanging body.

## Prepare the body



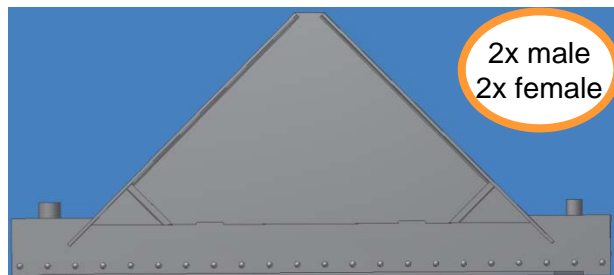
- Remove the horizontal support across the center of the end. Note that the bottom support is part of the carbody and should remain in place.
- Repeat on the other end of car.
- *Note: This makes the end of the car more fragile so take care during assembly.*

Do NOT  
Remove

Remove

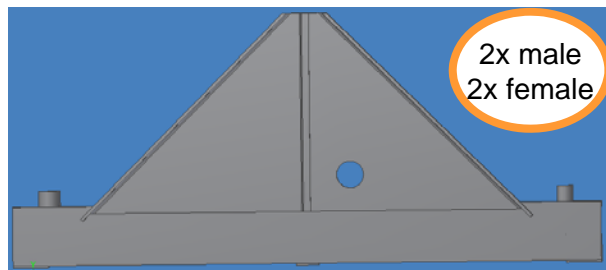
## Insert center sill “filler pieces”

Version 1 - “Riveted” pre 1978 or so



or

Version 2 – “Welded” post 1978 or so



Note: not included in pre-1976 kit

- Start with carbody turned upside down.



- Using liquid styrene cement, insert center sill “filler pieces” between hopper bays. The pins on filler pieces fit into holes on carbody.



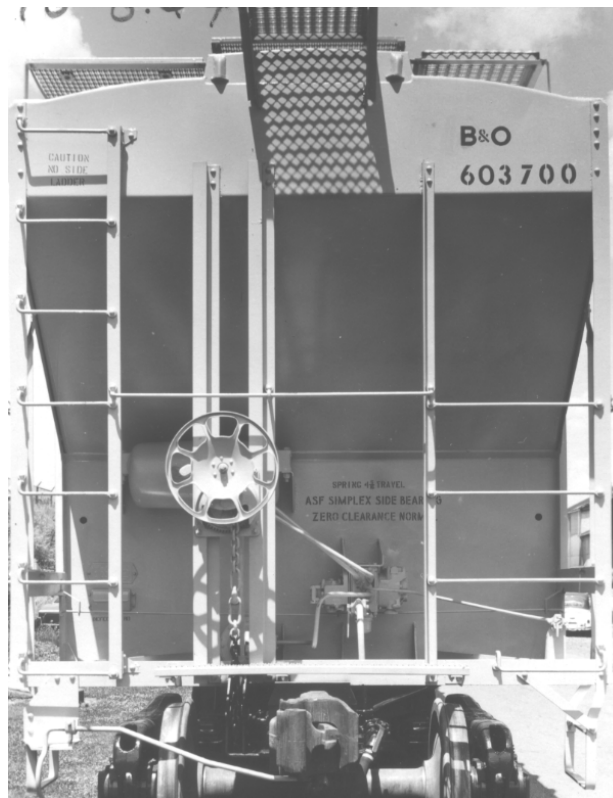


## SOME B end configurations – page 1

(In case you thought all PS4750s were the same...)



March 1973  
Center tube trainline



July 1973  
Center tube trainline

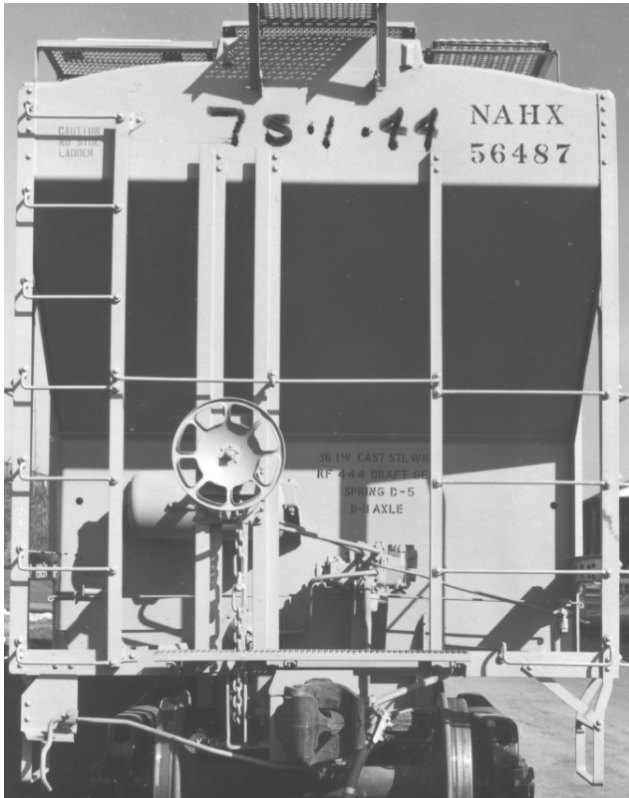


July 1973  
Center tube trainline



## SOME B end configurations – page 2

(In case you thought all PS4750s were the same...)



Oct 1974  
Side mount trainline



May 1975  
Side mount trainline



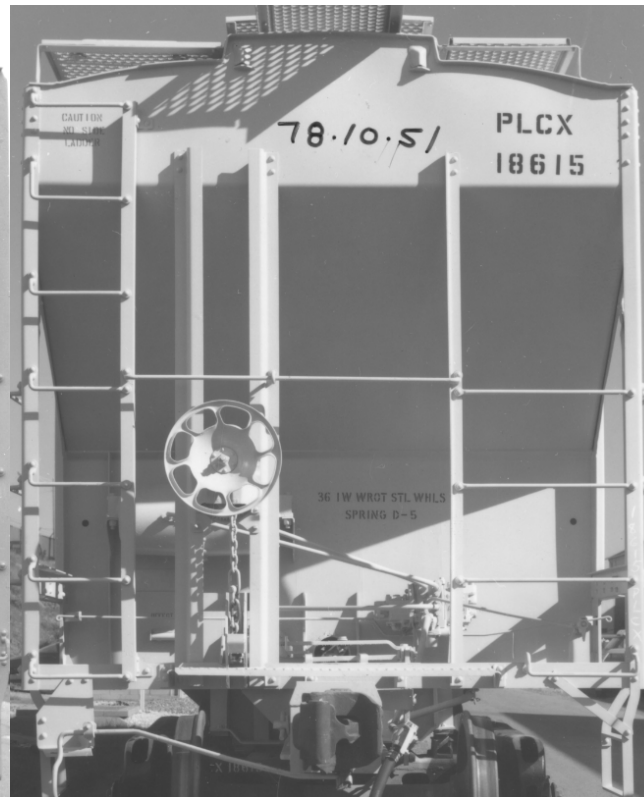
July 1977  
Center tube trainline

## SOME B end configurations – page 3

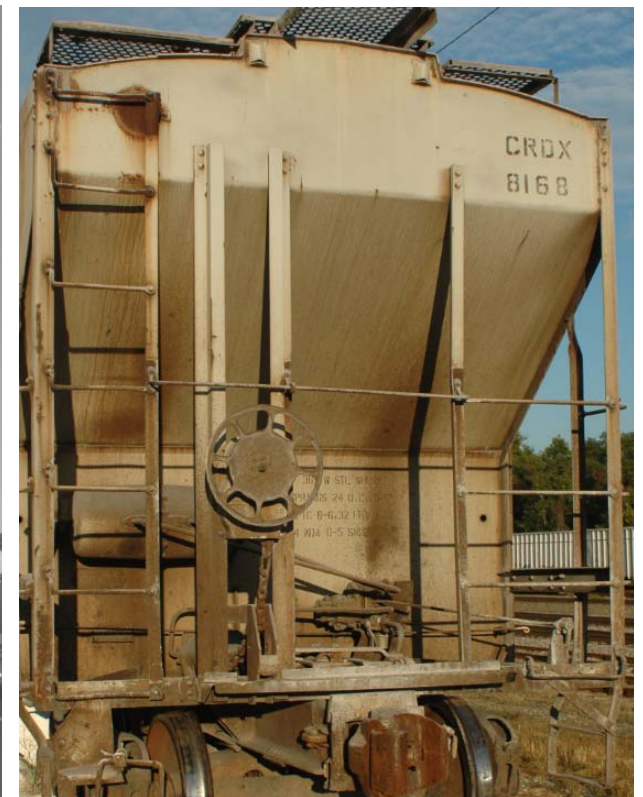
(In case you thought all PS4750s were the same...)



Jun 1978  
Center tube trainline



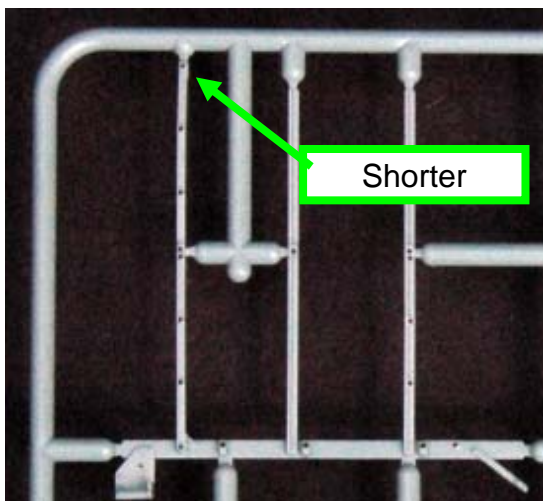
Sept 1978  
Side mount trainline



Oct 1980  
Side mount trainline

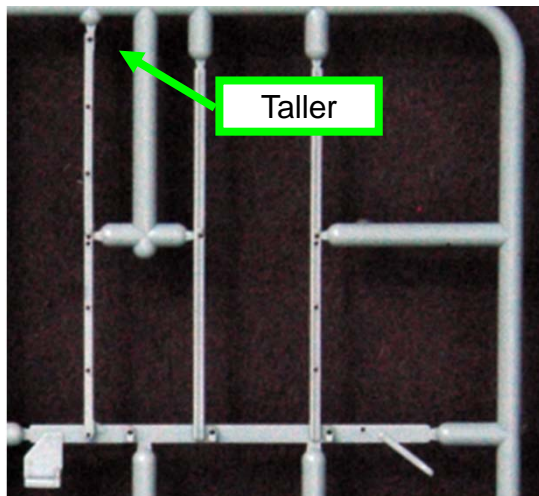
## Attach end “cage” to A end of car

Version 1 - Early version “short”



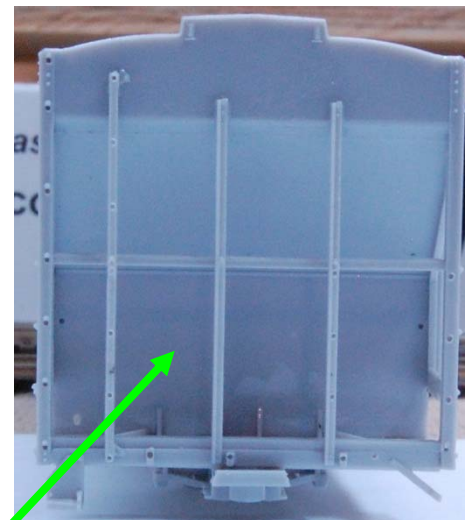
or

Version 2 – Later version “Tall”



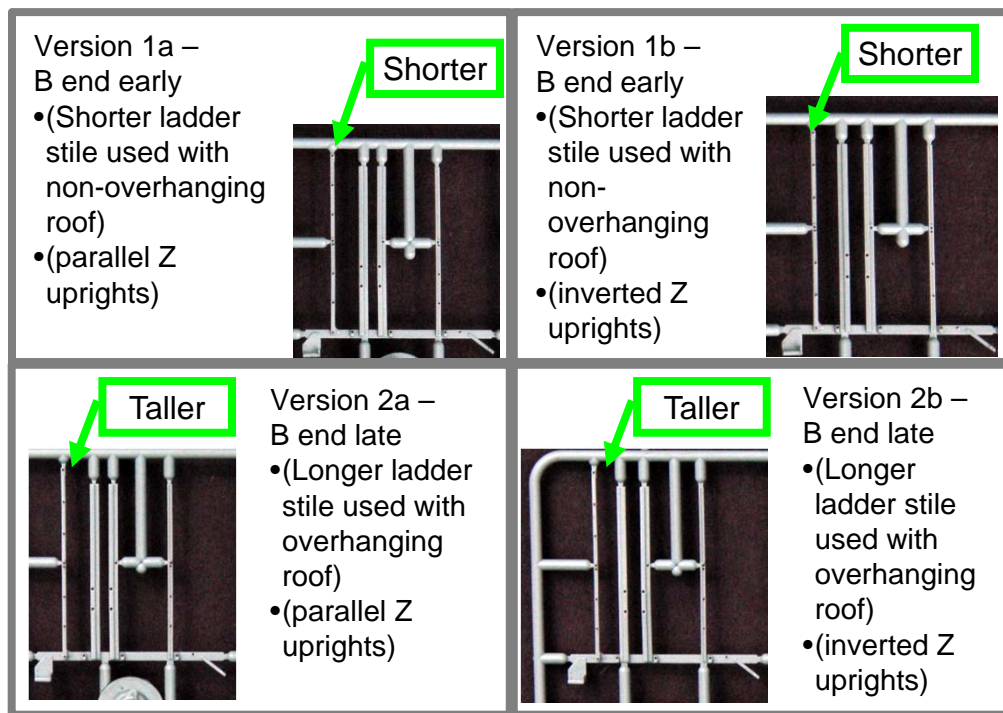
- If you look inside the body, there is a “B” inscription in the bottom of the bay for the B end. The A end is the opposite end of the car.
- Glue A end assembly into holes provided.

Ignore vertical slope sheet part to be installed later

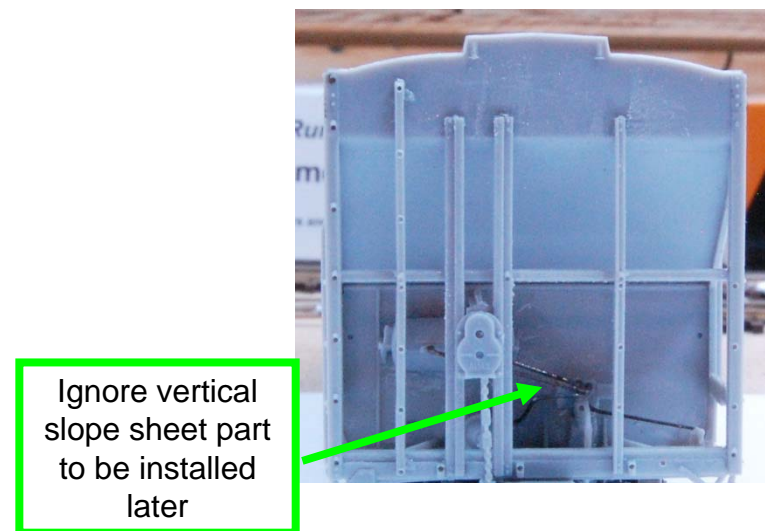




## Attach end “cage” to B end of car



- Glue B end assembly into holes provided.



### Notes:

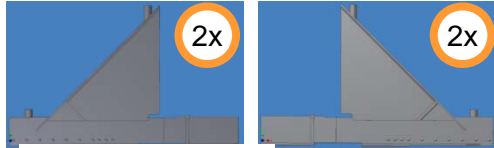
Version 1 is mostly for non-overhanging roof cars

Version 2 is mostly for overhanging roof cars

## “Sub” Assemble end and brake components – page 1

### Center sill, end frame, and bolster plate assembly

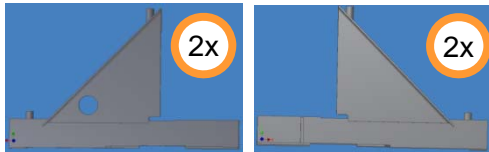
End Center Sill version 1 - “Riveted” pre 1978 or so



or

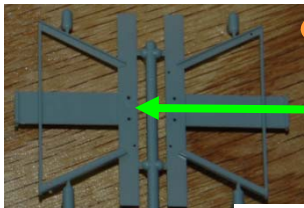
End Center Sill version 2 – “Welded” post 1978 or so

*Note: not included in pre-1976 kit*



plus

End frame ver.1 - For small trapezoidal jacking pad pre-1979

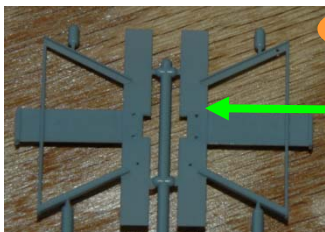


1x pictured

Narrow sill

or

End frame ver.2 – For large circle jacking pad post-1979



1x pictured

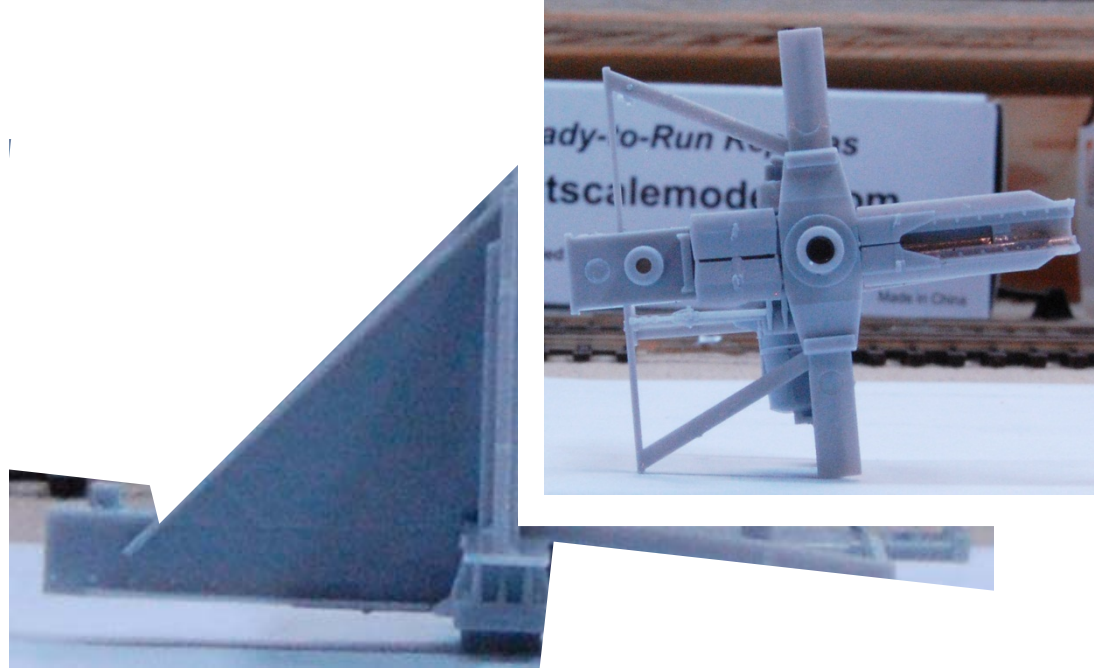
Wide sill

plus

Bolster Plate



- Start with either of the two sets of end center sill fillers pictured at left.
- Attach 2 center sill pieces to end frame. Hole in center sill fits around protrusion on end frame.
- Glue bolster plate to center sill and end frame assembly. Body bolster fits in notch of center sill pieces.
- Repeat these steps for other end of car



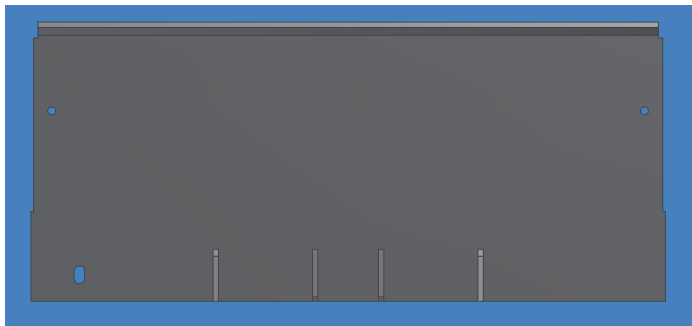
## “Sub” Assemble end and brake components – page 2

### Vertical slope sheet assembly on A end

Vertical slope sheet version 1 - Center Train Line

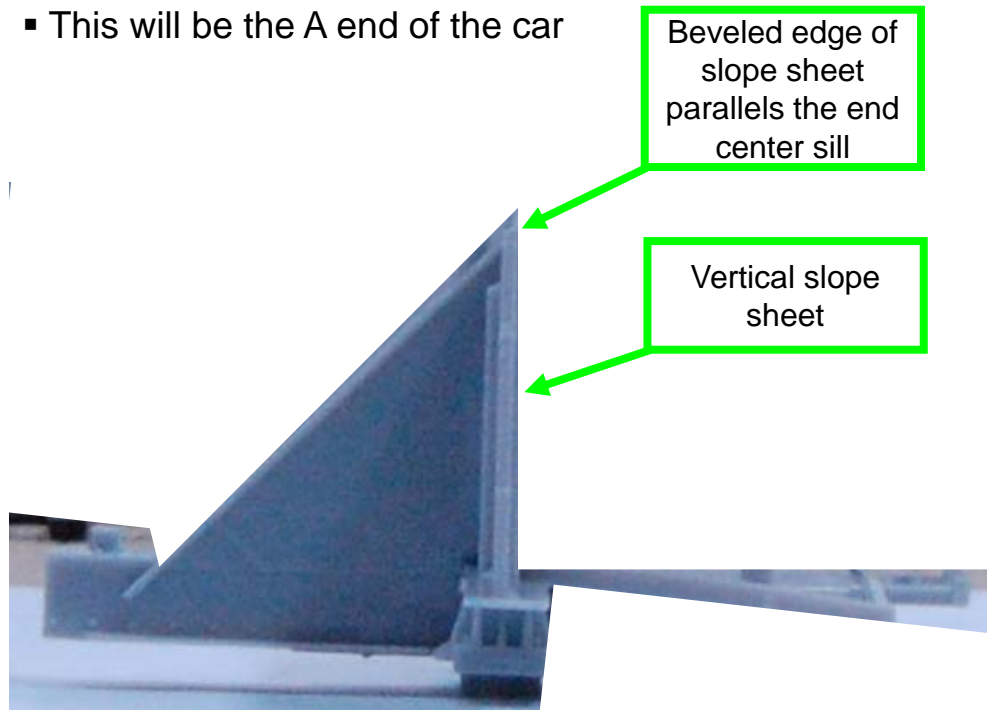


Vertical slope sheet version 2 – Side Train Line



- Assemble vertical slope sheet for chosen brake version to end frame sill & bolster. Pins on bottom of end plate fit into holes in body bolster. Note that the beveled edge of the slope sheet parallels the center sill pieces.
- This will be the A end of the car

or



Beveled edge of slope sheet parallels the end center sill

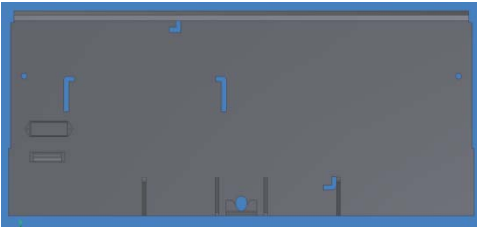
Vertical slope sheet



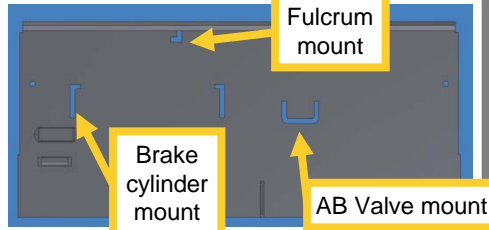
## “Sub” Assemble end and brake components – page 3

### Vertical slope sheet assembly on B end

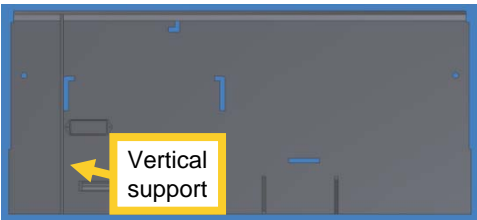
Version 1 Center trainline  
Medium height brake reservoir,  
high fulcrum



Version 2 Side-mount trainline  
Top mount AB Valve



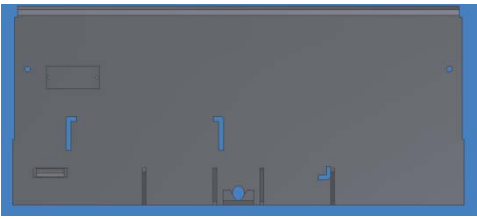
Version 3 Side-mount trainline  
Some cars may not have vertical support cast in end



Version 4 Center trainline  
High height brake reservoir



Version 5 Center trainline  
No cylinder linkage



- Assemble vertical slope sheet for chosen brake version to end frame sill & bolster. Pins on bottom of end plate fit into holes in body bolster. Note that the beveled edge of the slope sheet parallels the center sill pieces.
- This is the B end

Beveled edge of  
slope sheet  
parallels the end  
center sill

Vertical slope  
sheet



Train line

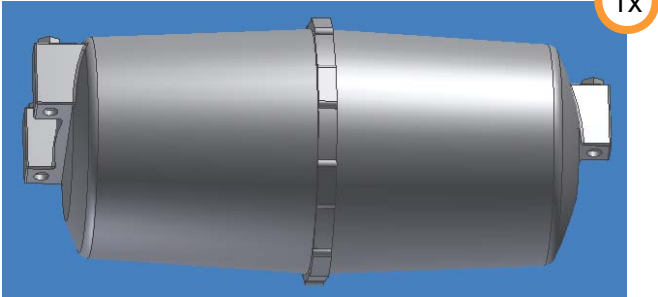


No Train line

## **“Sub” Assemble end and brake components – page 4**

### Brake components part 1

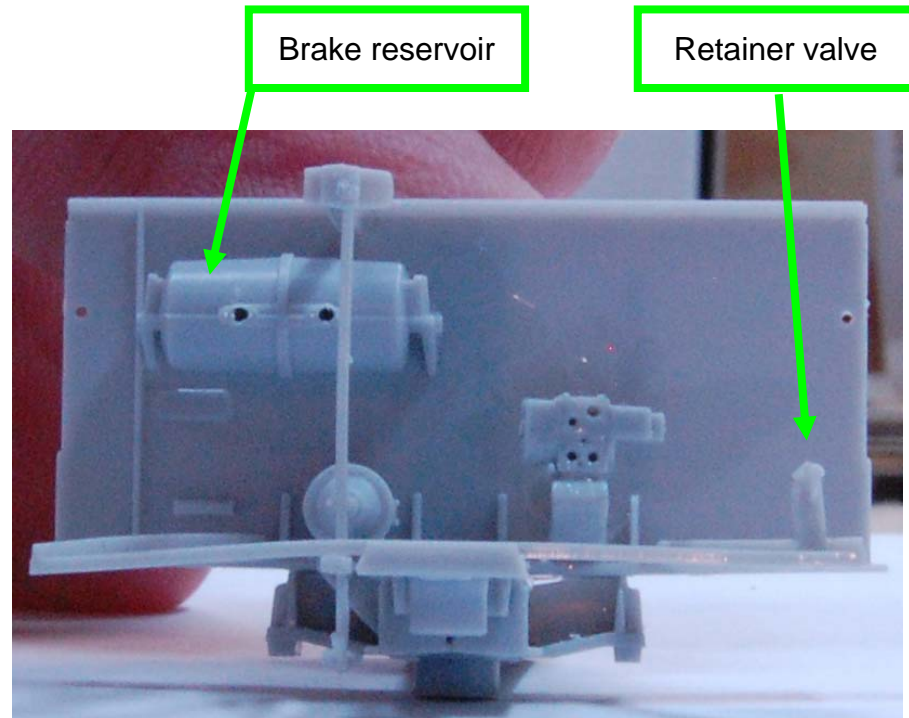
Brake reservoir



Retainer Valve



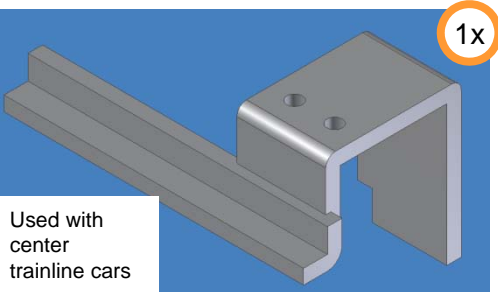
- On B end of car, glue the brake reservoir and retainer valve to end plate.



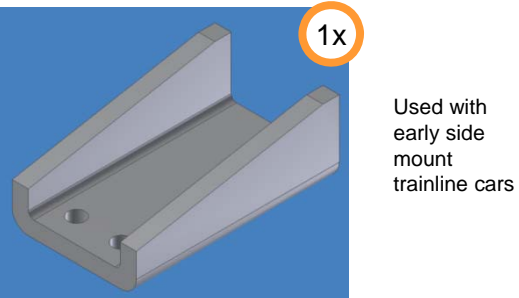
## “Sub” Assemble end and brake components – page 5

### Brake components part 2

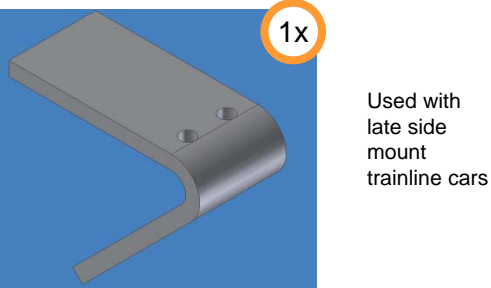
Version 1: AB Valve support - Bottom mount early



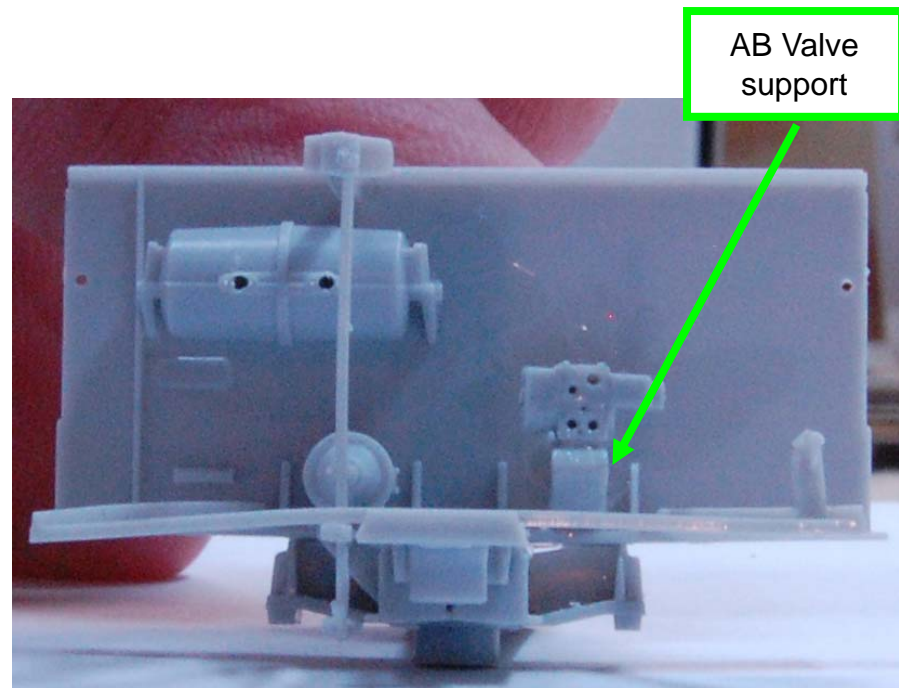
Version 2: AB Valve support - Top mount



Version 3: AB Valve support - Bottom mount early



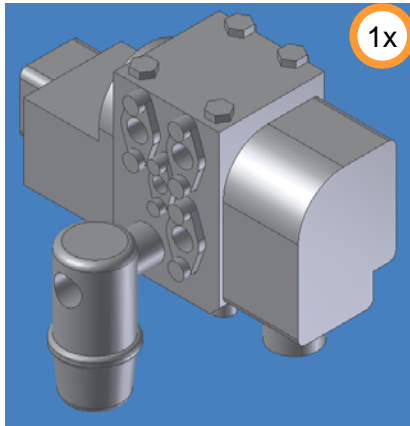
- On B end of car, glue the appropriate AB Valve support to the end frame. There are three choices, as shown at left.



## “Sub” Assemble end and brake components – page 6

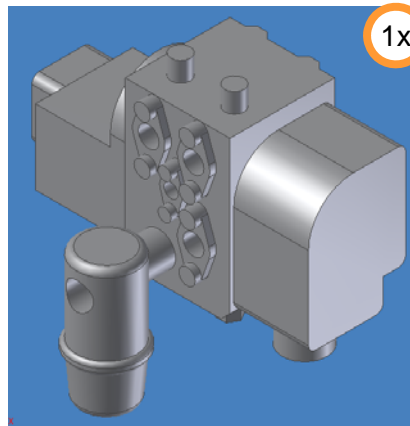
### Brake components part 3

Version 1: AB Valve - Bottom mount



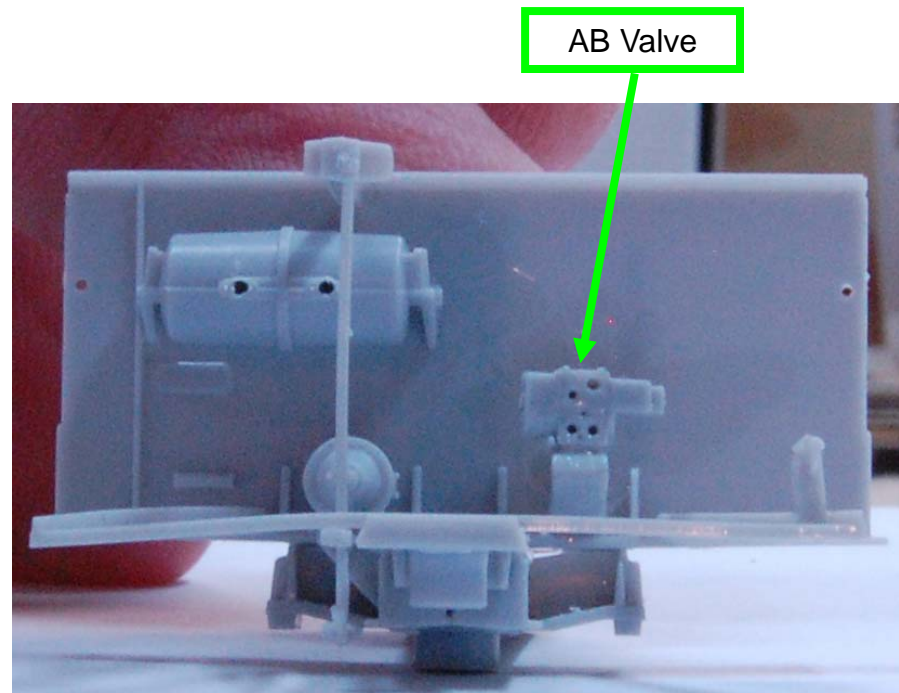
*This goes with version 1 or 2 from the previous page.*

Version 2: AB Valve – Top mount



*This goes with version 3 from the previous page.*

- On B end of car, glue the appropriate AB Valve to the AB valve support part on the previous page. There are two choices, as shown at left.

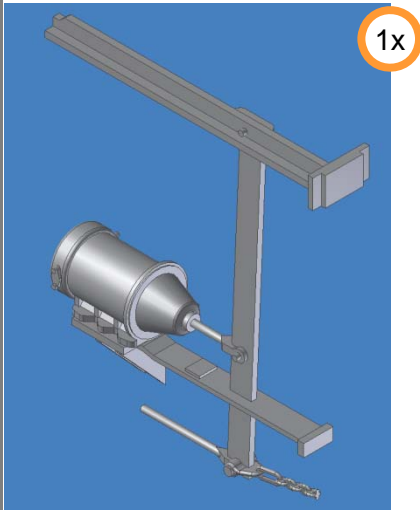




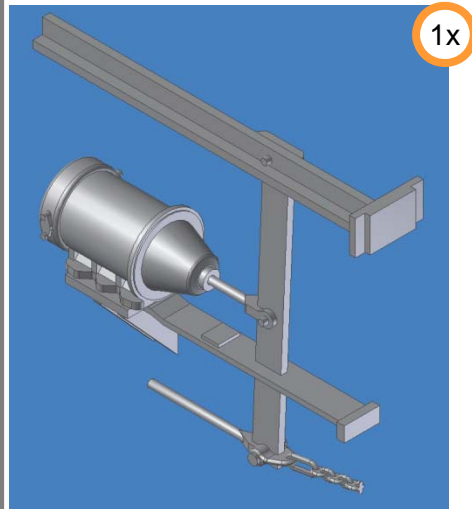
## “Sub” Assemble end and brake components – page 7

### Brake components part 4

Version 1: Fulcrum/cylinder – high mount



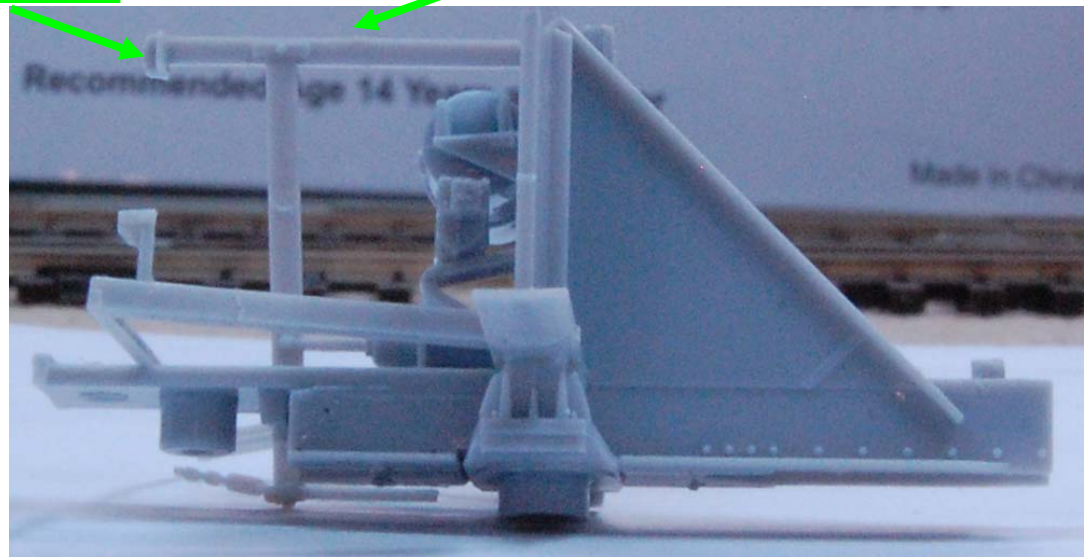
Version 2: Fulcrum/cylinder – low mount



- On B end of car, glue one of two fulcrum pieces shown at left to the end of the car. These parts have L-shaped mounting points on the vertical slope sheet parts as well as a butt-joint mount against the end cage.

Mount to  
back of end  
cage

Fulcrum



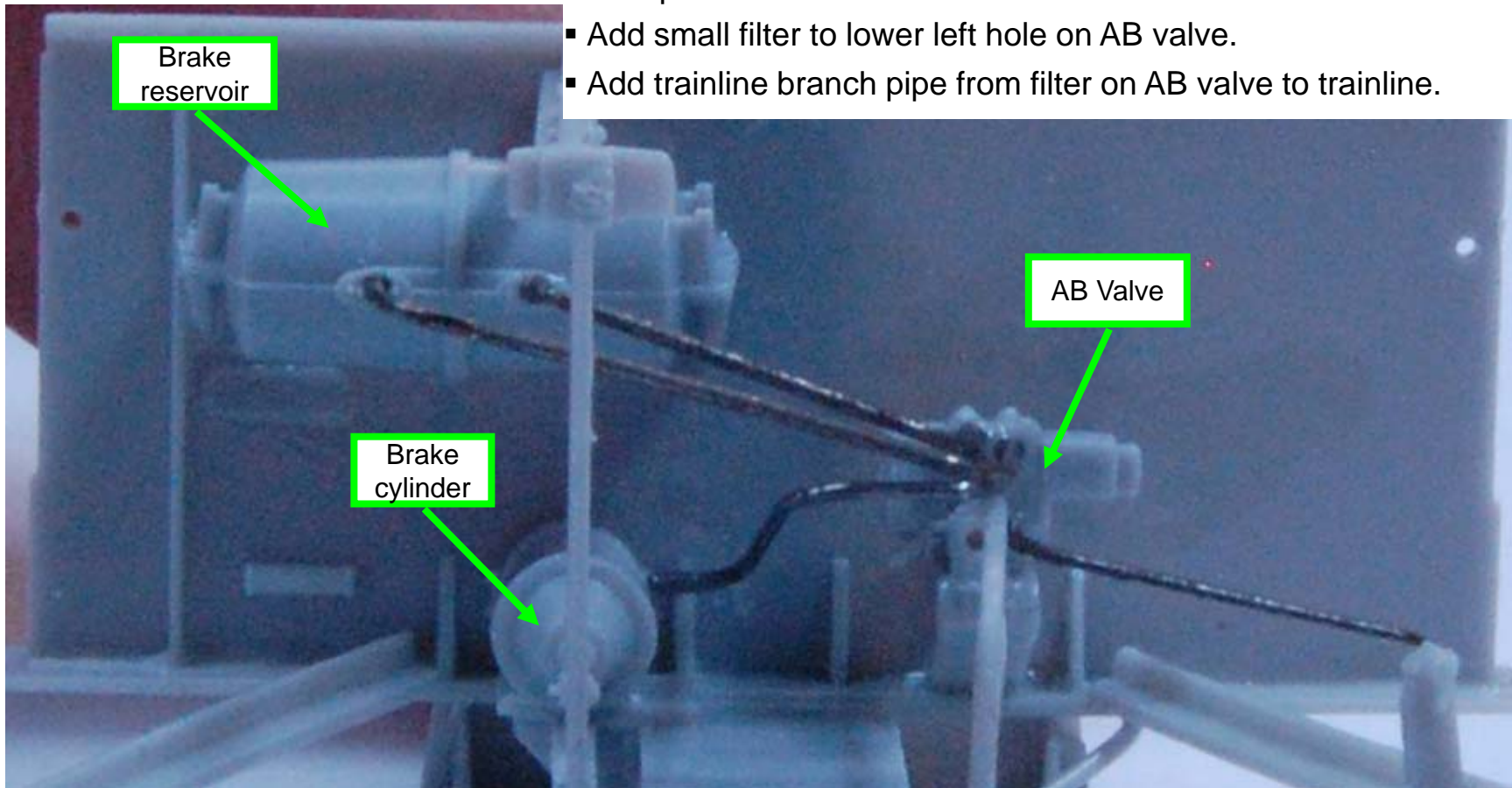
## “Sub” Assemble end and brake components – page 8

### Brake component piping

Bent wire parts

1x

- On B end, add formed wire “pipe” from AB valve to retainer valve. This goes in lowest right hole on triple valve when facing the valve.
- Add formed wire “pipe” from AB valve to brake cylinder (body brake cars) Pipe goes in middle left hole.
- Add pipes from reservoir to AB valve. These go into the top two holes on triple valve.
- Add small filter to lower left hole on AB valve.
- Add trainline branch pipe from filter on AB valve to trainline.





## **“Sub” Assemble end and brake components – page 9**

### Coupler and coupler box installation

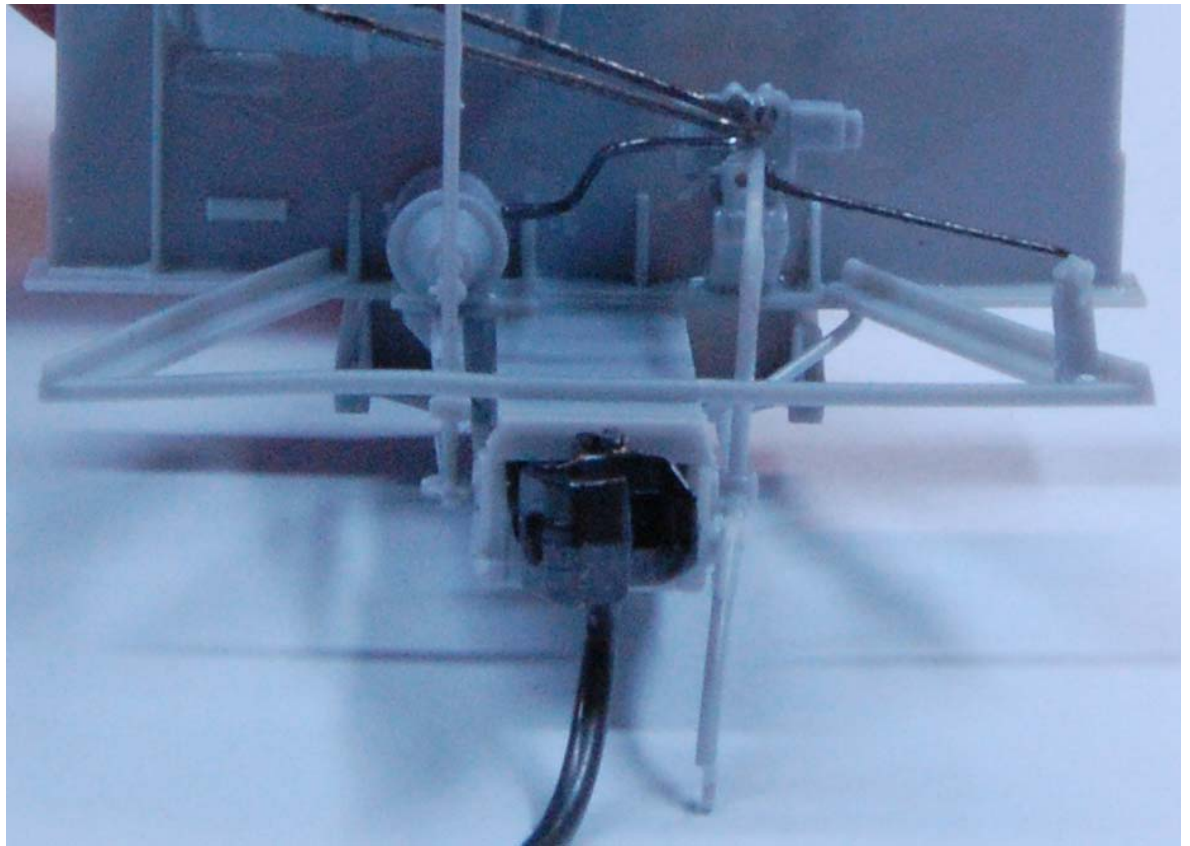
Coupler box cover



Recess for screw



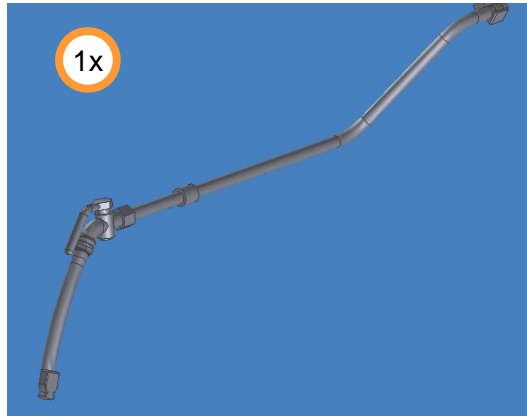
- Add couplers. The Tangent PS4750 is designed for Kadee #158. Secure coupler covers with side draft key detail using small Phillips head screw provided.



## **“Sub” Assemble end and brake components – page 10**

### Add B end trainline

B end trainline and air hose –  
Side mount trainline

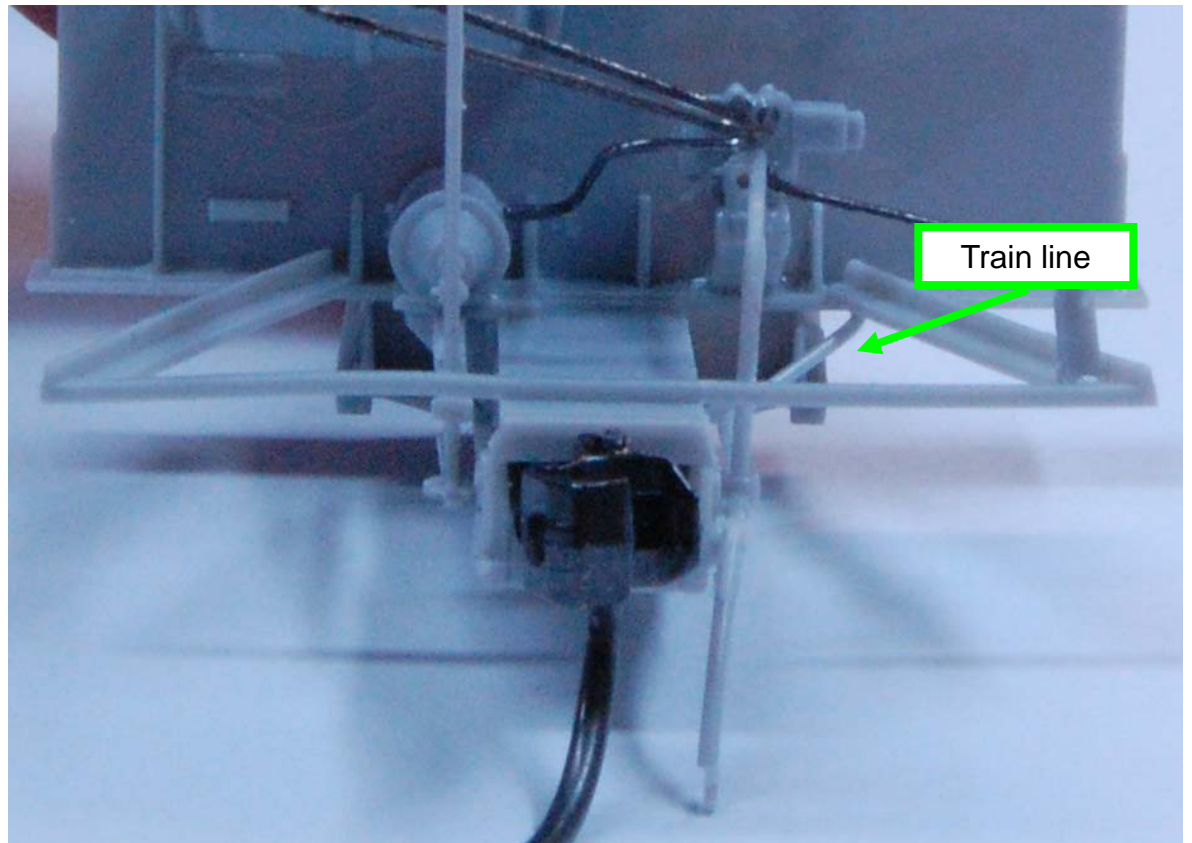


or

B end trainline and air hose – center tube  
trainline



- Add B end trainline. Pegs on trainline go into holes on coupler cover. Glue opposite end of trainline to body bolster.



## **“Sub” Assemble end and brake components – page 11**

### **Add A end trainline**

A end trainline and air hose  
– side mount trainline



or

A end trainline and air hose – center tube  
trainline



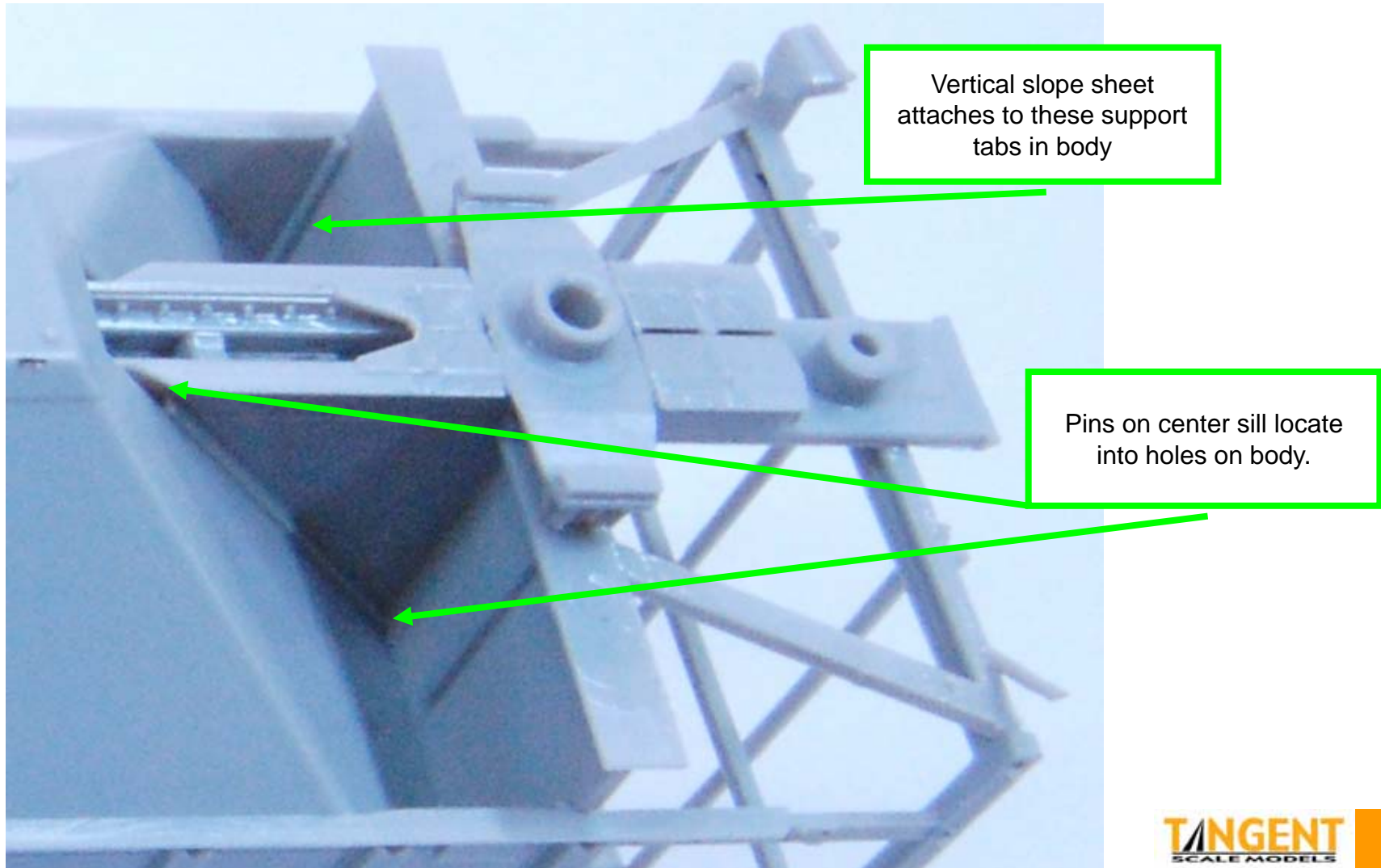
- On A end, add trainline and air hose part pictured at left
- Pins on trainline attach to holes in coupler cover. Opposite end of trainline goes through hole in end plate.



## Add “sub assembly” to carbody

A end

- Take completed A end sub-assembly from the previous pages and insert into the A end of car.

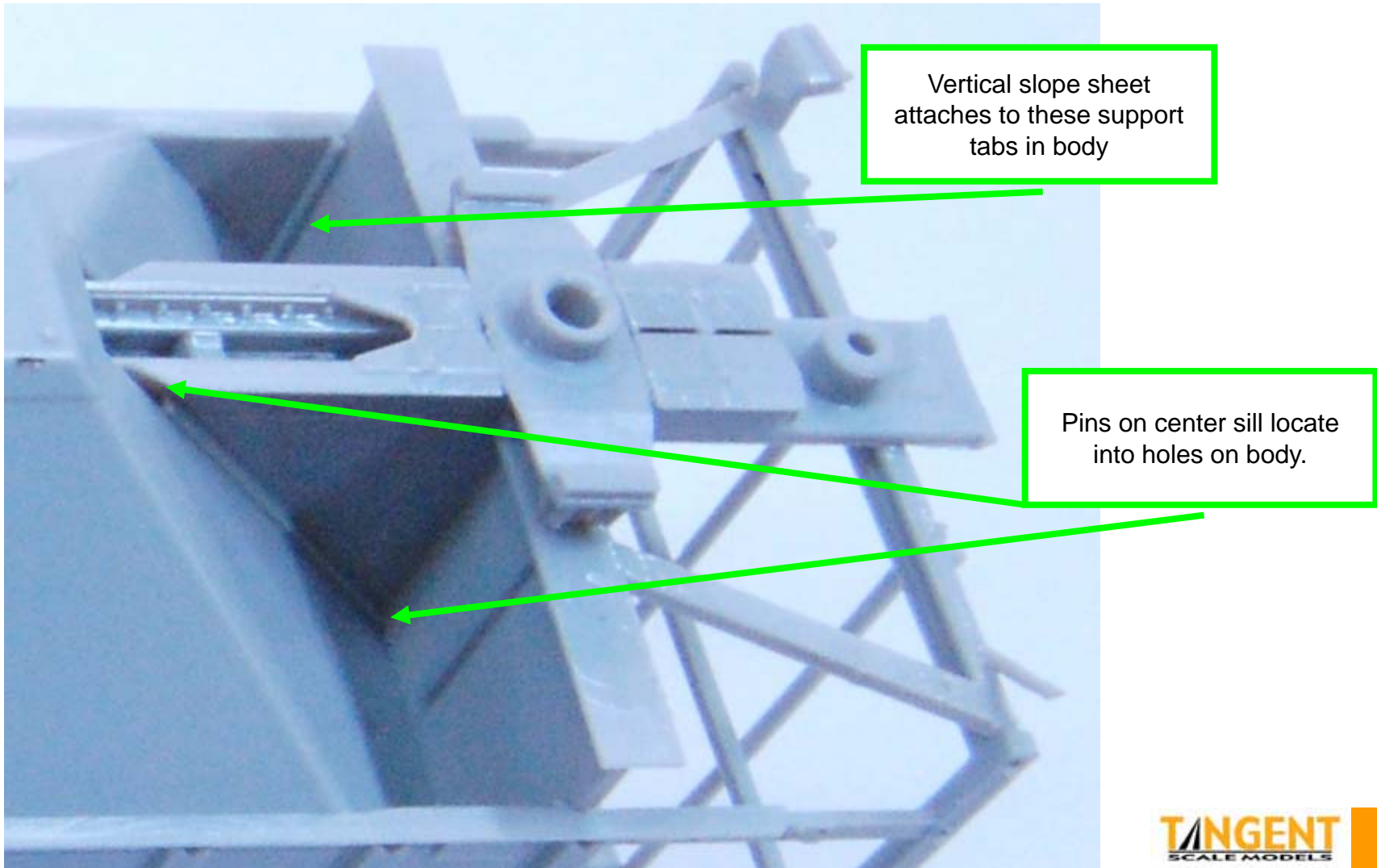




## Add “sub assembly” to carbody

B end

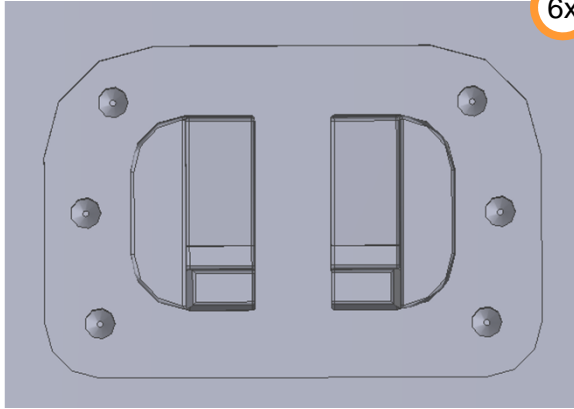
- Take completed B end sub-assembly from the previous pages and insert into the A end of car.



## Add shaker brackets

Shaker brackets

6x



*Some prototype cars did not have shaker brackets*

- Glue all 6 shaker brackets to the bays of the car. Note orientation of Shaker Brackets.

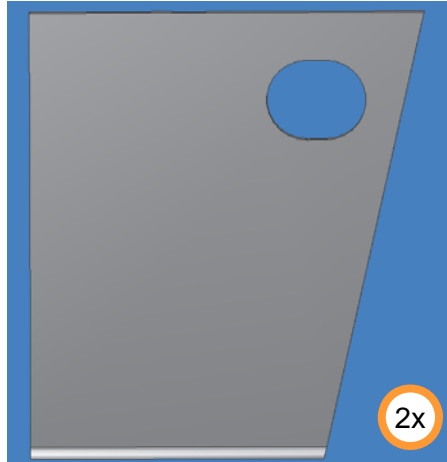


Round corners  
on top



## Add jacking pads - left

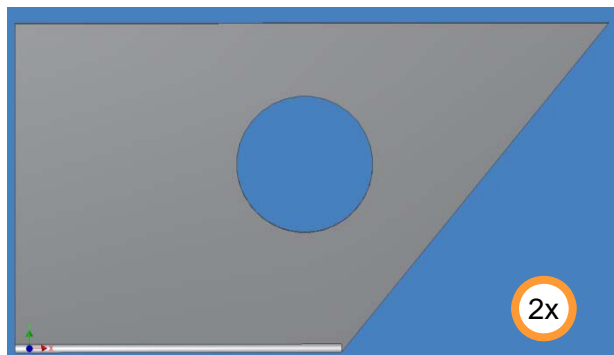
Jacking pad – early, left



*Used in pre-1979 production*

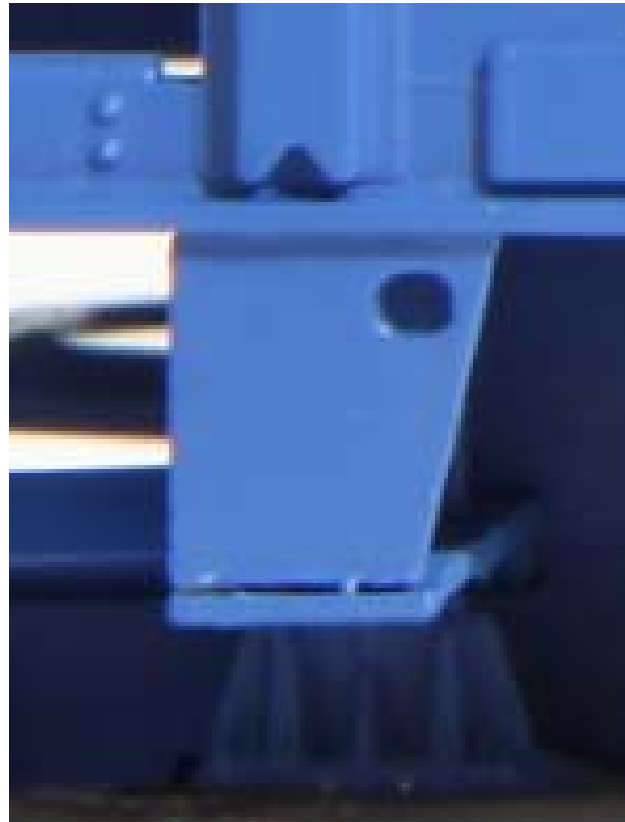
or

Jacking pad – late, left



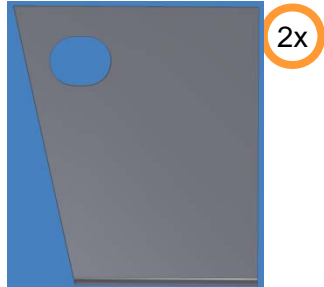
*Used in 1979 and later production*

- Glue one jacking pad to left side of car. The jacking pad locates between the bottom sill of the body and the top of the sill on the end frame.
- Turn the model over and repeat for the other (left) side of the car.

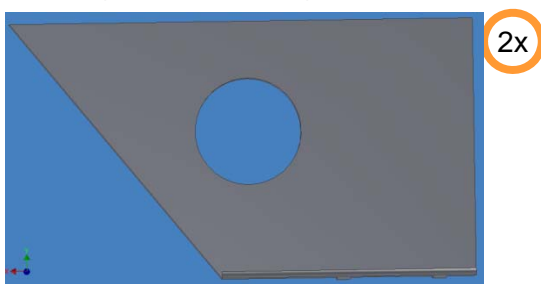


## Add jacking pads - right

Jacking pad – early, right

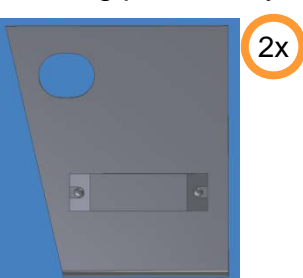


Jacking pad – late, right



*Used in pre-1979 production*

Jacking pad – early AEI, right

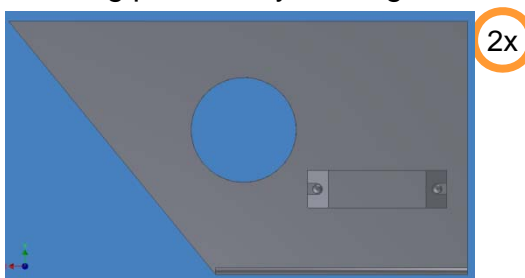


*Used on cars with AEI tags , on both (right) sides of car*

- Glue one jacking pad to right side of car. The jacking pad locates between the bottom sill of the body and the top of the sill on the end frame.
- Turn the model over and repeat for the other (right) side of the car.



Jacking pad – early AEI, right



*Used on cars with AEI tags , on both (right) sides of car*

## Glue side ladder/steps to corners of carbody

Side ladder – left



Side ladder – right



- Glue one ladder to left side of car. Note the mounting holes on sides of the car that receive pins on the ladders. Also note a locator pin against the support angle on the end of the car.
- Turn car over and repeat for the other (left) side of the car.

Step glues to the angled reinforcement on end



- Glue one ladder to right side of car. Note the mounting holes on sides of the car that receive pins on the ladders. Also note a locator pin against the support angle on the end of the car.
- Turn car over and repeat for the other (right) side of the car.

Step glues to the cut lever bracket that hangs below the end "cage"

## Add trucks and weights to car

Trucks with wheels



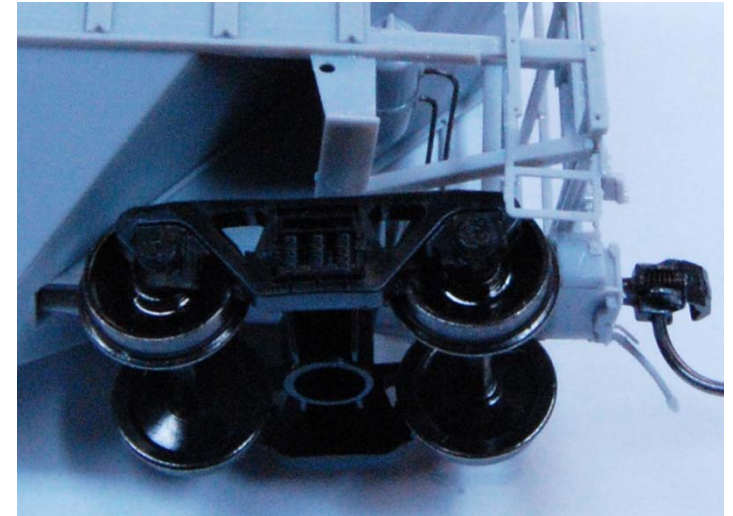
Truck screws

2x

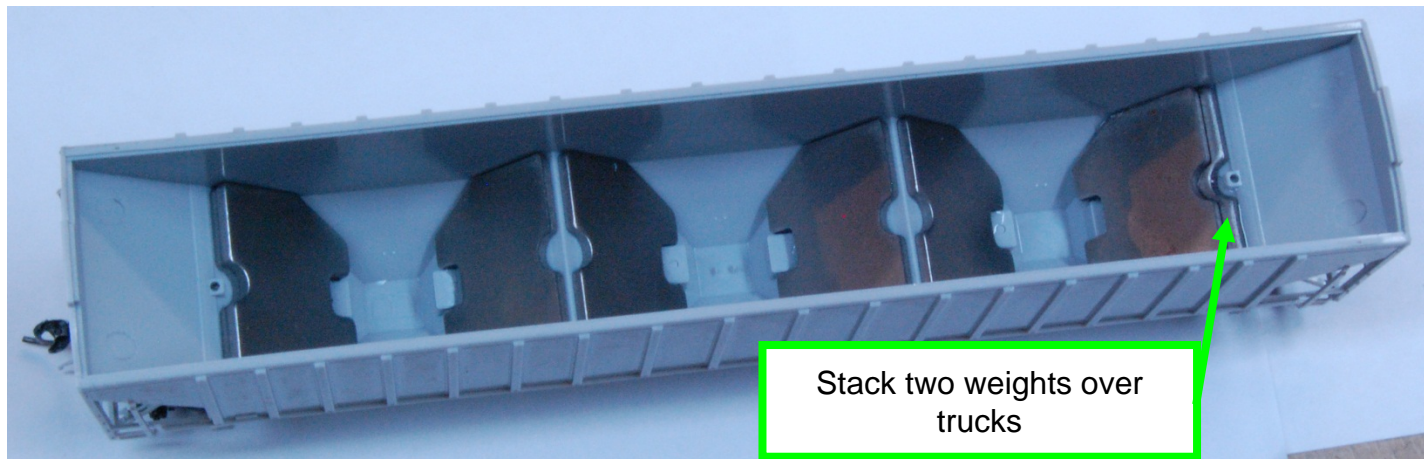
Weights

8x

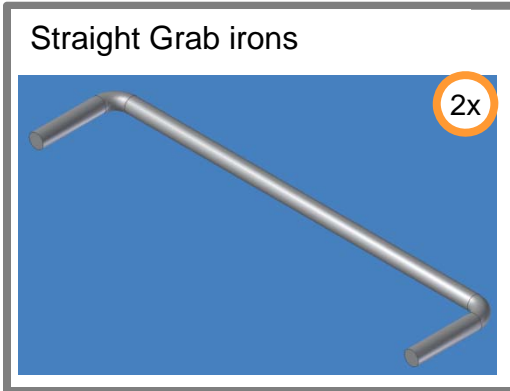
- Turn the car so it is sitting on its (open) roof
- Screw the trucks to the bolster



- Attach weights as shown in hopper bays. It is advised to use something other than CA adhesive for this, such as self stick tape, contact cement, or a conservative amount of caulk. Note that two weights are placed over the trucks..



## Add formed wire grabirons to sides

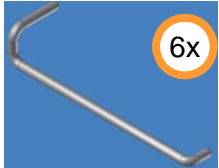


- Glue 4 straight grabs on each side corner

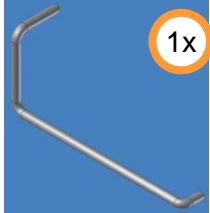


## Add formed wire grabirons and coupler lift bars to ends

Small Half Drop Grabirons



Large Half Drop Grabiron



Note: For "shorter" end cage parts referenced on page 6/7, use 7 small half drop grabirons on left side ladder

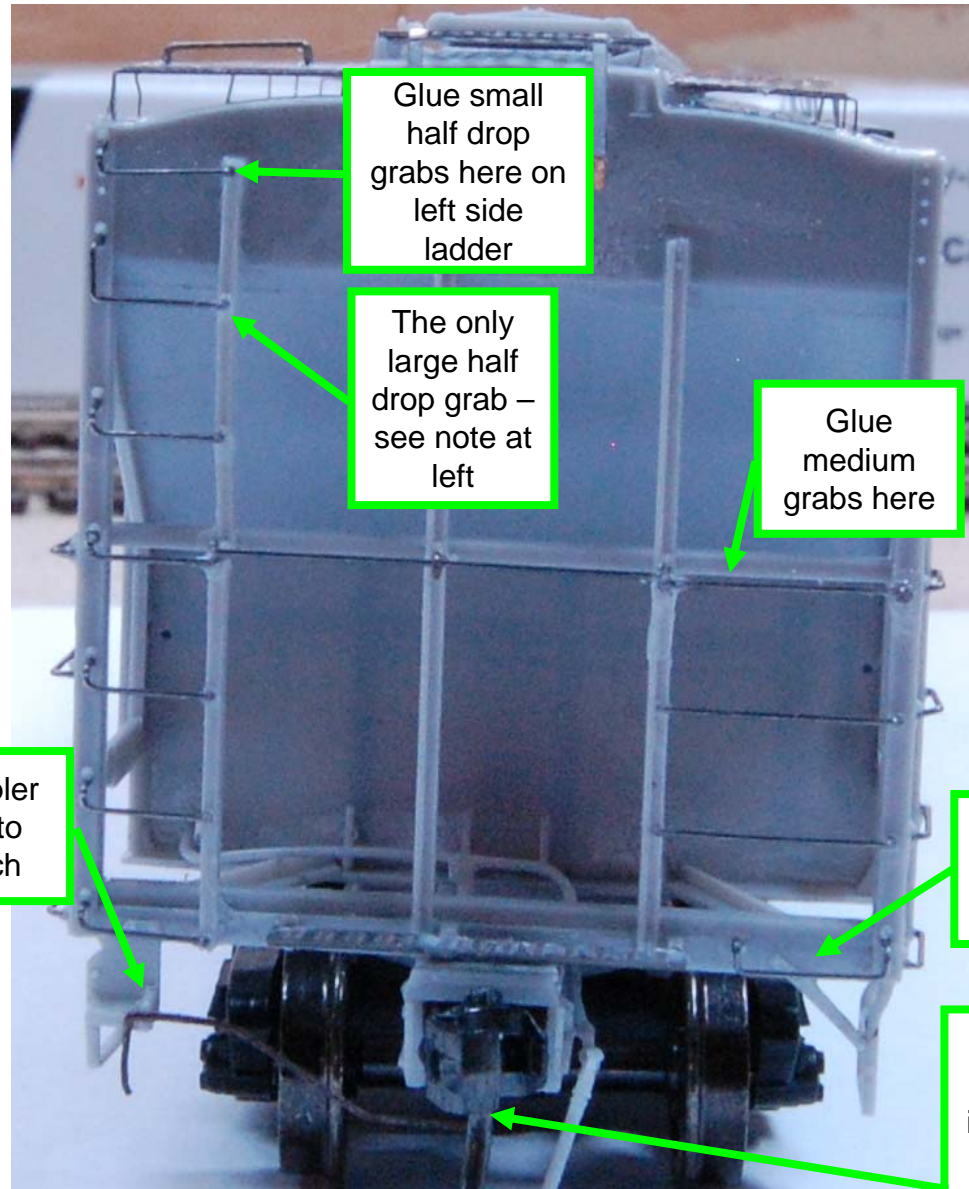
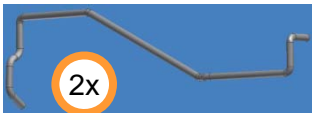
Drop Grabiron



Medium Grabirons



Coupler lift bars



- Glue 7 drop grab irons to left side of each end



## Add formed wire grabiron and lift ring to ends

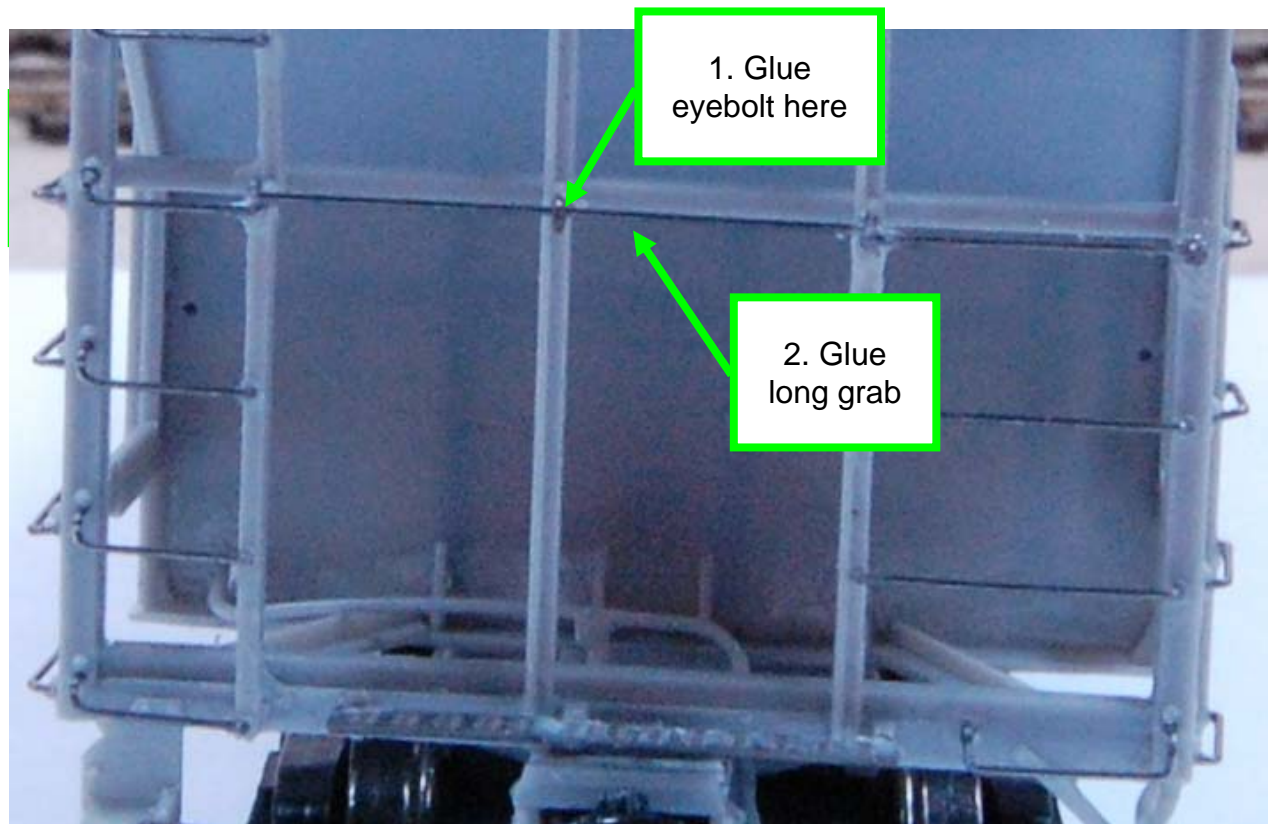
Long Grabiron

2x

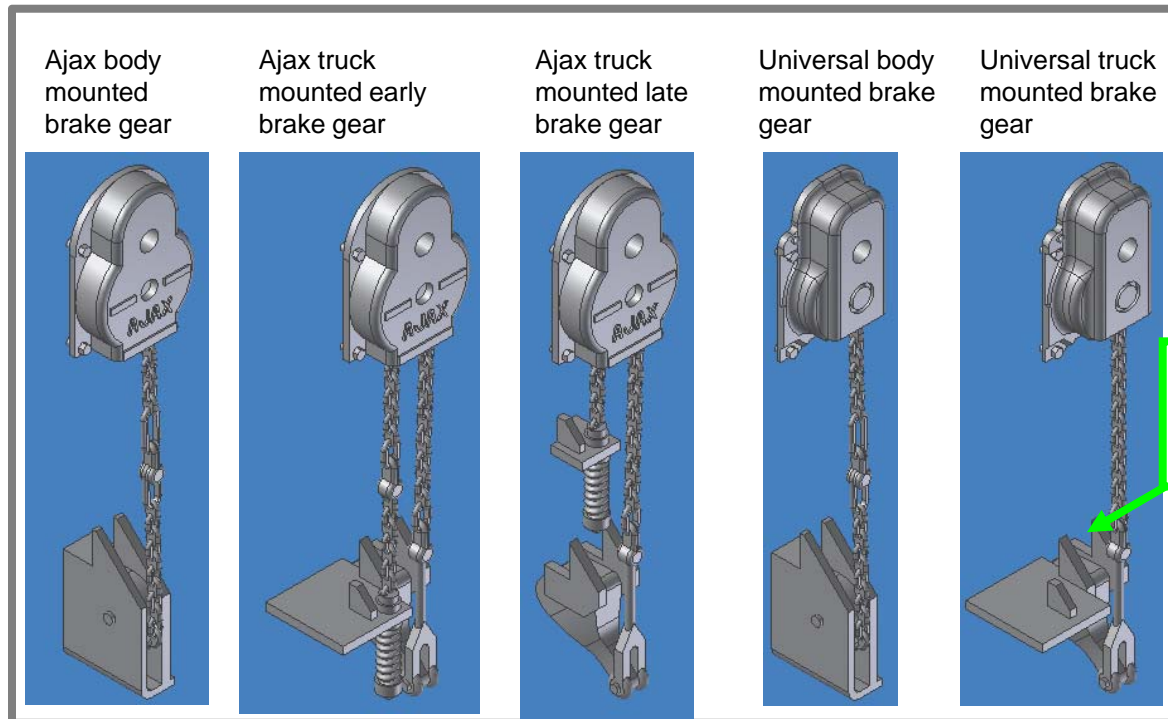
Eyebolt



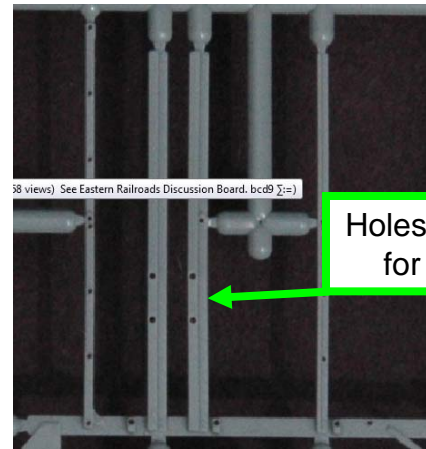
- Glue eye bolt in the center vertical upright
- Thread the long wire grabiron through the eyebolt and then glue the two ends into the remaining two holes
- Repeat on other end



## Add plastic brake gearbox / chain / clevis assembly to body



- On B end of car, add brake gearbox / chain / clevis assembly to pins on uprights.
- Also glue clevis part to bottom corner of horizontal carbody end



## Glue brakewheel to end of car

Brakewheel – “Modern”

1x



or

Brakewheel - Universal

1x



- Attach brakewheel to end of car with glue

Insert brakewheel  
here





## Add trough hatch to roof

Trough hatch piece – original “ribbed”

1x



or

Trough hatch piece – fiberglass substitutes

1x

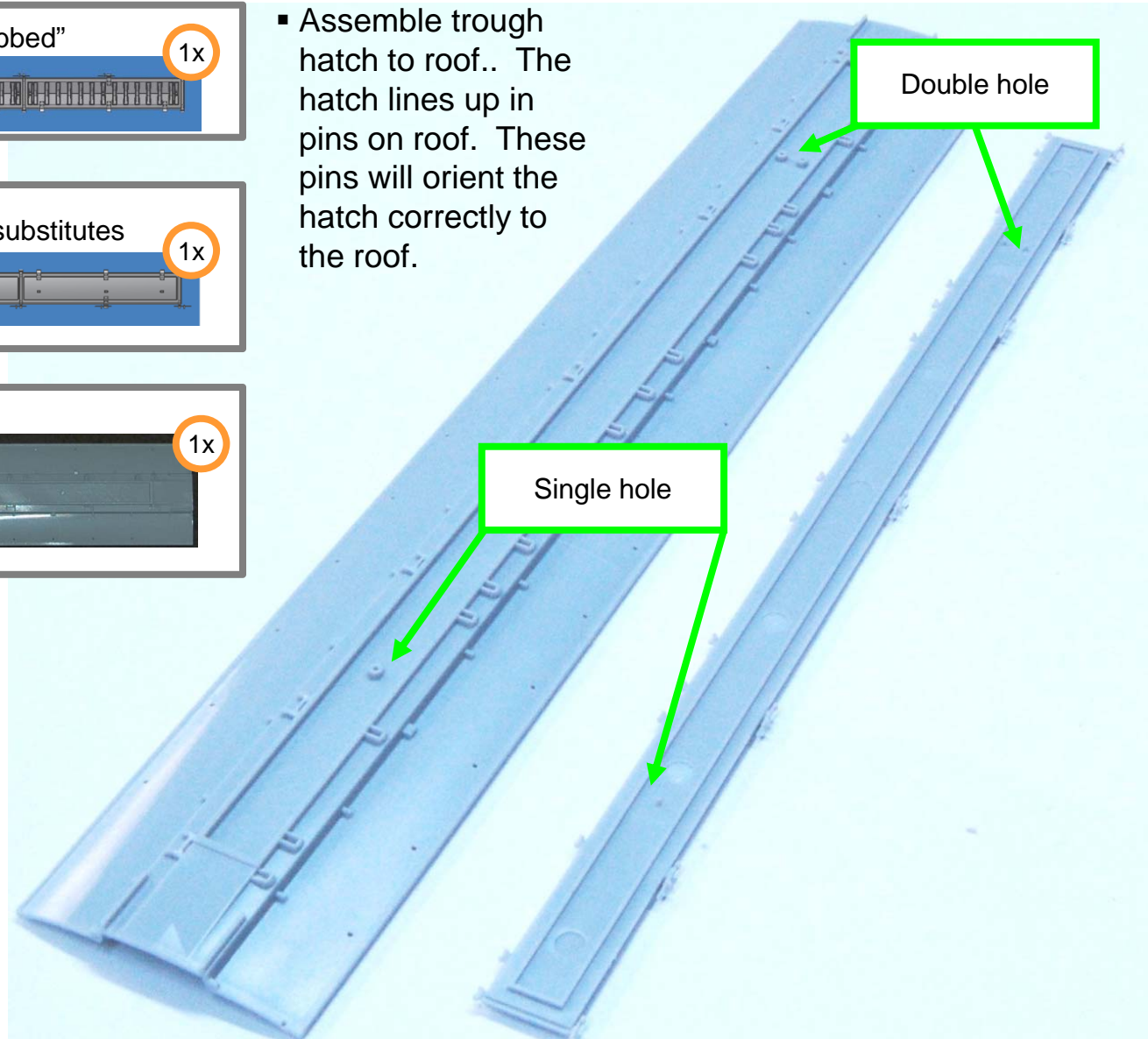


Roof for car

1x



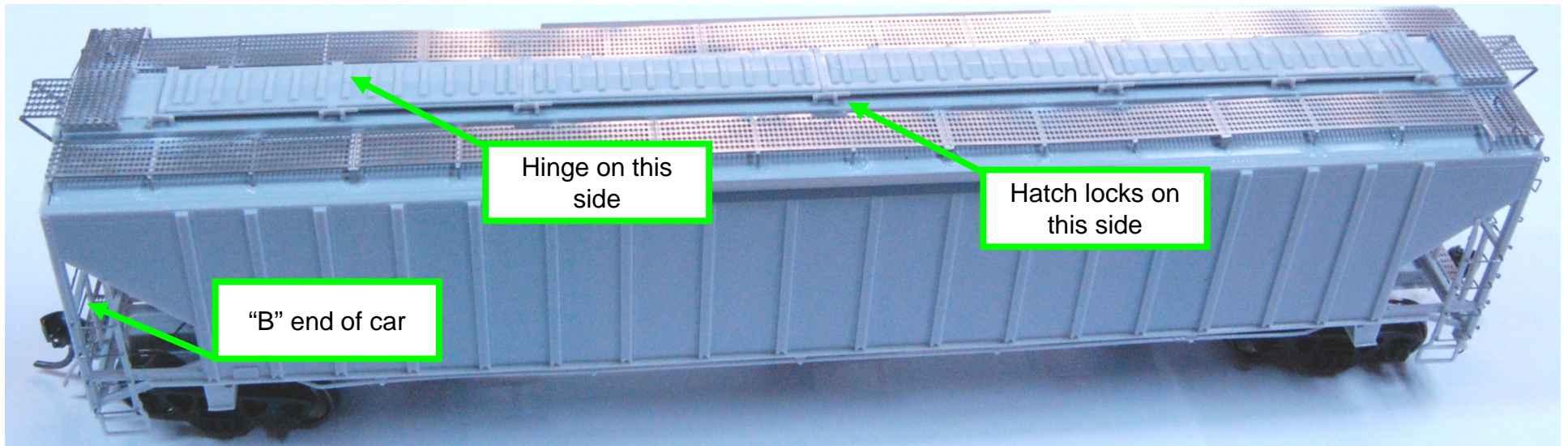
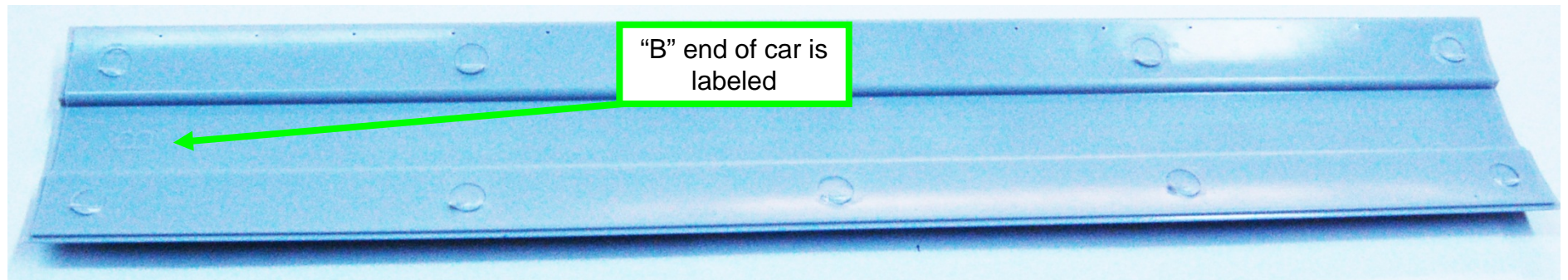
- Assemble trough hatch to roof.. The hatch lines up in pins on roof. These pins will orient the hatch correctly to the roof.





## Add roof and hatch assembly to car

- Pre-glue bottom edge of roof and top inside edge of body
- End of roof marked with a "B" (on underside), goes on B end of car.
- Place roof/hatch assembly into carbody.



## Attach Roofwalk to roof of car

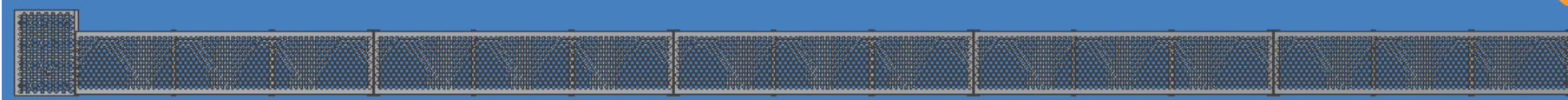
NOTE: These roofwalks are **VERY SHARP**. USE EXTREME CAUTION!

Roofwalk – Apex (Rectangular Hole) – *used on some early production PS4750s*



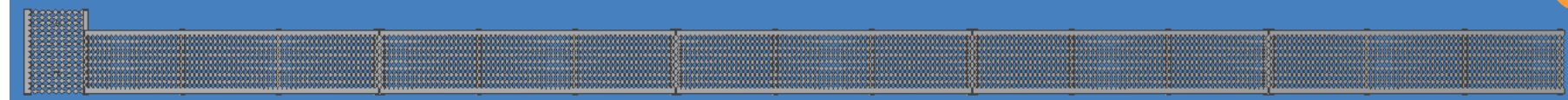
Roofwalk – Morton (Round Hole) – *most common roofwalk used on PS4750 production*

or

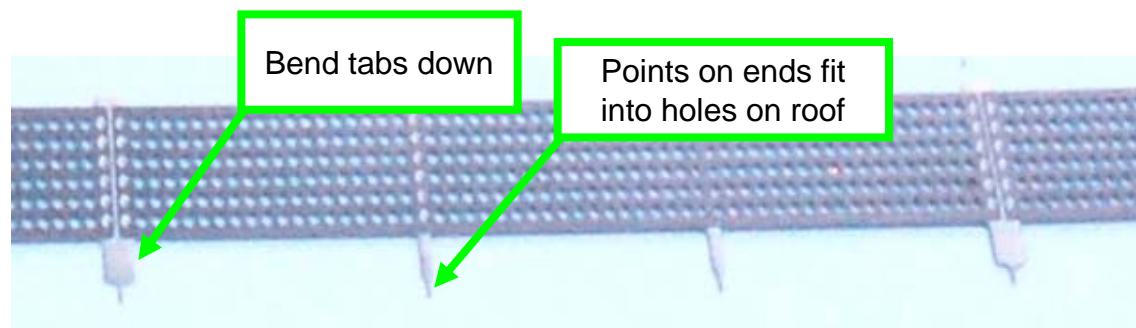


Roofwalk – Gypsum (Diamond Hole) – *used on select PS4750s especially within the 1973 – 1976 timeperiod*

or

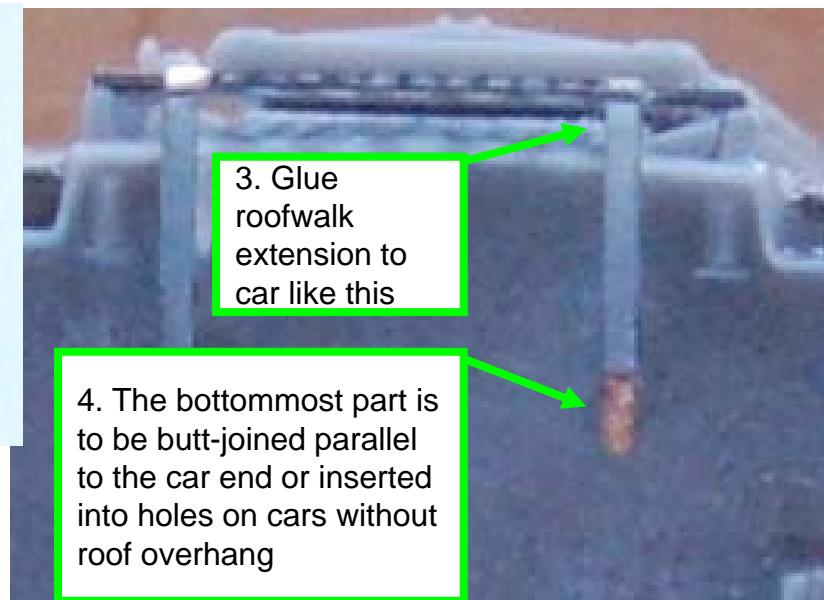
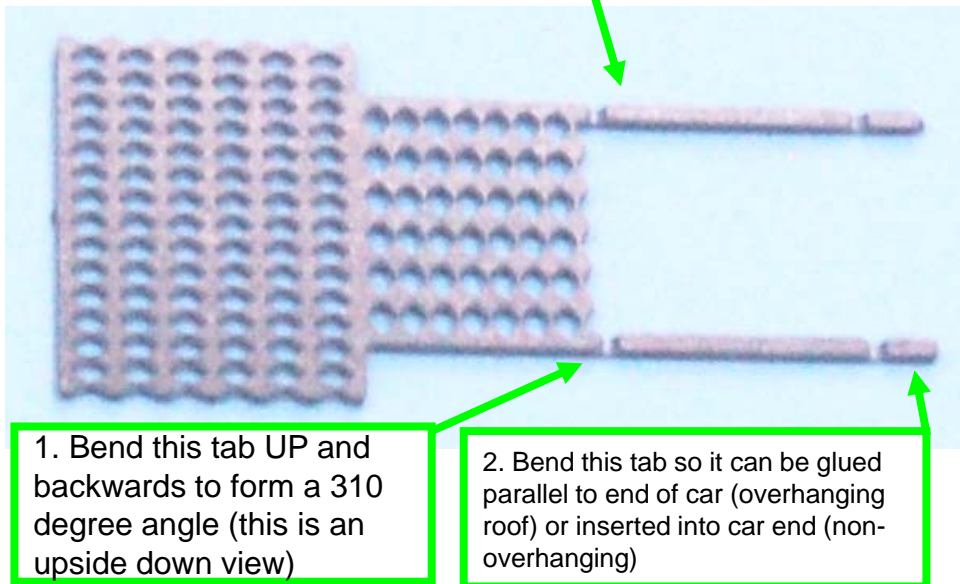
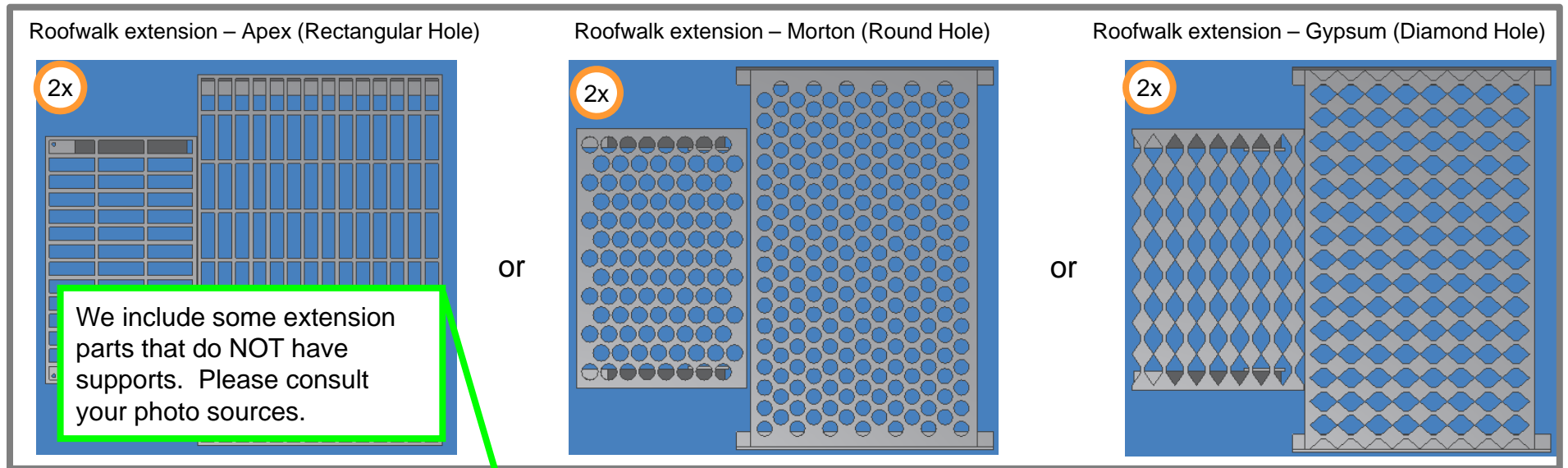


- Use extreme caution during this step – the etched metal parts are very sharp!
- Form tabs down on Roofwalk at a 90 degree angle.
- Attach Roofwalk to roof. Points on tabs fit into holes on roof.
- Repeat for other side of car

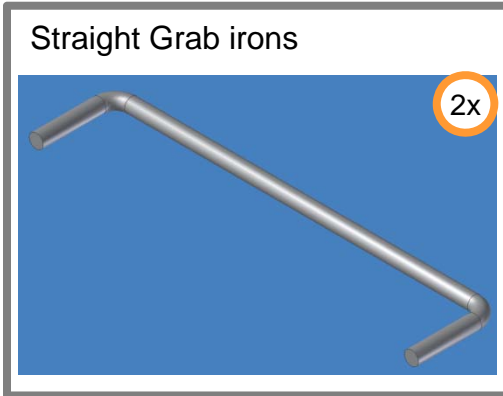




## Add roofwalk extension to car



## Add grabirons to top of roofwalk

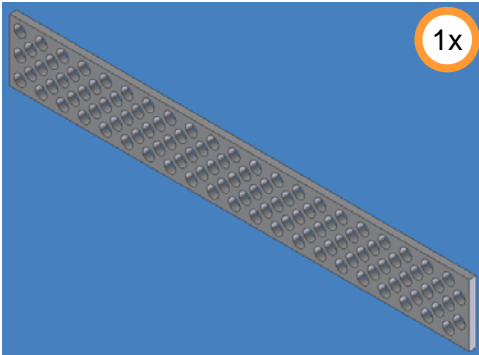


- Glue the grab irons to the roofwalk so they stand 90 degrees to the roofwalk

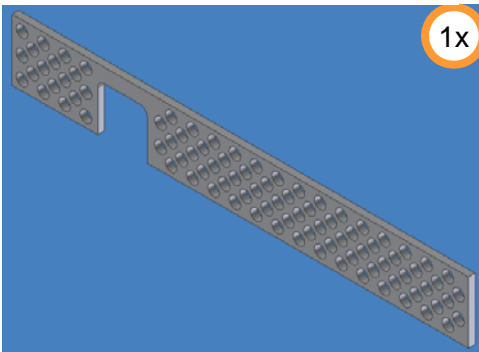


## Add crossover platforms to each end of car

Crossover platform A End  
(choose style – Morton pictured)



Crossover platform B End  
(choose style – Morton pictured)



- Glue the A end crossover platform to the A end of car into holes in carbody



- Glue the B end crossover platform to the B end of car into holes in carbody



### Add side stiffener to car

This part is only found on certain prototypes – it is not common and can be one of several sizes

Side Stiffener (etched metal)

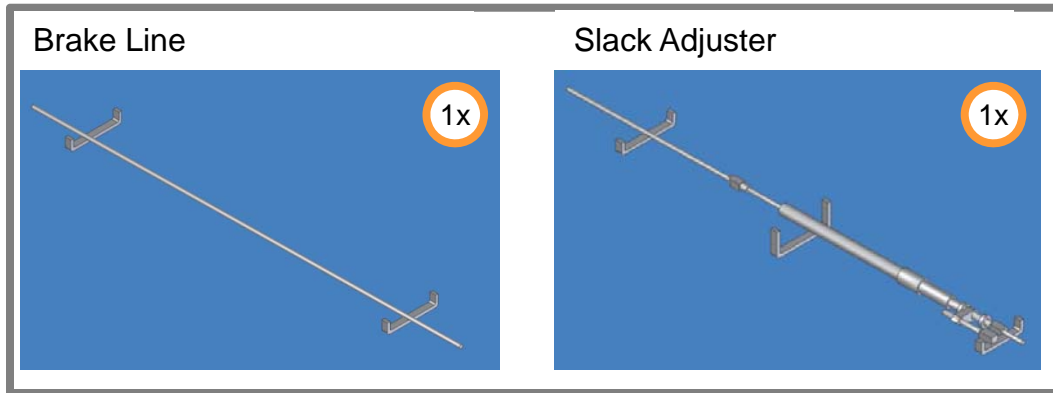


- Bend the metal part 90 degrees along the “inside etch” bend line
- Glue to top center of car side
- Repeat on other side of car



## Attach slack adjuster & brake rod

This part is only found on prototypes with body-mounted brake systems – consult your prototype photos



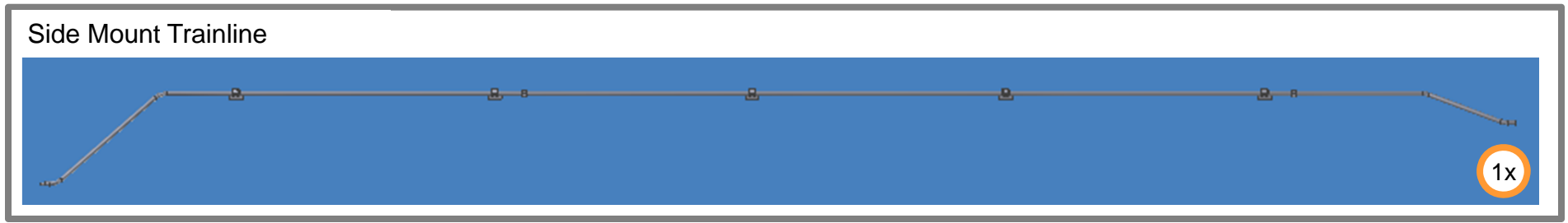
- Attach slack adjuster & Brake Rod to center sill.
- Brackets attach to bottom of center sill flanges.



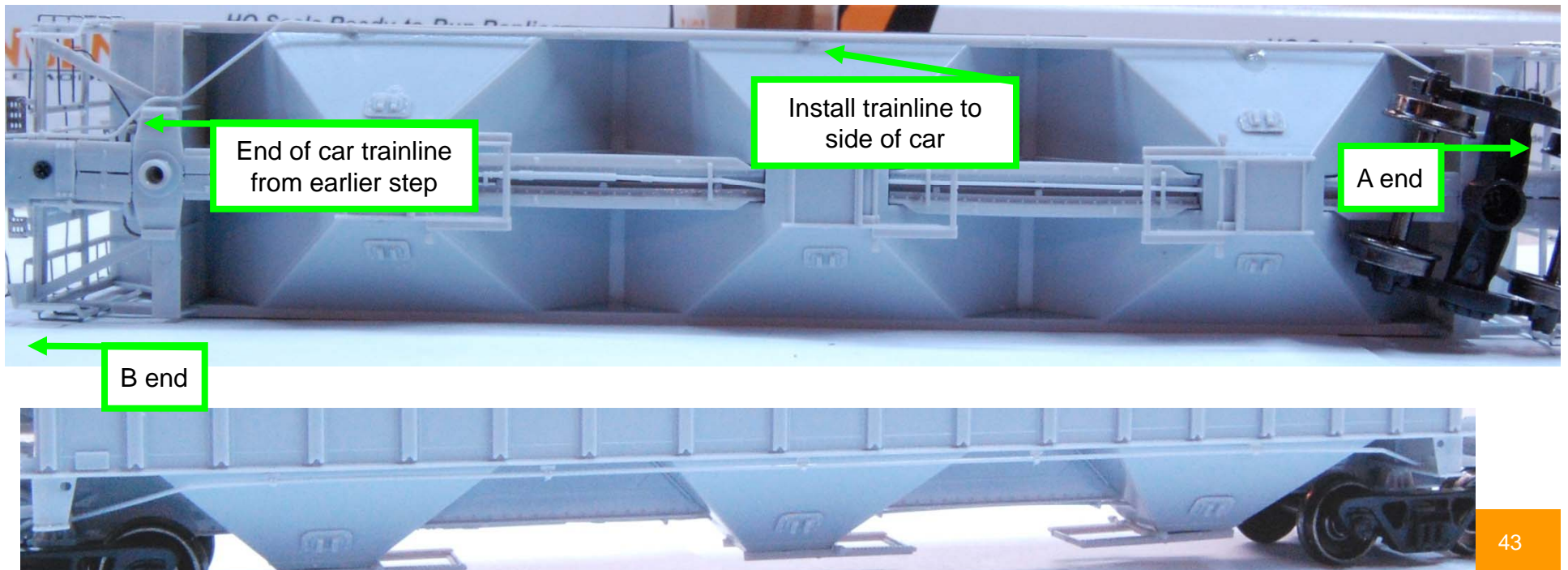


## Glue side mount trainline to side of car

This part is only found on prototypes with side mount trainline brake systems – consult your prototype photos



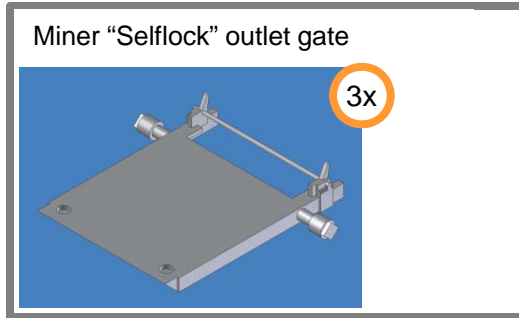
- Glue side mount trainline to underside of the car body, using holes in side of carbody as a guide for installation.



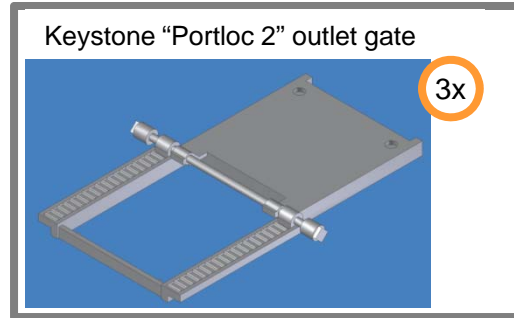


## Glue outlet gates to bottom of bays

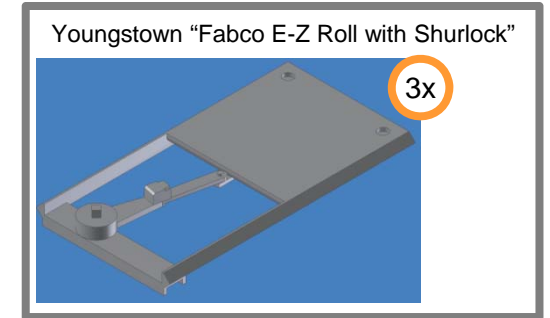
This part is only found on prototypes with side trainline brake systems – consult your prototype photos



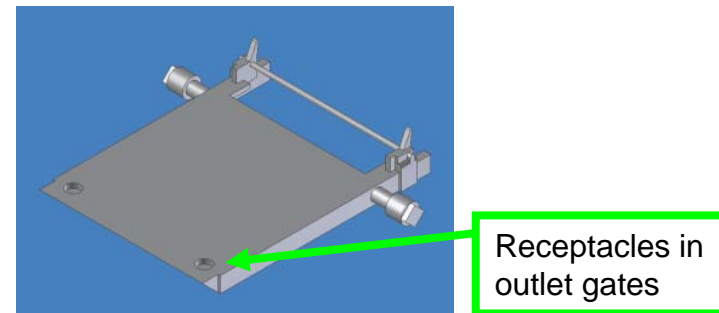
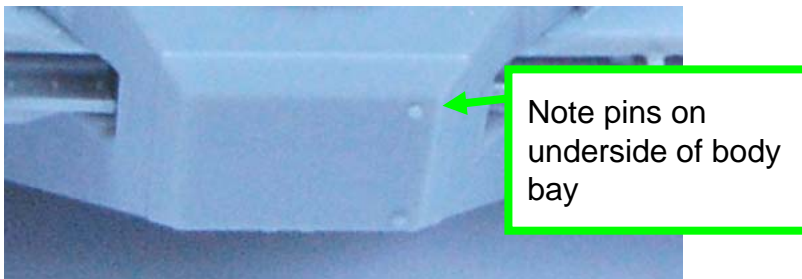
or



or



- Glue outlet gates to the underside of the bays on the side of the car
- Note that there are locator pins in the body, with receptacles on the gate parts, so that the outlet gates face the proper direction



**Install placards to side of car if required**

Placards



- These sample placards are included to be used with some paint schemes.