

# Precision Steel Car's 40 Ft. Stock Car



## Precision Steel Car

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# PSC 40 ft. Stock Car Kit: Parts List

<u>Body</u>	<u>Qty.</u>	<u>Material</u>	<u>Ladders</u>	<u>Qty.</u>	<u>Material</u>	<u>Roof</u>	<u>Qty.</u>	<u>Material</u>
Dreadnaught End Backer	2	Steel	Ladder Upright LH	4	Alum	Roof Panel Bowtie	1	Steel
Dreadnaught Top Stamping	2	Steel	Ladder Upright RH	4	Alum	Roof Bowtie	10	Steel
Dreadnaught Bottom Stamping	2	Steel	Ladder Bracket	10	Steel	Roof Hat Sections	11	Steel
Body Top Chord	2	Steel	Offset Bracket	2	Steel	Walkway Middle Bracket	6	Steel
Top Door Track	2	Steel	Grab Iron 2.25" D	28	Alum	Walkway Side Bracket	4	Steel
Body/Roof Support	2	Steel				Walkway End Bracket	2	Steel
Diagonal Flat Brace	8	Steel	<b><u>Frame</u></b>	<b><u>Qty.</u></b>	<b><u>Material</u></b>	Roof Brace	3	Steel
Upper Corner Braces	4	Steel	Main Frame	2	Steel	Punched Walkway 2.5"x10"	5	Alum
Lower Corner Braces	4	Steel	Major Cross Beam	2	Steel	Punched Walkway 2.5"x6.875"	2	Alum
Vertical Zee LH	6	Alum	Minor Cross Beam	5	Steel	Punched Walkway 3.5"x5.625"	2	Alum
Vertical Zee RH	6	Alum	Bolster Frame	4	Steel	Grab Iron 2.5" A	4	Alum
Diagonal Zee LH	4	Alum	Frame End	2	Steel			
Diagonal Zee RH	4	Alum	Frame Bottom	1	Steel	<b><u>Door</u></b>	<b><u>Qty.</u></b>	<b><u>Material</u></b>
Bottom Door Rail	2	Alum	Cross Beam Bottom	2	Steel	Door Frame	2	Steel
Car Number Plate	2	Steel	Coupler Plate	2	Steel	Top Door Guides	4	Steel
Herald Plate	2	Steel	Floor Sheet	1	Steel	Horizontal Stiffener	2	Steel
Number Plate Brackets	8	Steel	Bell Crank	1	Brass	Grab Iron 2" C	4	Steel
Grab Iron 2.25" A	2	Alum	Bell Crank Mount	1	Steel			
Grab Iron 2.5" A	4	Alum	Anglecock Mount	2	Steel			
Grab Iron 2.75" C	2	Alum	Triple Valve Mount	1	Steel			
Door Stop	2	Steel	Brake Cylinder Mount	1	Steel			
Brake Wheel Housing Kit	1	Pkg	Reservoir Mount	1	Steel			
Modern Brake Wheel	1	Steel	A Style Stirrup Step	4	Steel			
Standoff 3/8" Long	4	Alum				<b><u>Optional Wood Boards</u></b>	<b><u>Qty.</u></b>	<b><u>Material</u></b>
Brake Wheel Platform Kit	1	Pkg				Door Boards (1/4"x3/4"x8 3/16")	30	Wood
Latch Mount	2	Steel				Side Boards (3/8"x3/4"x26 1/16")	52	Wood
Boxcar Door Latch Kit	2	Pkg				Floor Boards (3/8"x1 5/16"x14 11/16")	38	Wood
						Middle Floor (3/8"x1 5/16"x15 3/8")	6	Wood
<b>Total Parts</b>							<b>225</b>	

# Recommended Assembly Techniques

- Follow Instruction Steps.
- We suggest buying Clecos, they are great temporary fastening devices used in riveting, get them at Aircraft Tool Supply Company. ([www.aircraft-tool.com](http://www.aircraft-tool.com))
- Always test fit pieces without riveting or welding, to see how the kit goes together.
- Do not over squeeze/set rivets in the aluminum extrusion, it as soft as the aluminum rivets and will bow and twist.
- Refer to the PSC website for pictures of an assembled car.
- **Tack weld, when applying the final welds the longer pieces will shrink over the entire length.** Finish welding from one end to the other to avoid warping.
- It is easier to undo a tack weld than a bead.
- Plan your welds, most of the welds can be hidden.
- Skip weld every 4-6 inches, continuous welding will cause extreme warping and twisting.
- Add any extras, such as provisions for safety chains, as early as possible. It's easier to modify a piece before it is welded to the assembly.

## Items to be Supplied by Buyer

### Recommended Tools

- Welder
- Welding Clamps, C-clamps, Visegrips
- Rivet Gun/Rivet Squeezer
- Cordless Drill with #42 Drill bit
- Cleco Pliers/Clamps

### Fasteners

- 3/32" Dia. Rivets Lengths:  
3/16", 1/4", 5/16"
- 2-56, 3-48, 4-40 Machine Screws
- Epoxy for bonding metal (Loctite 330 Depend Adhesive recommended)

### **Couplers and Trucks are not included with this kit.**

Mounting of the trucks is to be determined by the buyer. This includes making adapter plates for mounting the trucks. The buyer is responsible for creating any additional parts needed to mount trucks or couplers. When creating these parts the buyer must calculate and modify the adapters, trucks, or kit for side bearing heights and coupler heights. Couplers and Trucks should be mounted at Step 7

Precision Steel Car is not responsible for defects resulting from poor assembly or careless handling. Replacement parts may be available to purchase.

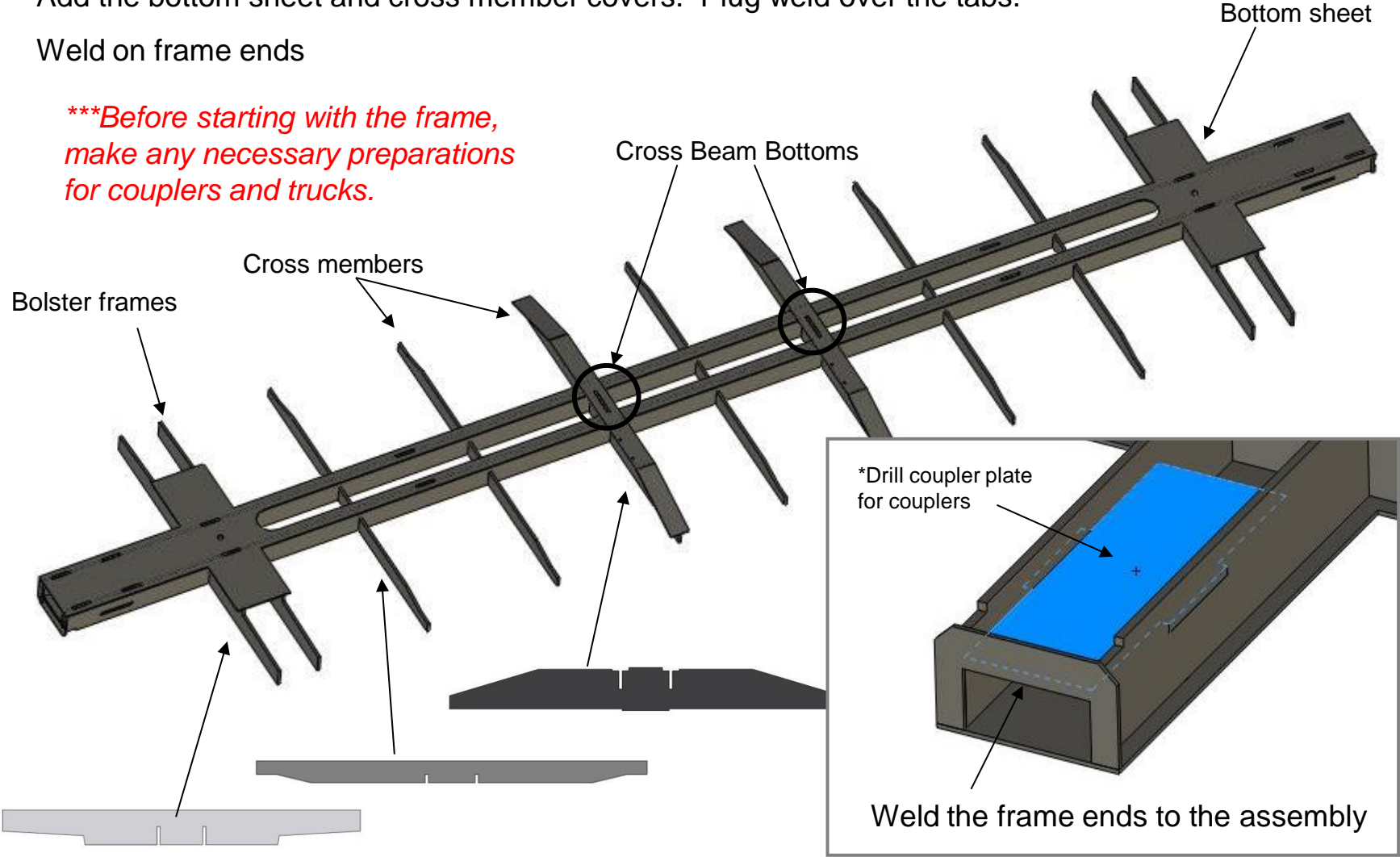
# Step 1

Begin by tacking the coupler plate into the frame sides. Lay the assembly upside down and continue by adding in the cross members and bolster frames.

Add the bottom sheet and cross member covers. Plug weld over the tabs.

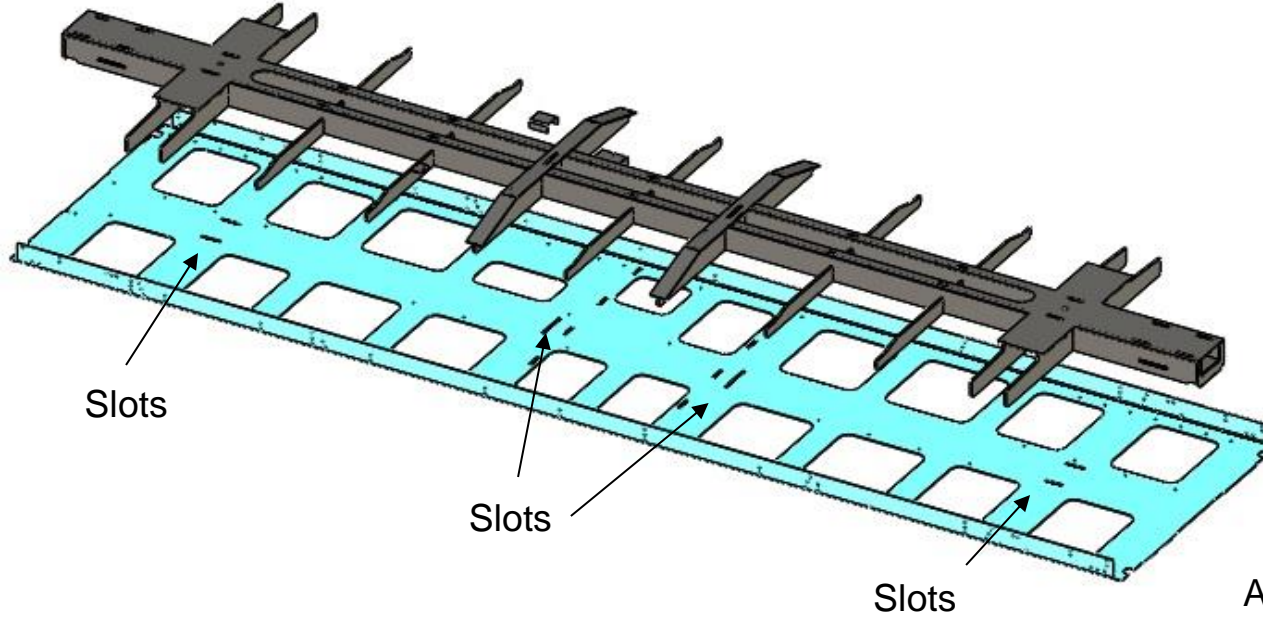
Weld on frame ends

*\*\*\*Before starting with the frame, make any necessary preparations for couplers and trucks.*





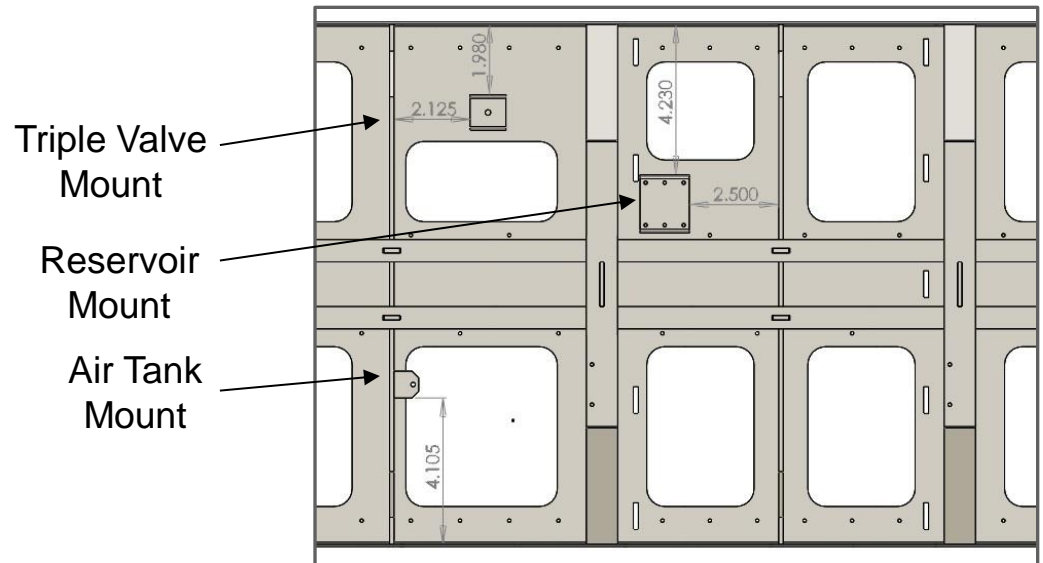
# Step 2



Air Brake Detail Mounts

**\*\*\*Ensure provisions have been made for mounting trucks and couplers at this point!**

Weld the frame into the floor. Frame has slots that key into floor. Use many small tack welds, plug weld over the tabs in the slots.



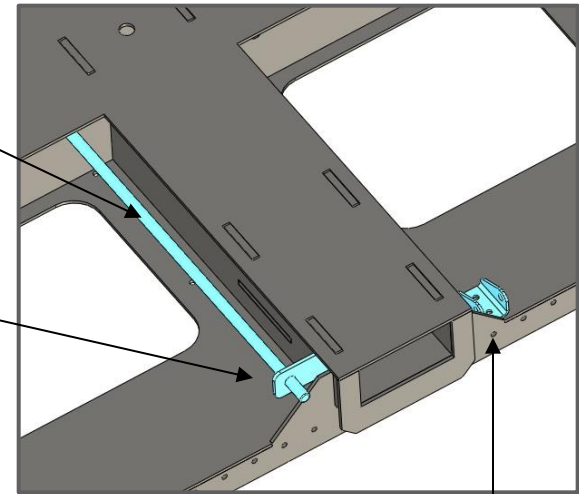
# Step 3

Weld the End Panel Backer plates to each end of the car body floor. Be sure to keep the end panels square to the floor. Weld the Top Chords in, then insert the Body/Roof Supports into the slots in the floor.

On the bottom, weld in the Anglecock mount, one at each end. Rivet the Bellcrank mount at one end only.

Simulated Airline  
(By Customer)

(2) Anglecock  
Mounts.

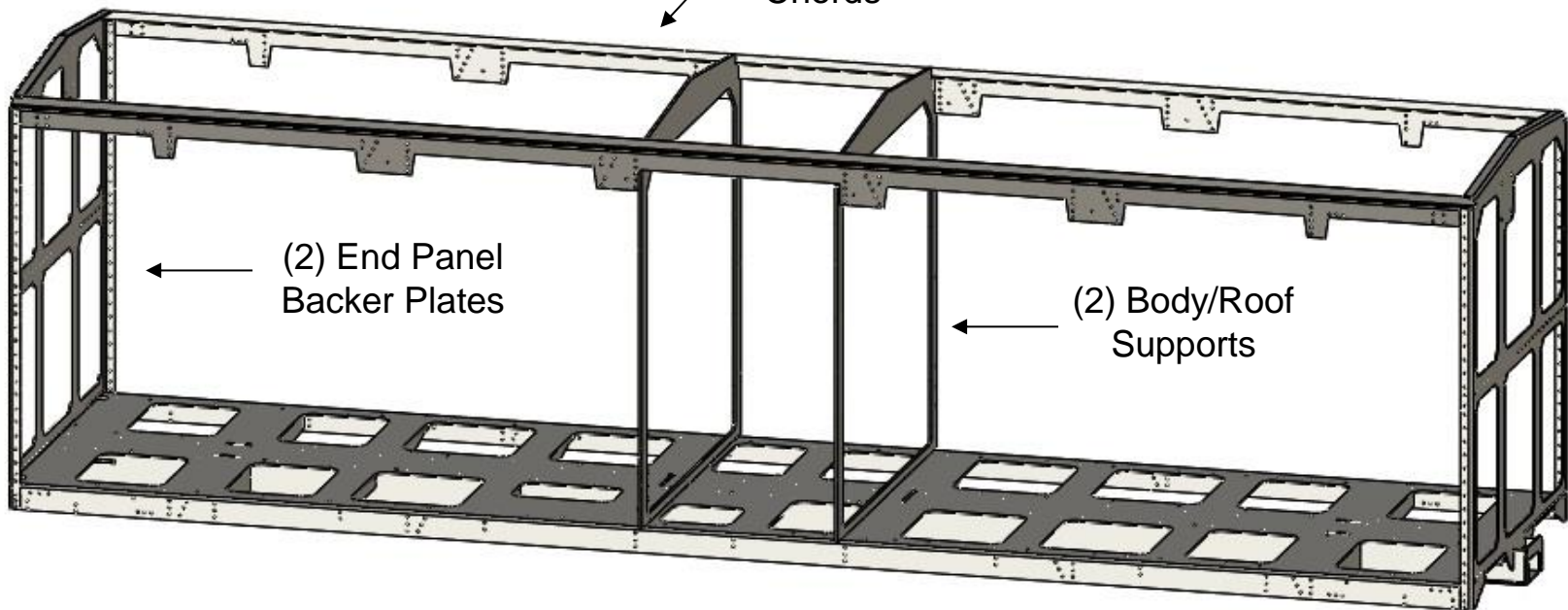


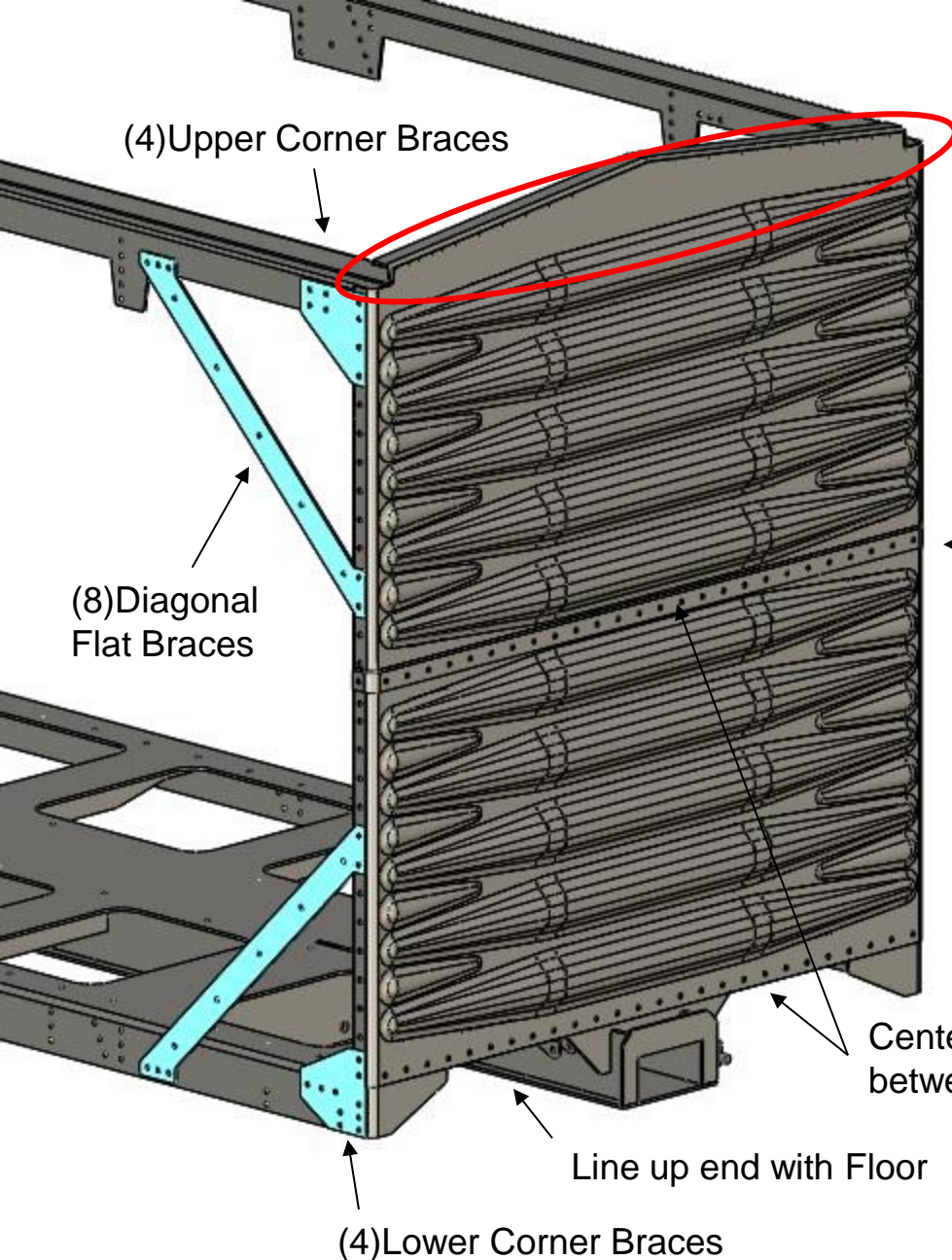
(1) Bellcrank  
Mount

(2) Body Top  
Chords

(2) End Panel  
Backer Plates

(2) Body/Roof  
Supports





Epoxy top edge of end stampings

# Step 4

Start with the bottom dreadnaught end stampings, clamp in place. The bottom of the end should match the bottom of the floor.  
Drill from inside through stamping using holes in the sides as guides.

Next clamp the top end stamping in place, it will overlap the bottom by approximately 1/2". Use a mallet to adjust bent tabs as needed.

*Use epoxy to fasten top edge of upper dreadnaught end stamping.*

Locate the Upper Corner, Lower Corner and Diagonal Flat braces.

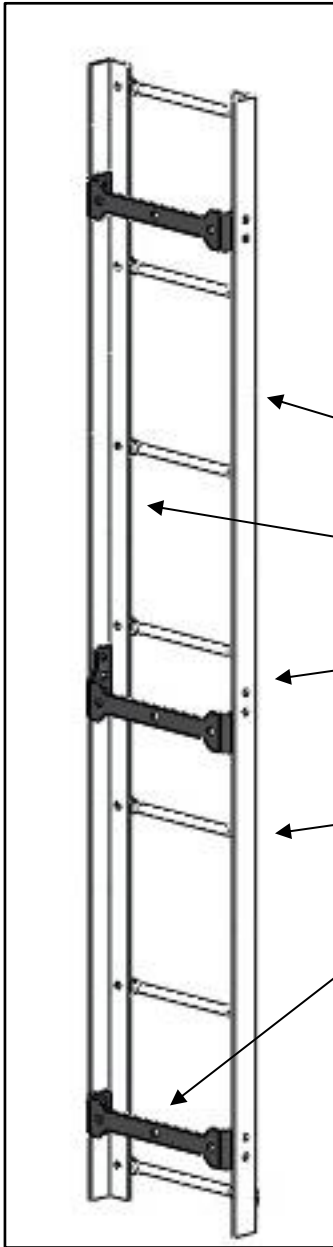
**\*\*Only partially rivet ends. Some holes must be left open for bolting in side boards, see step 9.**

Center raised panels between rivet lines

Line up end with Floor

(4) Lower Corner Braces

TOP (Back Shown)



Side Ladder Assy.: 2/car

Ladder Upright LH

Ladder Upright RH

(1) Offset Bracket  
(Offset Down)

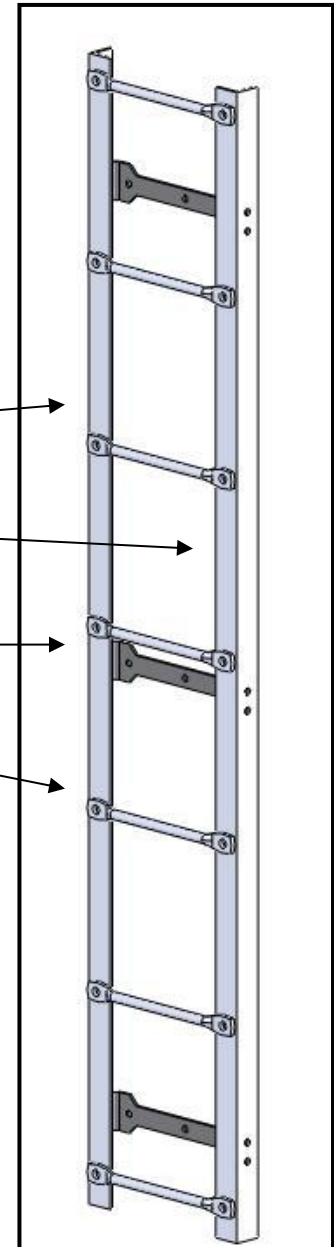
(7) 2 1/4" D Grab Irons

(2) Ladder Brackets  
(Top & Bottom)

# Step 5

Assemble the ladders as shown. If using solid rivets with a squeezer *do not squeeze too hard*, the aluminum extrusion will distort. Do not use a pneumatic rivet tool (air hammer) to set rivets.

TOP (Front Shown)



End Ladder Assy.: 2/car

Ladder Upright LH

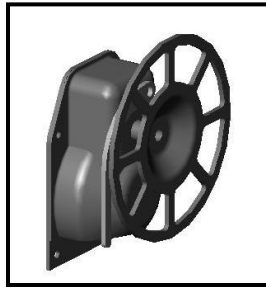
Ladder Upright RH

(3) Ladder Brackets

(7) 2 1/4" D Grab Irons



# Step 6



Brake wheel Assembly  
(one end only)



End Ladder Assembly

Walkway  
(one end only)

Detail the car ends as shown.

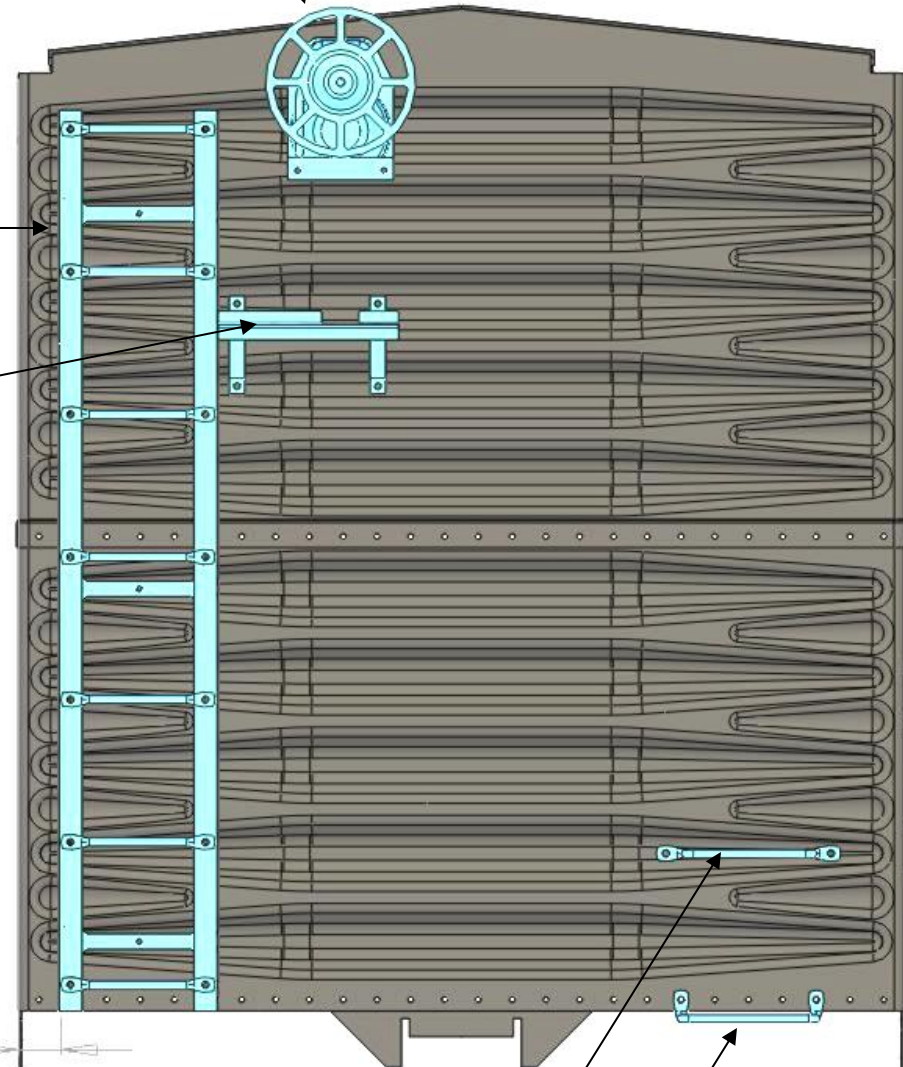
The Brake wheel assembly is mounted on four (4) 5/16" standoffs, the holes are located on the backer panel.

The walkway will mount on the raised ribs of the stamped ends. Line up the notch with the chain of the brake wheel assembly.

*The walkway and brake wheel are mounted on one end only.*

Drill through stamped ends to mount end ladder assemblies. The ladder brackets will line up with the raised ribs.

11/16"



2 3/4" C Grab Iron

2 1/4" A Grab Iron

Rivet the aluminum Zee bars to the complete the side bracing. Weld the Top Door Track to the Top Chord at the dimensions shown.

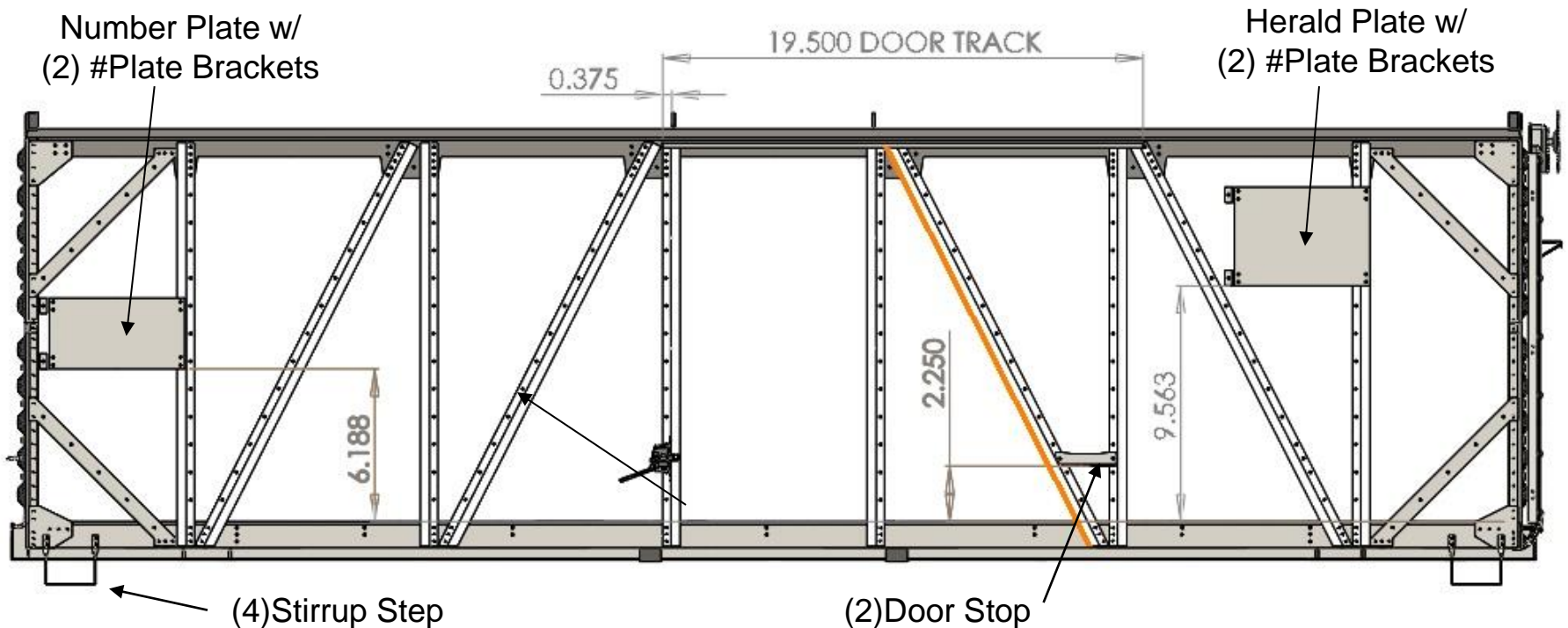
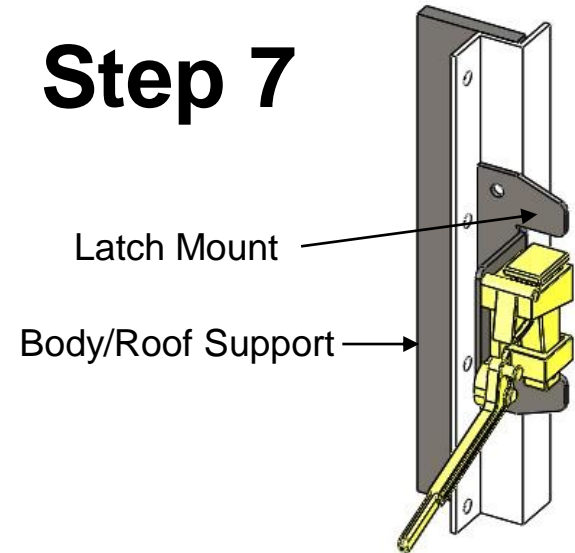
The Car Number Plate and Herald Plate can be mounted as shown or omitted depending on the car you are modeling.

Install the Latch mount by drilling through the Zee using the Body/Roof Support holes as a template. Fasten Latch with flat head screw or file head of rivet flush.

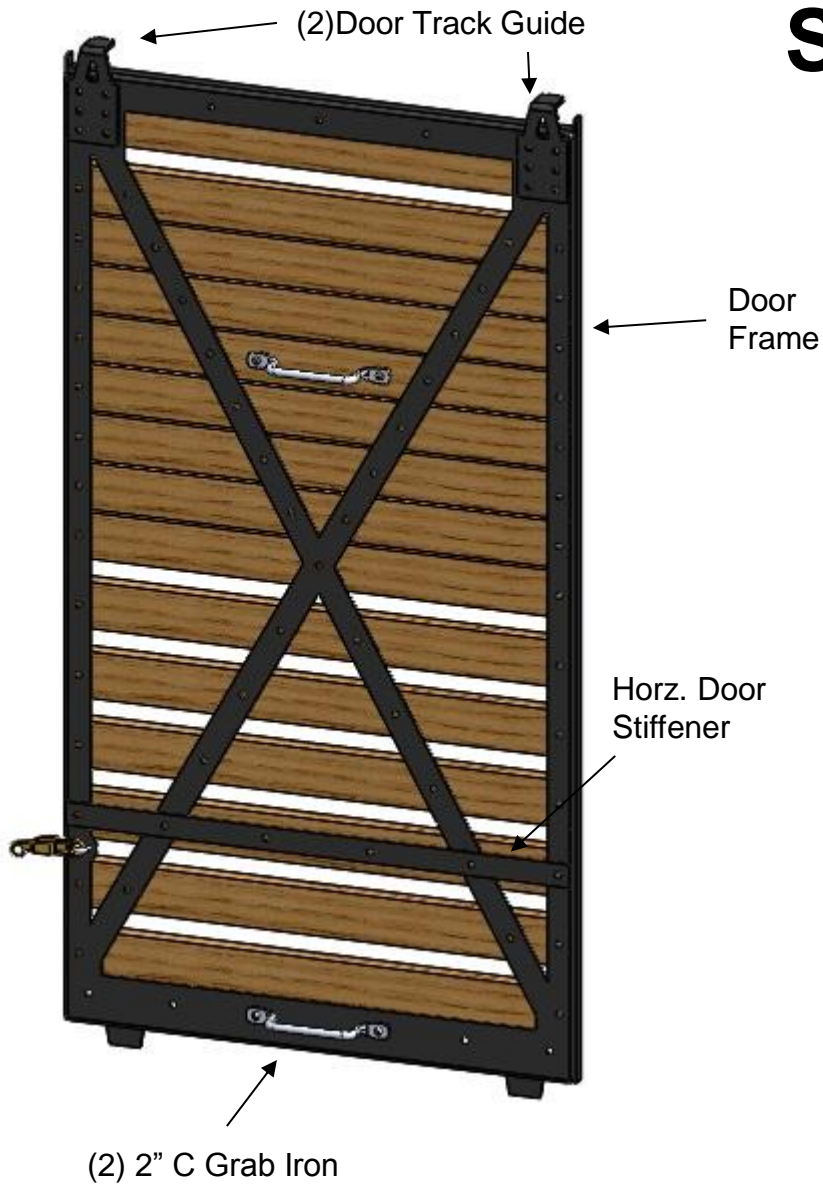
Install Stirrup Steps, locate Door Stop and drill Zee.

**\*\*Some holes must be left open for bolting in side boards, see step 9.**

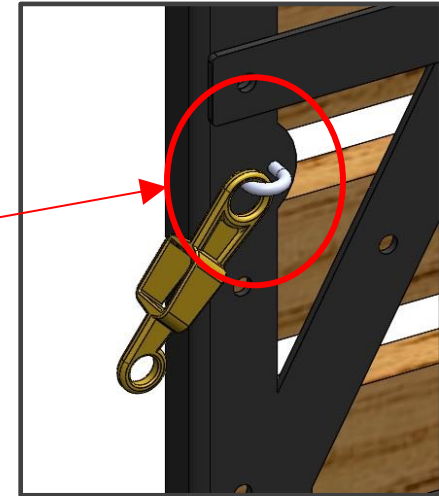
## Step 7



# Step 8



Latch & Eyelet



Build the door by riveting on the Door Track Guides. Tack weld the Horizontal Door Stiffener. Finish the rivet line at the top and bottom of the door.

Apply the grab iron and door latch. Form an eyelet from 1/16 wire bent 180 degrees around. (Use 1 Link of the Brakewheel Chain)

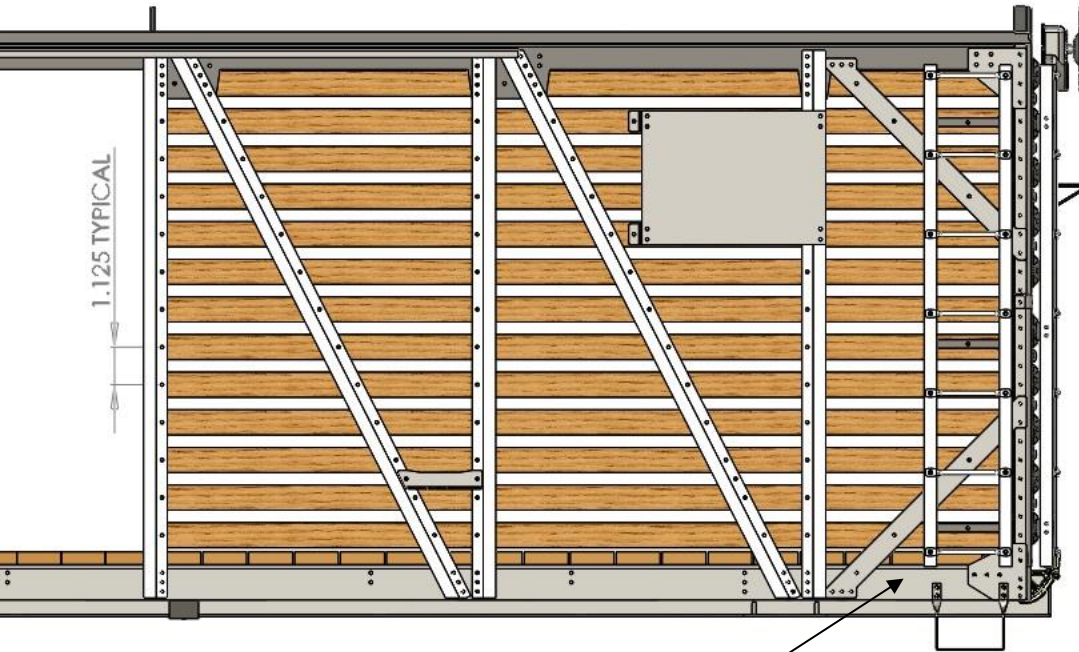
Orient latch as shown.

Bolt the Door Boards into the Door Frame.

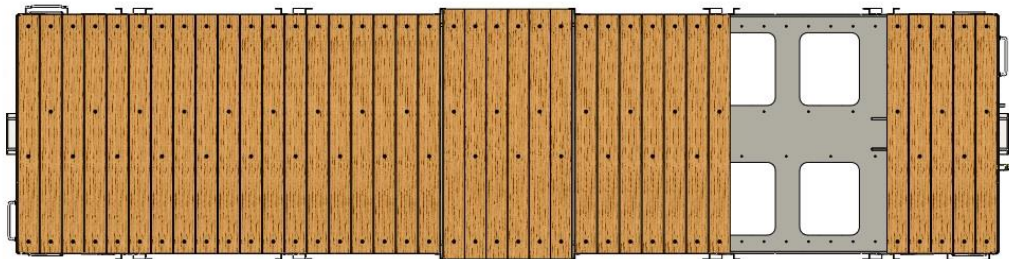
Once painted, add adhesive felt strips to the Door Track Guides. This will keep the door from scratching the Door Track



# Step 9



Side Ladder



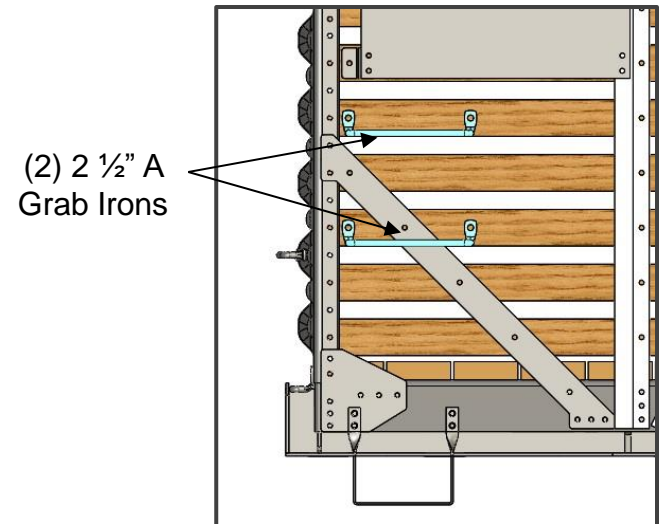
Floor Board Arrangement

Bolt the Floor Boards to the floor. Follow the staggered 3 hole pattern. The six Middle Floor Boards are longer than the End Floor Boards.

Bolt the Side Boards to the carbody. Mount using the end holes, then drill through using the Zee Bracing as a template.

Mount the Side Ladder to the Side Boards. Drill the center hole on each Bracket. Measure the remaining holes.

Mount the 2 ½" A Grab Irons at the opposite end.

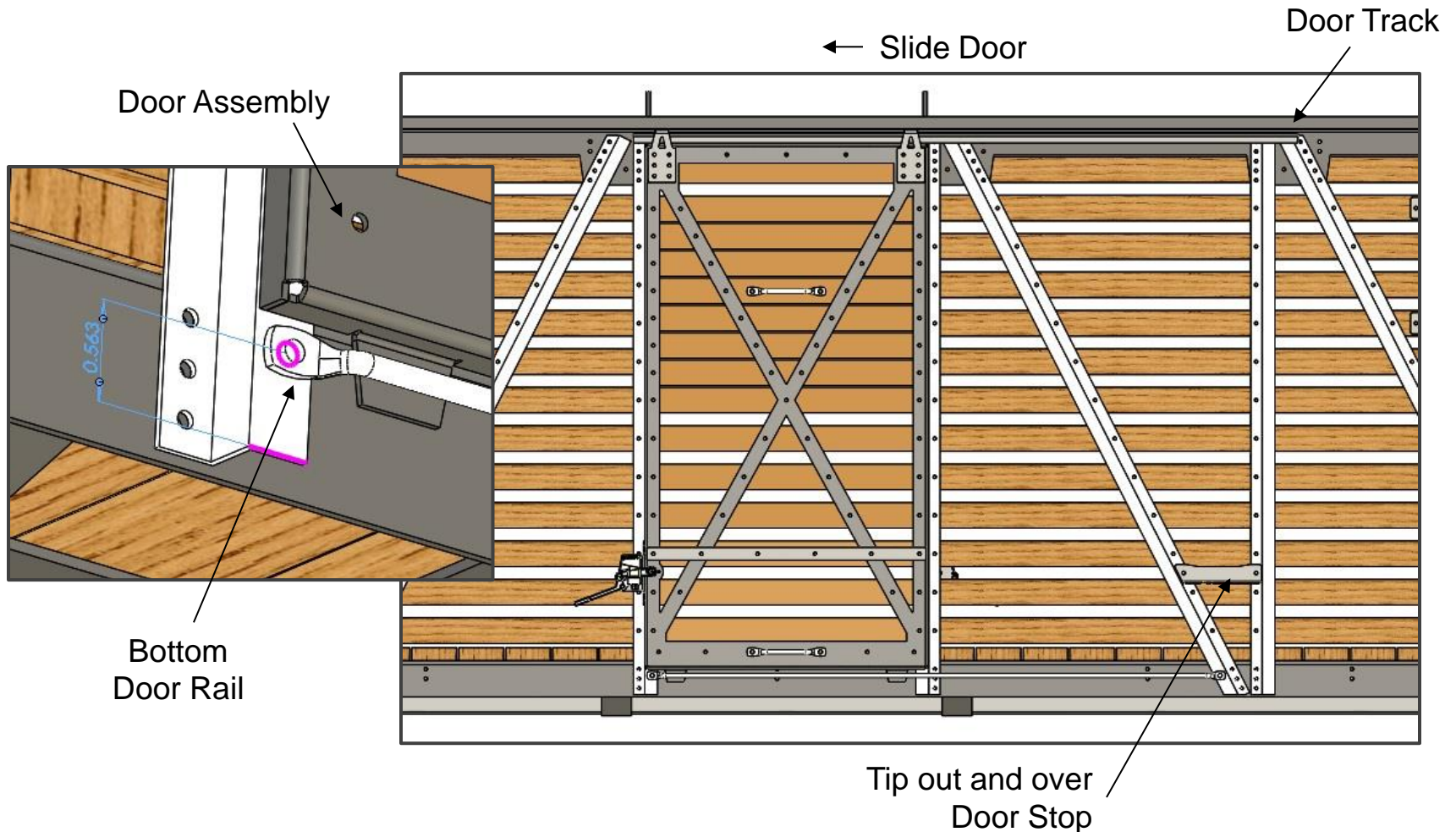




# Step 10

To install the door, guide the Door Assembly over the Top Door Track. Tip the bottom of the door away from the carbody to go over the Door Stop and slide all of the way to the Latch.

Locate and drill holes into the Zee Bracing for the Bottom Door Rail. Use screws to hold the Bottom Door Rail in place. Once mounted the door will be fully retained by the Stops and Door Rail.



# Step 11

Begin by welding the raised panels to the roof. Center over the holes and plug weld. Alternate welding from one end to another and allow the roof to cool to prevent warping due to heat.

Epoxy the hat sections across the width of the roof. Center between the raised panels and the rivet holes with the  $\frac{1}{2}$ " spacing.

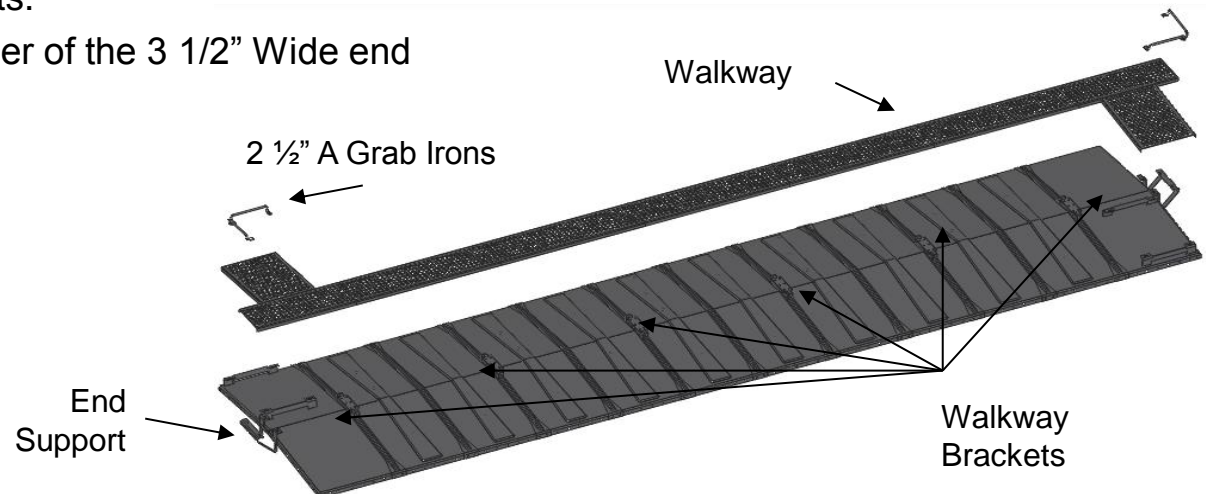
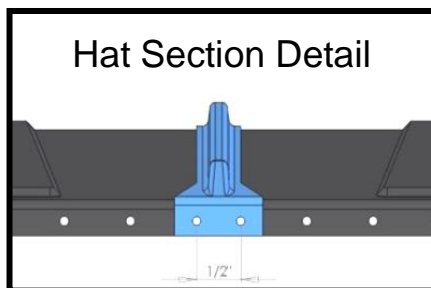
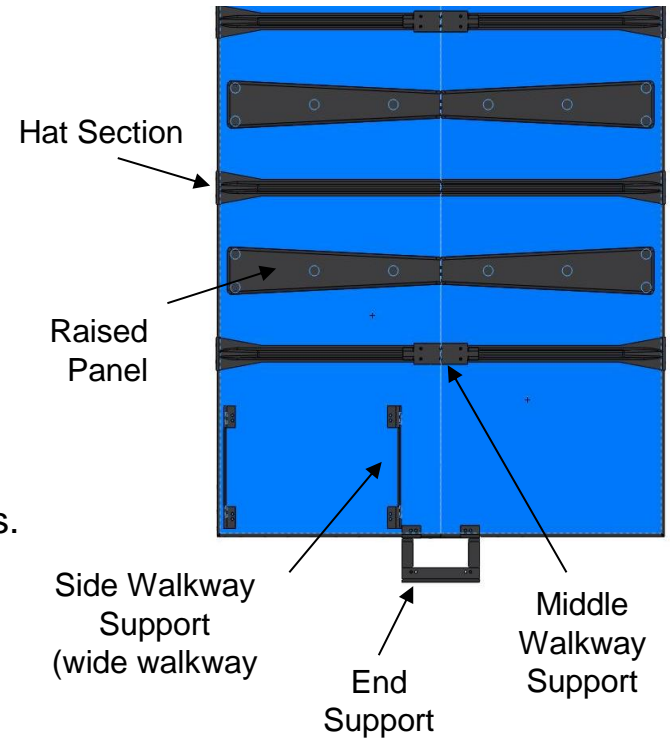
Drill and rivet the hat sections and the end walkway supports. Also rivet the remaining holes around the perimeter of the roof.

Tack weld the remaining walkway supports. Note their spacing below.

Bolt the walkways in place with the 10" long sections in the middle with seams on supports.

The grab irons mount on corner of the 3 1/2" Wide end walkways.

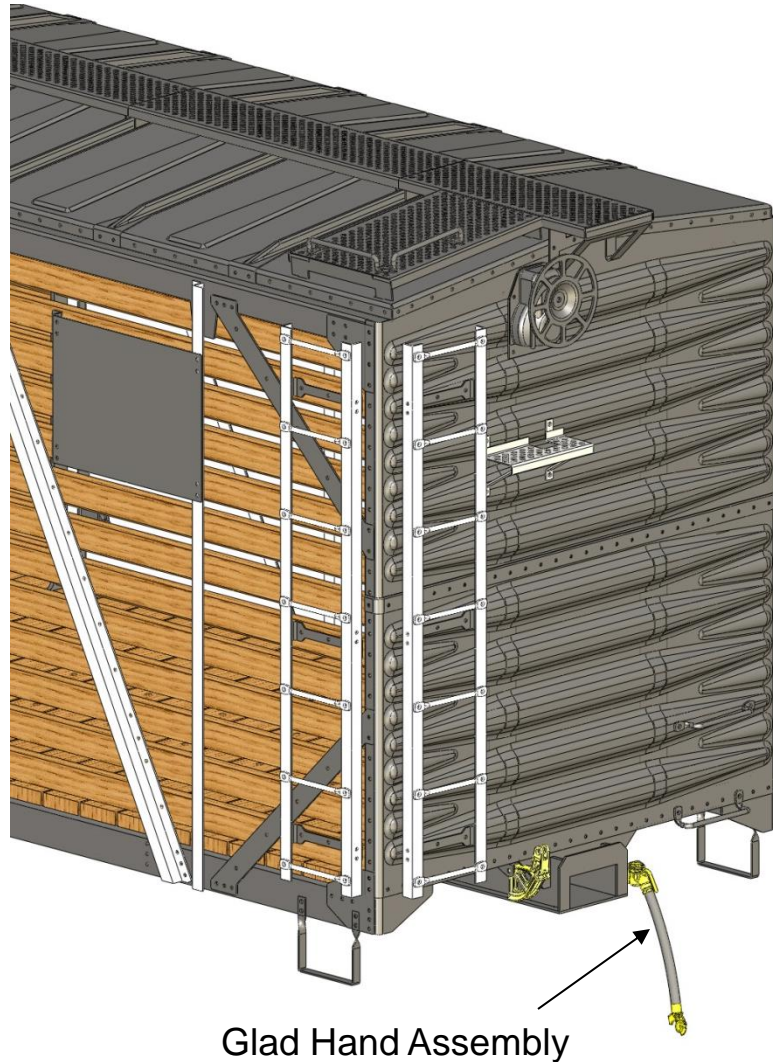
*This finishes the standard kit.*



# Step 12: Optional Details

(if purchased)

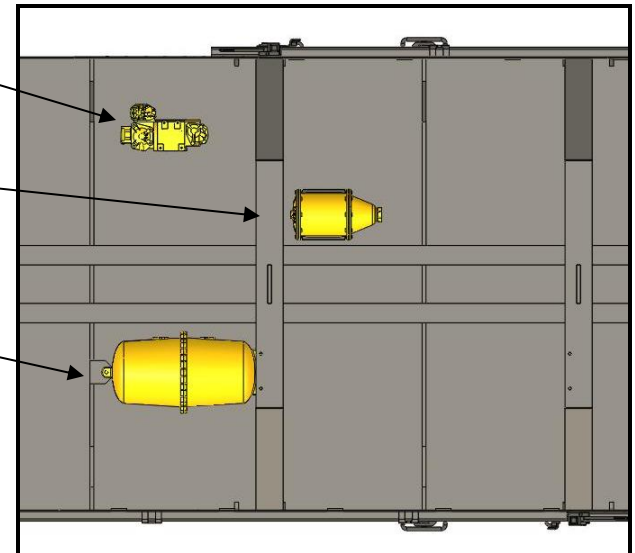
The Anglecock and Gladhand assembly mounts to the right side of the car frame end on both ends of the car. Locate the reservoir on the bottom of the car between the cross members. Weld the cylinder mount to the cross member. The brake cylinder and triple valve mounts weld to the floor of the carbody. Bolt the valve and cylinder to the mounts.



Triple Valve  
& Mount

Cylinder  
& Mount

Reservoir  
& Mount



For More Detail Parts or Other Car Kits, Visit:

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