



## ExactRail's Magor 4750 Covered Hopper Undecorated Instructions

Thank you for purchasing an ExactRail Magor 4750 Covered Hopper Undecorated Kit. We value your business and hope that these instructions help make the assembly of your more model enjoyable. For more ExactRail products please see us at [www.exactrail.com](http://www.exactrail.com)

### Vocabulary:

For your convenience, we have identified the following terms with picture references:

- Slope-sheet bulkhead: **Photo E**
- AB Valve: **Photo A & H**
- Air Reservoir: **Photo A & H**
- B-end (end sheet, slope sheet, and slope sheet bulkhead): **Photo E**
- Center Sill Gusset Plates: **Photo F & G**
- Coupler Cut Lever Bracket: **Photo J**
- Inboard Grabs: **Photo J**
- Inboard Ladder: **Photo J**
- Retainer Valve: **Photo A**
- Side Grabs: **Photo J**
- Side Ladder: **Photo J**
- Vertical Supports: **Photo A**

### Contents:

The undecorated Magor 4750 covered hopper kit consists of the following:

- Body shell
- Roof
- Etched metal roof walk
- Trough hatches
- Ten weights
- Three small packages of detail parts:
  1. One with ExactRail's CNC-machined AFC Ride Control wheelsets and Kadee #58 couplers.
  2. A second package contains various detail parts, including: the vertical supports, brake rigging, and stirrups.
  3. A fourth package contains various wire parts and the brake platform.

Some of these packages are contained in the body shell of the 4427 covered hopper. Even though the roof press-fits into place, it may be difficult to remove it without using pliers. We recommend using a small pair of needle nose pliers and gripping the orientation lugs located in the center trough hatch of the roof assembly. By gripping the

roof at this location, you don't risk marring any of the visible details of the kit.

## Step 1: Underbody Detail

### Weights:

The first step in the assembly of this kit is to install the weights.

There are ten small weights included in this kit. **(See Photo D)**

- a) Center the weights on each of the interior slope-sheets of the car and glue them in place with a gap-filling CA glue. A flexible cement like contact cement or Walthers GOO would also work well.

### Slope Sheet Bulkhead:

The slope sheet bulkheads are in the small parts package that contains the bolsters, discharge gates, and air hoses. There is an A-end bulkhead and a B-end bulkhead. The B-end bulkhead has a small tab which accommodates the air reservoir. The A-end bulkhead has no tab. Analogously, the B-end is identified by having a larger hole count (7 total holes) than the A-end (5 total holes.) **(See Photo E)**

- b) Clean any excess flash from both bulkheads. In so doing, be careful to not damage the two small triangle gussets at the bottom of the bulkhead.
- c) Test fit the A-end slope sheet bulkhead at the A-end of the car. The car body has alignment rails to ensure that the bulkhead is well-oriented and square in the car.
- d) Glue the A-end bulkhead to the car body from inside face of the bulkhead. Use liquid solvent, plastic cement with a brush applicator to secure the floor. Brush around the floor edges, capillary action will draw the cement up into the contact points.
- e) Test fit the B-end slope sheet bulkhead at the B-end of the car. Again, press the bulkhead flush against the alignment rails to ensure a square fit.
- f) Glue the bulkhead in place from the inside face of the bulkhead.

### Center Sill Assembly:

There are four center sill gusset plates. These mount in parallel pairs on the underside of the car in between the hopper bays. As such, the gusset plates have an inside and outside face, both of which have bolt detail. The outward face of the gusset plate is identified by the flanged edge. The inward face has bolt detail, but no flange. The center sill gusset plates are found in the detail parts bag with the bolster, under frame details, discharge gates, air hoses, and brake wheel. **(See Photo B)**

- g) Clean any excess flash or gate material from the center sill gusset plates, and test fit those plates against the alignment rails between the bays.
- h) Using liquid solvent plastic cement, glue the four gusset plates into place. We recommend that glue be applied to the inside face of the gusset. It is convenient to use a brush applicator to access the joint when the second, adjacent plate is glued into place. Brush the entire glue joint and capillary action will draw the cement up into the contact points.

- i) Glue on two flanges that run perpendicular and through the center sill gusset plates.

To finish the center sill assembly, the brake rods need to be installed between the hopper bays. The brake rods are a 0.025" diameter section of brass wire, and the wires should be 1.125" long. It is in the detail parts bag of wire parts. **(See Photo G)**

- j) Test fit the brake rods in between the hopper bays. It mounts into two dimples in the hopper bays and just below the center sill gusset plates.
- k) With a toothpick, apply a small dab of CA glue into each mounting dimple.
- l) Place the brake rod into position.
- m) Repeat steps i) thru k) for second brake rod.

## **Step #2: Bolster and Car End Details:**

### **Stirrups:**

It is convenient to install some of the detail parts to the bolster and car end before the bolsters are attached to the car body. This includes attaching the stirrups to the bolster and attaching the loop eye in the coupler cut lever bracket. The stirrups are in the bag of detail parts which contain the vertical supports, brake rigging, and ladder posts. The loop eyes for the coupler cut lever are on a small sprue and are found in the same bag.

- a) Carefully cut the four stirrups from their respective sprues and clean any flash from them.
- b) The bolsters are in the detail parts bag with the discharge gates, air hoses and draft box covers.
- c) Clean the flash from the bolster where appropriate.
- d) Test fit all the stirrups onto both the A-end and B-end bolsters.
- e) When the stirrups fit properly, use a liquid solvent plastic cement to glue all four stirrups into place.
- f) Set A-end and B-end bolsters aside for the glue to fully cure.

### **Coupler Cut Lever Loop Eyes:**

For this kit, the vertical supports and the end sill comprise a single detail part. The A-end vertical support is identified by having two vertical supports plus the ladder support. The B-end vertical support/end sill is identified by having three vertical supports plus the ladder support. The coupler cut lever brackets are on the bottom-left of each of these ends. **(See Photo A)**

- g) Insert the wire loop eyes into the holes. The loop eyes are directional; they should be positioned so that the break in the loop faces upward.
- h) When the loop eyes are properly positioned in the coupler cut lever bracket, use a toothpick to apply a small drop of CA glue to the backside of the bracket.

## **Bolster Assembly:**

There is an A-end and B-end bolster. The B-end bolster has a small rectangular mounting post for the AB valve atop the draft box. As previously noted, the B-end is identified by having a larger hole count at the top of the end sheet (7 total holes) than the A-end (5 total holes.) It is important that the appropriate B-end bolster be matched with the B-end of the car body.

- i) Test fit the B-end bolster into position on the B-end of the car body. There are alignment tabs at the back of the bolster which square the bolster assembly against the slope sheet bulkhead. The whole assembly should fit easily and securely into position.
- j) Glue in the B-end bolster into place with liquid solvent plastic cement. Use a brush applicator at the edge of the center sill and slope sheet, slope sheet bulkhead and bolster, and along the contact edge of the sill.
- k) Repeat steps i) and j) for the A-end bolster.

Two bolster bottom plates are in the plastic detail parts bag which contained the bolsters, slope sheet bulk heads, and center sill gusset plates. These plates do not have any specific A or B-end designation.

- l) Glue both bolster bottom plates onto the A and B-end bolsters.

## **Step 3: Brake Rigging and Associated Details:**

### **AB Valve and Air Reservoir:**

The AB valve, air reservoir, and connecting air lines are a single detail piece. When removing this piece, use a sharp hobby knife and cut the gate connecting the sprue and air lines first. Then cut the two gates at the AB valve, and finally, cut the two gates at the air reservoir body. The air reservoir and bracket has two mounting pins which press into the two lower holes of the B-end slope sheet bulkhead. The AB valve sits atop of the AB valve mounting post, which is directly atop of the draft box. **(See Photo H)**

- a) Carefully remove the AB valve, air reservoir and connecting air lines from the sprue.
- b) Press the air reservoir and bracket mounting pins into the corresponding holes of the B-end slope sheet bulkhead.
- c) Glue the air reservoir mounting pins in place. We suggest brushing liquid solvent plastic cement on the interior face of the slope sheet bulkhead.
- d) Place a small drop of adhesive on AB valve mounting post, and press the AB valve into position.

### **The Vertical Supports and End Sill Assembly:**

The vertical supports for both ends are located on separate sprues. The B-end more vertical posts than the A-end and has a hole for the brake rigging to be mounted into. **(See Photo I)**

- e) Cut the B-end vertical support and end sill assembly from the sprue.
- f) With a very light drop, wet each of the three holes which accept the mounting pins of the vertical supports on the B-end, end sheet of the car body.

- g) Press the mounting pins of the three vertical posts into place against the B-end, end sheet, and then with a fine tip brush, glue the seam between the end sill and the bolster assembly.
- h) Glue the stirrup brace to the stirrup.

### **Brake Housing, Rod and Clevis Assembly:**

The brake housing consists of the housing itself and a brake rod, which extends the vertical length of the car end. The brake housing mounting pins fit into two vertically-oriented holes on the B-end end sheet. **(See Photo J)**

- i) Cut the brake housing and rod from the sprue by cutting first the gate at the brake housing and then the two gates on the brake rod.
- j) With a light drop of glue into the mounting holes, press the brake housing into place.

### **Step 4: Ladders and Grab Irons:**

#### **Ladder Supports:**

The inboard A-end and B-end ladder supports differ one from another and care should be given to identify each support. In addition to being on the same sprue as the other B-end components, the inboard, B-end ladder support has a support brace for the brake platform. The inboard, A-end ladder support has no brace. **(See Photo J)**

The inboard ladder supports have a tapered top edge and bottom profile that is wider than the top. **(See Photo I & J)**

- a) Cut the inboard, B-end ladder support from the sprue, and test fit the support as appropriate. Make sure that the brake platform brace on the ladder support corresponds to the brace locations of the other vertical supports.
- b) With a very light drop of glue in the mounting holes, press the B-end ladder support into place.
- c) Cut the inboard, A-end ladder support from the sprue, and with the exception of the brake platform support, repeat steps a) and b) on the A-end of the car.

#### **Grab Irons:**

There are a two long grab irons in the wire detail parts bag. These are the inboard grab irons.

We recommend the following technique for applying wire parts. Place a drop of CA glue onto a disposable surface—such as a small piece of wax paper. Clasp the wire at the midpoint with a pair of tweezers, and then wet the two ends in the drop of CA glue. Place the wire appropriately on the car.

Per the inboard grab irons, the insertion holes may need to be re-drilled and the legs of the grab iron may need to be trimmed to ensure the best possible fit.

- d) Per the car side grab irons, using the above-mentioned technique. Wet the wire ends with CA glue and press the grabs into the car sides. The wire should seat flush against the corner posts and body of the car.

- e) Using a #80 (0.0135") drill bit, carefully drill through the two grab iron holes on the vertical support and corner post.
- f) The longer leg of the grab irons should not exceed 0.050". If the leg were to be longer, then leg will protrude awkwardly through the corner post. Trim the grabs as necessary.
- g) Test fit the B-end grab iron to ensure proper fit. Using CA glue, press and glue the grabs into the vertical supports.
- h) Repeat the previous step with the A-end grab iron.

### **Ladder Grabs:**

There are twenty-four ladder grabs included in the wire formed detail parts bag of the kit. There are twelve right and twelve left grabs, one end drops and the other only has a 90 degree bend. Of these twenty-four ladder grabs, two of them are wider than the rest. They constitute the two bottom rungs on inboard ladders for the A and B-ends of the car. The narrow grabs constitute all other ladder rungs. **(See Photo J)**

We suggest that the ladder rungs be test fit to ensure the proper fit. That said, we recommend that the ladder's top rung be the only site where grabs are test fit. The ladder supports are delicate where they are not immediately attached to the car body, and they may be susceptible to damage.

- a) Glue and press the grabs appropriately onto the ladder supports.

If you happen to lose any of the grab irons, they may be bent from 0.012" diameter stainless steel wire. We recommend Detail Associates part #3504.

### **Step #5: Final Details:**

#### **Discharge Gates:**

- a) If there is any excess flash at the bottom of the middle hopper bay, it should be removed so that the discharge gates will seat well against the car body.
- b) With a rounded-edge hobby knife, clean the excess flash from the discharge gates. Please be careful to not remove the angle flange detail at the edge of the gate.
- c) Looking at the B-end of the car, the first two discharge gates face away from the B-end. The third discharge gate from the B-end of the car faces towards the B-end. **(See Photo G)**

#### **Air Line:**

The airline is molded in two parts and attached to a small sprue. The detail of this item is very precise, so much so that there is actually a left and right side in the airline. The difference, although subtle, has to do with the mounting brackets. The top of the mounting brackets has a rectangular portion that should be oriented upwards.

There is simple a trick to ensure that the airlines are properly mounted to the car. If the air line sprue is oriented so that the ejector pin lugs are facing upwards and the airline bends are toward you, the airline section on the left is the B-end airline and the airline section on the right is the A-end airline. **(See Photo M)**

If there is a gap between the two airlines, we suggest cutting the airline between the two adjacent brackets and

replacing that section with 0.020" diameter wire.

d) Carefully cut and glue the airlines to the underside of the right car sill.

### **The Roof and Trough Hatch:**

The roof has a A-end and a B-end. To ensure the accuracy of your model, please identify the orientation of the roof with respect to the car body. Identifying the orientation of the roof is easiest by relation to the mounting tabs in the center trough hatch of the roof. The tab with two insertion-pin holes corresponds to the B-end of the car, and the tab with a single insertion-pin hole corresponds to the A-end of the car.

Before affixing the roof, please ensure that there is no flash on the roof edge. Flash will inhibit a seamless bond between the roof and car body. Also, if flash is removed too carelessly so that roof material is removed from the roof edge itself, then the juncture between the roof and body will likewise be marred. Work slowly to ensure the most satisfying result.

Given that the roof is glued to the car body, check the weights to ensure that they are securely fashioned to the car body before proceeding.

- e) Insert the roof into the car body. In the trough hatch of the roof, there is a mounting tab with two insertion-pin holes. This lug should be directed toward the B-end of the car. Using this tab as a reference ensures that the roof is properly oriented in the car body.
- f) Using a fine brush to apply liquid solvent plastic cement, affix the roof to the car body with a light, even applications.

Depending on the prototype you choose to model, you may choose to secure the trough hatch to the roof after the model has been painted.

- g) The underside of the trough hatch has insertion pins which correspond to the mounting tabs on the roof. Please be mindful to match the insertion pins with the correct mounting tabs to ensure that the trough hatch is properly oriented on the roof. The correct orientation of the hatch is to have the hinged side of the trough hatch on the same side of the car as the brake wheel (the left side of the car.)

Regarding the brake wheel, brake platform, and roof walk, it may be convenient to apply these details after the model has been painted.

### **Brake Platform:**

The brake platform is located with the bag of with parts and is pre-bent for ease of construction.

- h) Test fit the brake platform across the brake platform supports. If necessary, make adjustments to ensure a perfect fit.
- i) Using a toothpick, apply a light bead evenly across the brake platform supports. The brake platform supports are on the vertical supports of the B-end of the car body.
- j) Place the platform on the support brackets. In so doing, try to drop the platform directly into position. Repositioning the platform once glue has been applied to the support braces will fill the fine-scale etched

metal detail with glue.

### **Roof walk:**

The roof walk is delicate etched-metal part, and it requires the side ladder platforms be bent to finish the fit. We recommend sandwiching the roof walk between two solid blocks and leaving only the side ladder platforms exposed for bending. We also recommend using a pair of wide, smooth jaw pliers at least as wide as the side ladder platforms themselves to bend the roof walk as appropriate. The side ladder platforms ought to be bent downward approximately 25 degrees. **(See Photo K)**

k) Using wide, smooth jaw pliers and securing the roof walk between two rigid supports, slowly bend the side ladder platforms. Proceed cautiously, bending and test-fitting the piece in intervals to ensure precisely the right fit.

l) Clamping the roof walk over-walk and using the same smooth jaw pliers, bend the roof walk over-walk supports down approximately 135 degrees. Bend and test-fit the over-walk supports in intervals until the insertion pins fit into the mounting holes on end sheet of the car body.

m) Place a drop of CA glue (preferably gap-filling) onto a disposable surface-such as a small piece of wax paper. Use a toothpick to apply the glue to the roof walk supports and end sheet mounting holes.

n) Beginning at one end of the car body, progressively glue the roof walk to the supports until the entire roof walk is affixed to the car body.

### **Air Hoses, Coupler Cut Lever Bars, Brake Wheel and Roof Walk Grab Irons:**

o) When viewing the car end directly, the air hoses mount to the right side of the draft box. There are two small mounting holes which receive the air hose. **(See Photo J)**

p) Install the coupler cut lever bars prior to installing the trucks. Thread the coupler cut lever through the loop eye, and glue the end of the lever to the forward part of the draft box. Secure this coupler cut lever to the draft box with a small drop of CA glue. **(See Photo J)**

q) Install the Brake Wheel.

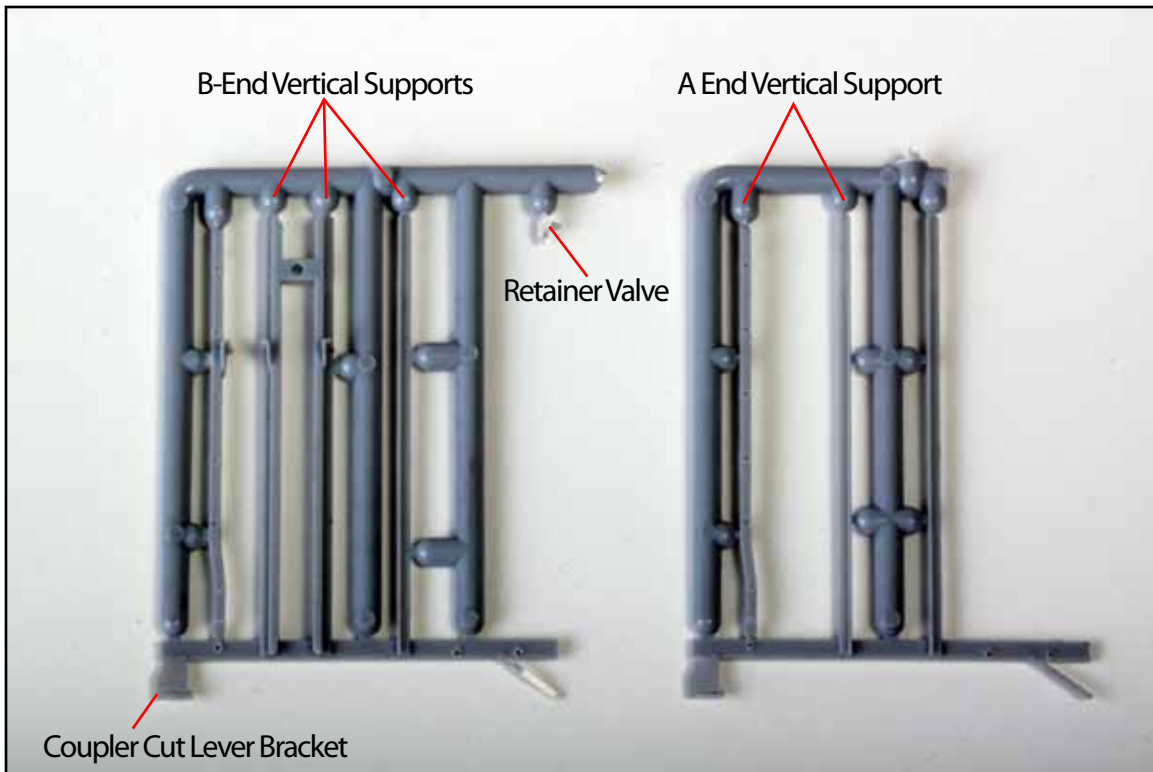
r) There are two holes in the side ladder platforms which receive the roof walk grab irons. With a toothpick, apply a small amount of CA glue to these holes and press the roof walk grab irons into place. **(See Photo K)**

s) On the side of the car, close to both ends are two holes that receive lift rings. The rings are located on a sprue and are attached with plastic cement.

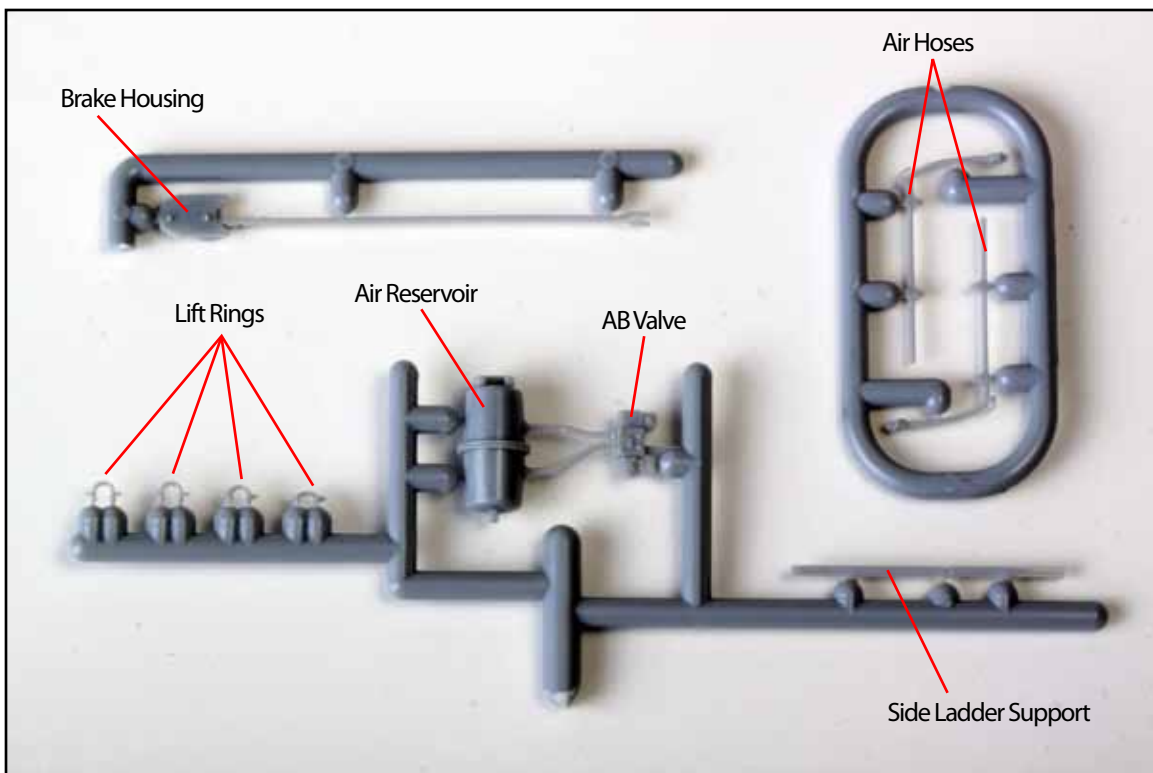
This completes your ExactRail Magor 4750 Covered Hopper Undecorated Kit. Thank you again for having purchased from us. We hope that the assembly of this model was a pleasure. Please look forward to all the latest ExactRail products and announcements by visiting us online at [www.exactrail.com](http://www.exactrail.com).

For any questions or concerns, please contact us at [info@exactrail.com](mailto:info@exactrail.com) or by calling at 1-866-945-1701.

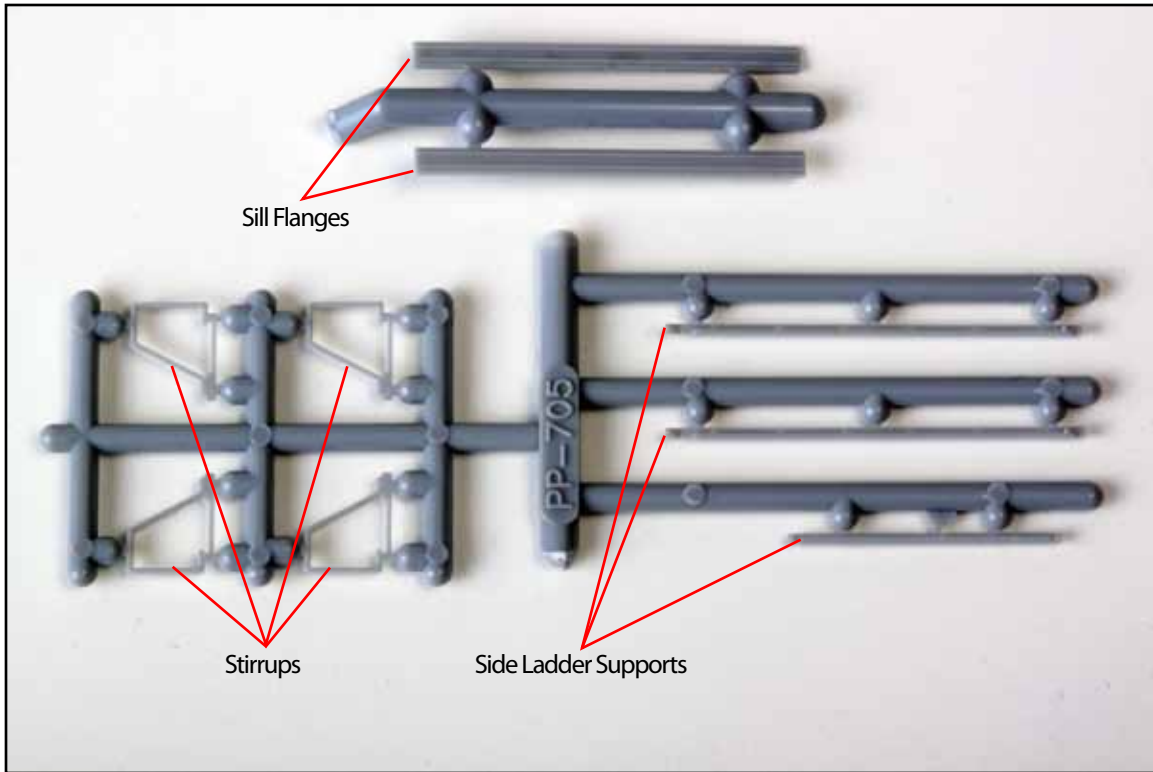
**Photo A: Part Sprues**



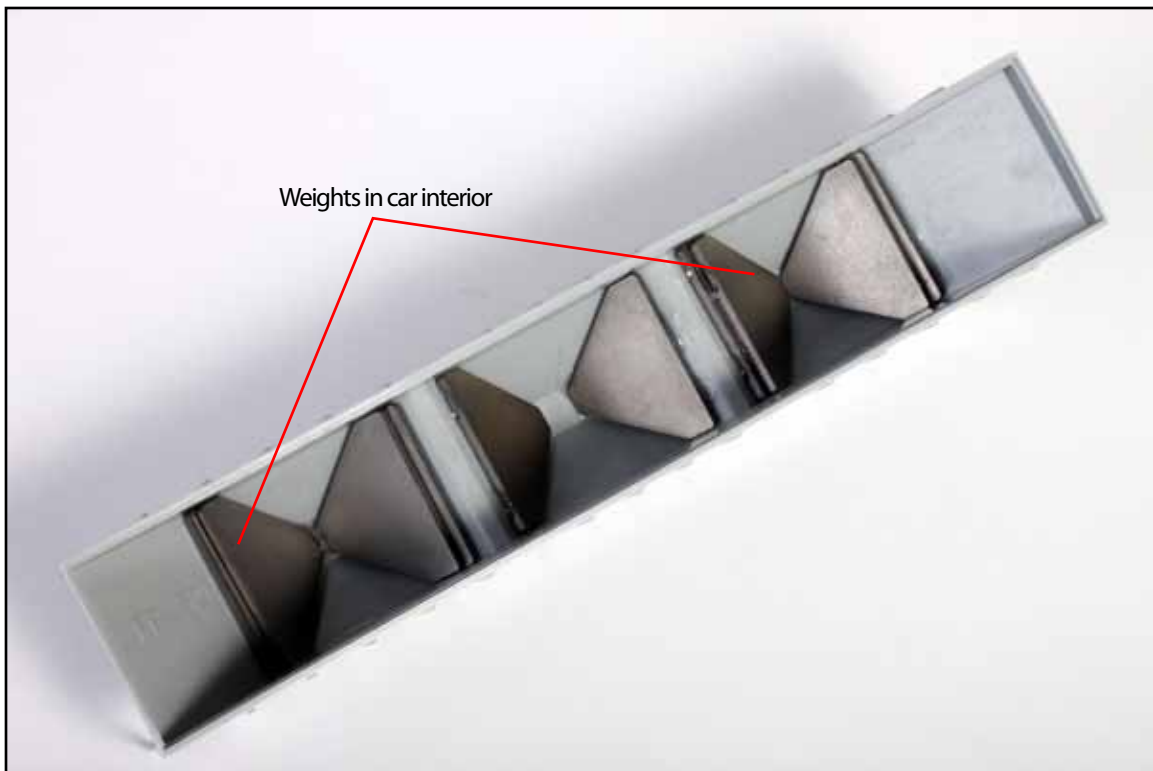
**Photo B: Part Sprues**



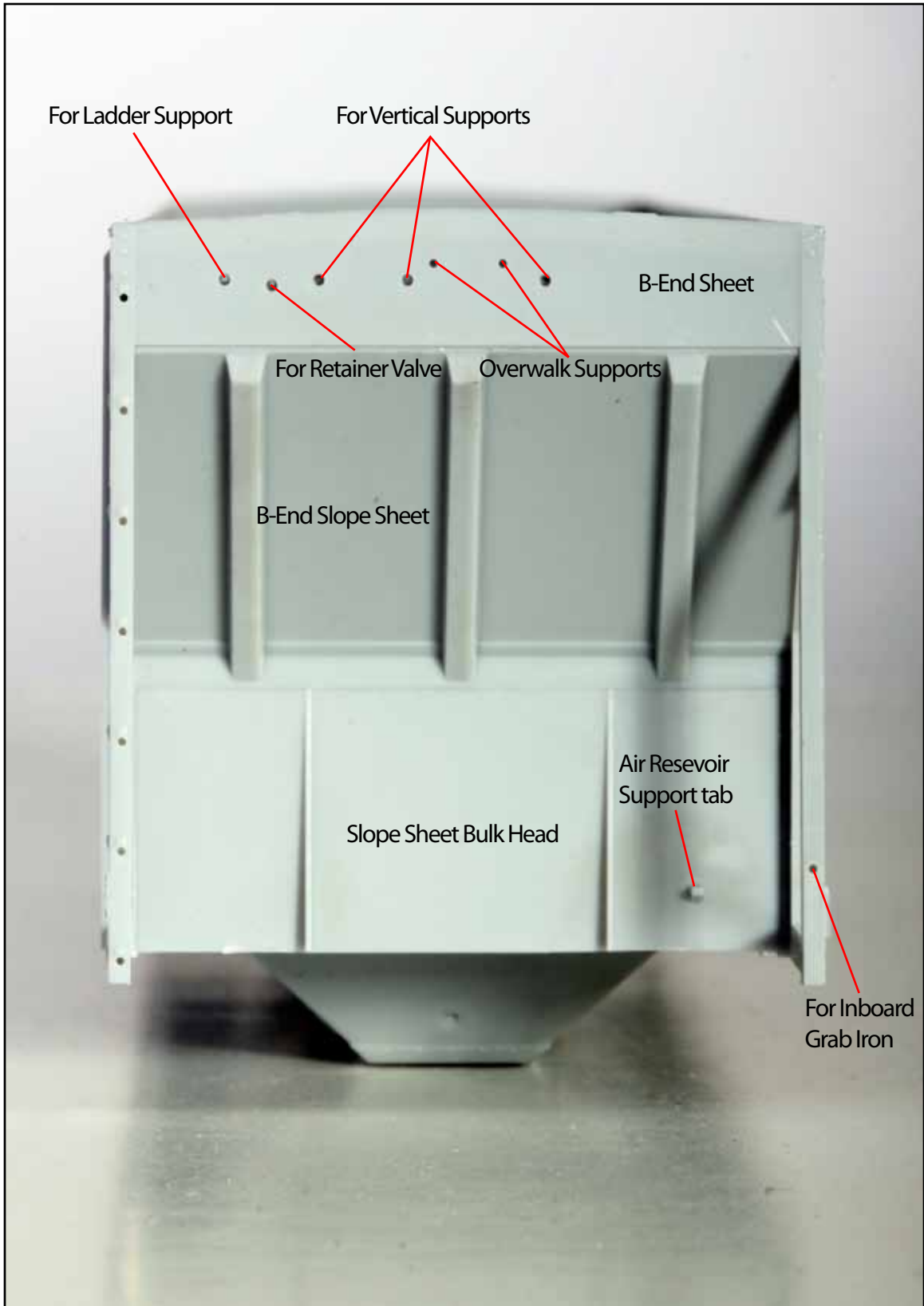
**Photo C: Part Sprues**



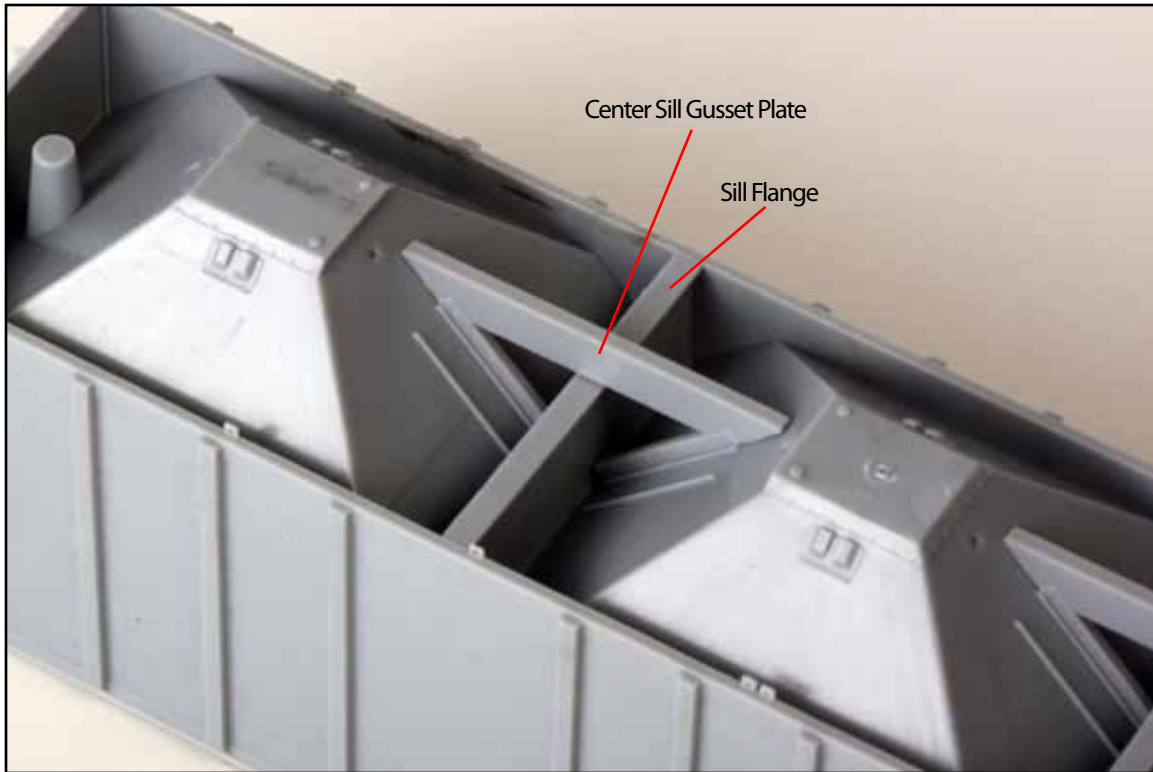
**Photo D: Interior Weight Detail**



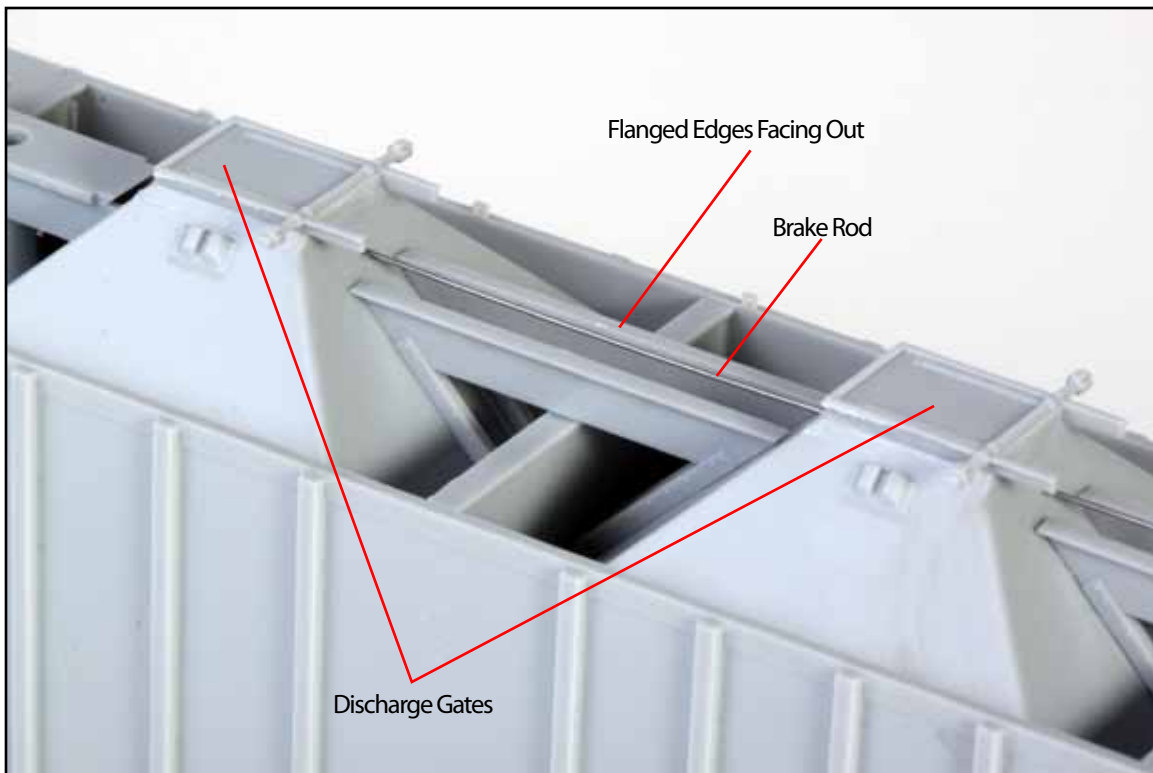
**Photo E: End of Car Body**



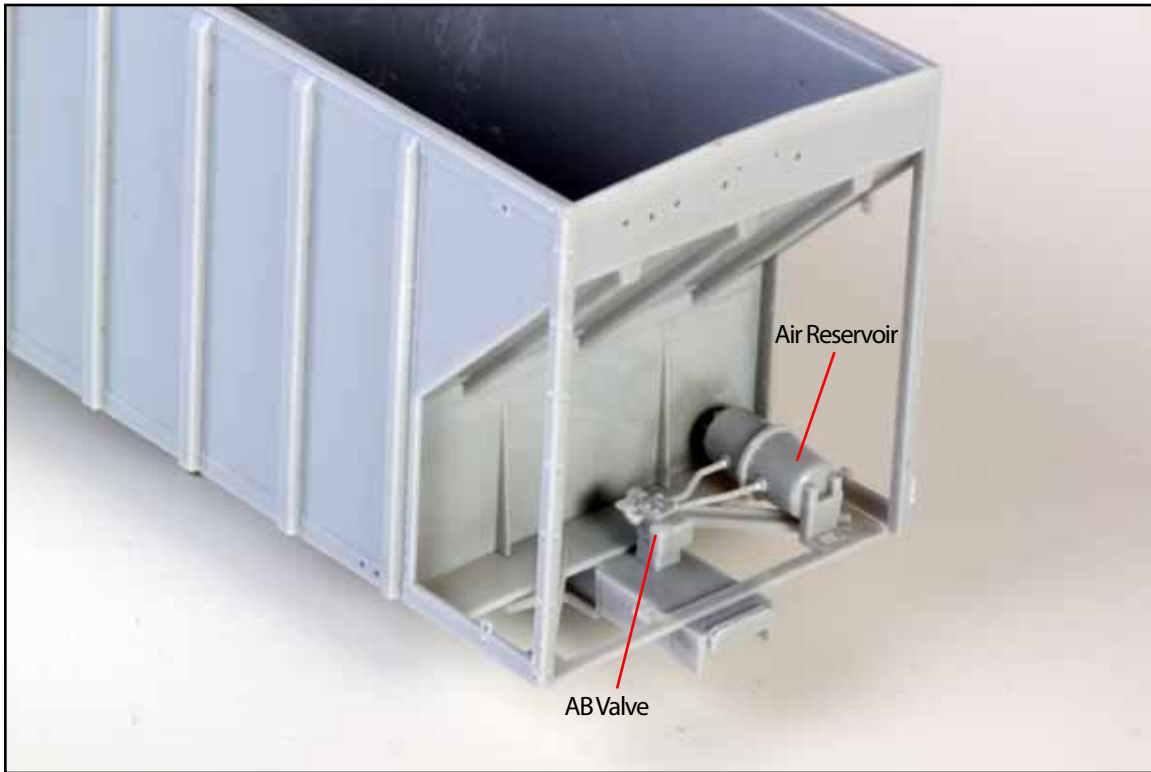
**Photo F: Center Sill Assembly Detail Shot**



**Photo G: Center Sill Assembly Detail Shot**



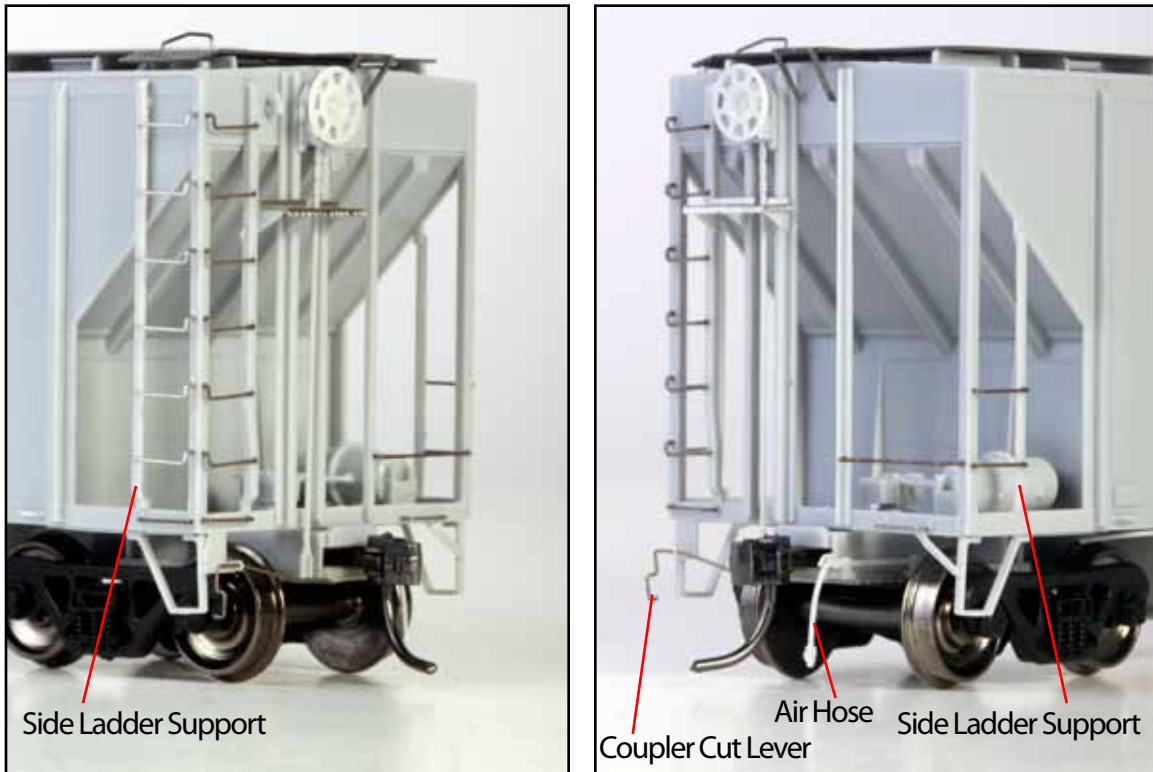
**Photo H: B-End Detail**



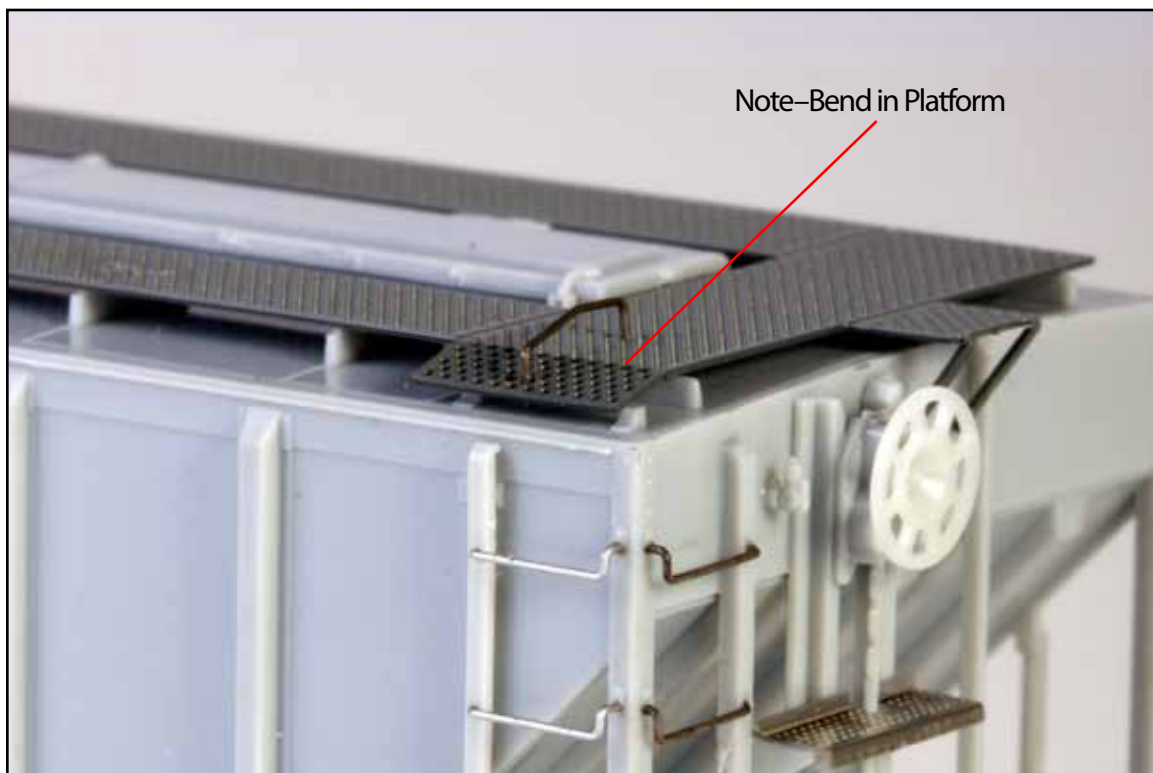
**Photo I: End Supports**



**Photo J: Cut Lever & Air Hose Detail**



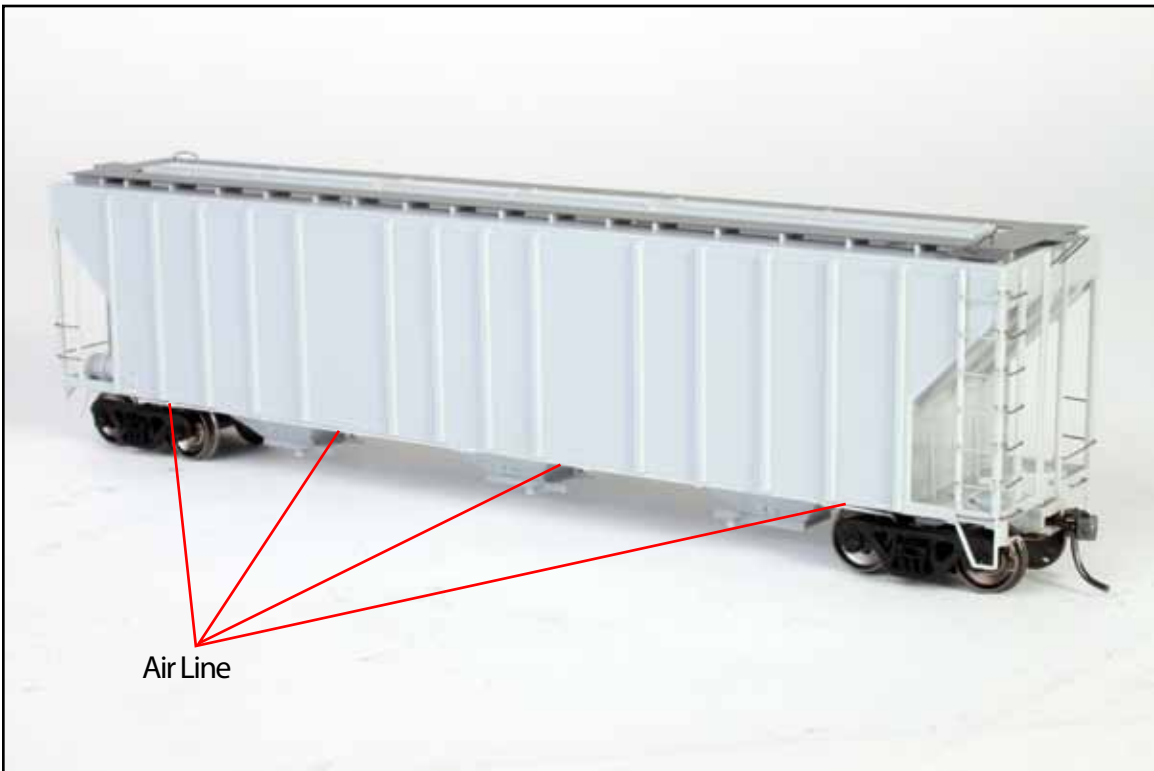
**Photo K: B-End Roof walk & Brake Platform Detail**



**Photo L: Finished B-End View**



**Photo M: Finished A-End View**



Air Line