Yarmouth Model Works
PENN CENTRAL/KELLOGG'S X79
THRALL 60' OUTSIDE BRACED BOX CAR

About These Instructions

- Please note that some of the illustrations in these instructions may show pre-production parts that differ slightly in material or shape from the parts included in your kit. Your kit has the most current parts and the difference between the illustration and your parts will not affect the construction.
- In some cases the illustrations may show parts you have not installed yet, or may be missing parts installed in a previous step. As these instructions are updated, it is typically impractical to construct an entire new car for each illustration. The step being described will not be impacted by the presence or absence of the other parts in the illustration.
- Optional steps or places where you may need to skip certain steps are highlighted in blue.
- Warnings or steps that may require special attention are highlighted in red.

General Instructions

- Before starting assembly, please read through the instructions. Occasionally, there are steps where parts are test fit without cement or only temporarily tacked in place. Missing these steps can complicate assembly later on!
- Familiarize yourself with each of the parts contained in this kit. There are several visual indexes showing the cast and etched metal parts. There is also a list of parts that are included in this model. If you find that any parts are missing or damaged please contact Rail Yard Models for a replacement. Please note that some substitutions may be made to the materials included in the kit. (several sections of wire to make the total amount etc...)
- Casting gates and flash must be carefully removed prior to assembly. This is best accomplished with a sharp modeling knife or a small flat file. Remove parts from casting sheets by tracing around perimeter of part with a sharp knife.
- Prior to assembly, all cast urethane parts should be washed with warm soapy water. This step is required to remove any mold release residue and other oils that may interfere with the adhesives used in building the model. It also reduces the cleaning effort required before painting the model.
- This model has been designed to position visible joints along naturally occurring seams on the prototype. Test fit parts to ensure a tight, gap free joint and proper alignment before cementing together. Cyanoacrylate glue (CA) is recommended for assembly. Some of the brake detail parts can use styrene glue for sub-assembly. Several of the smaller parts have some extras in case you lose or break a few.
- Refer to the drawings and photos for specific part placement details. Near the end of these instructions are a group of photos of the completed, unpainted model. There are also many prototype detail photos included in the History document.
- This kit is designed to use Kadee #156 long shank whisker couplers. (Not included) Other couplers may be used, but the draft gear casting may need to be modified to work properly.
- There is a visual parts index at the end of this guide that identify all cast parts.
- The main castings of this kit are referred to by name only. These include the body and roof.
- The smaller urethane castings in this kit are referred to by name and part ID starting with the letter A or B. (A1, B2, etc.)
- Styrene brake detail parts are referred to by name and part ID starting with the letter T. (T1, T2, etc.) The number corresponds to the number cast into the styrene brake parts sprue.

Supplies

Required

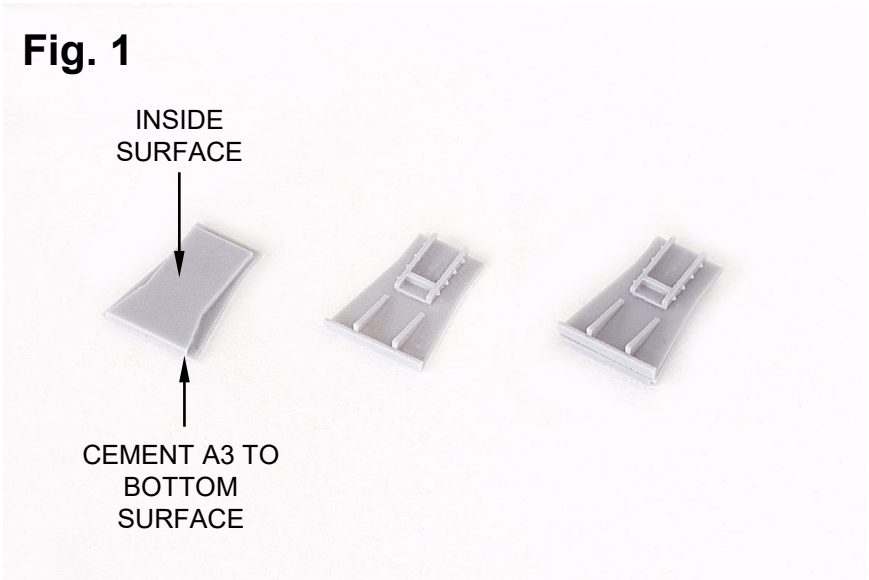
- ☐ Miniature drill bit set (#61-#80) and pin vise
- ☐ Sharp modeling knife blades
- ☐ Thin, fast setting CA glue
- ☐ Thick, slow setting CA glue
- ☐ Small Phillips screwdriver
- ☐ Smooth jaw tweezers or smooth jaw long nose pliers
- ☐ 1 pair of Kadee #156 couplers
- ☐ Paint & decal application supplies of your choice

Optional

- ☐ Sprue nippers
- ☐ Styrene cement
- ☐ Optivisor or other magnifying aid
- ☐ Cheap fingernail clippers (Good for cutting brass wire)
- ☐ Dial calipers or micrometer for measuring brass wire
- ☐ Tape

Draft Gear

Fig. 1



- Carefully trim away any casting flash from the edges of the draft gear (A1), draft gear lid (A2) and draft gear reinforcement. (A3)
- Cement the draft gear reinforcement to the bottom of the draft gear lid. (Fig. 1) The top of the lid is the raised section that will fit inside the draft gear pocket. The bottom surface matches the outline of the reinforcement casting.
- Drill a #80 hole through the lower striker plate on the draft gear reinforcement. This hole will be the mounting point for the uncoupler lever. (Fig. 2)
- Install the the Kadee #156 couplers, and ensure that the whiskers are between the draft gear walls.
- Temporarily install the centering spring and coupler in the draft gear and place the draft gear lid assembly (A2/A3) in place. You may clip off the trip pin on the coupler if you do not use them. (Fig. 3)
- Repeat for other draft gear assembly

Fig. 2

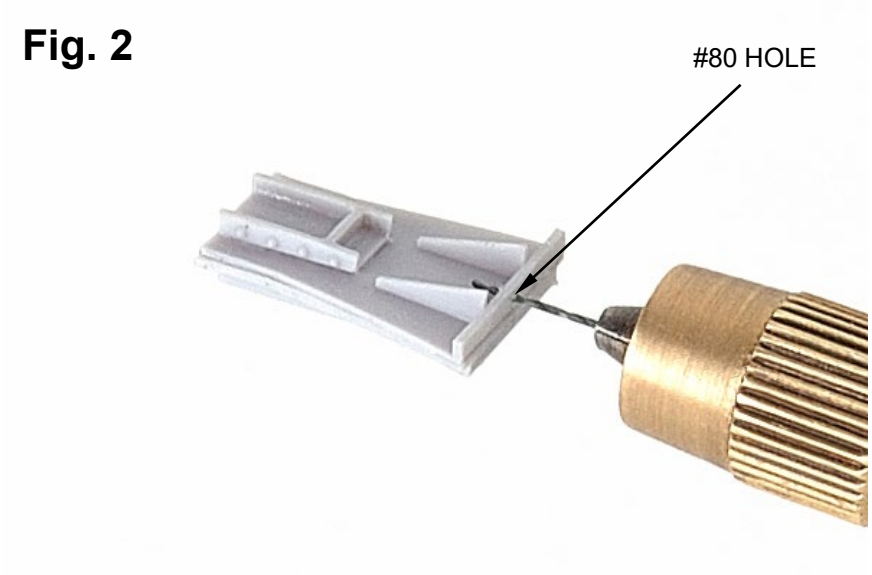
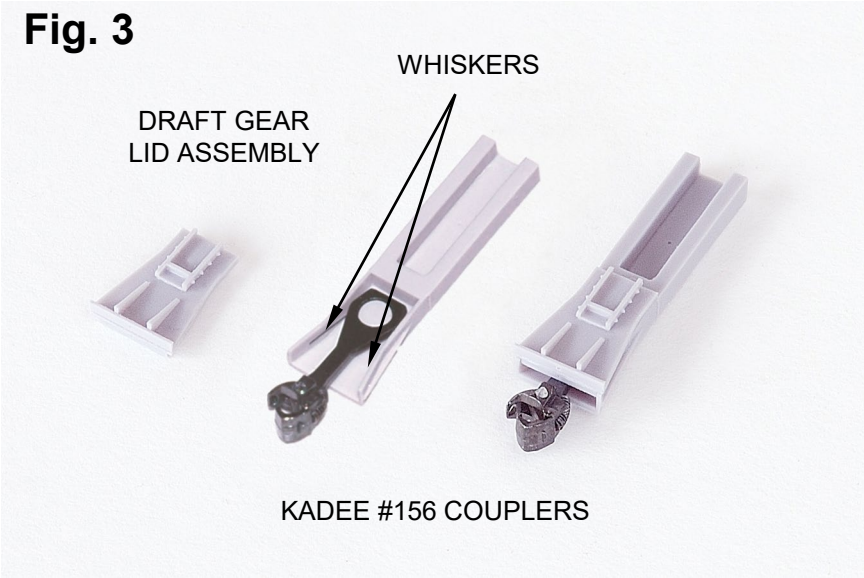
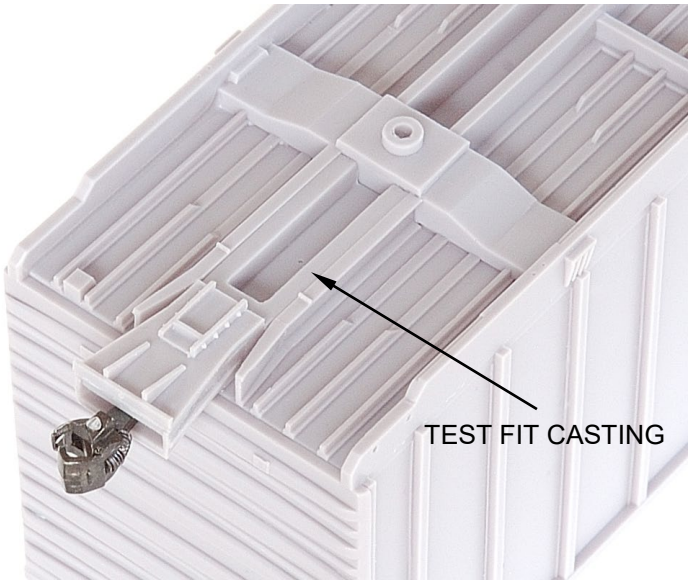


Fig. 3



Draft Gear Height & Installation

Fig. 4

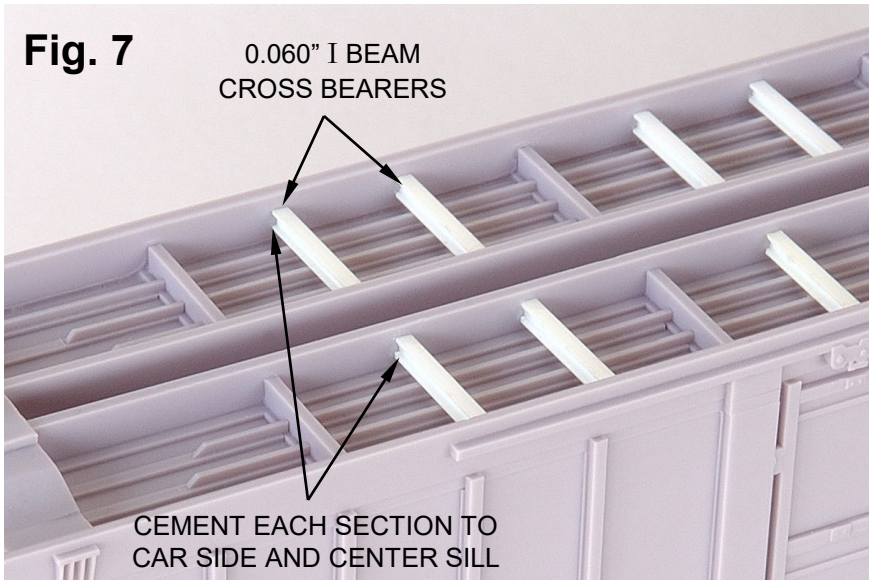


- ☐ Test fit the draft gear assembly between the center sill ends. (Fig. 4) If necessary, use tape to hold the draft gear in place.
- ☐ Install the trucks. They don't have to be screwed in place at this time.
- ☐ Check coupler height. Use bolster shim washers if the coupler is too low (Fig. 5) or a thin shim between the underframe and draft gear if it is too high. (Fig. 6)
- ☐ When satisfied with the fit and coupler height, cement the draft gear (and shims, if needed) in place with slow setting CA cement. Make certain the draft gear is seated firmly against the bolster and bottom of car floor.
- ☐ Repeat for the other draft gear casting.
- ☐ When done, remove the trucks, draft gear lids, couplers and centering springs. Put them in a secure location until called for later.

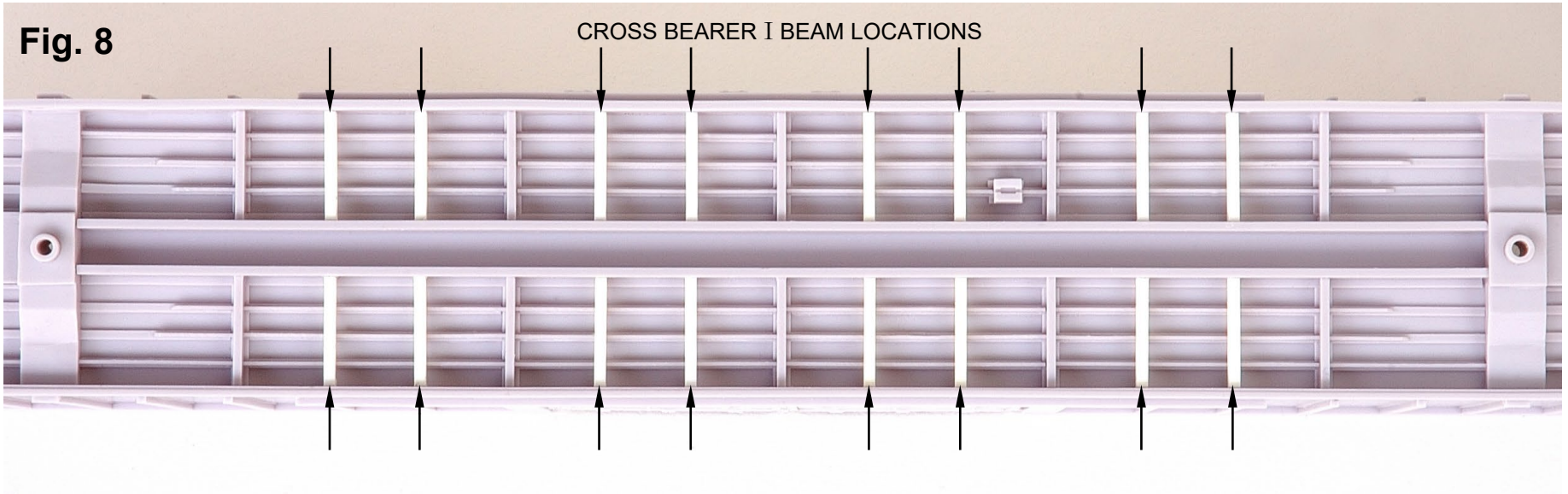
Fig. 5

Fig. 6

Underframe Cross Bearers



- Cut to length 16 0.060" I beam cross bearers. These are oriented vertically and fit between the center sill and car side. (Fig. 7)
- When satisfied with the fit, cement each I beam in place in the positions indicated. (Fig. 8)
- Use slow set CA to allow for accurate positioning of the parts.



Center Sill Flanges & Cross Bearer Flanges

Fig. 9

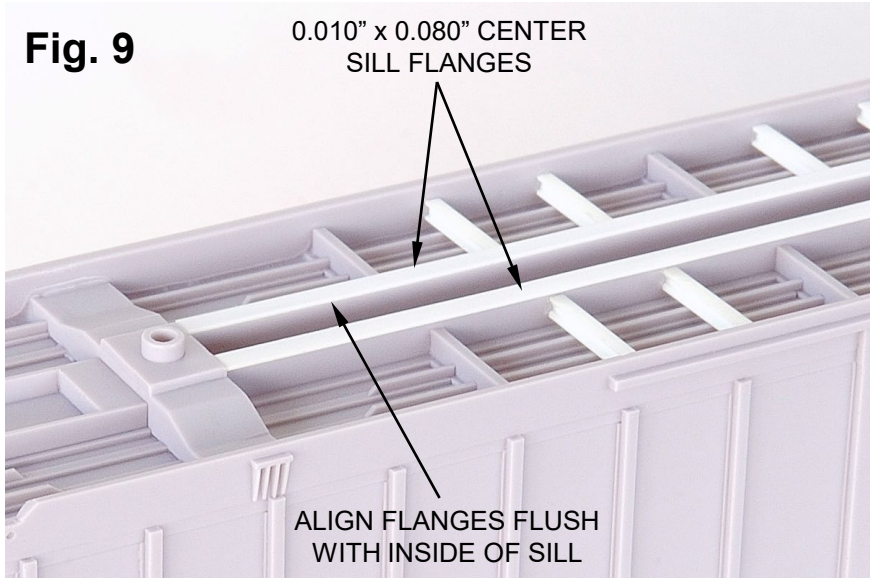
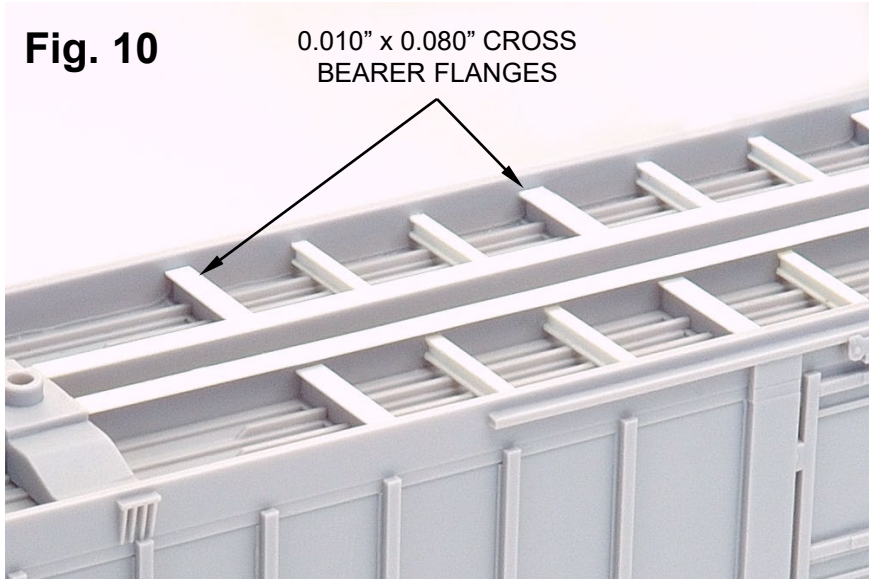


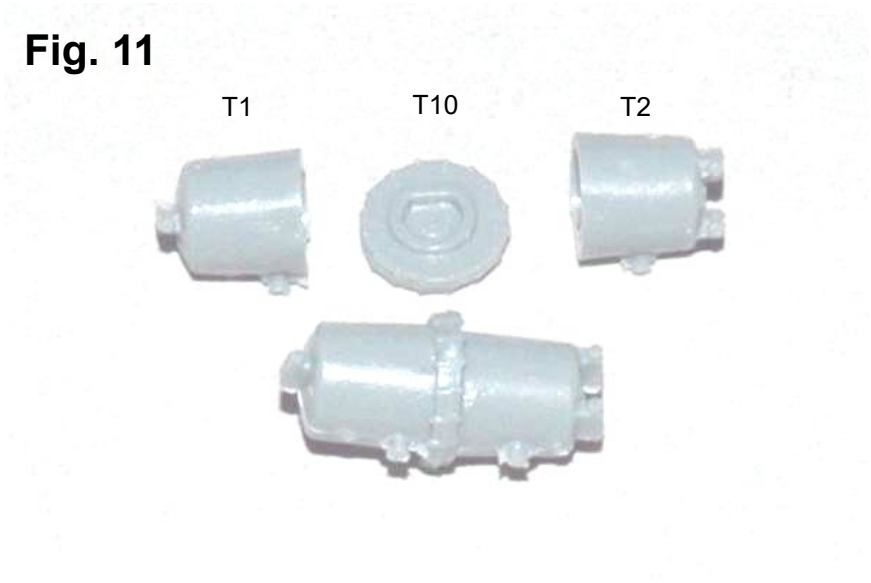
Fig. 10



- Use two lengths of 0.010" x 0.080" styrene to form the center sill flange between the bolsters. (Fig. 9)
- Cement these strips with one edge even with inside of each center beam and the overhang toward the car's side. (Fig. 9)
- Cut to length 10 sections of 0.010” x 0.080” styrene to form the cross bearer caps. Cement these on top of the cast cross bearers. (Fig. 10)

Air Reservoir & Brake Valve Preparation

Fig. 11



- If you will be modeling the brake pipes and other fittings, you must drill the holes in the brake details before mounting them on the car. Once these parts are mounted on the car it is very difficult or impossible to drill the required holes.
- Assemble the air reservoir from parts T1, T2 & T10 (Fig. 11) When glue has set, drill #80 holes in the two pipe fittings on the side. (Fig. 12)
- Prepare the brake valve (T5) by drilling four #80 holes and one #76 hole in the positions indicated in Figure 13.

Fig. 12

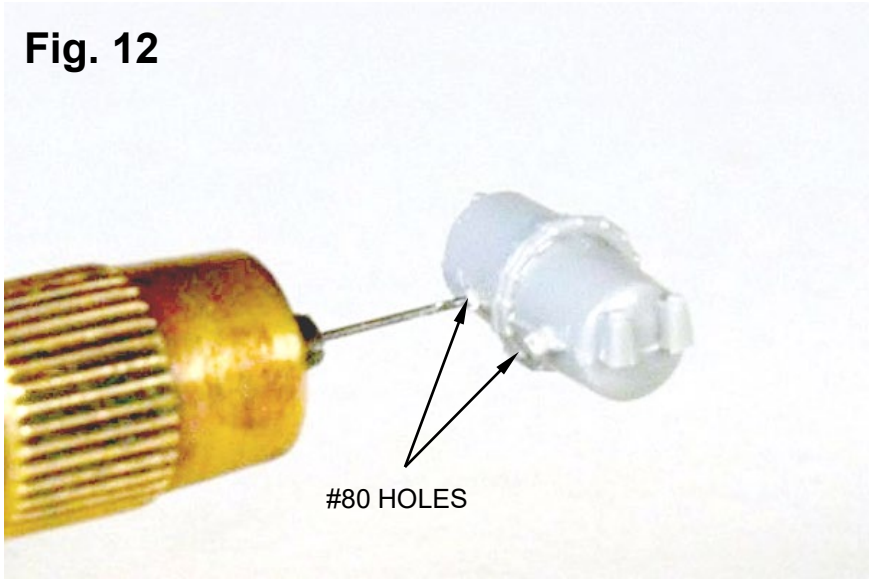
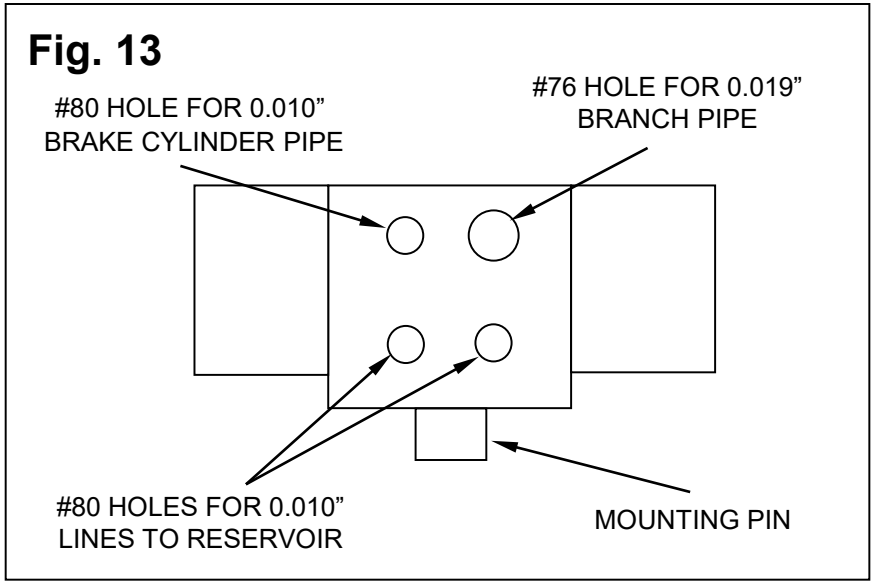
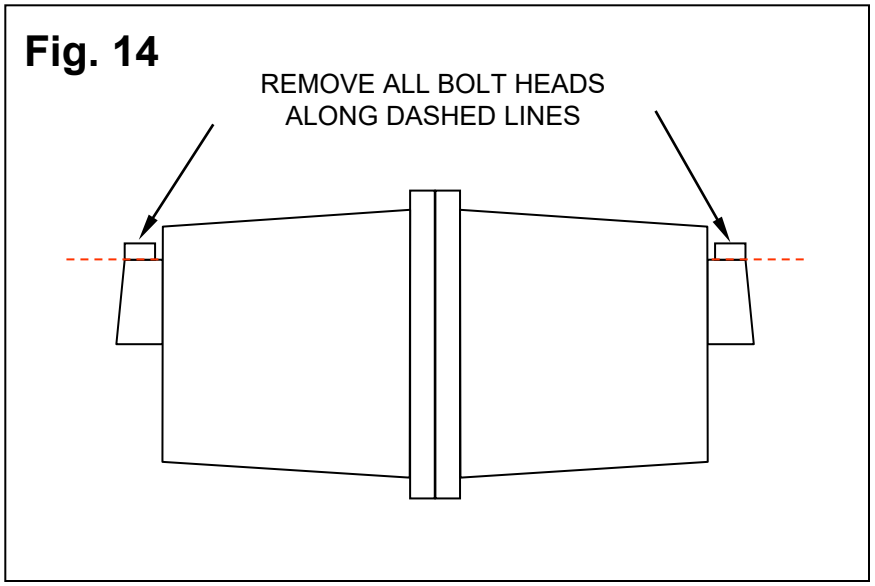


Fig. 13



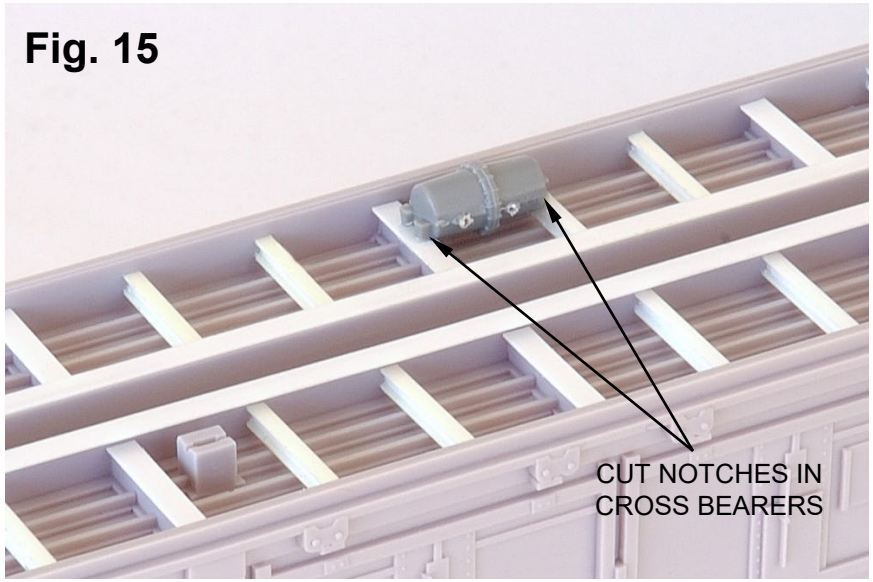
Air Reservoir & Brake Valve Installation

Fig. 14



- The reservoir is installed “upside-down” and will need to have the bolt heads removed from the mounting lugs. (Fig. 14)
- The reservoir is installed with the pipe fittings pointing toward centerline of the car. (Fig. 15) It will be necessary to cut a notch in the cross bearer flanges to get the reservoir to fit.
- When satisfied with the alignment of the reservoir, cement in place with CA.

Fig. 15



Brake Valve Installation

Fig. 16

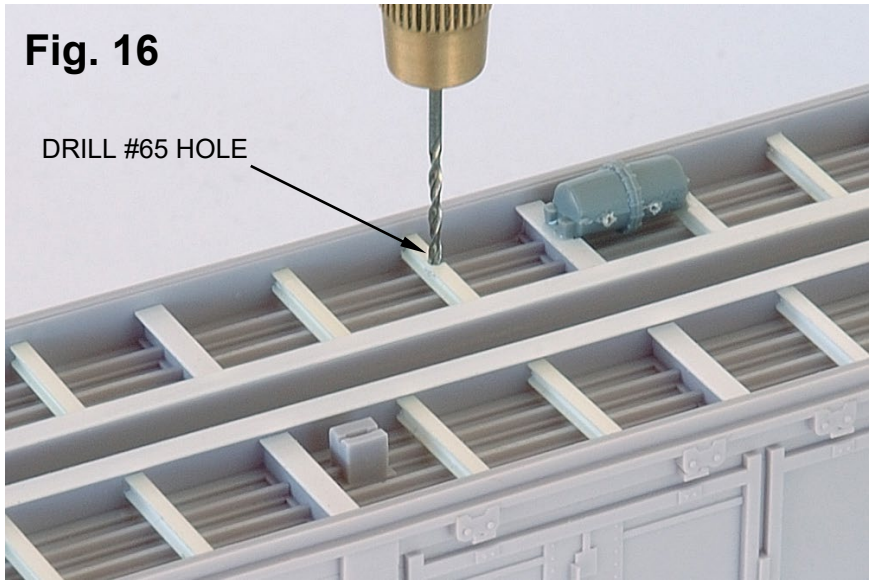
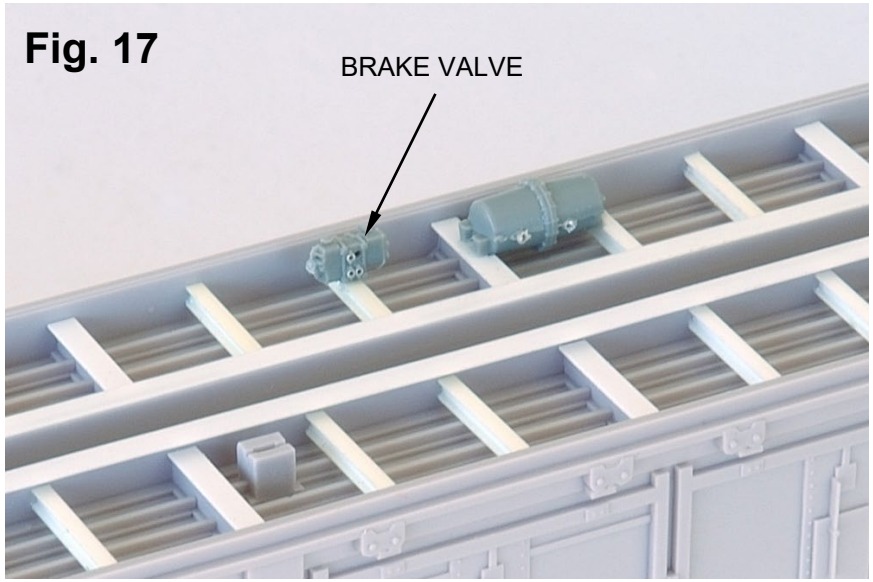


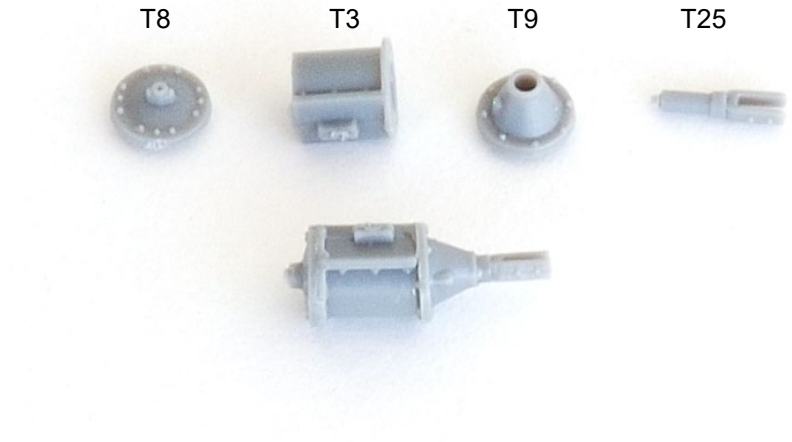
Fig. 17



- The brake valve's mounting pin can be trimmed flush with the bottom of the valve and drilling the hole can be skipped.
- Drill a #65 hole in the cross bearer I beam where shown in figure 16.
- Install the brake valve with the pipe holes toward the centerline of the car. (Fig. 17)

Brake Cylinder & Installation

Fig. 18



- Assemble the brake cylinder from parts T3, T8, T9 & T25. The brake clevis (T25) should be aligned horizontally. (Fig. 18)
- Drill a #80 hole in the rear of the brake cylinder. (Fig 19)
- Install the brake cylinder on the mounting pedestal as shown in figure 20. The brake clevis points away from the center of the car.

Fig. 19

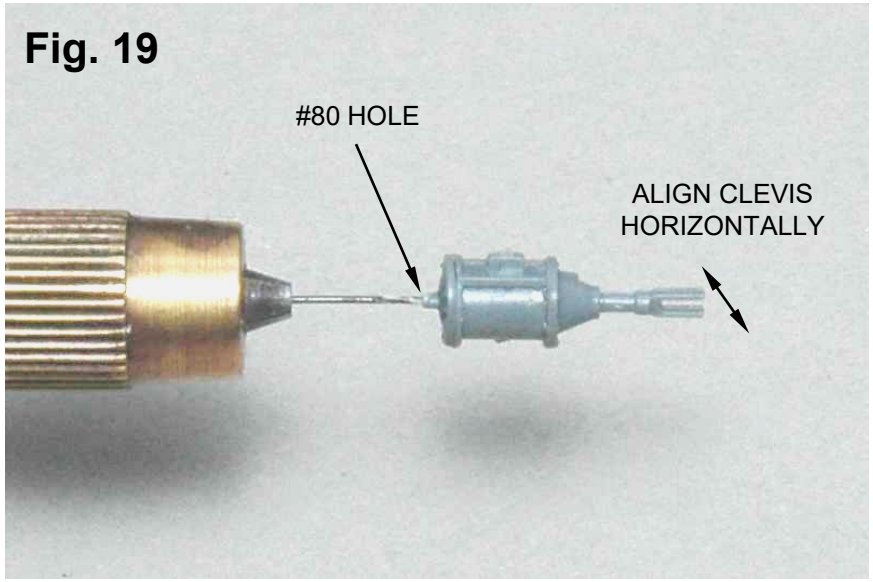
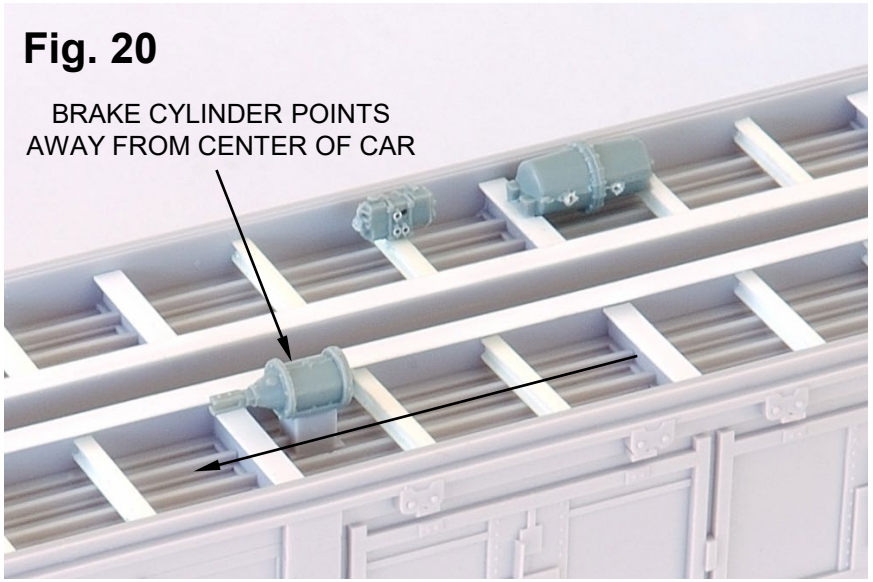
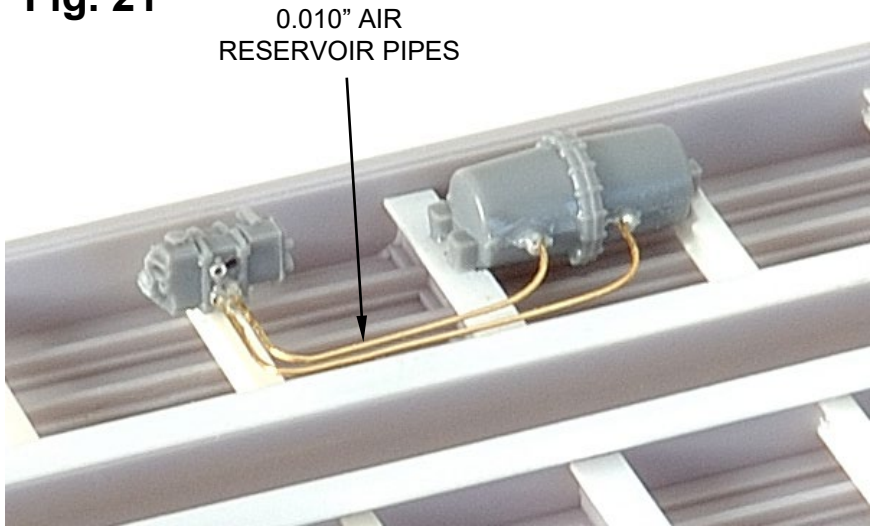


Fig. 20



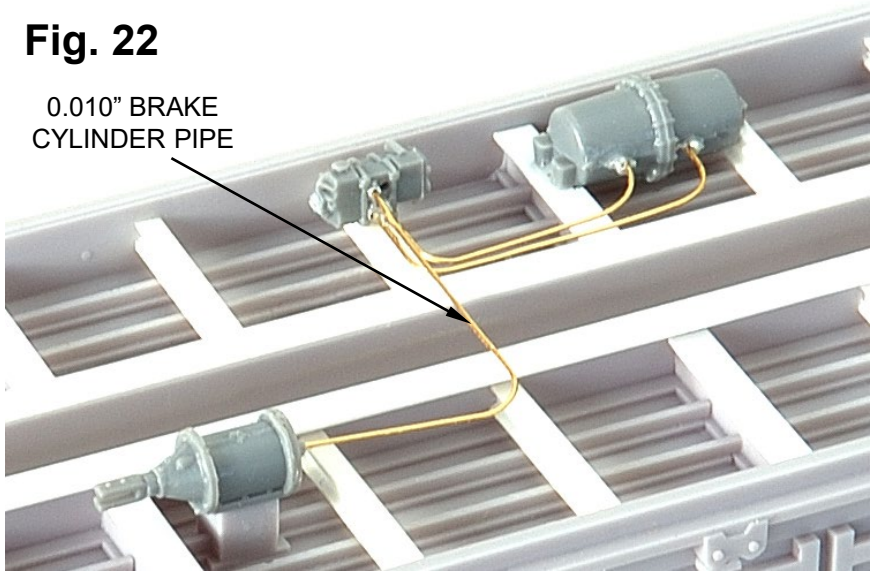
Brake Pipes

Fig. 21



- Form two reservoir to brake valve lines from 0.010” wire and install these lines between the air reservoir and the brake valve. (Fig 21)
- Adjust and align these pipes to be parallel with each other as shown in the scale drawings.
- Cement pipes in place when satisfied with the fit.
- Form the brake cylinder pipe from 0.010” wire and cement between the top left hole on the brake valve and the brake cylinder (Fig 22)
- This pipe should angle down from the brake valve to rest on the center sill flanges, then angle back up to the brake cylinder.
- Cement pipe in place when satisfied with the fit.

Fig. 22



Train Line & Branch Pipe

- Using the 8” long section of 0.019” wire, form the main section of the train line as shown in figure 23. The train line is positioned over the installed brake pipes.
- The ends of the train line should overlap the pads on the bolster by about 1/2 the width of the pad. This will leave room to mount the end sections later.
- Cement in place at the bolsters and cross bearers
- Test fit the branch pipe and cutoff valve (T6) in the large hole on the brake valve. (Fig. 24) Trim the plastic pipe on this part to meet up with the train line.

Fig. 24

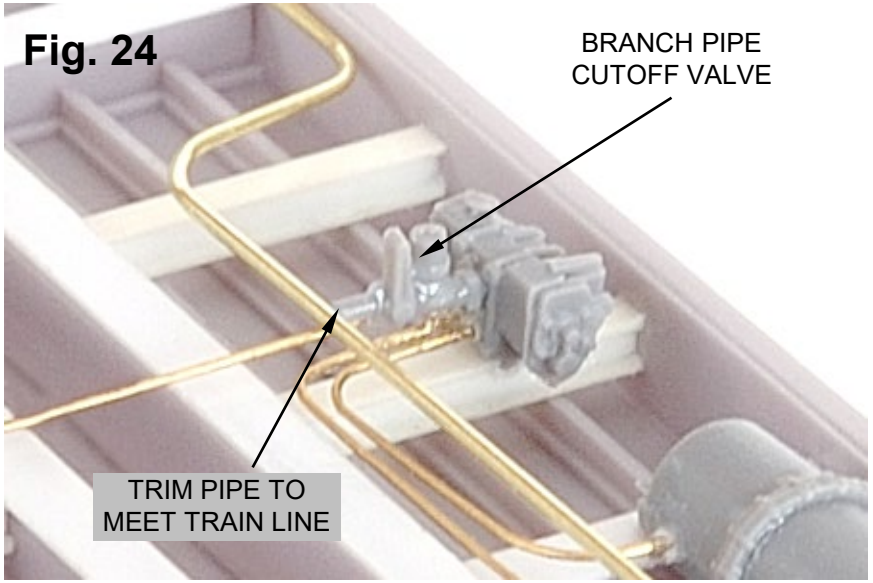
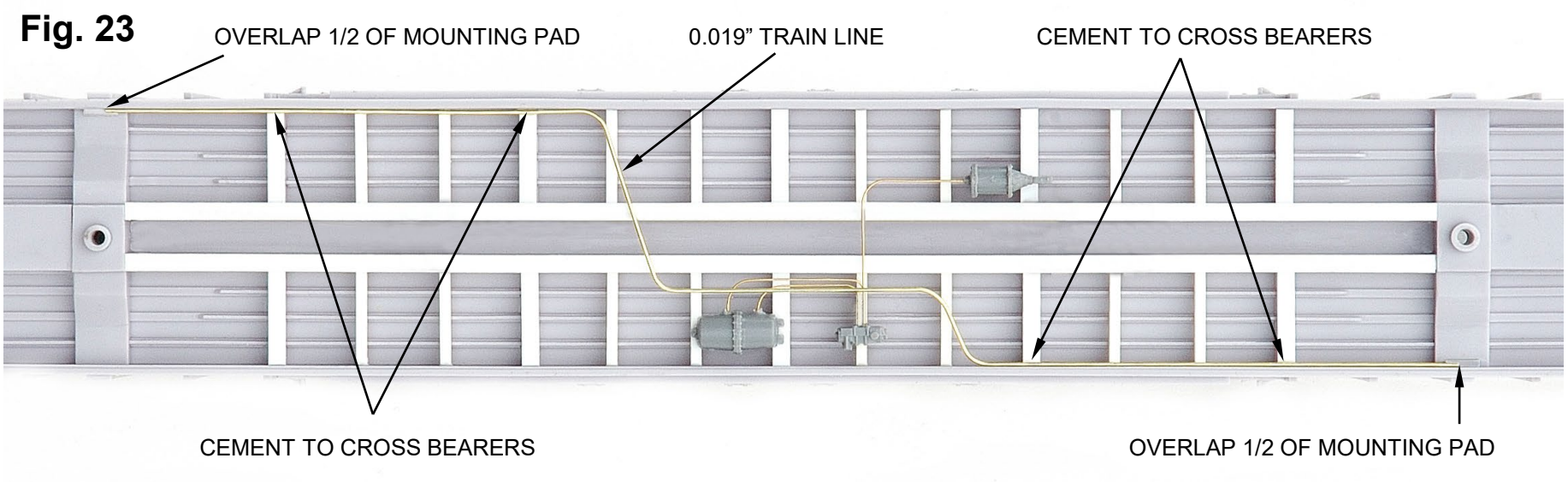
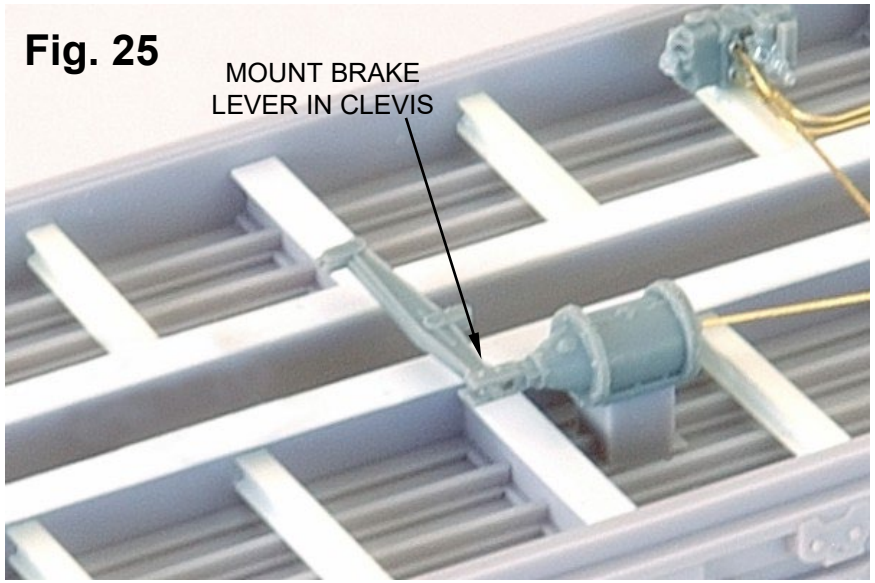


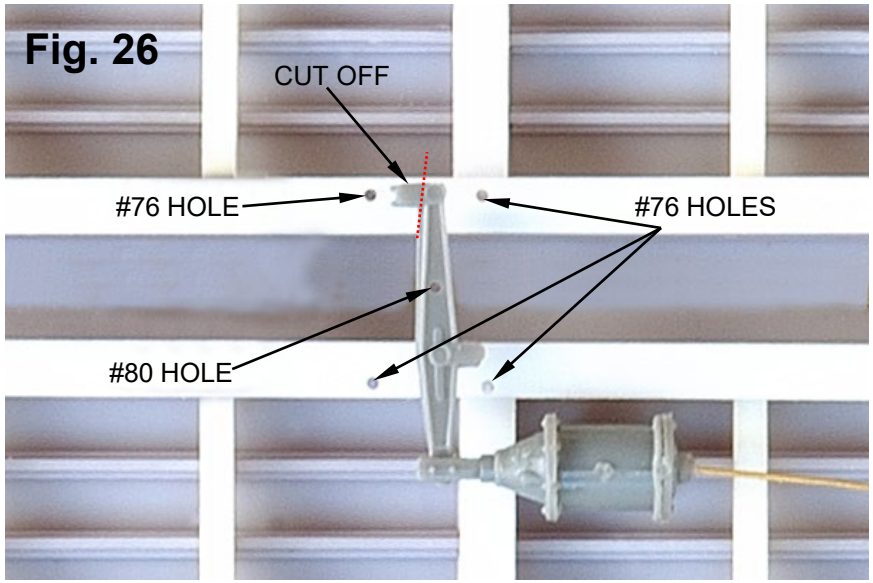
Fig. 23

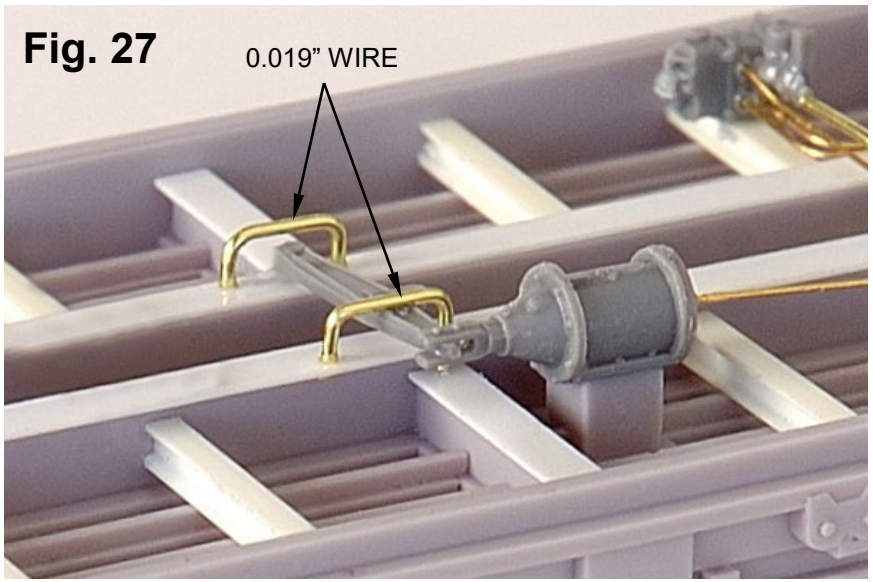


Brake Cylinder Lever

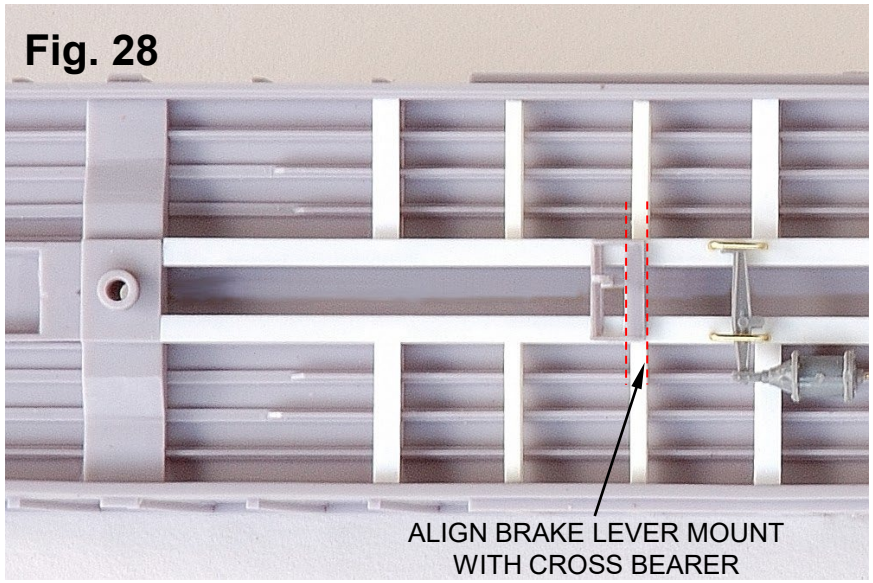


- Install brake lever (T26) in the brake cylinder clevis (Fig. 25)
- Cut off the mounting tab on the end of the lever as shown in figure 26.
- Use a #76 drill to make four holes in the center sill flange for the brake cylinder lever supports. (Fig. 26)
- Form two brake cylinder supports from 0.019” wire. Install these in the flanges over the brake cylinder lever. (Fig. 27)

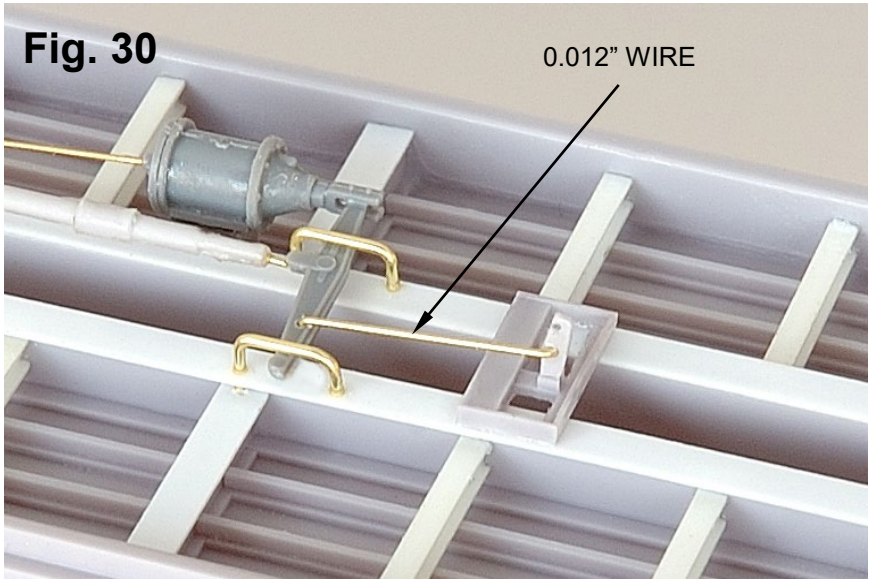




End Brake Levers

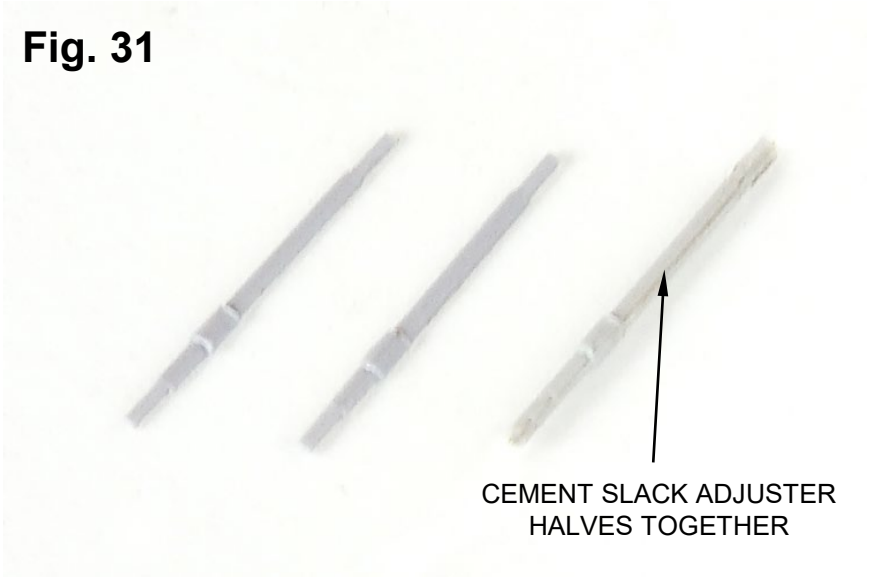


- Remove the two brake lever mounts (B7) from the casting sheet and remove the flash from the two interior openings.
- Position these on the center sill flanges as indicated in Figure 28. The wide end of the mount should be in line with the third cross member.
- Cement each in place when positioned correctly.
- Before removing the brake levers (B8) from the casting sheet, drill a #80 hole in the center dimple.
- Remove each brake lever from the casting sheet and clean out the hook opening at the end.
- Install the brake lever in the brake lever mounts with the open end of the lever facing the center of the car. The lever should angle slightly toward the nearest bolster. (Fig. 29)
- Use 0.012” wire to form the short linkage between the brake cylinder lever and the B end brake lever. (Fig 30)



Slack Adjuster Linkage

Fig. 31



- Remove the two halves of the slack adjuster (B4) from the casting sheet. Cement the two halves together with slow setting CA. (Fig. 31)
- Use a #80 drill to make two holes in the ends of the slack adjuster. (Fig. 32) Each hole only needs to be about 0.060” deep.
- Install a 0.1” section of 0.012” wire in the B end of the slack adjuster and a 2.25” long section of 0.012” wire in the A end.
- Test fit the slack adjuster between the mounting point on the brake cylinder lever and center hole in the A end brake lever. (Fig. 33) Form a 90° bend in the A end linkage to mount in the center hole of the brake lever.
- Cement the linkages in place.

Fig. 32

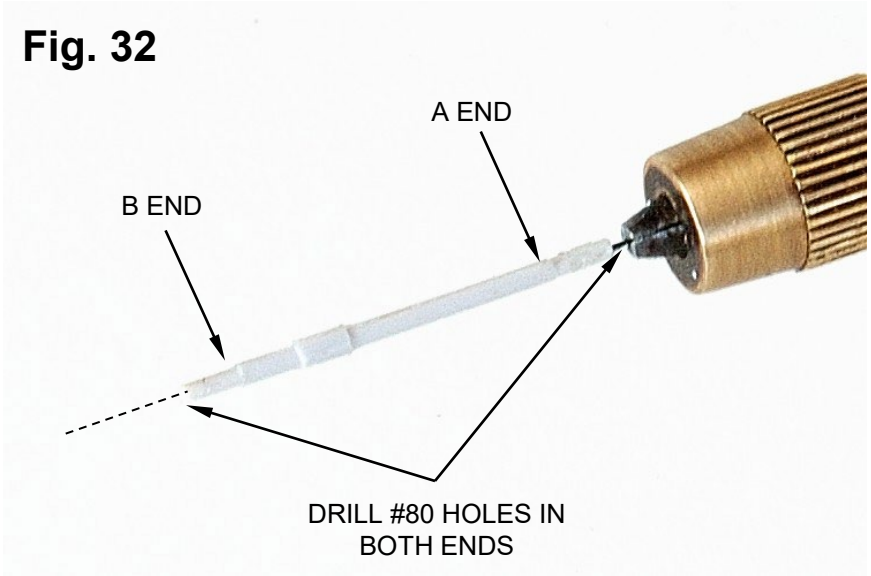
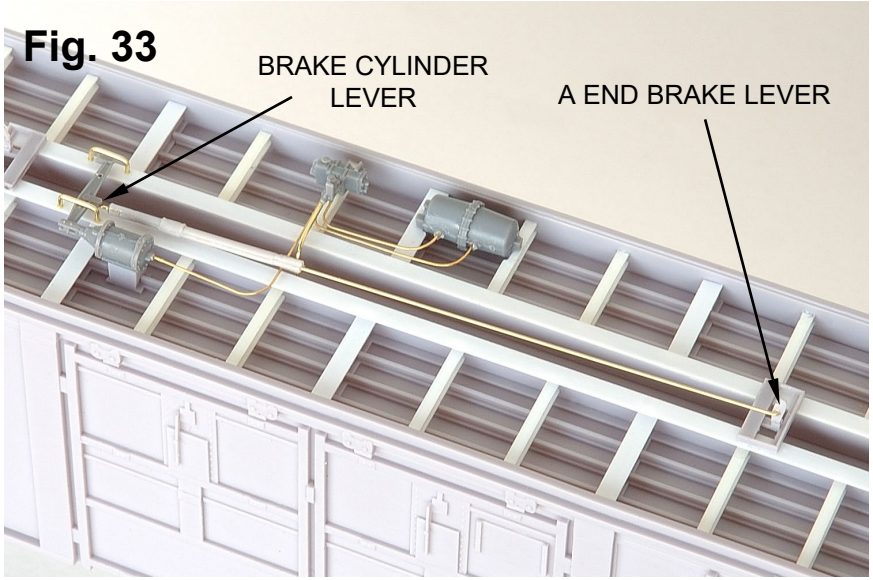
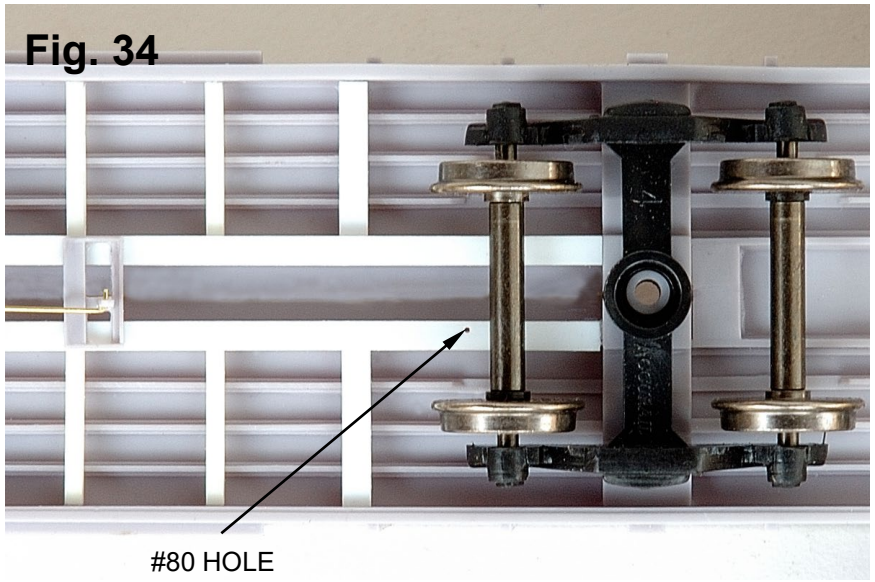


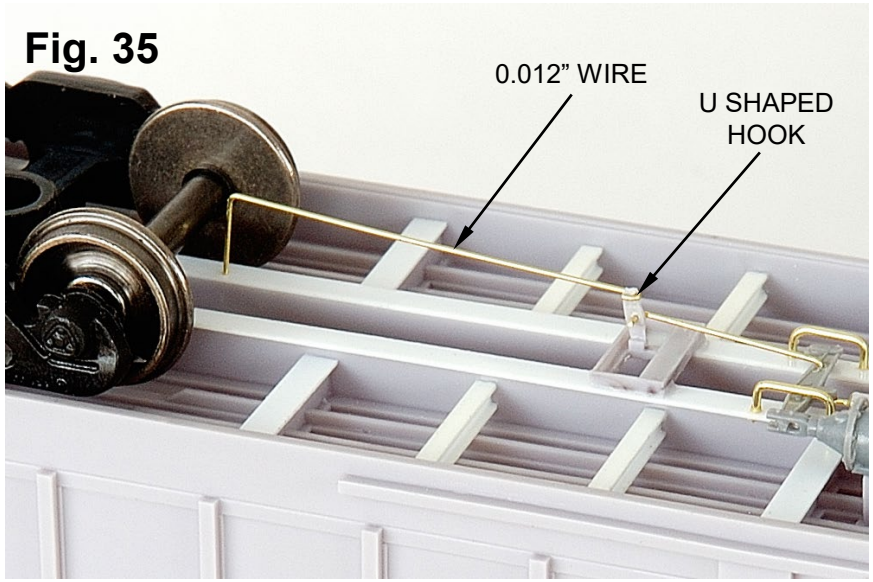
Fig. 33

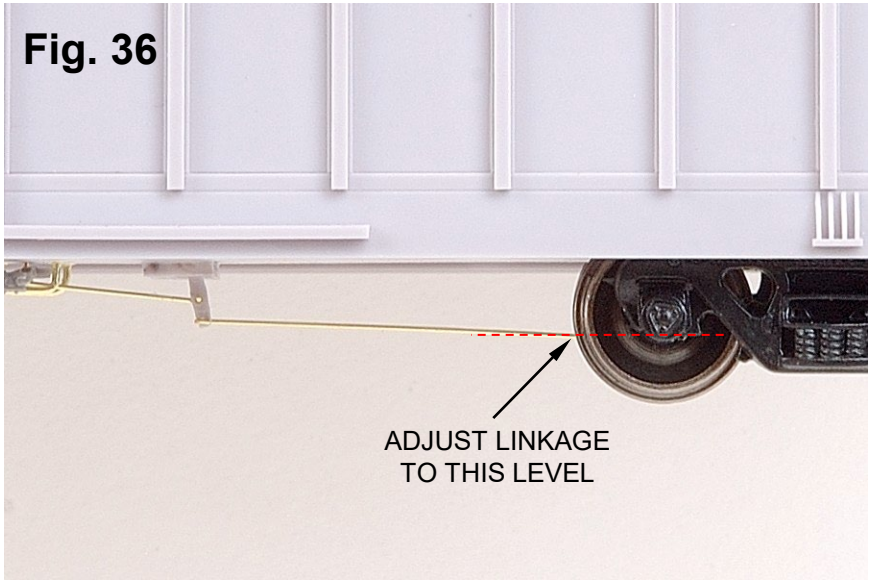


Truck Brake Linkages

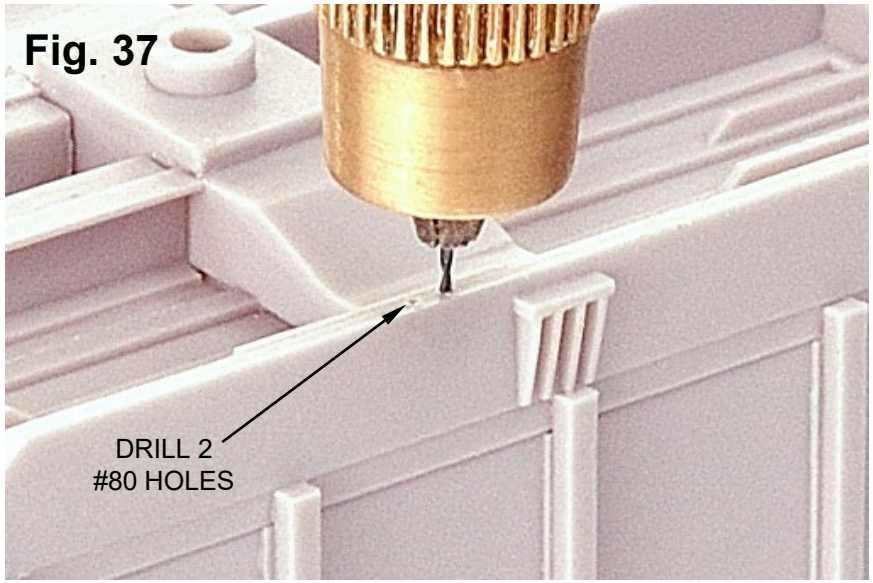


- Place the trucks on the bolsters.
- Drill a #80 hole on the right side center sill flange as shown in figure 34. It should be about 0.080” away from the axle to avoid interfering with the trucks.
- Use 0.012” wire to form the B end brake linkage between the brake lever and the hole. The linkage has a “U” shaped hook around the lever.
- When viewed from the side the linkage should appear to pass behind the wheels, just under the axle. (Figs 35 & 36)
- When linkage is aligned properly, cement in place at the sill flange and lever.
- Repeat for A end brake linkage.

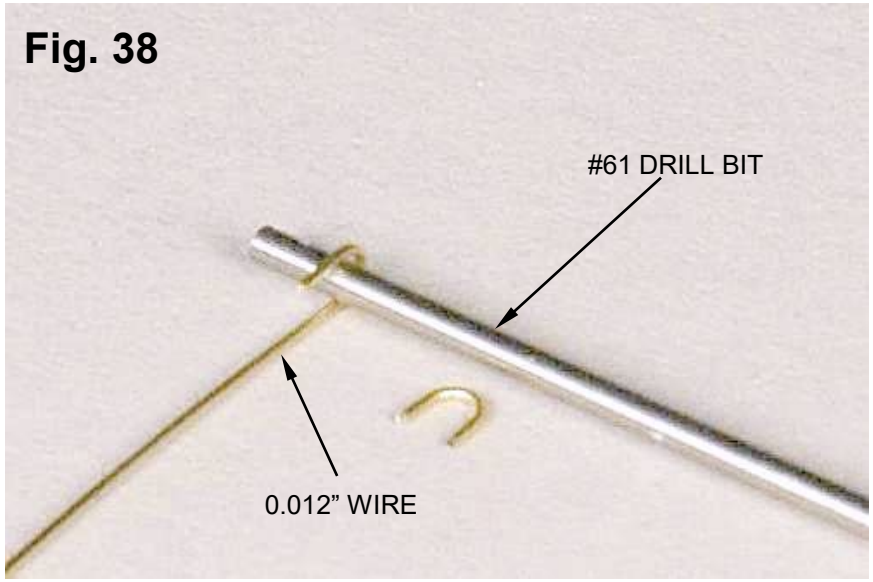


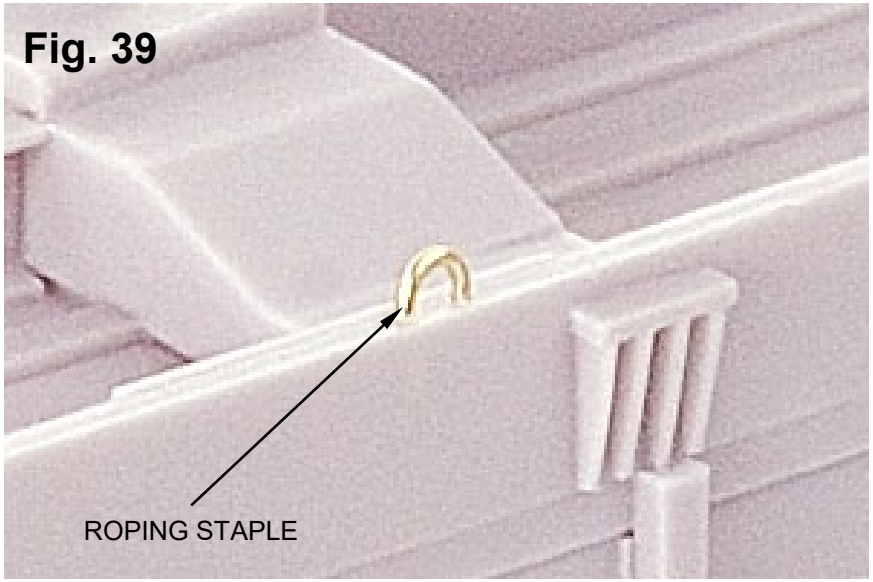


Roping Staples



- Use #80 bit to drill the two roping staple holes shown in figure 37.
- Use a #61 drill bit to form a roping staple from 0.012” wire. (Fig. 38) The staple can be formed with any appropriately sized rod about 0.040” in diameter.
- Install roping staple in holes, cement in place. (Fig. 39)
- Repeat for remaining corners of car.





Cushion Support Frame & Draft Gear Supports

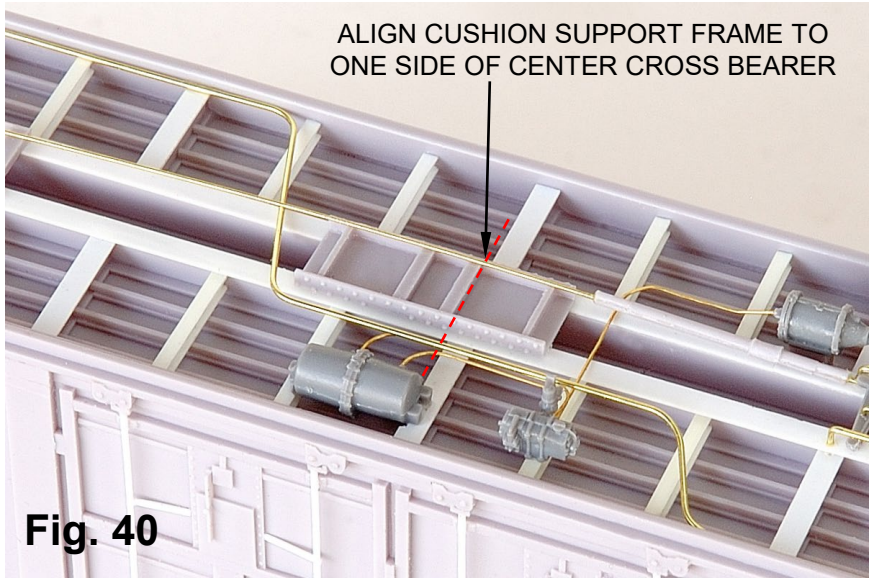


Fig. 40

- ☐ Remove the cushion support frame (B2) from the casting sheet and remove the flash from the edges.
- ☐ Position the frame on the center sill flanges as shown in Figure 40. Make certain the frame is positioned properly over the middle cross bearer. Note that the frame is not centered “end to end”. Refer to the drawing page for precise location.
- ☐ Cement in place when positioned correctly.
- ☐ The trucks can be removed to make room for the next steps.
- ☐ Remove the draft gear support (A7) from the casting sheet and install over the draft gear as shown in figure 41.
- ☐ The base of the support should rest against the coupler side of the two locating ribs on the center sill channels.
- ☐ Drill a #80 hole in the dimple in the channel of the draft gear. (Fig 42)
- ☐ Repeat for draft gear support on other end of car.

Fig. 41

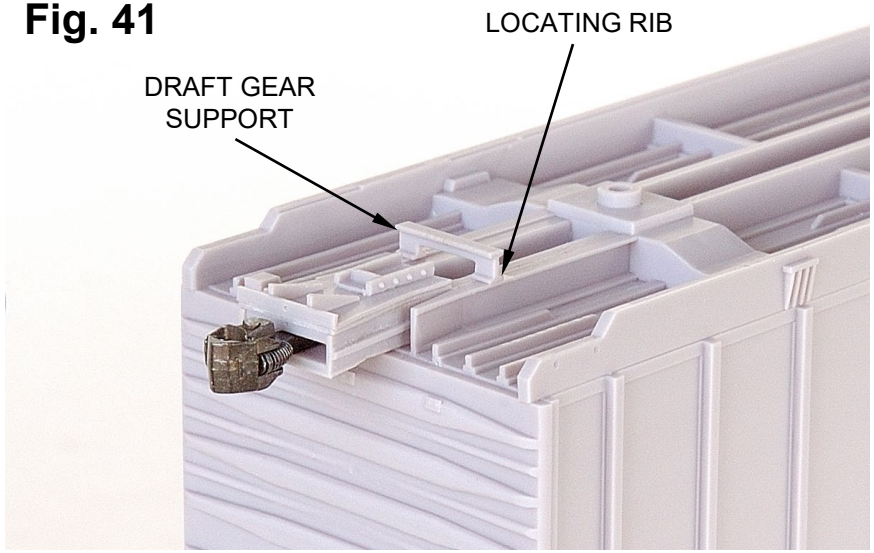
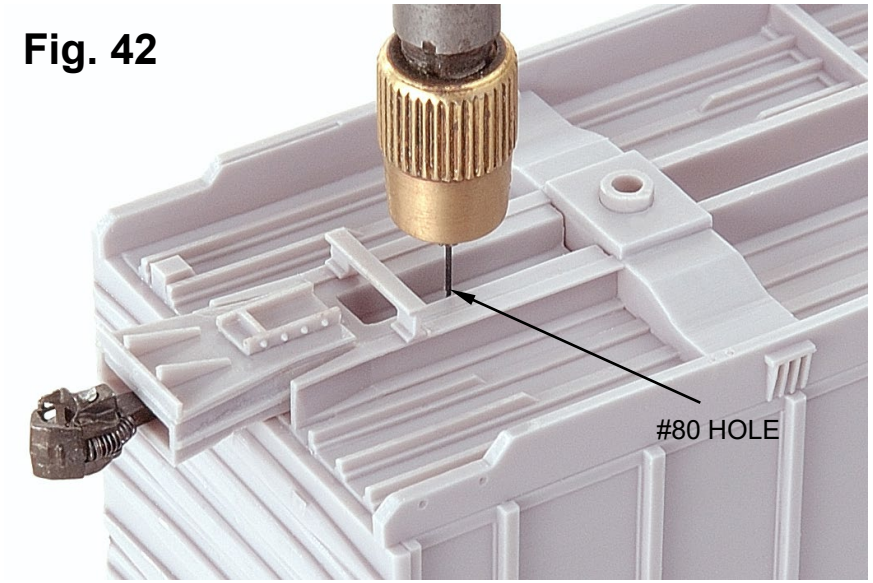
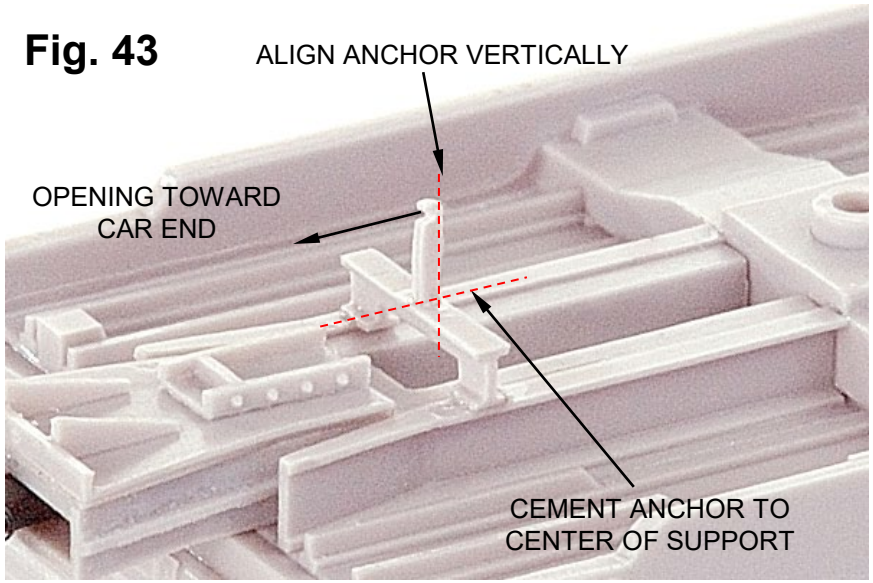


Fig. 42



Truck Brake Anchor Linkages

Fig. 43



- ☐ Remove a truck brake linkage anchor (A6) from the casting sheet and clean out the hook opening at the end.
- ☐ Install the linkage anchor on top of the draft gear support with the open end of the anchor facing the end of the car. (Fig. 43)
- ☐ Cement in place with slow CA when positioned correctly.
- ☐ Use 0.012” wire to form the truck brake linkage between the brake anchor and the hole. The linkage has a “U” shaped hook around the lever. (Fig. 44)
- ☐ Mount the truck and screw in place.
- ☐ When viewed from the side the linkage should appear to pass behind the wheels, just under the axle. (Figs 44 & 45)
- ☐ Repeat for other end of car.
- ☐ The trucks can be left in place now, they will protect the brake details during the final assembly steps.

Fig. 44

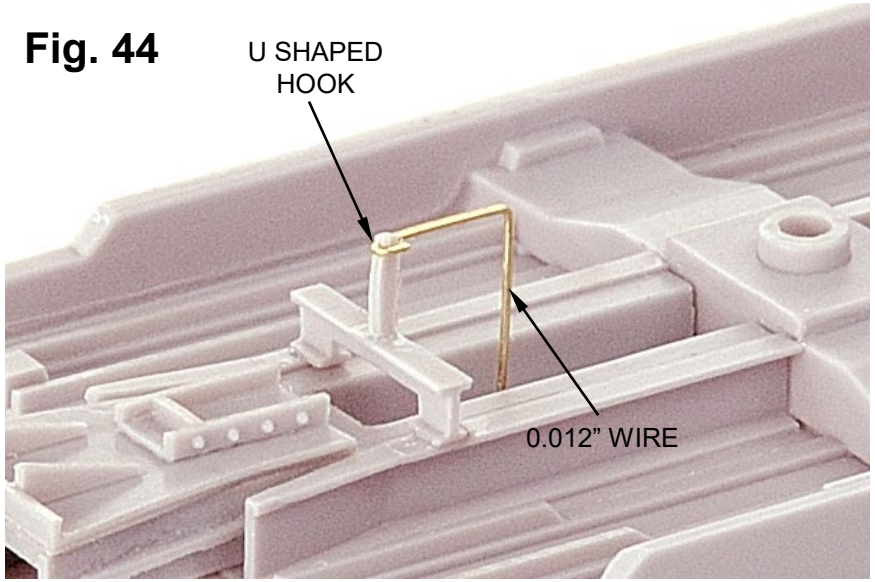
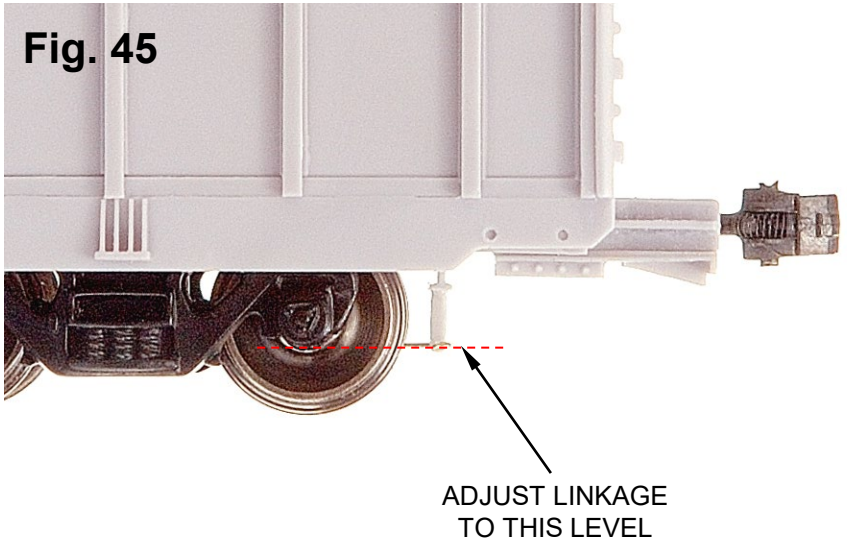
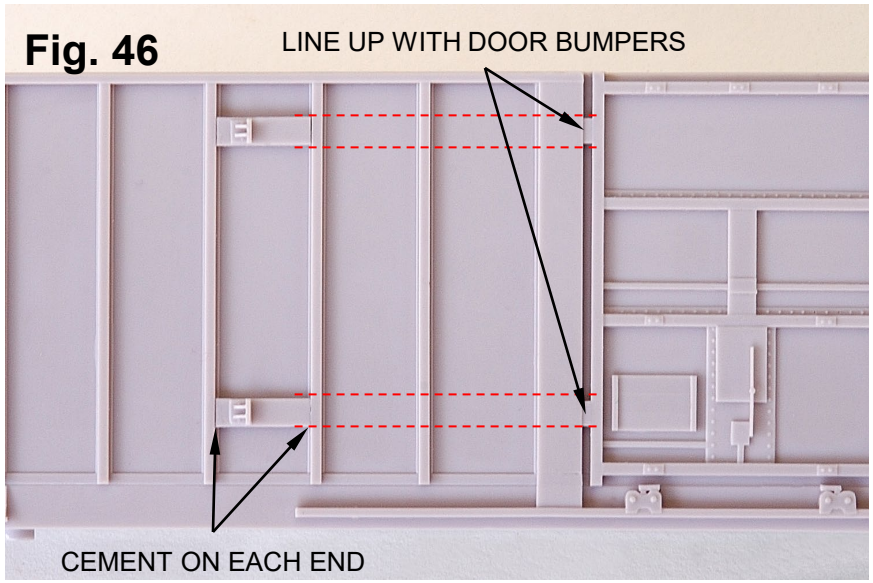


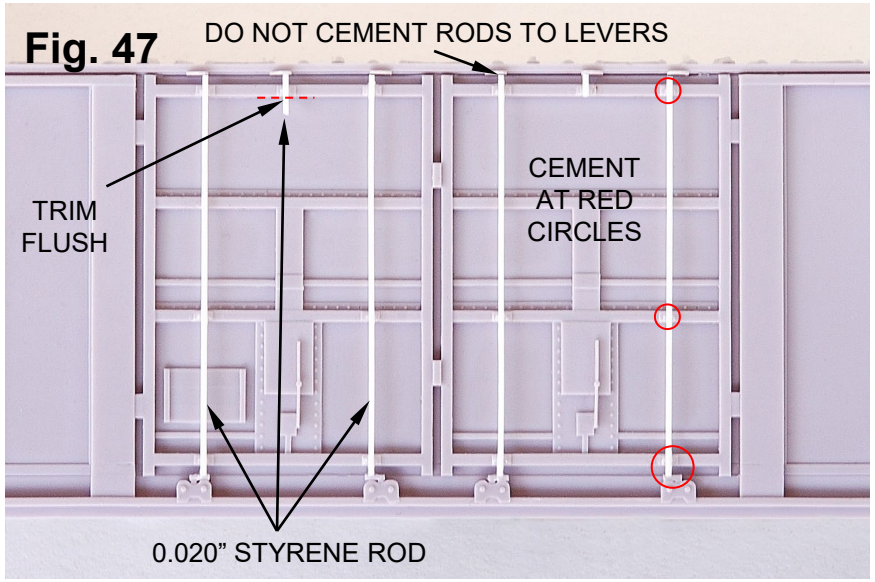
Fig. 45

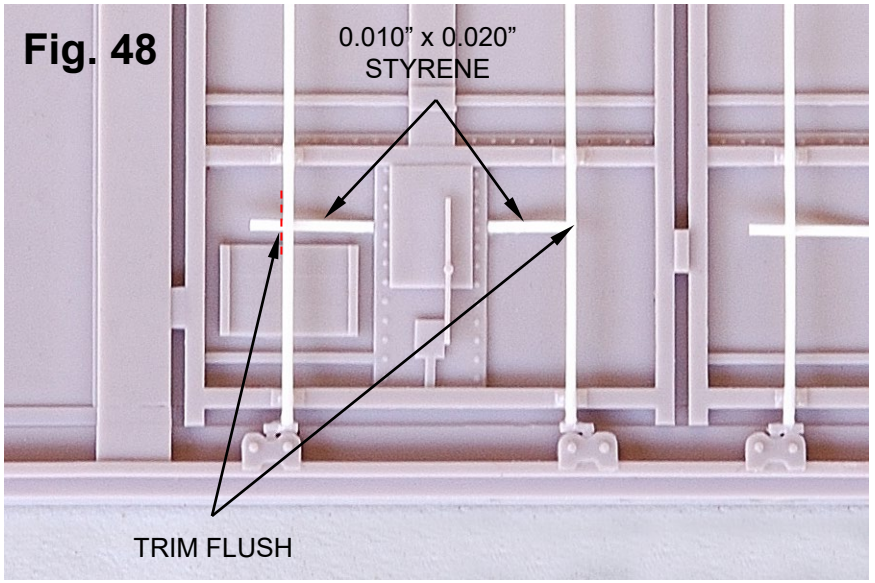


Door Stops & Door Details



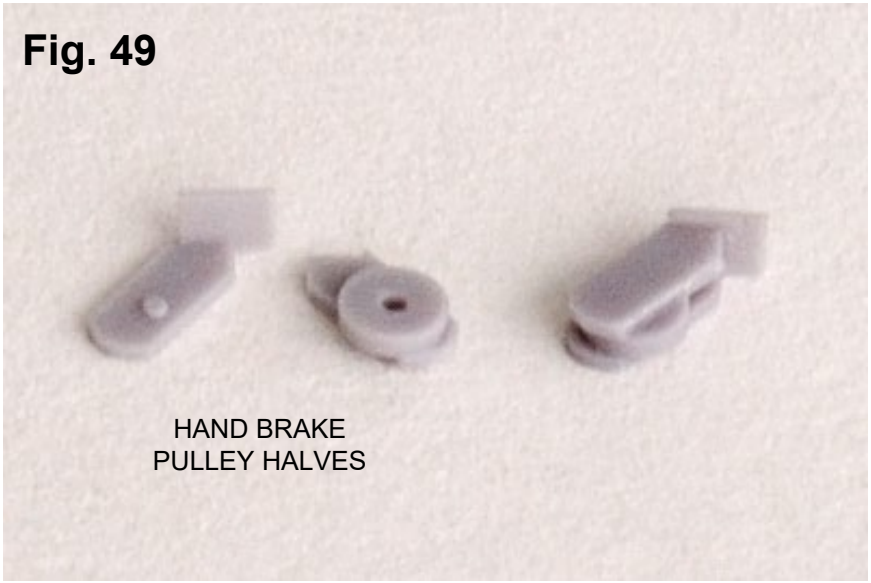
- ☐ Test fit the door stops (B1) as shown in figure 46. Adjust the position so the stops are in line with the door bumpers. When satisfied with the position, cement in place.
- ☐ Test fit the roof on the body. Do not cement in place, if necessary, use tape to hold it in place.
- ☐ Form the door opener rods with 0.020” styrene rod. Each long rod should fit between the door track levers on the roof and the roller supports near the side sill. (Fig 47) Do not cement rods to roof track levers.
- ☐ Form a short rod near the center of each door. Trim this even with the bottom of the door frame as shown.
- ☐ Use 0.010” x 0.020” styrene strips to make the door opener struts. (Fig 48) Each strut runs from the door to the back side of the rod.
- ☐ Trim the overhanging portion of each strut after the cement cures.
- ☐ Repeat for other doors





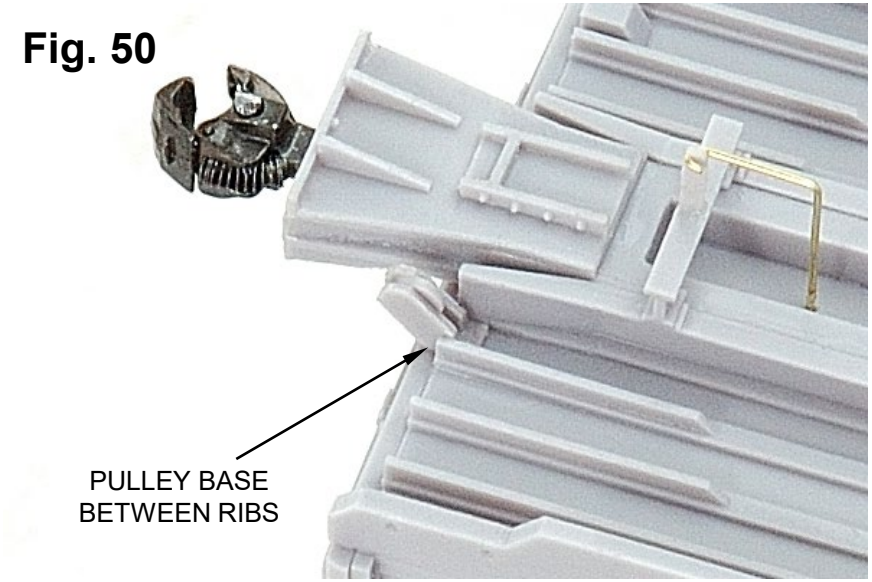
Hand Brake Pulley

Fig. 49



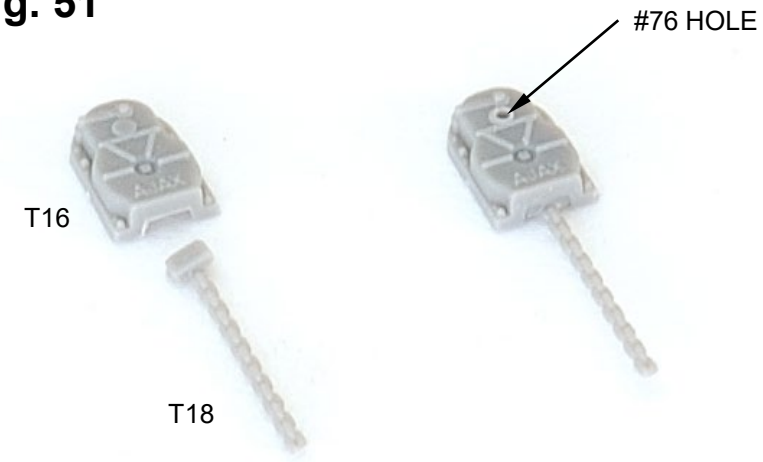
- Remove the two halves of the hand brake pulley (A4) from the casting sheet and cement together. (Fig. 49)
- Cement the hand brake pulley to the B end of the car as shown in figure 50. The base of the pulley fits between the center sill channel and the floor rib on the car end.

Fig. 50



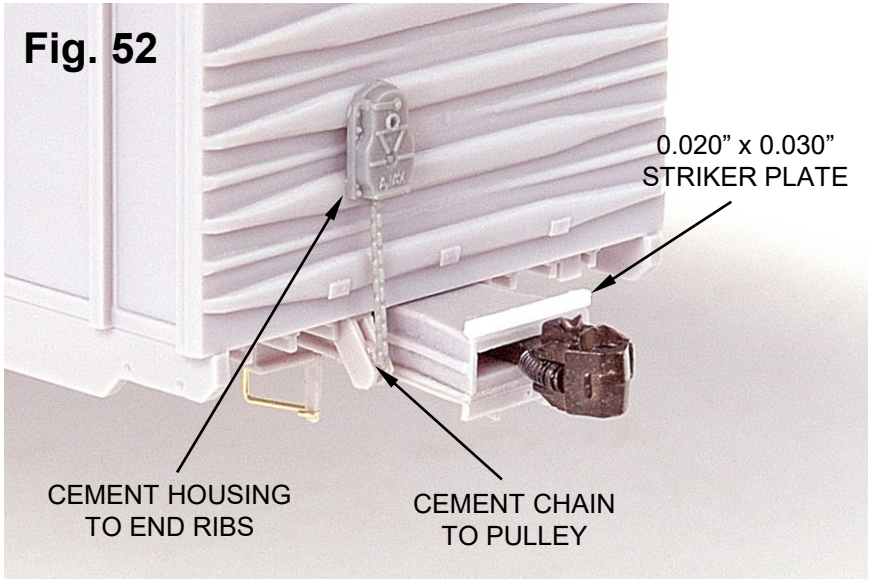
Hand Brake Installation

Fig. 51

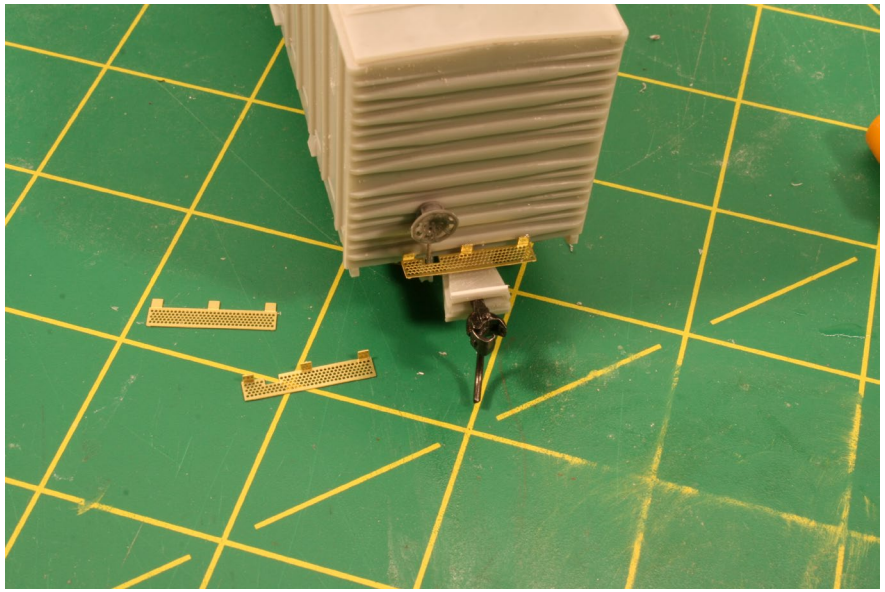


- Attach the hand brake chain (T18) to the hand brake housing with styrene cement or CA. (Fig. 51)
- Drill a #76 hole in top of the hand brake housing (T16) to mount the brake wheel.
- Test fit the hand brake housing on B end of the car as shown in figure 52. Adjust the position so the chain touches the pulley.
- When satisfied with the fit, cement in place with slow set CA.
- Cut two sections of 0.020” x 0.030” styrene to form the striker plates and cement to the top of both draft gear as shown in figure 52.

Fig. 52

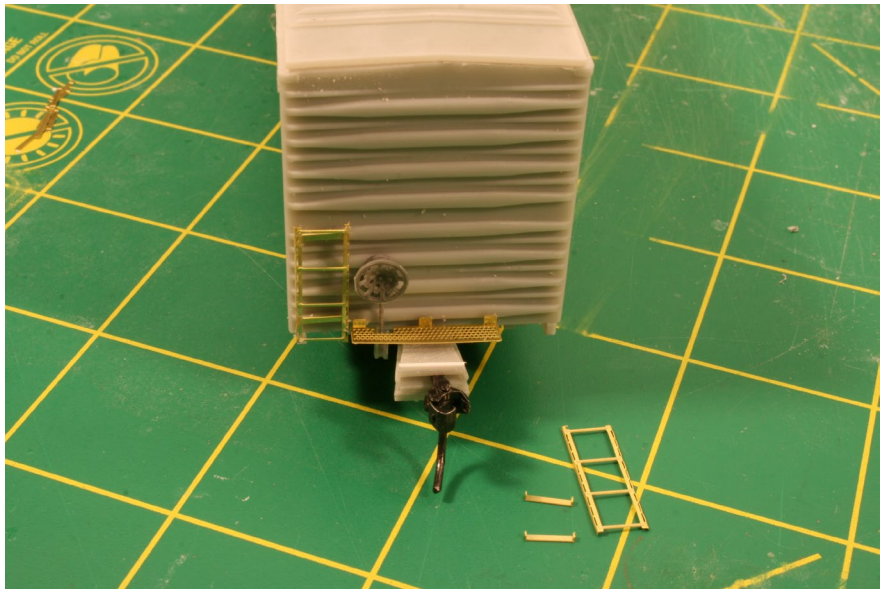


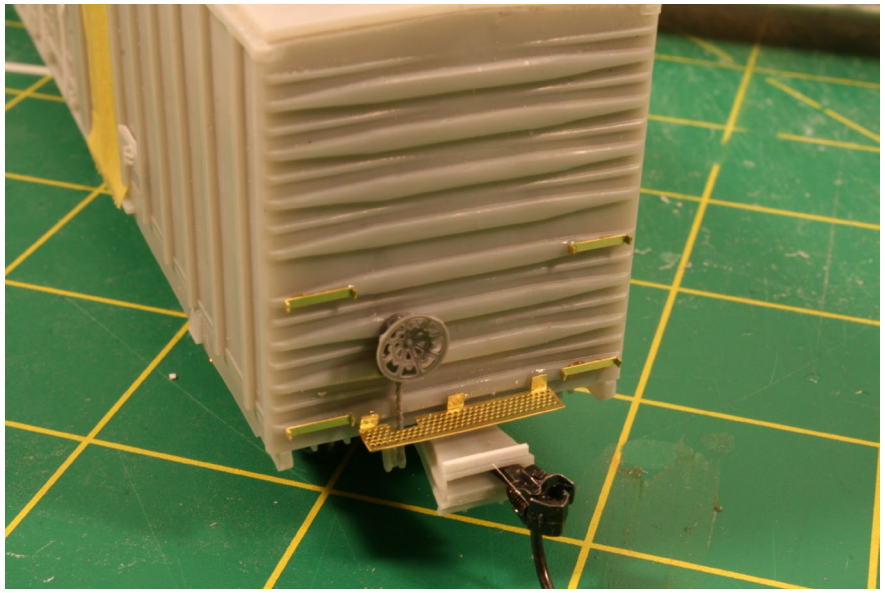
End platforms



Fold the mounting tabs up on the etched parts and secure to the pads on the car ends

Ladders





The ladder stiles need to be folded so as to create an angle and the mounting brackets need to be folded to create a shallow “C” shape.

The brackets mount on the lowest rib and the 4th rib up, 3” in from the outside edge of the car

The ladders then secure to the brackets with the bracket tabs to the inside of the ladder stiles.

There is a left and right hand ladder, with the taller stile being to the inside of the car.

A piece of 0.012” wire will run between the 2 ladders as a long grab.

The Tichy plastic rungs are mounted to the car side in line with the ladder rungs on the end.

Sill steps

The sill steps are formed as shown in the photo.

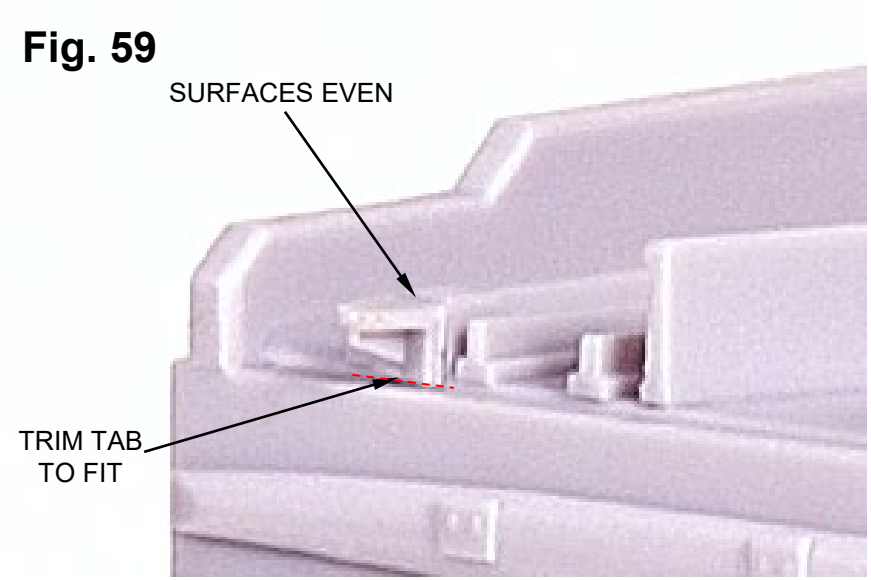
The twisting point is indicated on the etching by a faint notch.
Grasp the part on either side of the notch with 2 sets of pliers and rotate 90 degrees

Drill the spotted holes on the car sill with a #78 and use a short length of 0.012” wire as pins through the holes in the part and the side sill.

Secure with CA and then drill the upper holes and repeat the mounting pins

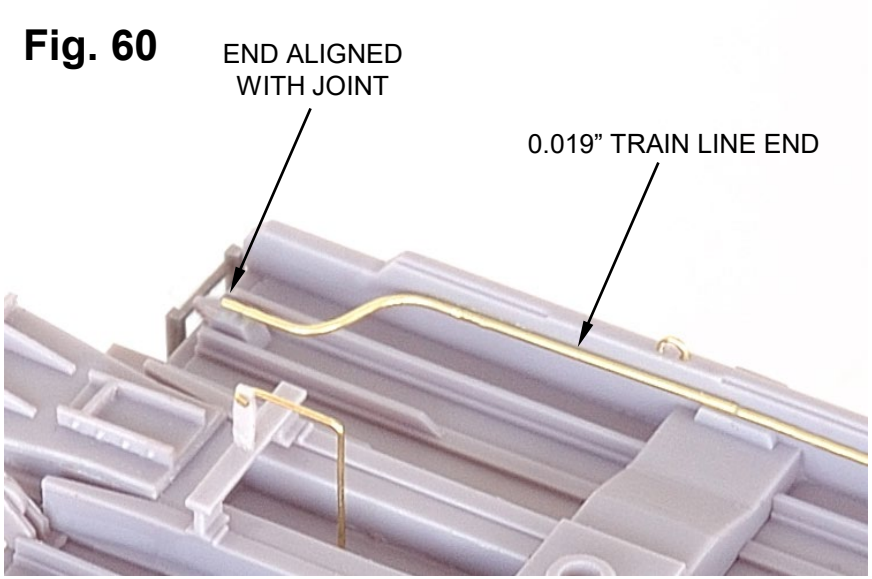
Train Line Ends & Air Hoses

Fig. 59



- ☐ Install the angle cock support (A5) on the train line support mounting block (Fig. 59) The bottom of the support should be even with the bottom of the block. It may be necessary to trim the top of the mounting tab.
- ☐ Form the train line end from 0.019” wire and mount between pad on bolster and mounting block next to draft gear. The end of the line should run to the joint between the block and the angle cock support. (Fig. 60)
- ☐ Attach the angle cock & air hose to the angle cock support. (Fig. 61) These are not 100% accurate for these cars, but will come fairly close.
- ☐ To accurately model the flexible hose between the car body and the sliding sill, refer to the detail images in the history document.
- ☐ Repeat for other end of car.

Fig. 60



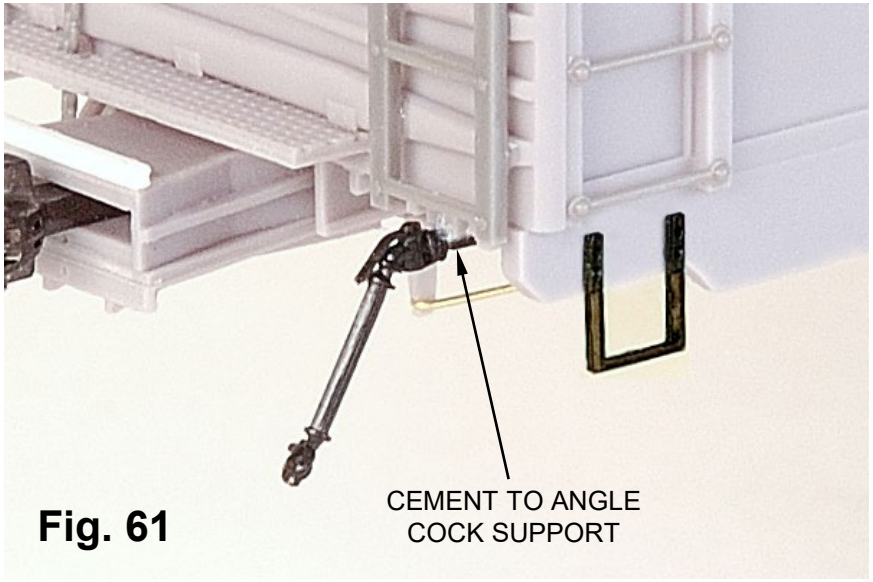
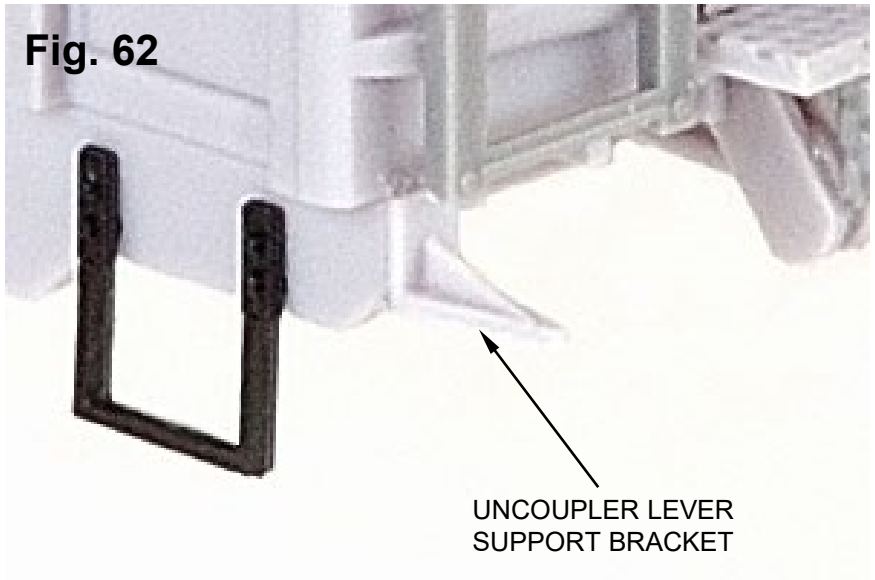
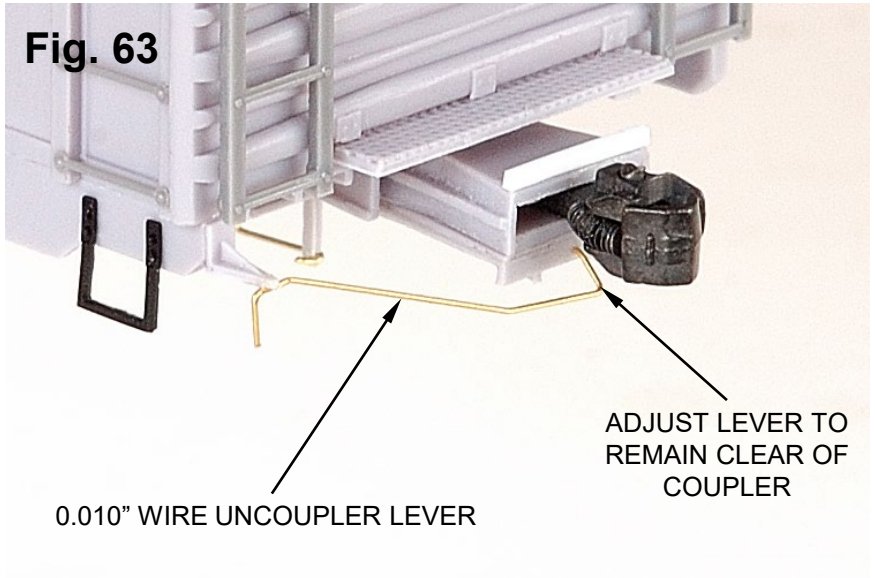


Fig. 61

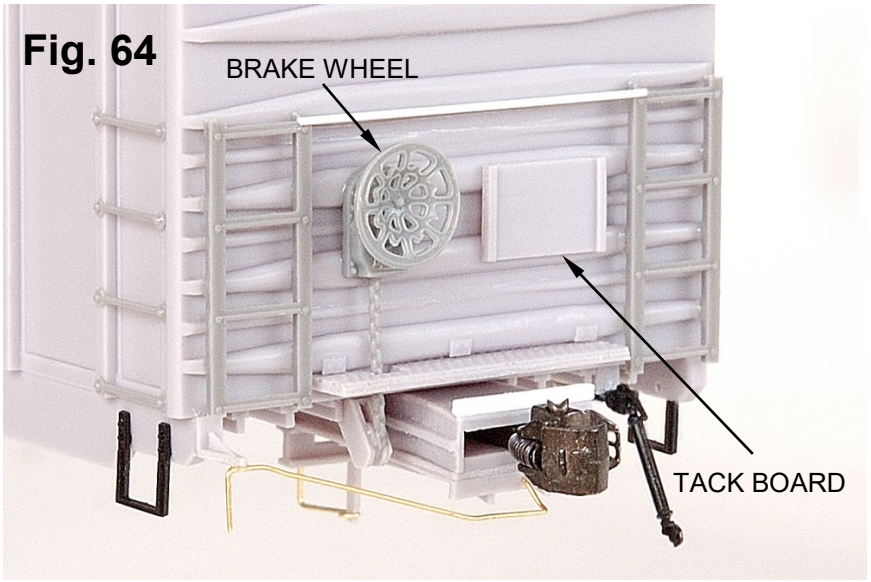
Uncoupler Levers



- Cement uncoupler lever support bracket (B9) onto the end of the side sill as shown in figure 62.
- Install the coupler and draft gear lid.
- Use 0.010” brass wire to form the uncoupler lever. (Fig. 63) Adjust the draft gear end to be clear of the bottom of the coupler. Do not cement in place at this time.
- Repeat for other end of car.



Brake Wheel & Tack Boards

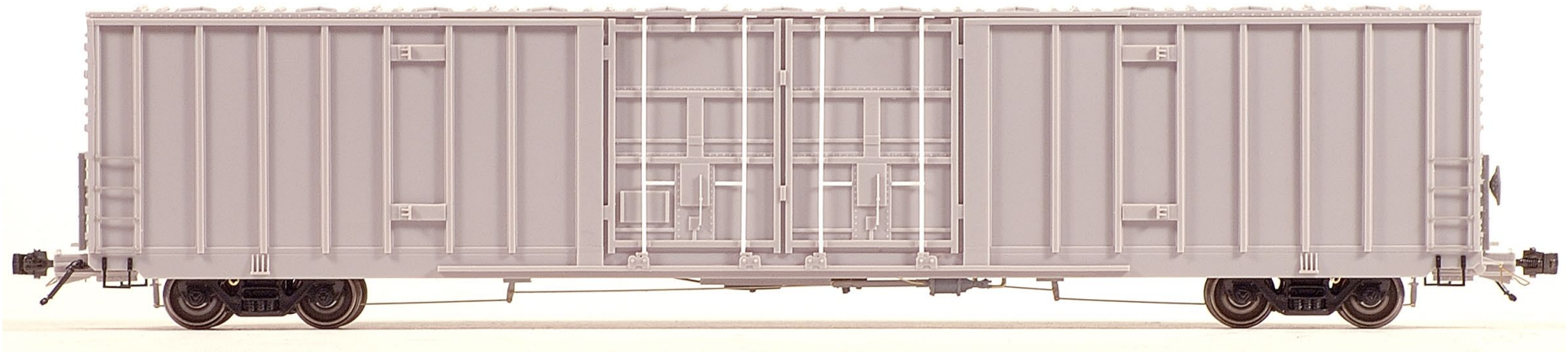


- ☐ Install the hand brake wheel (T13) in the hand brake housing. (Fig. 64)
- ☐ Install a tack board (B3) on each end of the car. (Fig. 64)

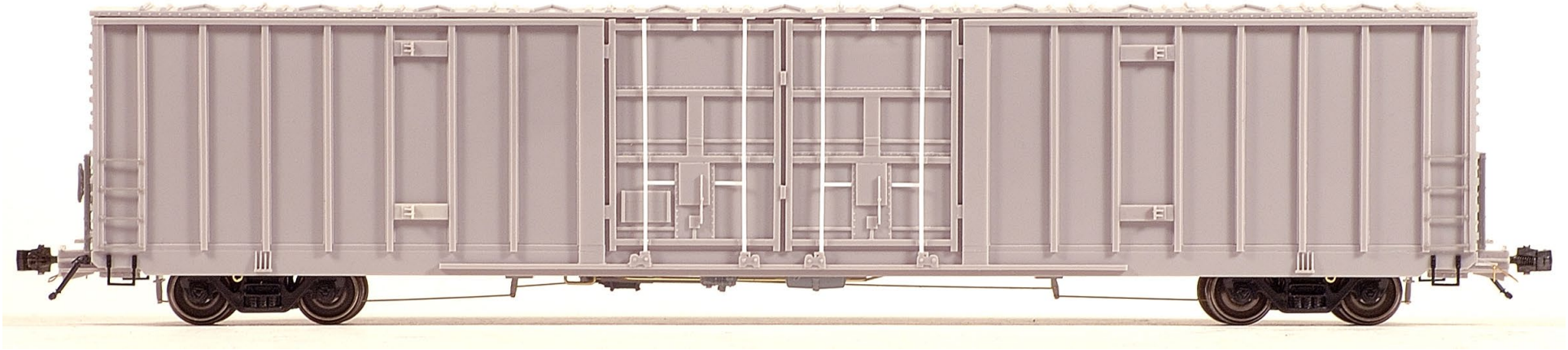
Painting & Final Assembly

- Weighting this car can be done by adding some lead shot to the interior compartments.
- Add approximately 2 oz. of weight (not included) to bring final weight of car to 5.25 oz.
- If you still have the trucks installed, remove them now.
- Carefully wash the model in warm soapy water and allow to dry fully.
- If you have installed the couplers, mask them to avoid paint from fouling them.
- Paint using your preferred model railroad paint.
- Once paint is dry, apply gloss coat and decal according to instructions provided on the last page of this document. Refer to the drawings and prototype photos for decal placement. After decals are dry, complete painting with a flat or semi-gloss finish.
- Cement the roof in place.
- If not already done, install the couplers and carefully cement the lids in place. It only requires a few small dots of CA along the lid's channel for a solid bond.
- Install the trucks.

Finished Car Photos



LEFT SIDE

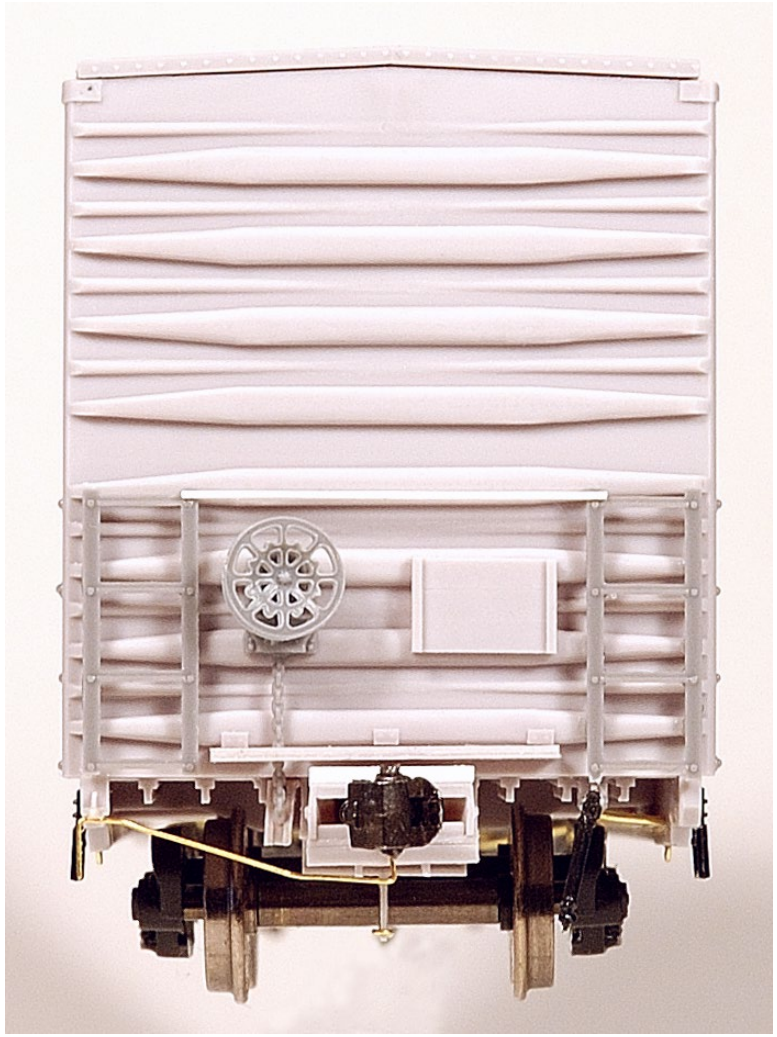


RIGHT SIDE

Finished Car Photos

B END

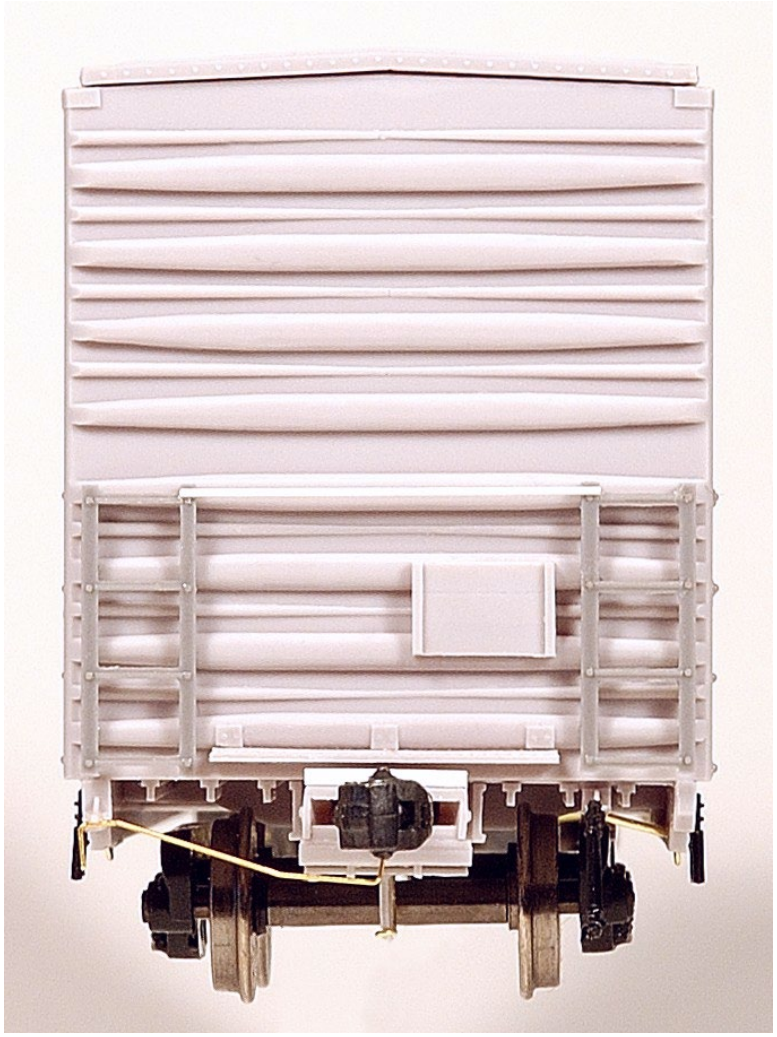
LEFT & RIGHT SIDES DEFINED FROM B END OF CAR



LEFT SIDE RIGHT SIDE

A END

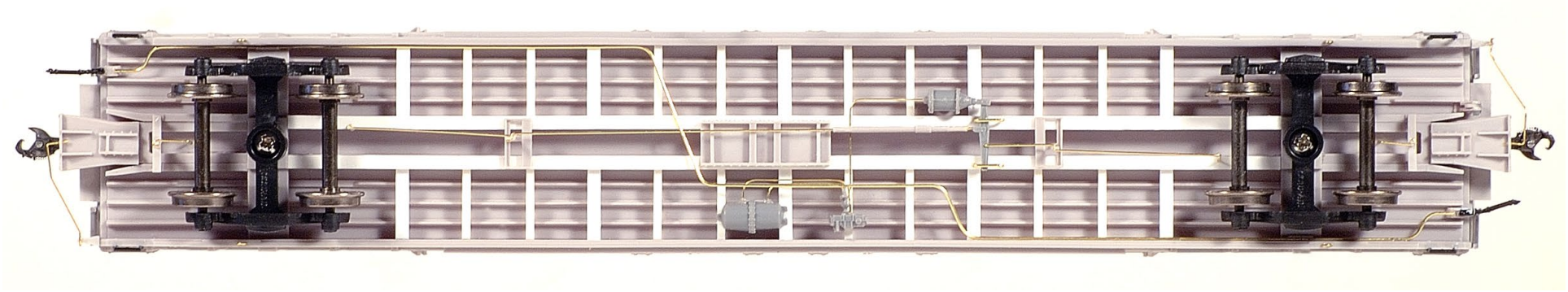
LEFT & RIGHT SIDES REVERSED FROM B END OF CAR



RIGHT SIDE LEFT SIDE

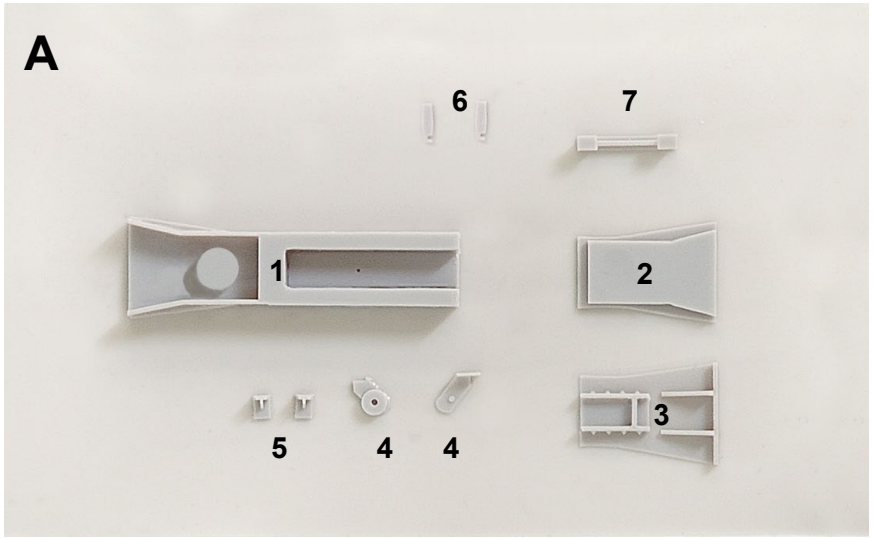
Finished Car Photos

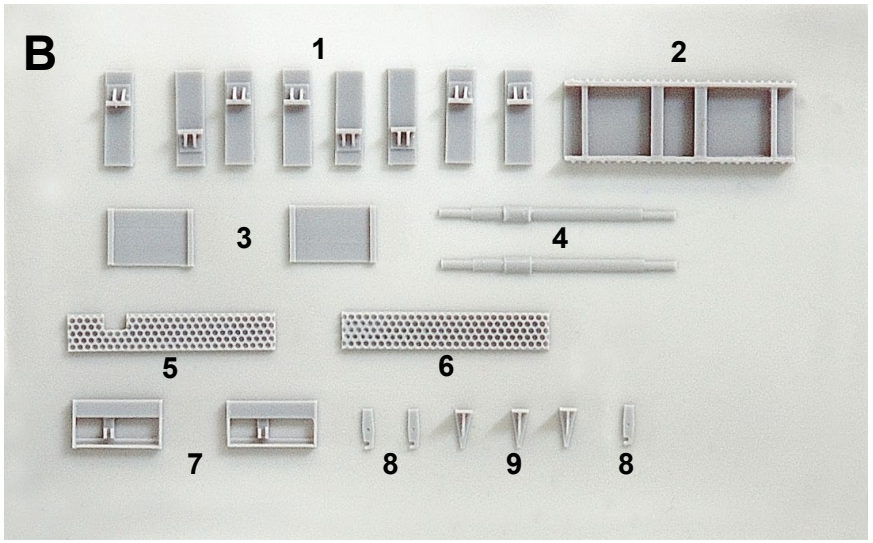
A END TOP B END



A END BOTTOM B END

Cast Parts Index





A1. Draft Gear
A2. Draft Gear Lid
A3. Draft Gear Reinforcement
A4. Hand Brake Pulley Halves
A5. Angle Cock Supports (2)
A6. Truck Brake Linkage Anchors (2)
A7. Draft Gear Support

Your kit should have two of these casting sheets.
Multiple parts listed above are for each sheet.

B1. Door Stops (8)
B2. Cushion Support Frame
B3. Tack Boards (2)
B4. Slack Adjuster Halves (2)
B5. B End Platform
B6. A End Platform
B7. Brake Lever Mounts (2)
B8. Brake Levers (3)
B9. Uncoupler Lever Supports (3)

Parts List

Part Description	Qty	Part #	Price
Body	1	900.101.1	$16.00/ea
Roof	1	900.101.2	$8.00/ea
Draft Gear & Lid (A Castings)	2	900.101.3	$3.00/ea
Detail Parts Set (B Castings)	1	900.101.4	$3.00/ea
Stirrup Steps	4	TTG-3038	$0.25/ea
Brake Hardware	1	TTG-3013	$2.50/set
Ladder Rungs	24	TTG-3062	$1.25/24
Ladders	4	TTG-3033	$0.30/ea
70 Ton Trucks	2	ACC-0152	$1.00/pair
33" Wheelset	4	33-1-1030	$0.75/ea
2-56 x 3/16" Screw	2	CD-256316	$0.10/ea
Air Hoses	2	KD-438	$0.50/pr

Part Description	Qty	Part #	Price
0.010" x 0.020" x 3.5"	1	EVG-100	$0.10/ea
0.020" x 0.030" x 1.4"	1	EVG-121	$0.10/ea
0.010" x 0.080" x 7"	3	EVG-104	$0.10/ea
0.015" Rod x 2"	1	MR-15	$0.10/ea
0.020" Rod x 7"	2	EVG-218	$0.20/ea
0.060" I Beam x 4.625"	2	EVG-261	$0.25/ea
0.010" Brass Wire x 4"	2	DA-2503	$0.60/ft
0.012" Brass Wire x 4"	2	DA-2504	$0.50/ft
0.019" Brass Wire x 8"	1	DA-2506	$0.50/ft
0.019" Brass Wire x 4"	1	DA-2506	$0.50/ft
Decals	1	905.101.X	$4.00/ea
CD-ROM Instructions	1	990.101	$4.00/ea

Missing and defective parts will be replaced free of charge within 90 days after purchase. Should you require a replacement part after this period due to breakage or other problem, please contact us with the parts needed, payment for the parts plus $5.75 for return postage.

If you are only ordering decals or instructions, return postage is $2.00

Be sure to visit the Rail Yard Models web site to see our latest offerings: www.railyardmodels.com

Rail Graphics®
CUSTOM DECALS

APPLICATION INSTRUCTIONS

1183 N. Lancaster Cricle, South Elgin, IL 60177-2709
847/742-5404 Fax: 847/742-5407 email: info@railgraphicsdecals.com

RAIL GRAPHICS *SUPERFLEX* thin decal film is made of modern materials which have a stable shelf life. Unused decals will last many years if stored in a cool, dry place.

MODEL SURFACE PREPARATION

For the best results, decals should be applied to a glossy surface. We have found Badger Model-Flex, Floquil Poly Scale, Scalecoat, and Scalecoat II, paints to be excellent, as they dry to a glossy finish. When our decals are applied to these paints, the clear film virtually disappears.

If you are using a *flat* paint such as Floquil, it is best to coat the painted model with a clear, gloss overcoat. Allow this overcoat to dry thoroughly (3-4 days or until the odor of solvents disappears). Always wait until the odor of paint has disappeared before applying your decals.

APPLICATION INSTRUCTIONS

To apply **RAIL GRAPHICS** decals, first cut out the decal as close as possible to the printed material. We suggest you use an x-acto knife. The less clear decal film you have around the printing, the better. Place the trimmed decal into a dish of warm water and allow to soak until the backing paper falls off. On larger decals you may have to nudge the decal to get the paper to fall off. Continue to soak the decal to dissolve any residue glue from the backing paper. *NOTE: The glue applied to the backing paper is used to facilitate the release of the decal film from the paper. The glue does NOT make the decal stick to the model.*

SOLVENT APPLICATION

In order for the decals to nestle down over the details of the model, recommend the use of Solvaset. We suggest two methods for applying the solvent to the model.

The **FLOATING METHOD** floats the decal onto the solvent. Determine where the decal is to be placed on the model and apply the solvent with a small brush. Using a tweezers, carefully remove the decal from the water. Run it along the edge of the dish to remove excess water. Place the decal on the model making sure that it is "floating" on the solvent. This floating method will eliminate most of the air bubbles under the decal. If you find that the decal begins to soften too soon for you to arrange in its final position, then we recommend the CAPILLARY METHOD.

The **CAPILLARY METHOD** allows the solvent to flow under the decal through capillary action. Remove the decal from the water as you would have using the floating method. Place it on the model without any solvent. With a tissue, carefully blot any excess water. Using a small brush, apply the decal solvent to the edges of the decal. The solvent solvent to all edges to ensure complete saturation of the decal.

Regardless of which method you use, repeated applications of solvent may be needed to help the decal contract around rivets and other details. If bubbles appear under the film, prick them with a straight pin and apply a small amount of solvent to the area. *NOTE: Do not allow large drops of solvent to sit on the decal film. If this occurs, use the tip of a tissue to absorb the excess. Drops of this type may cause the decal to distort and break down the inks.*

After decals are dry, take a water dampened cotton swab and remove any traces of residue decal solvent from the model. Finish off the model with a flat cover coat. We recommend Badger Modelflex Clear Flat. Other dull cover coats will also work. This will hide the shine of the decal film, plus give the model a realistic dull appearance. Weathering may be applied to represent the age and service of the model.

TOOLS TO APPLY DECALS		DECAL SOLVENTS	GLOSS COATS (USE ONE)	DULL COATS (USE ONE)
Scissors	Facial Tissues	Solvaset*	Floquil Crystal Cote	Badger Modelflex Clear Flat*
X-acto Knife	Toothpicks	Micro-sol	Floquil Hi-Gloss	Floquil Flat Finish
Tweezers	Straight Pins	Micro-set	Floquil Glaze	Testors Dullcoat
Cotton Swabs	Paint brush	Decal-set	Testors Glossscoat	

*Recommended