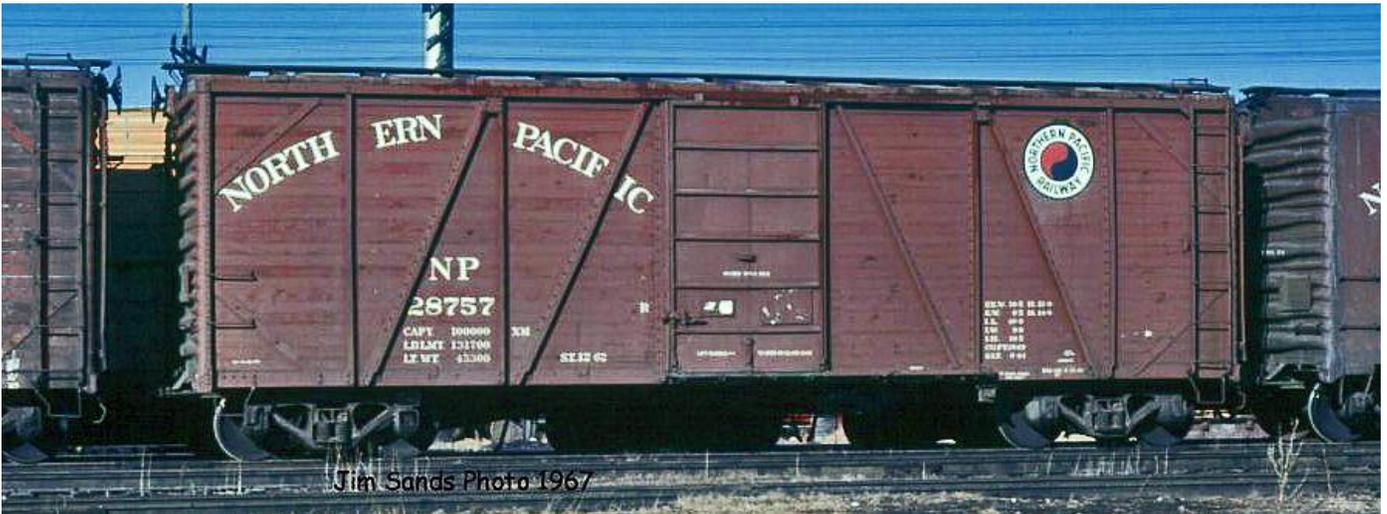


NP War Emergency Single-Sheathed Boxcar of 1944

Northern Pacific Historical Association
Resin Kit Data Sheet and Instructions - July 2015
www.nprha.org



NP 28757, ca. mid-1960s. Completed HO model and photo by Jeff Nichols.



Jim Sands Photo 1967

NP 28757 photographed by the late Jim Sands ca. 1967.



BUILT BY
 PRESSED STEEL CAR COMPANY, INC.
 PITTSBURGH, PA., U. S. A.



MTM 21-1-215-001 Minnesota Transportation Museum
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PROTOTYPE HISTORY AND INFORMATION

The Northern Pacific Railway in 1944 secured permission from federal authorities to purchase 1,000 steel-framed boxcars to replace aging wood-sheathed boxcars that were deteriorating rapidly after seeing years of heavy wartime service. So-called War Emergency freight car designs employed wood single-sheathed designs to reduce the use of steel. The basic dimensions of these boxcars closely followed the AAR standard for a 10-foot 6inch inside height car with a 40-foot 6-inch inside length, 6-foot wide door openings. The main steel components were standard for boxcars of this era: Murphy rectangular stamped panel non-overhanging roof, 5/5 dreadnaught ends (with a shortened top rib), fabricated steel underframe, 7-rung side and end ladders, and 7-panel Superior sliding doors. However the NP design was unique in having only three (rather than 4 or 5) side panels between the door posts and ends, and with frame truss diagonals canted from floor to roof going from car ends to the doors, or what is referred to in structural engineering as a Howe truss, rather than the more usual Pratt truss design.

The new cars were numbered into the 28000-28999 series, and delivered in three lots:

NP 28000-28374 were delivered from Pullman-Standard (Lot 5770) *ca.* June of 1944 with Ajax handbrakes and 50-ton Barber S-2 Stabilized trucks and 33-inch chilled-iron wheels.

NP 28375-28749 came from Pullman-Standard *ca.* July 1944, identical to the earlier delivery except for American Steel Foundries A-3 Ride Control trucks with 33-inch wrought-steel wheels.

NP 28750-28999 was built by Pressed Steel Car Co. and delivered in June 1944. They came with Barber S-2 Stabilized trucks with 33" wrought steel wheels, and were mechanically identical to the P-S built cars except for having Universal power handbrakes. They had a PSC builders stencil on delivery.

The NP's design proved highly successful, and with the NP's diligent attention to maintenance and a 1960s-era rebuild program, they survived in large numbers and in high-class service through the 1960s and well into the post-merger Burlington Northern years. In 1961 the NP listed 981 of the cars as still in service, with 937 remaining in July of 1969.

By the late 1950s and early 1960s the NP shops had implemented a rebuilding program for the War Emergency boxcars, which included general refurbishing, and on some cars, re-sheathing of the sides with new wood, and most often, replacement of the original 7-panel Superior doors with new 6-panel doors. Wood placard boards were moved from their original locations high on the 7-panel doors (typically centered on the second cross-rib below the top rail) to a lower location on the second panel from the bottom of the new doors, with tack boards shifted to a location offset left of the placard boards (Placard boards on the car ends were also usually lowered at this time from their original full-height to half-height positions.) The origin of the replacement doors is unknown, and their design is unusual for a 6-panel door; not a standard catalog item of the era in the 6-foot width, possibly they were built by NP shops using their own design, or a kit provided by an unknown manufacturer (the presence of a central vertical weld bead through the steel sheathing of these doors suggests fabrication from a standard scrap metal source of some kind). The NP applied these same replacement doors to some steel sheathed boxcars during the 1960s.

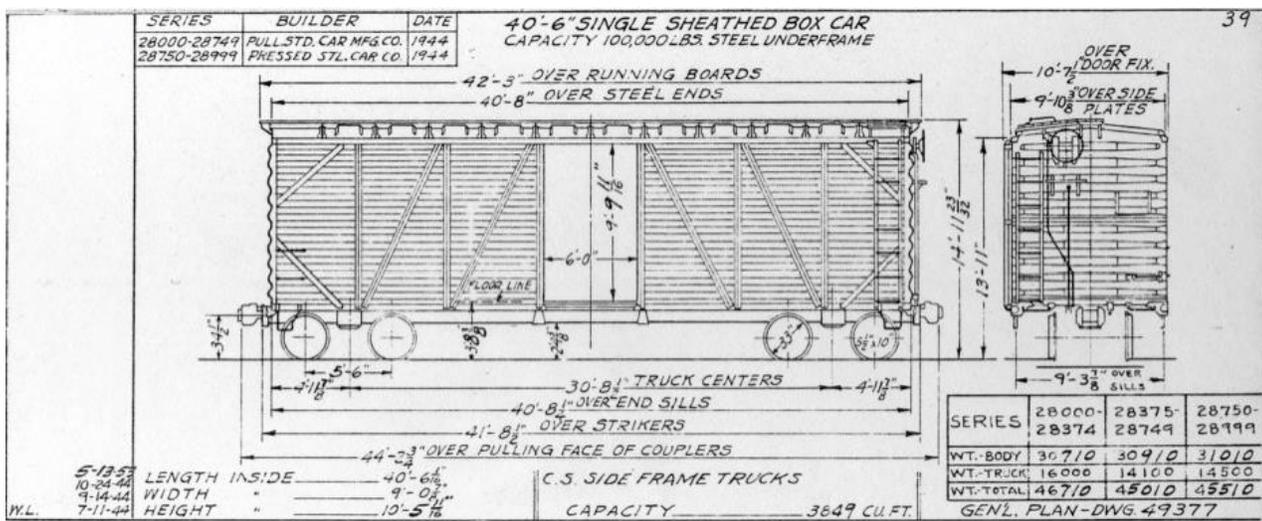
After mid-1966 when shopped, these cars, like other boxcars, had the A end ladders cut to half height, running boards removed from the roof, corner grabs installed on the endward roof panel at the B end, and mid-height, full-width grab iron arrays across each end. Handbrakes were not lowered on these cars,

as a rule, and remained at full height. Many but not all cars so rebuilt after 1966 were renumbered into the 21000-21958 series.



Jim Sands Photo 1969

Photo: NP 28151 photographed by the late Jim Sands ca. 1969. Note that while it has a later "RAILWAY" monad and replacement 6-panel doors, it retains running boards and full-height ladders, indicating it was likely rebuilt and repainted prior to mid-1966. This might have been in September 1964 pursuant to the marked reweigh date, or possibly several years earlier. When rebuilt the NP replaced the sheathing and running boards with wood as per the original design, a rarity for boxcars in the late 1950s and 1960. By that era most other roads rebuilt their single-sheathed cars with metal sheeting



NP Diagram folio for the 28000-28999 series War Emergency single-sheathed boxcars, as built in 1944. Notations in the table at lower right show the three delivery lots varied in the weight of trucks and body, therefore initial total unloaded light weight. In July of 1969 714 cars remained in this number series.

PAINT AND LETTERING HISTORY

Paint schemes and lettering changed over the decades with repainting and rebuilding. As originally delivered, it appears cars 28000-28749 from Pullman-Standard were delivered with NP metallic brown (a.k.a. "mineral red") sides and black roof, ends, and underframe. However it appears from early photos that 28750-28999 from PSC may have been all metallic brown, lacking black roof and ends. In any event, nearly all of these cars lost their black ends and roof when repainted by the mid to late 1950s. When delivered, lettering included white delineator bars over and under the reporting marks and sans-"RAILWAY" monads. By the late 1950s many or most cars had lost the reporting mark delineators and received updated monads with "RAILWAY" included in the letterboard. Additionally, PSC builders stencils disappeared on repaint. A detail of note is that many cars when freshly repainted in later years showed significant metallic brown overspray on their truck sideframes and the exposed sides of the air reservoir and triple valves. Road wear erased this paint fairly quickly.



Photo: NP 28417, a Pullman-Standard-built car restored at the Northwest Railway Museum. While the car has a late 6-panel replacement door, it has been repainted into a carefully researched rendition of the delivery paint or late 1940s repaint and lettering scheme (lacking a builder's badge stencil).

1. KIT COMPONENTS

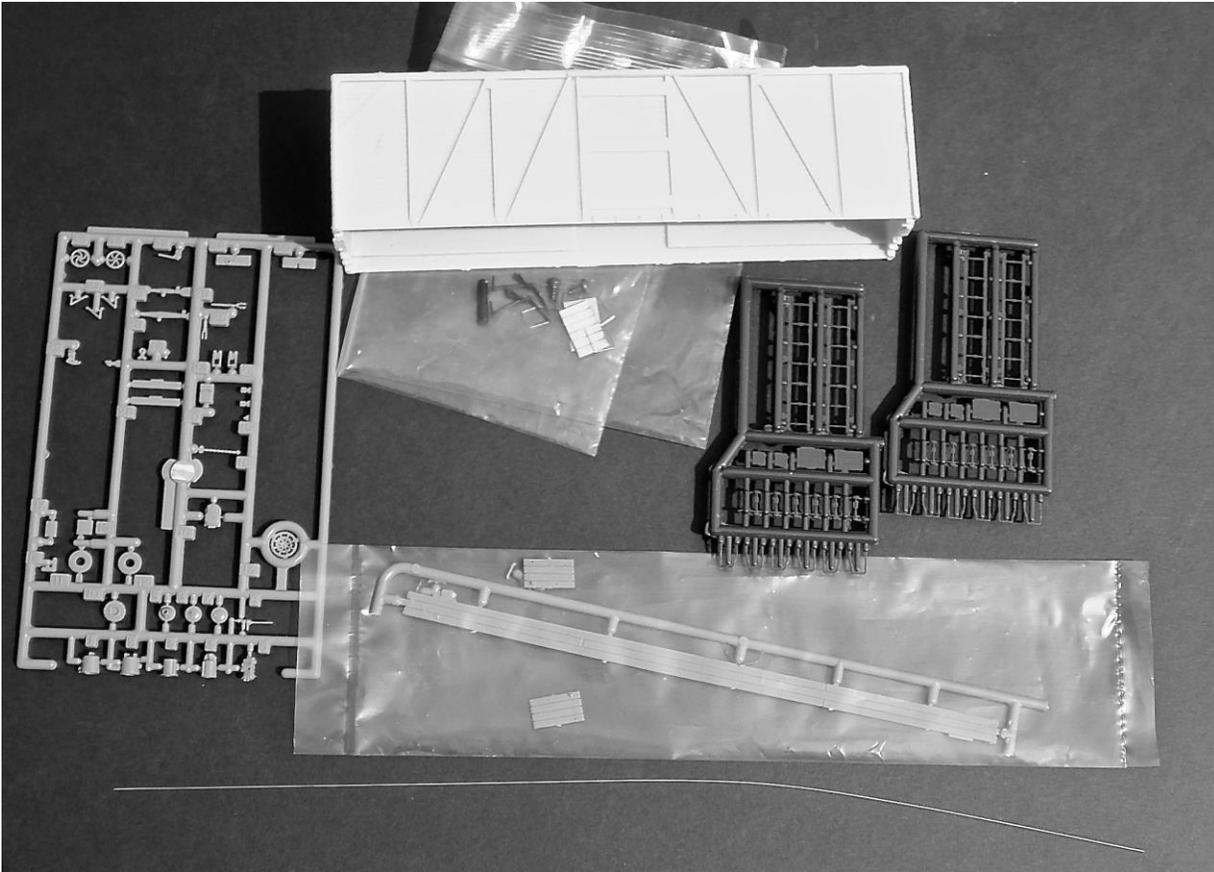


Photo: Major kit components. Clockwise from top: Resin cast unibody; immediately below it is a small parts bag with brake hose and glad hand castings, wire grab irons, and laser cut wooden running board laterals; to right, styrene sprues with side and end ladder castings; bottom, styrene cast running board and corner grab irons for the laterals on roof, as well as a length of 0.015" brass wire for brake rods and piping and additional grab iron material if needed; to left, styrene sprue with brake equipment details. Not shown are additional resin castings for floor, underbody detail, two sliding doors (two styles), trucks and wheels, and 8" of 0.010" brass wire.

The kit contains the following parts for assembly:

| | |
|---|--|
| Resin car body | Resin underbody and floor |
| Resin misc. parts sheet, resin doors | Tahoe Models 6213 Barber S2 with metal semi-scale wheels |
| Atlas (ex-Branchline) ladder sprues (2 with 2 ladders each) | Detail Assoc 6427 Grab Irons -- 19-1/2" Drop (12) |
| Tichy 3029 Wood Roof walk (styrene) | 2-56 x 3/16" Phillips Pan Head Screws, qty. 2 for trucks |
| Tichy 3013 AB Brakes and Brake Wheel | Air hoses (Hi-Tech Details) |

| | |
|---------------------------------------|--|
| Tichy 3075 Bracket Grabs | .015 and .010 brass wire |
| Tichy 3047 Angled Side Mount Stirrups | Northeastern – Laser cut laterals for running boards |

2. BODY and FLOOR PREPARATION

This kit features a new unibody main casting, with roof, sides, and ends in one integral unit. This spares the modeler from the most critical part of resin kit assembly - achieving a square carbody. Examine the lower edges of the ends and sides of the carbody casting and remove any apparent casting flash, as well as any casting nubs that might appear on the pads where the ends will rest on the coupler draft gear. The floor and underframe is provided as a separate flat casting. Eyeball to ensure the floor is reasonably true and flat, then clean any flashing off edges and test fit to the body. You might need to laminate ca. 0.01" thick styrene strips to each end of the floor to compensate for casting shrinkage and get a seamless fit with the body shell. Slight bows or very slight twists in the floor casting can be self-corrected in assembly by simply clamping the floor securely against the ends and ridges inside the body shell while the glue securing it to the body shell is curing. In the event the floor appears to be seriously warped, you should be able to true it by laying it upside down on a flat backing sheet and warm it for about ten minutes in an oven preheated to about 300 degrees F. Do not overheat or you may damage the part beyond repair. Be sure to re-check the casting for fit and sand or shim accordingly after heating. A simple alternative to the kit's resin floor casting is to use an Accurail cast styrene 40-foot AAR-type boxcar underframe, which trimmed and shimmed produces a similar but somewhat less exact representation of the underbody.

After removing any casting flash, test fitting and shimming of the body and floor if needed, attach weights of your choice to the inside surface of the floor to bring the model up to NMRA recommended practice weight of 4 ounces. This will require roughly 2 oz. of added weight. A reliable weighting method is to affix cast steel hex nuts glued to the floor with silicone aquarium sealer or similar gap-filling, thermally flexible adhesive. Self-adhesive cast lead rectangular weights are also effective. Be sure added weights do not obstruct the area over the bolsters and at the car ends where you will be drilling for mounting of truck and coupler boxes.

Once weights are affixed and any adhesive used is cured and no longer giving off solvent fumes (fumes trapped inside the shell could damage the castings), test fit again and then glue the floor into the unibody shell. Snug the floor casting up against the prominent inner shelf cast into the inside walls and the floor will self-adjust to the correct height. Secure this joint with a rim of thick ACC applied inside the carbody before you join the floor to it. Set aside to dry.

3. DOORS

After the floor is secured is a good time to glue the doors to the car sides. Cut resin cast doors from the casting sheet, sand to remove flashing and smooth edges, and apply with ACC. Latches go to left side of doors. The top edge of door should be snug against the upper door guide rail that is include on the unibody casting. Lower door guide rails will be added in a later step.



Photo: High placard board and data stencil locations on 7-panel doors, as delivered.

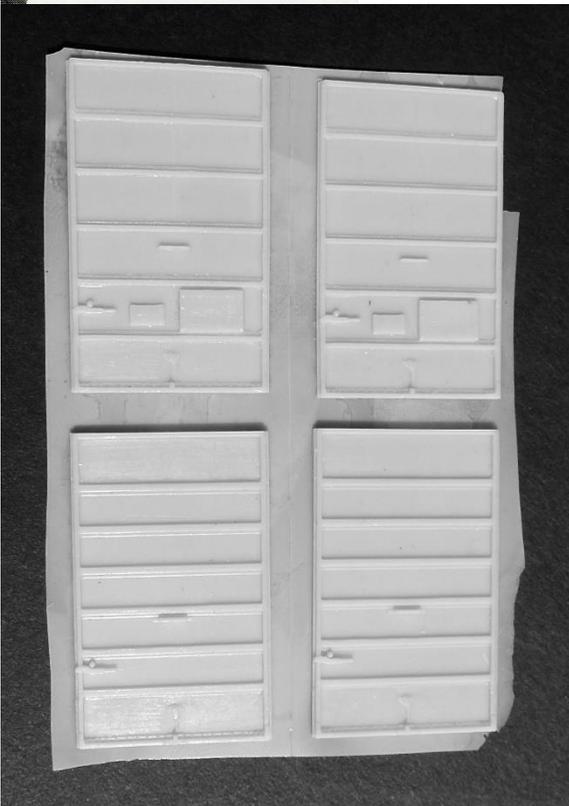


Photo: Two door styles are provided with the kit. The lower pair are 7-panel Superior-style doors that were provided as original equipment on the cars. The upper pair represent the presumably NP-built 6-panel doors that were applied to most cars during rebuilding in the 1960s.

Placard and tack boards for the 7-panel doors are provided as separate resin castings on the sheet with underbody details (see photo below). See prototype photos for positioning; boards were mounted in the traditional high position when cars were delivered, but a few cars that retained their original 7-panel doors had boards moved to lower panels by the 1960s.

4. UNDERFRAME DETAILING

After the floor is joined to the shell, the next logical step is drilling the floor for the trucks, couplers, and stirrup steps, if you are upgrading the cast plastic stirrups in the kit with A-line metal stirrups. Measure twice to ensure holes you drill for coupler and truck mounting and located precisely on the centerline of the car. Kadee #78 scale head couplers in narrow draft gear are a perfect fit to the cast floor with the kit.

Other coupler arrangements may require trimming the center sills or shimming. Size your drills to the particular screw sizes appropriate for the couplers and trucks you select, and tap them if needed (not necessary if you use self-tapping screws, such as those available from Walthers). Drill and test-fit the trucks, but you may want to remove them for underbody detailing. To install A-Line Type C metal stirrups (recommended), mark mounting locations at each corner of the underbody, drill with a #76 bit, and secure the stirrups with gel ACC or Cyanopoxy, set to depth so the proper height of step is exposed below the side sills (approximately 10-12 scale inches). After the glue has cured, you may wish to use light finger pressure bend the stirrups slightly outboard so the bottom step lines up with the outside surface of the carbody.

In years past there has been some misinformation online about the underframe design of the NP War Emergency boxcars, but this has been resolved by further research and inspection of intact or accurately restored examples. Unlike many other single-sheathed boxcars, the crossmembers of the underframe of the NP cars do not line up with the vertical posts of the carsides. One heavy frame cross bearer is located at each of the vertical zee posts at either side of each door opening, two additional frame crossties are found between the door opening and the body bolsters at or near fairly standard spacing for a 40-foot boxcar of the time. Because these cars had six rather than the usual 8 side panels, the crossbeams at the door posts are the only ones that line up with a vertical frame member; for the rest, a single bolt attaches the crossties to the side sill; the location of these single boltheads on the side sills of the body casting can serve to indicate the frame crosstie locations. Riveted crossbearer facing strips are provided on a cast resin detail sheet. (bottom center in the photo below). The model needs two, but one extra is provided for your convenience. Trim and sand the flash from these, the bend to shape with tweezers so they will lie flat over the center sills and cant upward toward the side sills, while lying flush over the crossbearer castings. Orient these so their straight edges face the respective ends of the car and their gently angled edges face each other and the center of the car. Secure with ACC.

Next test fit, sand to size as necessary, and glue into place the four rectangular cast resin body bolster face detail castings (top center of photo above). The narrow ends of the tear-drop-shaped openings in the bolster faces should orient toward the center sills, with the wider ends toward the side sills. Now trim eight crossties from the underbody detail casting sheet. They are angular, sort of rib-bone-shaped parts with flanges cast into the upraised surface. Clean up with fine sandpaper, then measure between the distance crossbeams at the door posts and the body bolsters, divide that distance by three to mark two crosstie locations equidistant between each door post crossbeam and body bolster. Alternatively, simply locate the cast-in single boltheads on the side sills and use these as the reference point for the crosstie positions. Test fit each crosstie casting, adjust the length by filing or sanding, and attach the crossties with ACC. The larger ends of each crosstie attach flush against the center sills, the narrower ends flush to the side sills, and the concave edge rests on the floor stringers. (See photo). A minor detail not shown on the photos is that on most boxcars, the gap between the two steel center sills is spanned by steel strap at each crosstie location. If desired you can add small 0.015" thick styrene strip, width to match the exposed edges of the crosstie castings, to the tops of the center sills at each crosstie location to represent this.

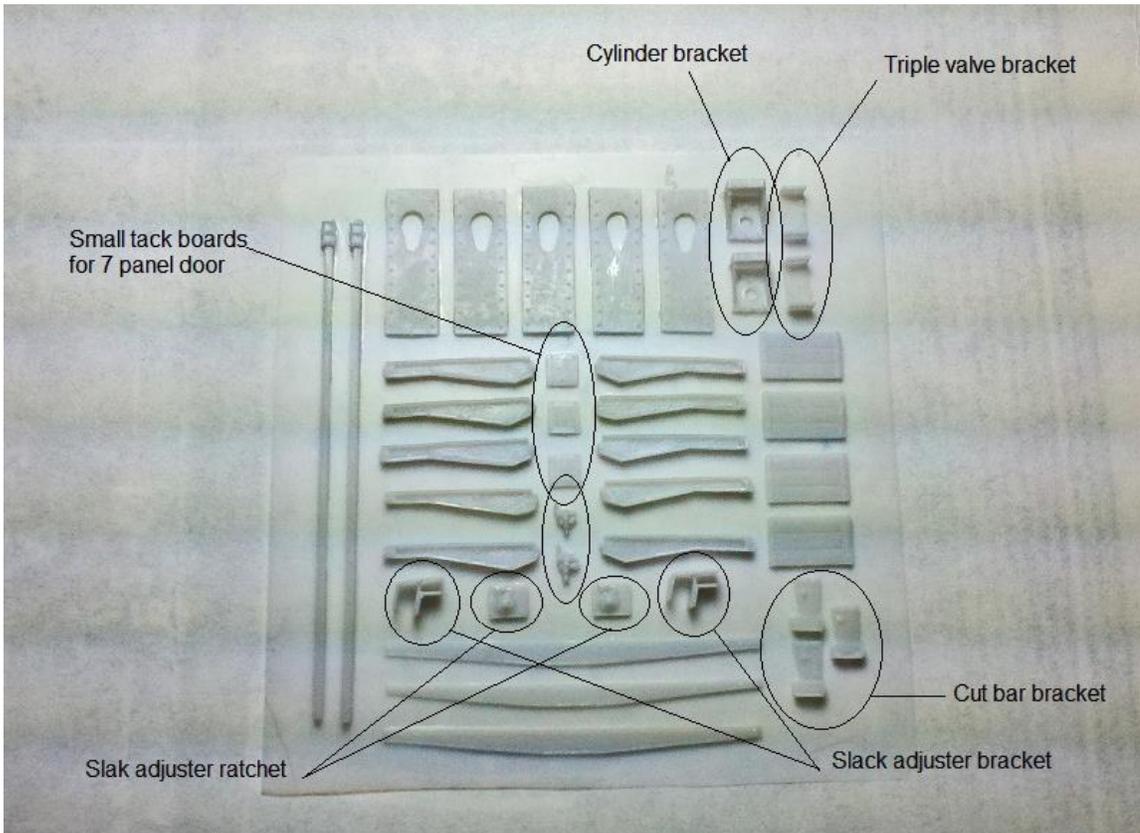


Photo: Underbody detail resin casting sheet, showing parts for crossbearers, crossties, body bolsters, brackets for mounting brake components, slack adjuster and brackets for coupler lift levers (cut bars) at the ends. Note this sheet also includes alternate tack and placard boards sized to fit the original 7-panel Superior type doors (boards are cast onto the later 6-panel replacement doors). To left the long, thin castings are suitable for lower guide rails for the sliding doors, but they are very fragile and difficult to sand to a smooth edge, so modelers may elect to substitute styrene strips of similar size.

Arrangement of the underfloor brake equipment and piping as inferred from prototype photos and existing examples of is illustrated in the model photos. The underbody detail sheet includes cast resin brackets intended for mounting the Tichy ABC brake cylinder and air reservoir supplied in the gray styrene injection molded parts sprue. The triple valve is mounted along just inside the sill on the left side of the car, about 18 inches left of the left doorpost. Observe which side of the casting has four small circles cast into it; these are attachment points for the piping, so this face points inward and the opposite face points to the outside of the car. The air reservoir is mounted in the usual longitudinal position directly opposite the triple valve, or roughly centered over the two longitudinal floor stringers on a centerline about 18 inches inboard from carsides. If you wish to attach full air line detail to these components, drill the attachment points visible (those little circles) on the inside of the triple valve casting (designated part #5 on the sprue), and also blunt end of the brake cylinder (part #8) with a #79 bit *before you remove them from the sprue*. The brake cylinder is then assembled by gluing part #8 and #9 to each end of part#3. The air reservoir is made of joining parts #1 and 2, noting correct orientation by mating the inside hollows of the two halves. You'll have to trim the protruding air line nipples from the assembled brake cylinder and drill these locations (#79 bit) to insert brass wire air lines if you are doing full air line detail.

From a side view of the right side of the car then, the air reservoir appears to be mounted just a few inches right of the right door post. The brake cylinder is mounted under the floor few inches to the left off the left center sill, roughly on center between the left center sill and the inboard stringer; the joint

where the sides of the cylinder transition to the forward cone of the cylinder appears approximately centered under the middle of the door openings. Refer to the photo below for a guide to location of the brake components, piping and rods. Brake piping, rods and lever arrangements were fairly standard for a 40-foot AAR-plan boxcar. For those who choose to model full underframe detail, the kit includes 10 inches of 0.015" and 8 inches of 0.010" brass wire as material for modeling brake rods and air piping, respectively. The larger diameter is appropriate for brake rods and the train air line, if you elect to add a train line to the underside of the floor. The smaller diameter wire is appropriate for the piping connecting the triple valve, brake cylinder, and air reservoir. Noted modeler Mont Switzer prefers to substitute 0.015" styrene rod for brass, and some modelers prefer phosphor bronze wire, especially for the longer brake rods and shafts because that alloy is springy and less prone to being inadvertently bent out of shape. Chain is not provided in the kit, but some modelers elect to provide a few links of fine chain to connect the brake cylinder to the appropriate brake rod (see photos).

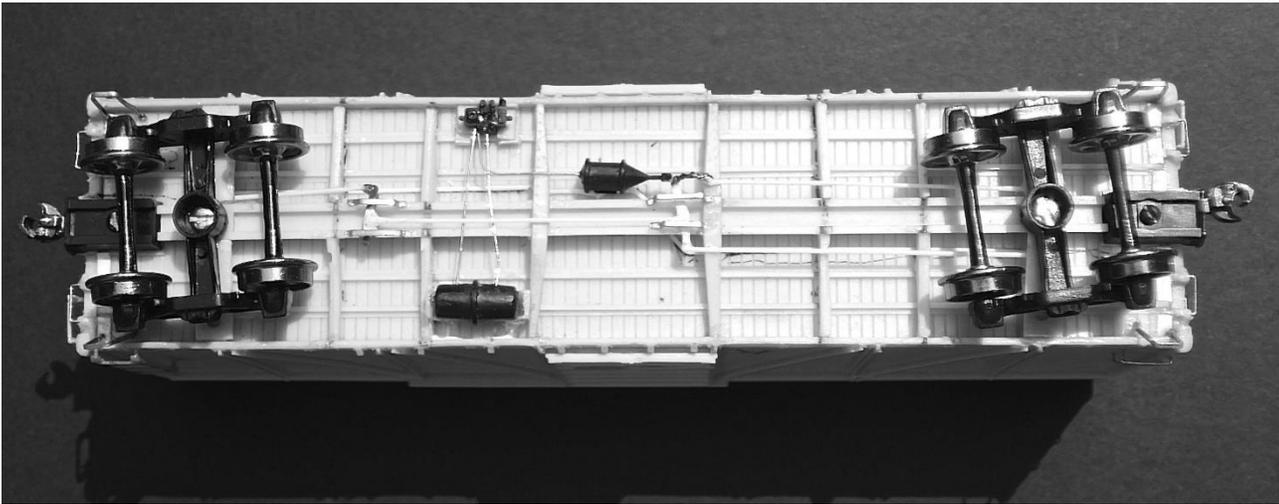


Photo: Underbody detail view of brake arrangement on a War Emergency boxcar model, modeled as rebuilt with slack adjuster removed. Brackets for brake levers were constructed of brass strip, main brake rods are 0.015" styrene, and the air lines are 0.010" wire.



Photo: Slack adjuster location on the right side sill of a NP War Emergency boxcar.

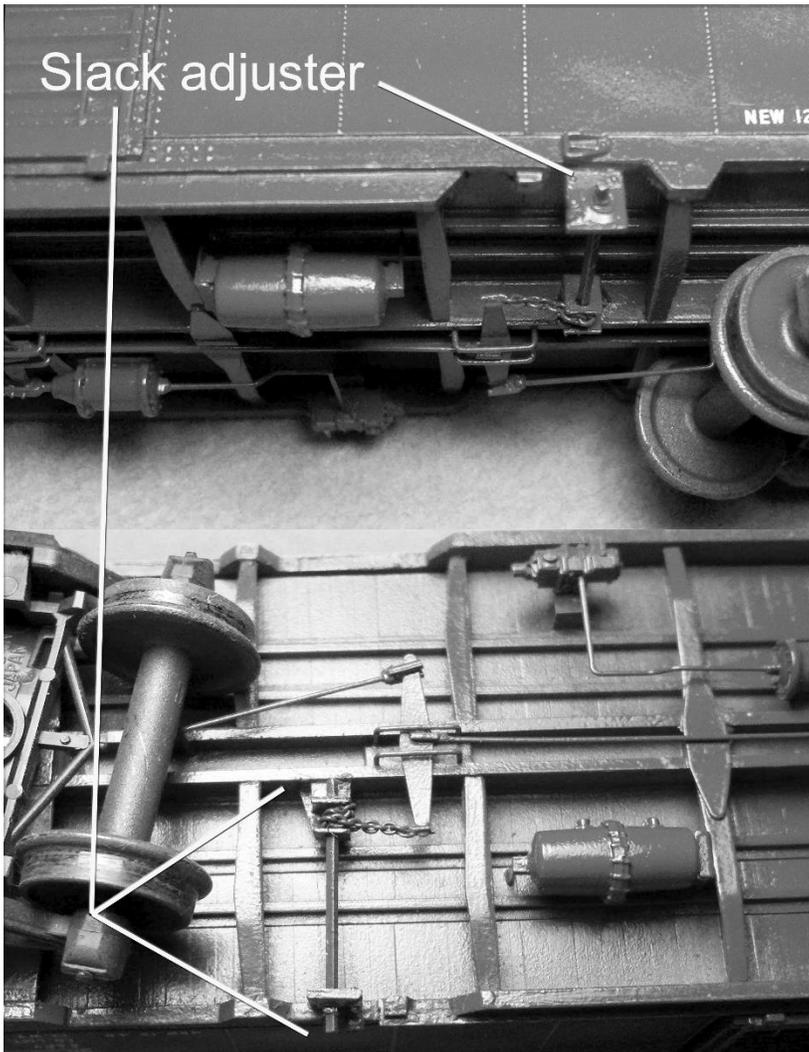


Photo. Slack adjuster device similar to those on the NP War Emergency boxcars. The inner bracket and outer faceplate are provided as resin castings on the underbody detail sheet; the modeler will have to provide the square rod and chain to link to the brake lever, if desired. HO scale model and photos by Aaron Gjermundson.

As built, many or possibly all of these cars had a prominent slack adjuster device mounted on the right side sill to the right of the air reservoir under the second side panel, below where the dimensional data are stenciled. The underbody detail casting sheet (see photo above) includes parts that can be assembled to represent the slack adjuster bracket and ratchet. If desired, the square shaft can be represented by scale 2" x 2" styrene stock, with fine chain at the wrapped and linked to the brake lever. Note that it appears these slack adjusters were removed on some cars rebuilt in the 1960s, but remained on others.

5. TRUCKS

After completion of underbody work it's a good idea to attach the trucks to help protect underbody details and couplers from damage during further assembly. Cars numbered 28000-28374 and 28750-28999 were originally equipped with Barber Stabilized S-2 50-ton solid bearing trucks lacking a visible spring plank. The Tahoe Model Works Barber S-2 trucks included in this kit are very similar, but close inspection will show they include a spring planks (visible as the end of a U-shaped sheet nested under the spring sets in the spring boxes). An alternative spring plankless version of this truck is available from Atlas (formerly the Branchline Models trucks provided in their boxcar kits). NP 28375-28749 were delivered with A-3 Ride Control 50-ton solid bearing trucks. Excellent HO renditions of the 50-ton A-3 Ride Control truck are available from Kadee (#562-1562) and Kato (#562), and others have produced similar though less detailed versions. From photos it appears at least a few cars might have had trucks swapped during shopping, such that some variation developed in later years (particularly with more ASF A-3 Ride Control types in evidence).

The screws provided in the kit should be work fine for attaching the Tahoe trucks, and will be self-tapping if installed carefully, but be advised that trucks from the different manufacturers may require different screw sizes and screw head diameters for precise mounting. They may also vary in bolster height so that washers might need to be added to the pivot points to adjust carbody and coupler height accordingly. Select your trucks, then your screws, then select the bit size needed for the holes you must drill in the exact center of each body bolster pad for truck attachment.

6. SIDE DETAILS

The upper door guides and stops are part of the integral body casting, but you'll need to install the lower door guides (see photos). Trim from the detail casting sheet (photo above) and sand to smooth edges. Alternatively, you can replace the castings with a styrene strip of approximately the same size, mated with just the right hand end of the resin casting that includes stop detail.

Locations of four holes for installing grab irons (2 at the left end of each side) are visible on the body casting. Drill with a #79 bit and install pre-bent grabs included, affix with ACC. Side and end ladders on these cars were the same width. Cut side ladders from one of the sprues, trim to length to match photos and install. The simplest installation is to trim or sand the mounting nubs from the ladder mounts and simply affix the ladders in position to the car sides with ACC or cyanopoxy (the latter is particularly effective for mating non-like materials, in this case resin with styrene). Pay particular attention to the ladder rung spacing in the photos and make sure you mount the ladders with the correct end up, and with the correct spacing from the adjacent the corner post caps. If you are modeling a post-1966 car with cut-down ladders, the ladder on the right side of the car (that is, the ladder located toward the A end of the car, the end without the handbrake) should be trimmed to just a scale inch or two above the middle mounting posts; the fourth rung from the bottom should be just a few inches from the top ends of the shortened ladder rails. The ladder on the left side of the car, toward the B end, remains at full height to access the handbrake.

The final side detail is the stirrup steps. If you elect to use the cast styrene stirrups rather than providing your own metal ones, they can be ACCed into position on the side sills under the ladders. See detail photos for location. (NOTE: If you choose to use the styrene stirrups, we recommend you defer this step and install them as your final assembly step, after all side, end, and roof details are completed).

7. END DETAILS

Locate the positions of the drop grab irons on the A and B end sills, one each side of the coupler draft gear. Drill with a #79 bit and install wire grabs. Glue placard boards in high or low positions depending on era of your model; see photos for locations. Trim one bracket from a styrene plastic grab and attach on the second rib up from the end sill near the right side of the end (see photo). Affix ladders along left edge of each end— trim styles and align the rungs so they are even with the side ladder rungs, trim mounting nubs for snug fit to the end ribs, affix with thick ACC or cyanopoxy.

For brake appliances on the B end, locate the power handbrake housing on the brake detail sprue, and affix in proper location to the upper end ribs with ACC. After it cures, drill the brakewheel shaft hole to fit your choice of brake wheel (various Ajax and Universal brake wheels are available, and each brand has a different diameter axle, so you'll have to estimate and test fit). Cut a length of 0.015" brass wire for the handbrake shaft and affix in to place with thick ACC. Locate the ratchet casting on the brake detail sprue

and attach with thick ACC to the lower end of the brake shaft and the end sill in location beside the coupler box. Cut the pair of zee-shaped brake step bracket castings from the sprue, locate position and drill the end ribs for mounting, and affix with ACC in position under the handbrake housing (or for a stronger assembly, replace with brass strips bent to the same shape and ACCed). Affix brake step to the brackets. Locate the brake retainer casting on the brake detail sprue, drill the end to install in proper location. Apply retainer pipe of 0.010" brass wire, parallel to and between the brake shaft and the end ladder., angled under the end sill. Apply standard coupler lift levers and air hoses to end sills if desired.

If you want to model a car with post-1966 modification of safety appliances, you'll need to locate and drill handgrab holes (#79 bit) and bend your own grabs from 0.010" wire. See photo for arrangement and location at the A end. The B end is similar but the middle grab is shorter, ending near the car's midline to clear the brake shaft.

8. ROOF DETAILS

Trim and clean flash and gate nubs from the cast styrene running board. Affix to supports with ACC, being careful to center lengthwise and laterally. Attach the laser cut lateral walkways in position with thick or gel ACC. Drill attachment holes for corner grabs (#79 bit) and affix with ACC. Finally, if desired, fashion running board end brackets to running board ends from styrene scale 1" x 3" strip or brass strapping, attached with ACC.

If modeling a post-1966 modified car, omit running boards and attach a single corner grab on the roof panel where the ladders reach the roof at the B end.



Photo: Roof detail. Jeff Nichols model and photo.



Photo: A end, corner post, side ladder, running board, and draft gear details of a preserved NP War Emergency boxcar in Bismarck, ND. This car retained running boards and full-height ladders to the end of its service life. Coupler lift levers and brake air hoses are missing. A. Gjermundson photo.

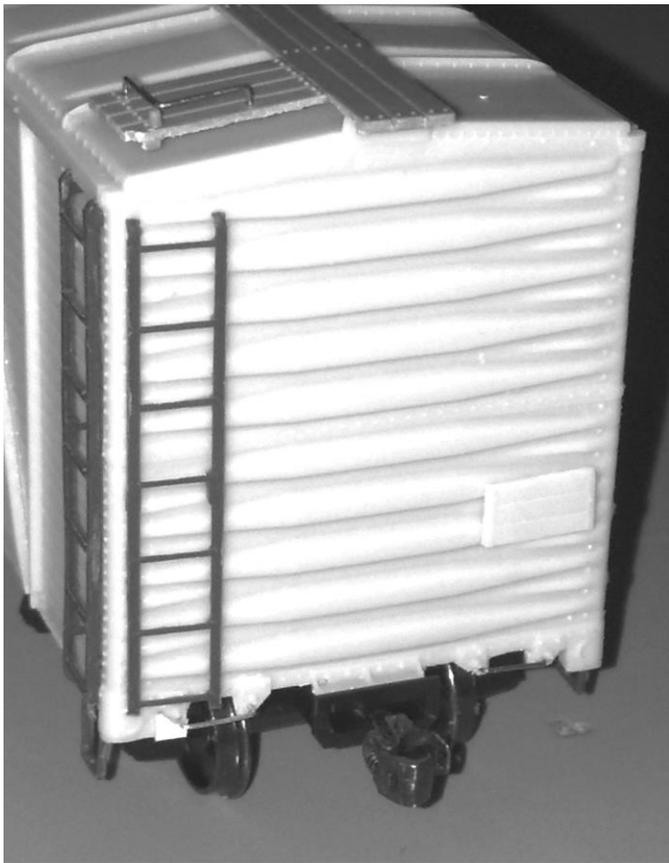


Photo: A-end details, representing a car with lowered placard boards but original safety equipment. A bracket grab iron under the placard board, coupler lift levers and air hoses have yet to be installed. Jeff Nichols model and photo.



Photo: A-end details for a car rebuilt with post-1966 safety appliance modifications.

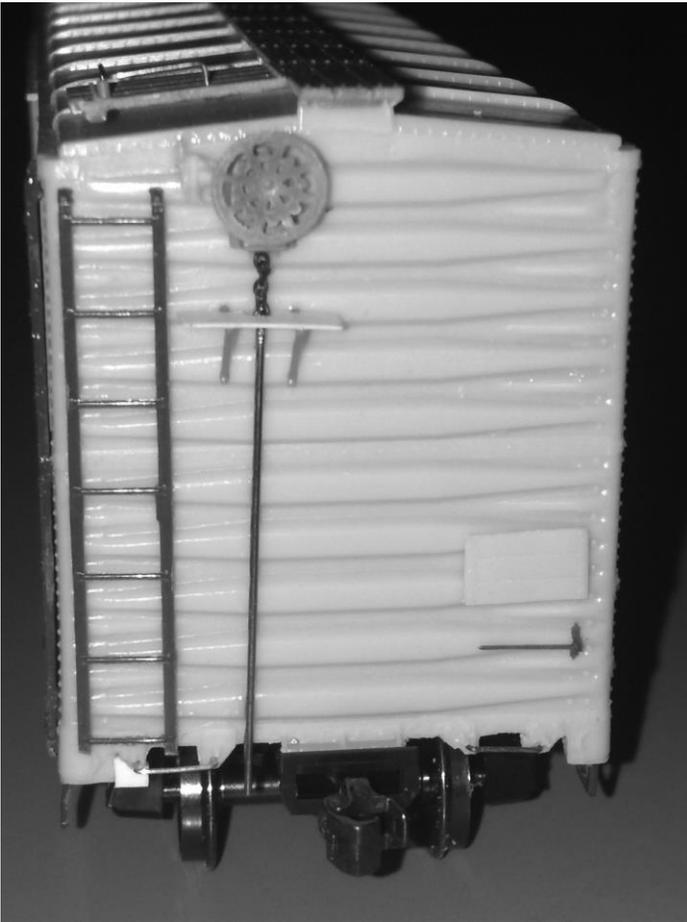


Photo: B-end details, with Ajax handbrake, representing a car with as-built safety equipment (but lowered placard boards). Note while the retainer device has been mounted to the left of the brake wheel, the vertical line running from this valve to the underbody roughly parallel with and to the left of the handbrake shaft has not been mounted. Coupler lift levers and air brake hoses and gladhands have also not yet been mounted under the end sill. Jeff Nichols model and photo.

9. PAINTING AND LETTERING

See prototype information in first part of this instruction sheet for color and lettering information. Acrylic or solvent-based paints are compatible with this model. No matter what paints you select, you will likely have to mix your own rendition of NP metallic brown (a.k.a. “mineral red”). When freshly painted or repainted this paint was a strongly copper-orange hue of reddish brown (see NPRHA Color Drift Card set for matching), but within a year or two it tended to darken to a more typical boxcar red color. The paint continued to darken with further years of weathering, approaching a more mahogany hue. Stenciled lettering was nearly always crisp and legible on these cars. Any sign of fading tended to result in a retouch or complete repaint in NP shops. See prototype repaint information in that earlier section of the instructions.

By 1967 some of these cars received three-color ACI labels at various locations, and by mid-1969 virtually all had them. After the BN merger, most of these cars retained their last NP paint and numbers, and very few were ever repainted into BN colors. Some remained in revenue service long enough after 1970 that they required re-stenciling of the reporting marks and other data. A complete set of lettering developed by the NPRHA Modeling Committee from research of prototype photos of the War Emergency boxcars, including three-color monads and other lettering for delivery and repaint schemes, with additional graffiti and chalk marks, is available as a separate SKU item from the NPRHA Company Store. That decal set will letter over 10 boxcars.

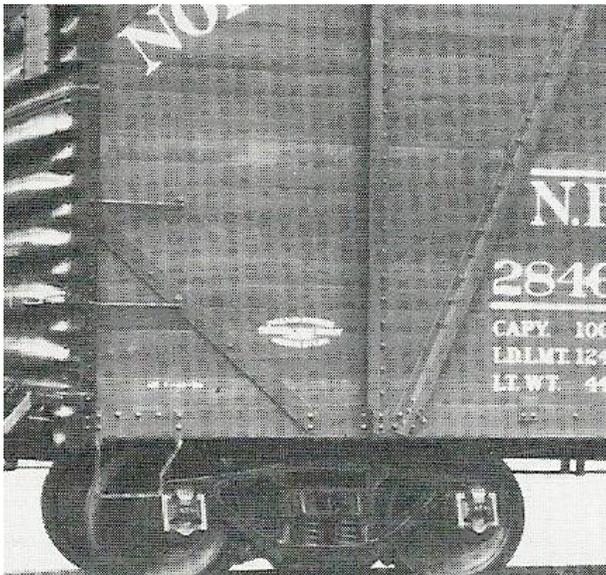


Photo: Location of Pullman-Standard builder's badge as delivered in 1944. Through weathering or repainting these stencils were no longer apparent by about 1950.

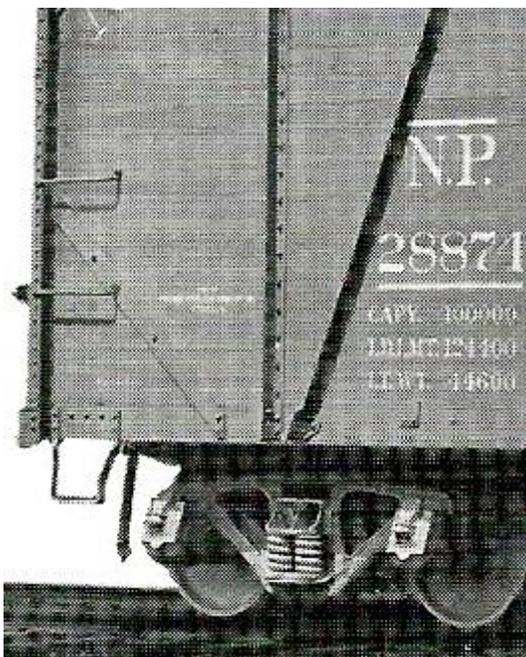


Photo: Location of Precision Steel Car builder's badge as delivered in 1944.

Acknowledgements: *Richard Wilkens and Aaron Gjermundson provided essential information on the prototype cars. Aaron Gjermundson did the design and casting, following the initial flat kit patterns originally developed for Sunshine Models by Frank Hodina. We owe a big thank you to Tichy Products, Tahoe Model Works, Atlas, and Hi-Tech Details for providing kit components to the NPRHA at discount or gratis.*