ZENITH MODEL WORKS

SAINT PAUL, MINNEAPOLIS AND MANITOBA/GREAT NORTHERN 28' AND 30' FLAT CARS

HO-3000 SERIES

Revision 2, effective 3-20-2022.

Thank you for choosing Zenith Model Works! We recommend having at least some experience in building model railroad kits before you begin. Refer to sheet 2 for a history of the car, its specifications and lettering schemes. ‘

IMPORTANT INFORMATION:

Our models are 3D printed in resin. This material is similar to styrene plastic, but it is slightly harder and more brittle. The resin we use responds to ACC, but it will not work with most solvent cements. Unlike traditional resin kits, most of the major components are printed together and very little major assembly is required. Unfortunately, one drawback to resin 3D printing is that sprues used to support the model during the print job are inevitable. At the time of this writing, there is no way to print models without sprues; however, most sprues are easily removed with a fresh X-Acto blade. There may be subtle lumps or deformities in the material where sprues were located; these can be easily sanded or smoothed with contour putty. The resin cures under exposure to UV light. If the model is too soft to work with, place it in a sunny environment for a few days and it will harden. It will become more brittle over time, so use caution. When you receive your model, there may be areas where the resin hasn't fully dried. This residue can usually be wiped away without any significant changes to the quality of the model. 3D printing is a rapidly changing technology and we hope to update our kits as things improve. Thank you for your patience, and as always, thank you for choosing Zenith Model Works. Should anything be missing or broken, please email us at info@3dptrain.com and we will ship replacements at earliest convenience.

RECOMMENDED TOOLS:
Read the instructions thoroughly before beginning construction. Keep a pencil and/or highlighter handy to underscore key details or check off steps. The following tools are necessary to build this kit:

1. Metric ruler or similar measuring device
2. A hobby knife of your choice (a typical X-Acto® knife with a #11 blade works very well)
3. Needle-Nose Pliers
4. Wire Clipper
5. A pin vice
6. #76 and #78 drill bits
7. Flathead or Phillips screwdriver depending on your choice of bolster screw
8. Tweezers
9. ACC or a similar hobby adhesive of your choice

It will help to have some familiarity with standard freight car features. You can add as much or as little detail as you like; feel free to omit certain steps or make modifications where you feel necessary. Wheels and couplers are optional,

Preparation:

1. If your kit feels soft, allow it to cure in a sunny window for around 24 hours before beginning. This may make assembly easier, and the model will take paint better if properly cured.

2. Start by cleaning any uncured resin off the model. A small amount of rubbing alcohol and a paper towel usually works very well. To remove the sprue marks on the deck, sand them off parallel to the grooves in the planking. This will create a realistic wood grain simulation.

3. Drill out the bolsters to accept a screw of your choice. This location is marked by a small hole included in the print. We recommend a self-tapping 2-56 machine screw.

Weights and Queen Beams:

4. If you are using the optional tungsten rods for car weights, install these at this time. Cut them if necessary, lay them down the center of the car and secure them in place. An adhesive stronger than ACC, like E6000, might be best suited for this purpose.

5. Secure the queen beams in place; see photos. The locations on the underbody are marked. File or sand the beams where necessary if they don’t fit and secure them with ACC.

Truss Rods:

6. These cars had two truss rods without turnbuckles. Cut a piece of the phosphor bronze wire included in the kit about 3 ½ inches long. Using ACC, tack one end to the underbody close to the bolster. Bend the wire to rest across the queen beams. Bend the other end downwards, cut the wire and secure the assembly with ACC. Alternatively you could drill in into the underbody with a #79 drill bit and thread the truss rods between these locations.

Brake Details:

7. Using a #79 drill bit, drill out the brake ratchet and insert a piece of wire to serve as the brake staff. The brake wheel rose about 3 ½ feet off the top of the platform, or 12.25 millimeters. Drill out the brake wheel and secure it to the top of a mast using a small amount of ACC.

Trucks:

8. The trucks on these cars had body-hung brake beams on the B end. The trucks on the A and were free-rolling. This was common practice in the 19th century. Both pairs of trucks included in this kit feature brake beams; you can remove them if you are modeling the cars as-delivered. The 30 foot cars that lasted into the teens probably had brakes on both trucks towards the end of their lives, but they may never have received air brakes.

9. Holes were included in the brake beams for hangers. The hangers are optional and can be restrictive to movement; thus they may not be suitable for operational models. If you wish to include hangers, drill #79 holes into the underbody just above the brake beams. Insert eyebolts (not included) into these holes and fashion a set of triangular hangers approximately 5 ¼ millimeters long. Using a #79 drill bit, clean out the holes in the brake shoes and carefully thread the hangers in, taking great care not to split the shoes.

Painting and Final Adjustments:

10. Prepare the completed model for painting by washing with detergent to remove any skin oils. Allow the car to fully dry before applying paint.

11. These cars were probably originally painted in Prince's Metallic, a dark reddish-brown that was very common in the 19th century. After the turn of the century, they were probably painted in Great Northern's Mineral Red, which was slightly more reddish-purple than the original Prince's Metallic. Paint the underbody first, then the sides. Brush-painting the platform brownish grey will create the appearance of aged wood. It may help to paint the trucks separately and install them afterwards.

12. Decals adhere best to a glossy surface. After painting the car, gloss coat if necessary, then apply our water slide decals with Micro-sol, Solvaset or a similar decal solution. Allow the setting solution to cure (at least 12 hours) before applying a flat finish.

13. Our trucks accept most standard HO scale wheelsets. It is advisable to install the wheels soon after you receive your kit, because the resin will continue to harden over time and may eventually break if strained too much. When fully assembled, test the coupler height. If the couplers are too high, file some material off the bolsters. If they are too low, you can use a small washer or a piece of drilled styrene to raise the height.

14. Congratulations! Your car is complete. For questions or comments, feel free to contact us at info@3dptrain.com. We appreciate your support.

ACKNOWLEDGEMENTS:

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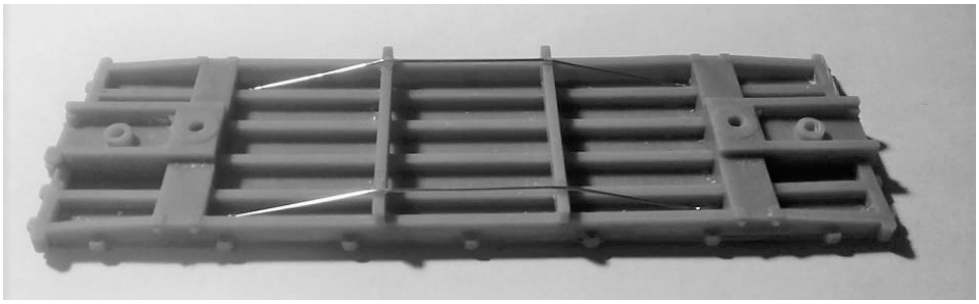
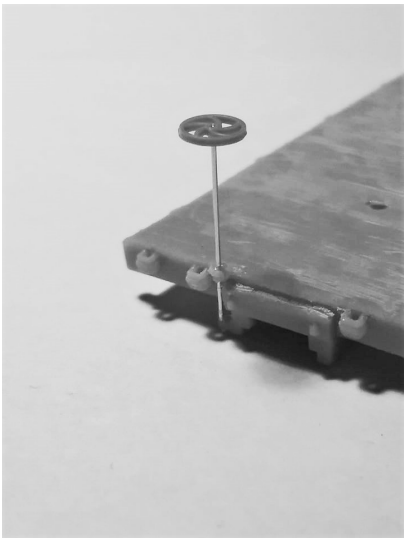
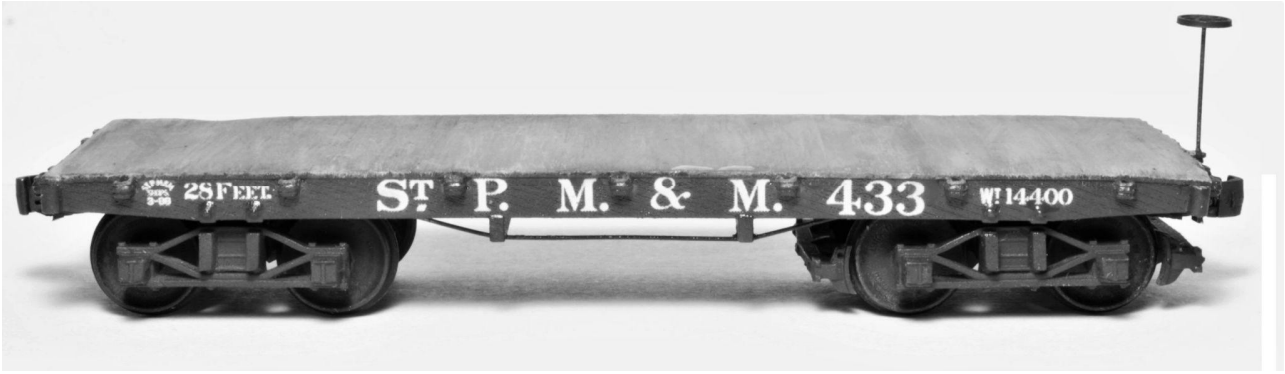
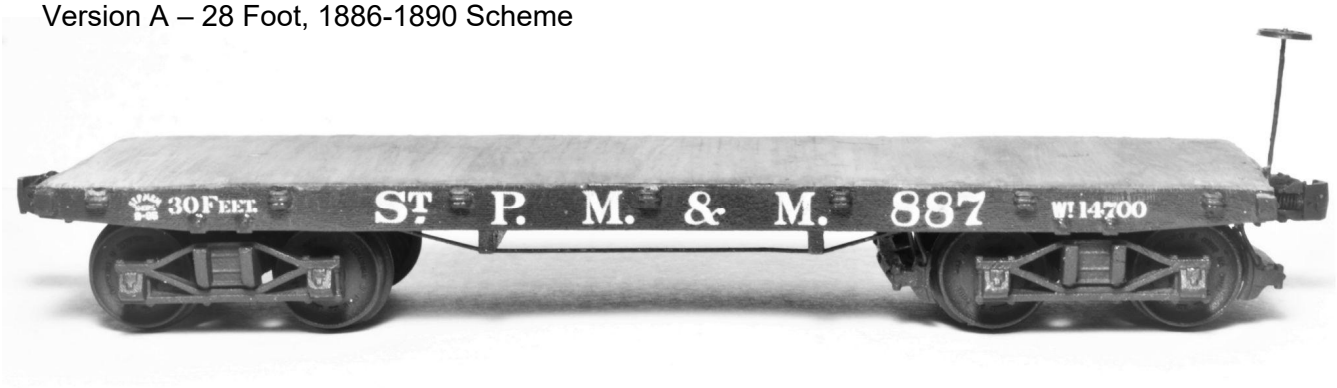






Version A – 28 Foot, 1886-1890 Scheme



Version B – 30 Foot. 1885-1890 Scheme

Version C – 28 Foot, 1890-1905 Scheme

Version D – 30 Foot, 1890-1907 Scheme (Omit St.PM&M initials after 1907)

SAINT PAUL, MINNEAPOLIS AND MANITOBA/GREAT NORTHERN 28 AND 30 FOOT FLAT CARS

HO-3000 SERIES

General History:
The principal predecessor to the Great Northern Railway, the Saint Paul, Minneapolis and Manitoba railway was organized in June 1879, absorbing the Saint Paul and Pacific Railway. The railroad doubled the mileage of the original Saint Paul and Pacific by the end of 1880. When the Montana Central Railway was incorporated in 1886, the Saint Paul, Minneapolis and Manitoba planned a connection between Minot, North Dakota and Great Falls, Montana. A large number of cheap and relatively simple flat cars were built in the mid-1880s at the railroad's Saint Cloud Shops to carry the raw materials needed to push the railroad west.

The cars this kit represents were both 28 and 30 feet long and all had seven stake pockets. Photos seem to indicate the 28 foot cars had end pockets so they could be converted to Gondolas, and the 30 foot cars did not. Additional stake pockets are included if you need to modify these cars to suit your needs. These cars were relatively generic and many visually similar examples could be found all over the U.S. during the 1870s and 1880s.

Physical Features:
When these cars were built, they did not have stirrups or grab irons. The 30 foot cars may have received safety appliances after the Safety Appliance Act of 1911, but we do not have photos to confirm this, and they were retired before the compliance grace period ended in 1923. These cars were built without air brakes. They probably never received them and thus would have been banned from interchange by 1900 in accordance with the Safety Appliance Act of 1893.

Lettering:
While the build date of March 1886 included for the 28 foot car is correct, the build date of September 1885 included for the 30 foot car is based on conjecture. We do know the series existed during 1885, and it's possible cars were being built to these patterns much earlier. Beginning in 1890, the original lettering was gradually replaced with the more familiar "Great Northern" lettering. After 1907, the Saint Paul, Minneapolis and Manitoba initials were removed. The Great Northern's predecessor roads existed on paper up until that point.

Roster Information and Numbering:

Roster information for these cars is rather haphazard. The following Official Railway Equipment Register entries present a usable guideline for numbering.

- Sechrist's 1885 Railway Equipment Guide lists the series as 1-611, odd numbers, consisting of both 28 and 30 foot cars.
- The 1890 Official Railway Equipment Register lists the series as 1-851, odd numbers.
- By 1895, they were listed as series 1-565, odd numbers, consisting of 28, 30 and 40 foot lengths.
- In the 1904 ORER, these cars are listed as numbers 1-117, odd numbers, consisting only of 28 and 30 foot lengths.
- In 1905, the number series remained the same, but only the 30 foot cars remained.
- By 1914, 10 of the 30 foot cars remained, being renumbered to series 260000 to 260009.
- 5 cars remained in July 1916 and all were retired by January 1917.

Bibliography:

Wood, Charles & Dorothy. *The Great Northern Railway: A Pictorial Study.* Vancouver, Canada: Evergreen Press, 1979.