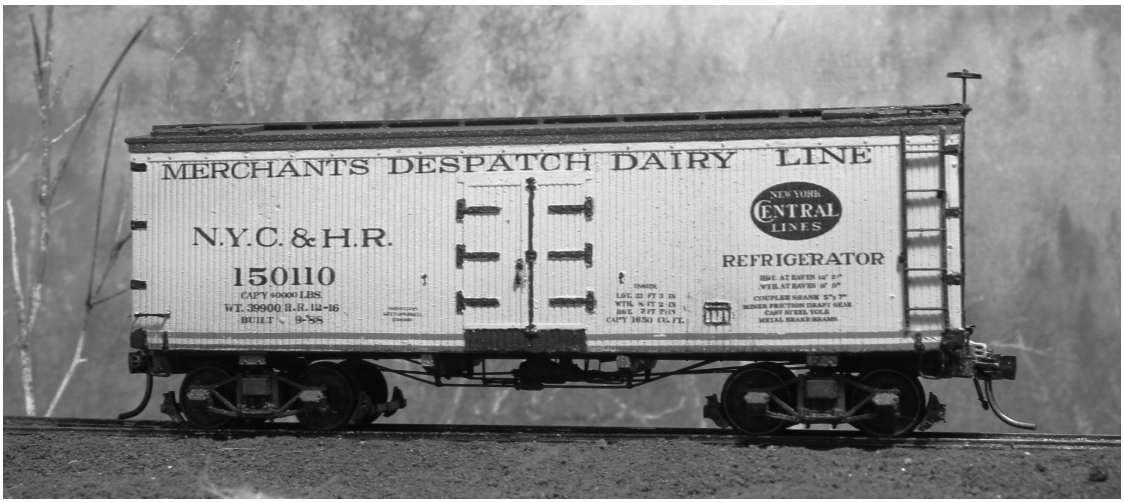
MERCHANTS DESPATCH 34’ "WICKES PATENT” REFRIGERATOR CAR

HO-4000 SERIES



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, BROKEN OR DEFORMED, please email info@3dptrain.com and we will ship replacements at earliest convenience.

FOR QUESTIONS REGARDING THE PROTOTYPE, ITS HISTORY OR DESIGN, please contact zenithmodelworks@gmail.com.

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

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 included at this time.

Preparation:

1. Start by removing sprue marks and cleaning any uncured resin off the model. A small amount of rubbing alcohol and a paper towel usually works very well.

2. 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.

3. Drill out the bolsters on the underbody to accept a screw of your choice. This location is marked by a hole included in the print. We recommend a self-tapping 2-56 machine screw, although drilling the hole out first will always help.

Detailing the Body:

Grab Irons:

4. Side Grabs: **Versions A-E:** Start by drilling out the holes for the grab irons on each side of the car with a #79 drill bit and install the grabs using ACC. In addition there were two grab irons mounted on the roof on each end. **Version F:** There was a singular grab iron on the left hand side of the car body. **The side ladders on Version F are a separate piece and will be installed later.**

5. End Grabs: **Versions A-C:** an end ladder was located on the left hand side of each end. Drill out the holes using a #79 drill bit and install the 24” wire grabs using ACC. **Version F:** An additional grab iron was added to the right hand side of each end. Drill out the hole using a #79 drill bit and install the grab using ACC. **The side ladders on Version F are a separate piece and will be installed later.**

Cut Levers:

6. Versions A-C did not have knuckle couplers and thus did not have cut levers. **Versions D-F:** Drill out the holes on each side of the end sill. Bend a piece of wire according to the diagram to fasten a cut lever that extends from the center of the coupler pin to about six inches from the side of the car body. Thread two eye bolts onto the cut lever, insert them into the holes as shown, and secure with ACC.

Brake Details:

7. **Brake Staff:** The brake wheel was mounted about 1’ 6” above the roofline on all cars except for **version F**, where the railing was eliminated and the brake wheel was lowered to about 6 inches above the roofline. Glue the brake wheel to the end of a length of wire to emulate the brake staff. Trim the brake staff to size. Drill out the brake staff mount on the roofline of the B end, and thread the brake staff through. The bottom of the staff should rest on the bracket mounted to the left of the coupler pocket. See diagram. Secure the brake staff in place with ACC.

8. **Brake Staff Railing: Versions A-E** had a railing surrounding the brake wheel. This feature can be replicated using .015 gauge wire and a small amount of ACC. This feature can be difficult to replicate; please pay close attention to the diagram. Start by drilling out all holes with your #79 drill bit.

It is best to build this feature in two parts: Bend the end piece first, bending each leg at the bottom to fit into the holes shown. To create the angle brace, secure one end of a piece of wire in the hole in the roof, bend and cut it to length and secure it against the end piece using ACC.

Retainer Line:

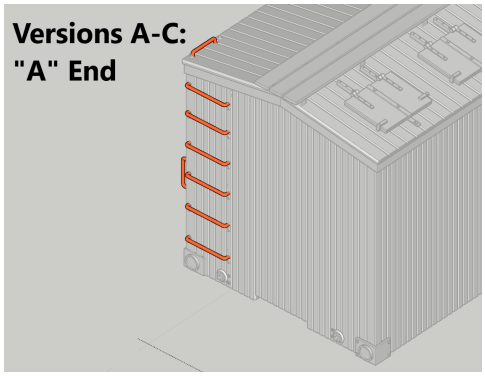
9. **Versions B-F:** locate the retainer valve next to the brake stand. Run a piece of wire from the valve to the base of the end sill. Secure with ACC. See diagram.

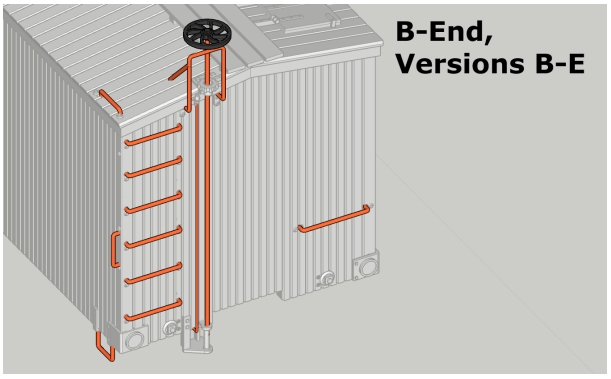
Installing the Stirrups:

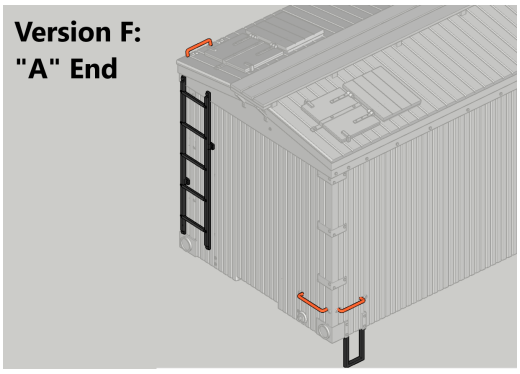
10. **Versions A-E:** These cars had one stirrup located on the right hand of each side of the car body. Drill the holes marked in the base of the shell if necessary. Bend a piece of wire to produce a stirrup that extends down from the body approximately 1 foot. Secure in place with ACC and repeat. **Version F:** These cars had two stirrups on each side. Drill the holes marked in the base of the shell if necessary. Secure the stirrups included in the kit in place with ACC and repeat on the other side.

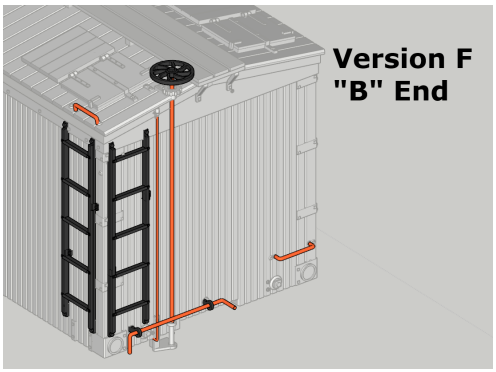
Ladders:

11. **Version F** Had ladders on the right hand side of the car body and on the left hand side of each end. Using a small amount of ACC, secure the ladders included in the kit against the mounting brackets on the body. See diagram. It is best to install these last because they are fragile.









Detailing the Underbody:

Note that the "A" and "B" ends are marked with text on either end of the underbody.

Brake Lever Hangers:

12. Version A did not have air brakes. **Versions B-F:** The train line, brake cylinder and levers were included in the print to save time. You will have to bend the hangers that were mounted around the brake levers. There were four of them. Bend a length of wire to emulate this feature and ensure it extends about three inches below the lever. Secure the hanger from the inside of the underbody using ACC. Repeat until all hangers are mounted.

Brake Rods:

13. **Versions C-F:** Using the diagram, cut two lengths of wire to run from the end of each lever to the bolster pin. Secure using ACC. You could use a cleaved turnbuckle to emulate a clevis if you desire finer underbody detail.

14. Cut a third length of wire to connect the two levers. Pay close attention to the diagram shown.

Truss Rods:

15. **All cars:** drill out the holes marked in the underbody for the truss rods. Insert the length of filament into one hole. Secure it in place from the top using ACC. Thread a turnbuckle onto the other end of the filament. Ensure the turnbuckle sits between the Queen Posts. Thread the filament through to the other side and repeat. In the end, it should match the diagram below. Secure the filament to the queen posts using a small amount of ACC. Ensure the turnbuckles are centered between the Queen Posts and secure them in place with ACC.

Brake Beam Hangers:

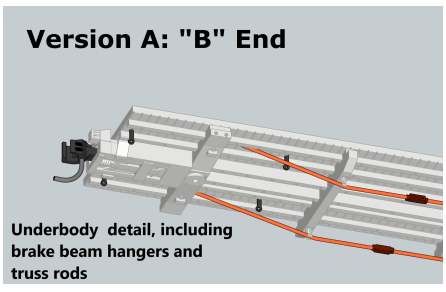
16. Brake beam hangers are difficult to install and may hinder operations; this step can be omitted if deemed unnecessary. **Versions A:** only the truck on the "B" end of the car had brake shoes. Drill out the holes shown for the brake beam hangers. Install eyebolts into these holes according to the diagram. Secure in place with ACC. **Versions B-F:** there were brake hangers on both ends of the underbody. Repeat this process for the "A" end of the underbody. The hangers will be installed later.

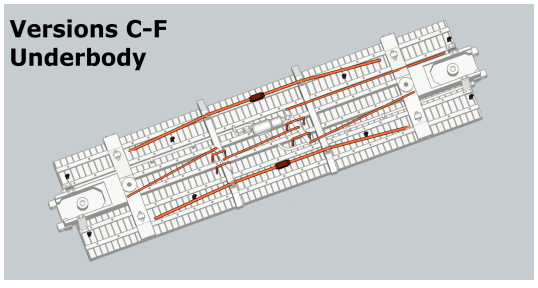
Couplers:

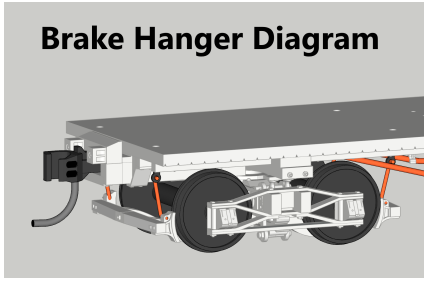
17. Insert a coupler into the each coupler pocket. You may need to trim the centering whiskers. Glue the coupler box covers in place using a small amount of ACC.

Weight:

18. Add weights of your choice to the floor piece. Per NMRA standards, a car weight should be one ounce, plus ½ an ounce of weight for every 1 inch of the car body. Per these standards, a 34 foot car should weigh roughly 3 ounces. Secure the weights in place with epoxy and allow them to fully dry before proceeding. This can take up to 24 hours depending on the epoxy used, so be sure to take this into consideration.







Assembly and Painting:

Installing the Underbody:

19. Run a bead of ACC around the interior of the car body. Insert the underbody into the base of the body so it fits snugly. Ensure the “B” end of the underbody is lined up with the “B” end of the body. Allow to cure. Wash the car with detergent to remove any skin oils before proceeding to painting.

Painting:

20. These cars were white. Paint the sides and ends first. Allow to fully dry before proceeding.

21. Mask along the base of the body and paint the underbody black. Make sure no overspray reaches the rest of the body.

22. Mask the roofline and paint the roof mineral brown.

23. Brushpaint all ironwork black.

24. When painting is finished, glosscoat the car before applying decals.

Installing the Trucks:

25. 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 washer to raise the height.

26. **If you are installing Brake Hangers:** carefully drill out the holes in the brake shoes on each truck using a #79 drill bit.

27. **Paint the trucks before assembly.** They were black. **Versions A and B:** remove the brake beams from one of the two pairs of trucks included. Insert the wheels. Screw the trucks into the bolsters, ensuring the truck with the brake beams is mounted on the “B” end of the car. **Versions A and B:** do not remove any of the brake beams. Insert the wheels. Screw the trucks into the bolsters.

28. **Brake Hangers:** bend a group of brake hangers as shown in the diagram below. They should be about 2 feet long with a hook on each end. Paint them prior to assembly, if possible. Allow them to try. Thread them from the eyebolts used as hangers in the underbody and connect them to the brake shoes. You may have to touch them up with a brush after this. **Brake hangers can cause operational problems and can be omitted on operating models.**

29. **Decals:** Decal the car according to the diagrams shown in the history sheet. Cut to size and 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. Apply the decals according to our lettering diagrams below.

30. Dullcoat the car to seal the decals in place. Apply a weathering style of your choice afterwards and be sure to dullcoat after.

Congratulations, your car is complete!

For questions or comments, feel free to contact us at info@3dptrain.com. We appreciate your support.

ACKNOWLEDGEMENTS:

Zenith Model Works extends a gracious thank-you to Josh Bernhard of Great Basin Carshops for assisting in prototype testing and decal design, and to David and Kristin Kmecik at 3DPTrain for assisting in prototype development and hosting production. Without the kindness and generosity of these individuals this project would not have been possible.

MERCHANTS DESPATCH 34 FOOT “WICKES PATENT” REFRIGERATOR CAR

HO-4000 SERIES

General History:

In 1882, Merchants Despatch received its first refrigerator cars. Several groups of these cars were built over the next nine years. From 1882 to 1886, cars were built with two pairs of ice hatches on each end of the roof, opposite each other, known as the “Side Tank” configuration. These cars rode on “Double Diamond” Arch Bar Trucks and did not have air brakes. In 1887 the more familiar “End Tank” design was settled on, with two hatches, on either side of the roof, at each end of the car. Later cars also had a couple siding boards recessed to accommodate the door latch mechanism when the doors were in the open position. Despite minor design changes, car body proportions remained consistent throughout the decade. The first Wickes cars to be delivered with air brakes arrived in 1889, and within a few short years the entire fleet had been converted. The Safety Appliance Act of 1893 resulted in a minor change to the grab iron configuration: a three foot grab iron applied to the right-hand side of each end. Cars also received Janney couplers at this point to replace the notorious pin-and-link couplers of the era.

The cars continued to see service for another two decades. Sporadic rebuilds took place that resulted in an updated door configuration, with the new doors having three hinges and vertical siding. It is unknown how many cars received these upgrades or what their numbers were.

In 1911, Merchants Despatch completely reorganized. The company sold all of its refrigerator cars to the New York Central and Hudson River and the Lake Shore and Michigan Southern, and transitioned from a fast freight line to a refrigerator car builder, maintainer and supplier for the New York Central system. All of the remaining Wickes cars were split between the two railroads, becoming LS&MS series 140000-140566 and NYC&HR series 150000-150644. The original Merchants Despatch paint scheme, in use since the 1880s, was replaced with simplified design: “Merchants Despatch Dairy Line” was spelled out across the top of the car body, and the arched lettering disappeared. Cars were also rebuilt with safety appliances at this point, featuring side and end ladders and an additional grab on the left-hand side of the car body. These cars remained in this configuration until retirement in 1922. 300 of them were rebuilt with brine tanks and sent to the Chicago Junction railway in 1923 (not currently reflected in this kit).

Data provided by Roger Hinman’s book: *Merchants Despatch: Its History and Equipment,* Signature Press, 2011.

Roster Data:

Year:	No. of Cars:	Builder:	Number Series (ORER of 1886)
1882	150	Harrisburg Car Co.	4023-4322
1882	150	Jackson and Woodin Mfg. Co.	
1883	50	Unknown	6333-6382
1884	150	Michigan Car Co.	6436-7500
1884	50	Michigan Car Co.	
1884	50	Terra Haute Car Mfg. Co.	
1884	125	Michigan Car Co.	
1884	75	Buffalo Car Mfg. Co.	
1884	50	Pullman Car Mfg. Co.	
1885	175	Michigan Car Co.	
1885	125	Buffalo Car Mfg. Co.	
1886	150	Michigan Car Co.	8410-9690
1886	100	Buffalo Car Mfg. Co.	
1887	100	Buffalo Car Mfg. Co.	
1888	200	Michigan Car Co.	
1888	200	Michigan Car Co.	
1888	300	Michigan Car Co.	
1889	100	Pullman Car Mfg. Co.	
1889	195	Pullman Car Mfg. Co.	
1889	105	Pullman Car Mfg. Co.	
1890	250	Buffalo Car Mfg. Co.	
1890	250	Buffalo Car Mfg. Co.	
1891	21	Michigan Car Co.	

1895 Renumbering:

Tank configuration Per ORER Listing:	New Series:	Number of Cars:
“Cars with side ice Tanks”	13000-14146	1134

Tank configuration Per ORER Listing:	New Series:	Number of Cars:
“Cars with End Ice Tanks”	cars numbered below 8410 became series 10043-10294	2133
“Small Cars with End Ice Tanks”	10295-10582	288

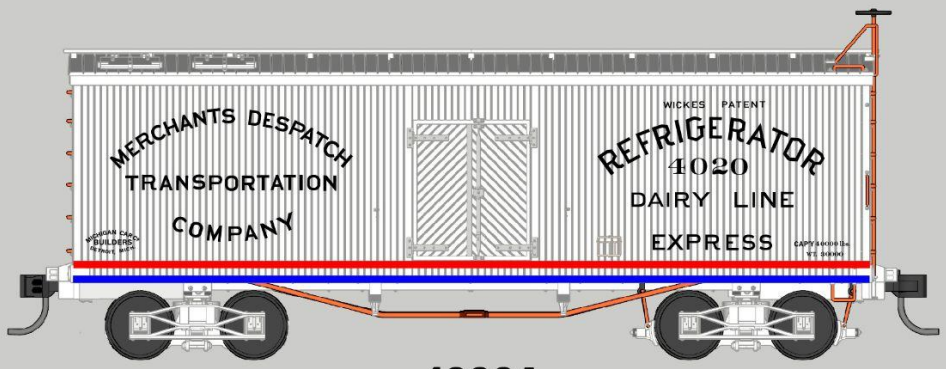
1911 Renumbering:

Railroad:	Series:	Number of Cars:
Lake Shore and Michigan Southern:	140000-140566	558
New York Central and Hudson River:	150000-150644	662

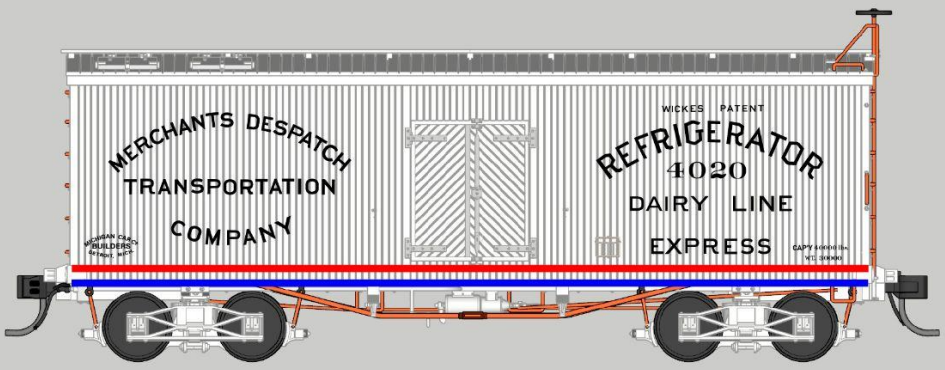
Data provided by “Merchants Despatch: Its History and Equipment”, by Roger C. Hinman, Signature Press, 2011.

HO-4000 SERIES

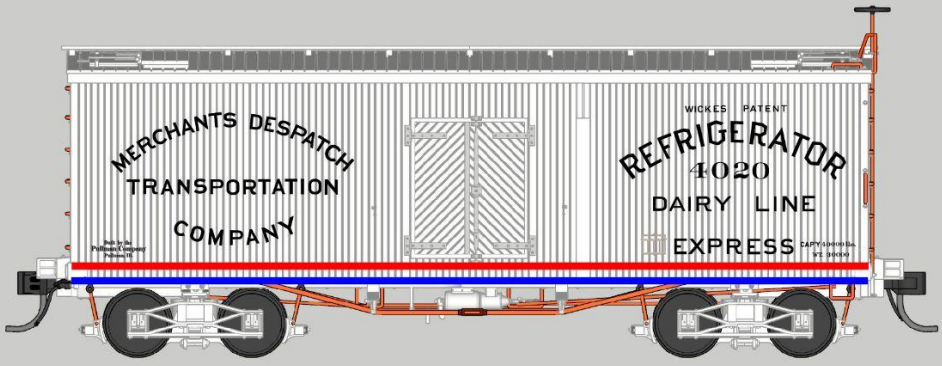
MERCHANTS DESPATCH 34' WICKES PATENT REEFER



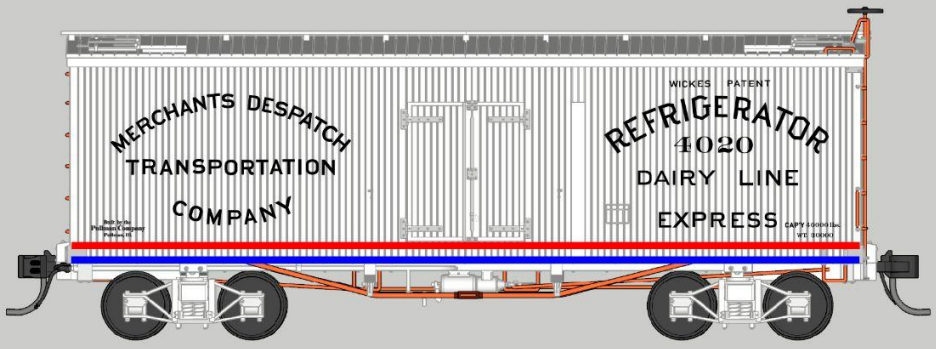
4000A
ORIGINAL, 1882



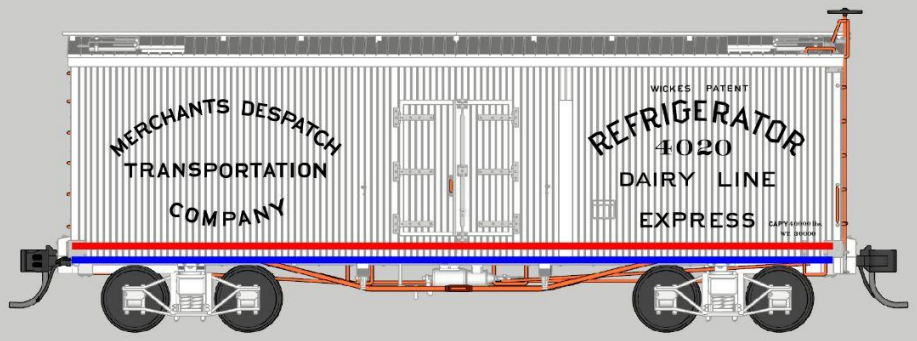
4000B
AIR BRAKES



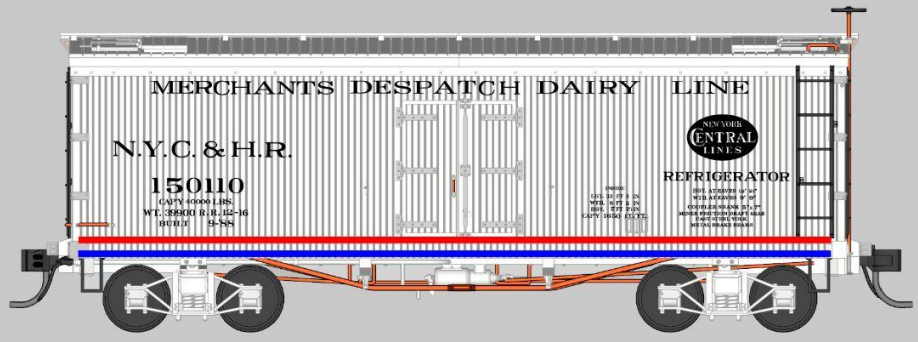
4000C
UPDATED ICE BUNKERS AND AIR BRAKES



4000D
UPDATED DOORS, CIRCA 1890S



4000E
UPDATED DOORS, CIRCA EARLY 1900S



4000F
SAFETY APPLIANCES AND
UPDATED LETTERING, 1911