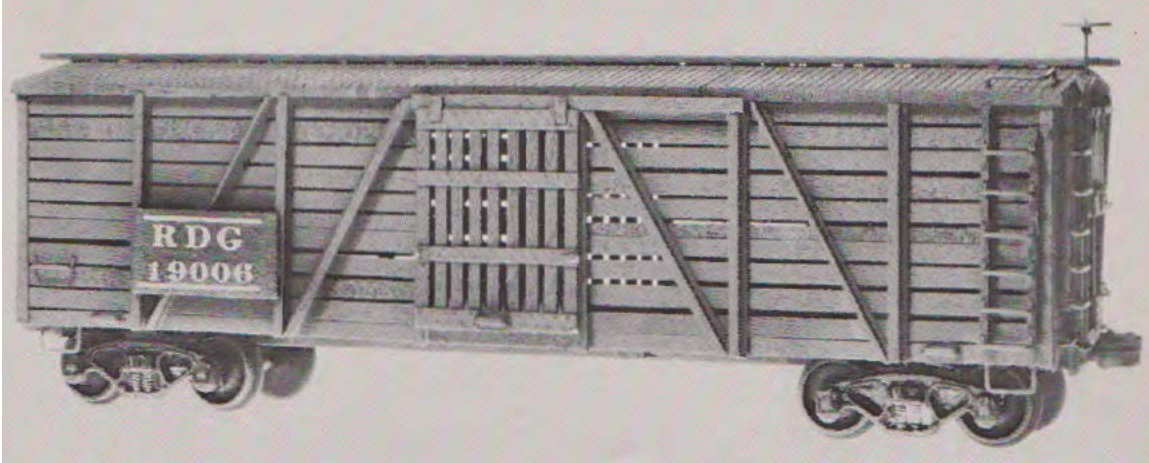


Car 2- HO Reading Stock Car



A picture of the Stock Car being modeled.

Photo by Model Railroader

During research on various types of railroad cars a book entitled “Easy to Build Model Railroad Freight Cars” which was published by Kalmbach Publishing in 1973 was purchased. There were several projects in the book and an article by Eric Stevens on how to build a wooden stock car from scratch inspired the construction of the car constructed. I picked the wood stock car as my second project and following the article’s instructions the car was built in HO scale. Research conducted on the Internet reflected the following facts about the prototype of this car. The car was one of 50 stock cars built in May, 1924 by Standard Steel Car under AFE #316 for the Reading Railroad for the price of \$2,156.85. The internal length of the car was 38 feet and the average LT weight of cars of this class was 40,810 pounds. The last of this class of car in the Reading fleet was retired in October, 1957. Car 19006 was retired by Reading in February, 1953.

CAR COMPONENTS

Coupling assembly- (parts purchased)

- 2- KD #5 couplers
- 2- KD #234 gear boxes
- 2- KD #634 centering springs
- 2- KD 256 Nylon insulated screws

Trucks- (parts purchased)

- 2-KD 509 Andrews (1898) trucks

Other components that were used in fabrication of parts.

- Evergreen #275- 5/32” styrene plastic I beam (used for undercarriage support beams)
- Evergreen #9040 - .040 plastic styrene sheet (used as subfloor for flooring)
- Evergreen #225 5/32” styrene plastic tube (used for poling pockets on ends of flat car)
- Evergreen # 765 T section material (used for wall reinforcing)
- Evergreen # 754 Z plastic styrene (used for wall reinforcing)
- Northeastern Scale Lumber #HOSCAL 2811 (HO scale 2”x8”x11’) basswood
- Northeastern Scale Lumber #2611 (HO scale 2”x6”x11’) basswood

Northeastern Scale Lumber #2411 (HO scale 2"x4"x11') basswood
 Evergreen 3020- .020" styrene plastic sheet (used as spacing material for the coupling pockets)
 Detail Associates #6427 Grab Irons ,drop type 19.5" wide.
 A-line #29002 Stirrups Steps, Style "C"
 Kadee #438 Air hose and angle cocks
 Kadee #441 brake pads
 Tichy #30?? KC style Westinghouse brake set
 Kadee #2040 Ajax Brake wheel
 A Line Products #29220, tie down chain-black- 27 links per inch
 Precision Metals #497 (.039" diameter) metal music wire (used for handrails on side of tank.
 Microscale #90101 3/16" Railroad Gothic letters and numbers

HOW THE CAR WAS CONSTRUCTED-



The project started with fabrication of the floor and ends using .40 styrene plastic making one section measuring HO scale 8 feet by 40 feet and two sections measuring HO scale 7' 6 1/2" by 8' 7 1/2". This created the floor and end wall assemblies. The plastic was needed to provide a base to which HO scale 2"x8" could be glued using Aleene's tac glue to create the floor of the car. Without the added support the wood would

not hold the necessary shape and could not be assembled into the floor and ends of the car. The assembly was set aside to allow the glue to set.



Next construction of the side walls was started. A jig with the bottom and side guides perpendicular was made from bass wood to provide the ability to construct these walls with the appropriate spacing between the horizontal members. Thin two-sided tape was applied to the jig and the various horizontal side members, constructed of HO scale 2"x8" basswood were placed in the appropriate position to build the entire panel. Spacing

between the side members was done using another piece of the same basswood turned so the narrow side (2" dimension) was in contact with the jig. The picture above shows a spacer in place during the fabrication was completed. The available drawings indicated the wall section had to be 7' 8 1/2" in height and 16' 6" in width. Four wall sections had to be fabricated as it would take two of these wall sections on each side of the car to create the side walls.



As the wall sections were constructed the height was checked after the addition of each member to assure the proper height would be constructed with equal horizontal spacing of the members. After attaining the proper height.



Next the bracing components for the wall sections were fabricated using Z and T angle pieces of styrene plastic. The Z angle was used for the vertical braces and the T angle for the diagonal braces. These components were custom made for each location by measuring the needed length, cutting the necessary angles, and attaching them to the basswood using Gorilla glue adhesive applied with a toothpick in the appropriate locations.

The glue was allowed to set then the wall section removed from the jig by use of a flat bladed Xacto tool. It should be noted that there are two wall sections with the diagonals going from bottom left to upper right, and two wall sections with the diagonals going from bottom right to upper left.



The diagonal braces “lean” toward the door open thus each side of the car has to have one of each. The picture to the left shows a completed side after the roof assembly was attached and allows you to see the differences in the left and right wall panels that were constructed.

Left wall section

Right wall section



The roof assembly was then constructed by using a piece of .40 styrene plastic wide enough to allow an HO scale 8 and 1/8” overhang over each side and approximately HO scale 12” overhang on each end. On the underside of this piece a wide line was scored and material removed to allow the section to be shaped to create a slope from the top of the car to the sides to allow water runoff. (The tip of the roof is at a dimension of 8’ 7 1/2” from the floor and the top of the wall sections is 7’ 8 1/2”.)

This also required the car end pieces to be cut to the appropriate shape to allow the roof to be in contact with both end sections from the tip to the edge. After the roof unit was dry fitted and found to be correct in size and shape pieces of HO scale 2” x 8” basswood were glued to the styrene plastic using Pliobond adhesive applied with a small brush. These basswood pieces had to have square ends where they met at the top of the roof structure. The edge end of these pieces were left long in length for sanding to the exact length needed later using a sanding stick.



Prior to the roof assembly being attached to the car a support system of HO scale 2” x 8” braces were put in place from side to side and then end to end braces over the side to side braces. These braces provide the necessary support needed to both attach the roof and give it strength. At this time the roof assembly was glued to the end, sides and roof bracing using Gorilla glue applied with a toothpick and set aside to allow the glue to set.



The door openings were then trimmed out using HO scale 2” x 6” on each side. In addition pieces of HO scale 2”x8”

basswood were added to fill the opening between the wall sections at the top and bottom. The pieces had to be custom fitted for each location. In addition two pieces of HO scale 2"x6" basswood, attached with Gorilla glue, were added to each of the corners of the car to provide corner bracing to the sides and ends.

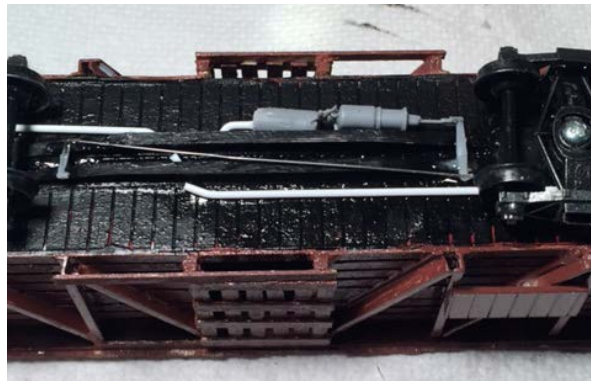


The car doors and car ventilation doors were then fabricated using HO scale 2"x8" basswood. The car door units are 7' 8 1/2" in height and 5' 5 3/8" wide with a spacing of the cross bracing as shown in the door diagram in Appendix B. The ventilation doors are 24 1/2" wide and 30" high with no spacing of the members. The material was glued using Gorilla glue applied with a toothpick.

At this point the car body and roof were painted using a brush with Boxcar Red paint and set aside to allow the paint to dry.



The fabrication of the underframe infrastructure was then started by construction of the main support beams centerline to the car and additional supports from these support girders to the edge of the car. This was done in the same fashion that I had done for the tank car previously constructed. Taking two pieces of styrene I beam, HO scale 18 feet in length, cuts were along one of the flanges on each beam and to the web, removing unnecessary material with an Xacto knife to allow one of the flanges to be bent at an angle to the opposite flange on the same beam. After bending the flange was glued using Plaststruct Plastic Weld and the constructed beams glued to the underside of the car floor. When this step was completed the undercarriage was painted with flat black paint using a brush. Pieces of .40 styrene plastic were also used to fabricate the truck bolsters on each end of the car. These pieces were HO scale 10 feet in length and cut to match the width of the two main support girders in width.



After these pieces were attached the location of the truck centers was determined and holes were drilled and tapped to allow mounting of the truck assemblies with 2-56 nylon screws. Brake pads were also added to the trucks. In addition air piping and air brake components were put in place using Gorilla glue to attach them.

Next a piece of HO scaled 2" x 8" basswood was then attached to the area over the doors and across the bracing on each side to provide a support for the car doors to be able to move sideways to the right from the door opening using Gorilla glue. The side doors were then glued in place using Gorilla glue which completed the construction of the two sides. On the ends, a piece of HO scale 2"x4" basswood 5'6" long was placed at the top and bottom of the ventilation door allowing the door to slide to the right. The bottom piece is located



at a dimension of 4'1" from the car floor elevation. The ventilation doors and slide pieces were glued with Gorilla glue applied with a toothpick. Small pieces of .10 styrene plastic were but HO scale 3" x 6"(ventilation door hanger) and 4" x 8" (side door hanger) to fabricate the door hangers for the side and ventilation doors. One of these pieces was glued to each corner of each door and then painted with boxcar red paint. A 3'x5' .4 styrene plastic piece was added to each side to provide a lettering panel where the railroad and car number will be added later. The pictures below show the doors and board mounted in place on the car.



The car roof walkway was fabricated using HO scaled 2"x8" basswood strips cut to the length of the car roof. (approximately 40 HO scaled feet). 3 strips, the length of the car were glued to cross supports made of HO scaled 2"x6" basswood cut to the length of 24" HO scaled inches. In turn the cross supports were glued to the peak of the roof structure using small shims where necessary. End platforms of 3'2" x 1'10" and 3'2" x 2'2" were constructed of HO scaled 2"x6" basswood. The same material was used for cross bracing of the platform boards and were glued to the platform boards and roof structure using Gorilla glue. The parts were painted Boxcar Red using a brush.



The manual brake components which included a wheel, stem, and chain to connect the manual wheel to the braking system were then added. All of these components were painted flat black in color.



Lettering was added to the letter board and ends of the car using Microscale decals. Each letter and number had to be individually cut out and applied.



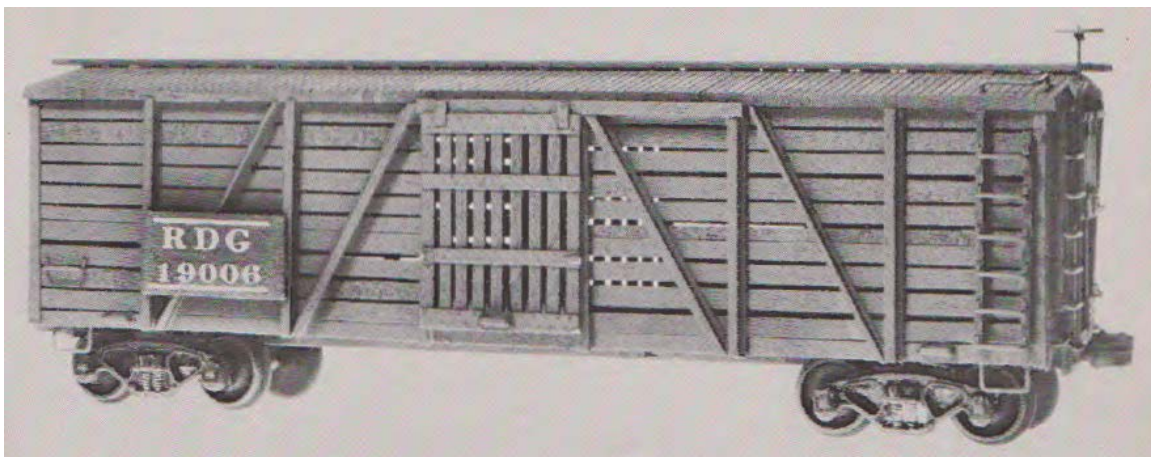
Ladders were added on the end of each car on the left side of the end. Stirrups were mounted on the side at each end, and grab rails were added on the ends. The stirrups and grab rails required holes to be drilled with a pin vice using a #72 drill bit at the needed locations. Polling pockets were added using pieces of ¼" styrene plastic tube material on the ends at opposite corners. These pieces were painted flat black in color using a small brush.

The car was weathered using a light coat of primer gray paint applied with an air brush. Other weathering was done using mud, rust, grimy black, and weathered black paint using a small paint brush.

Below is a picture of the car when it was finished.



Below is a picture from the Kalmbach book where I found the article on how to build the car.



APPENDIX A

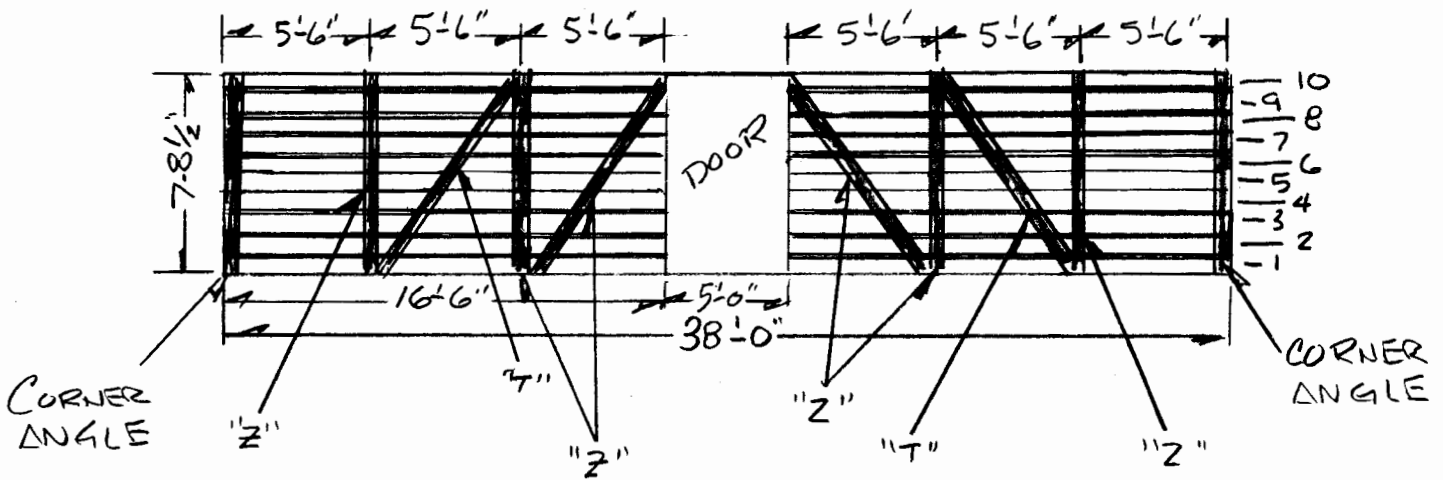
HAND MADE DRAWINGS USED FOR CONSTRUCTION OF THE CAR

HO STOCK CAR

2 OF

LEFT SIDE

RIGHT SIDE



CAR SIDING IS 2" X 8" - EVERGREEN #2208

SPACING ON CAR SIDING IS 1.5"

NO SPACING BETWEEN ROWS 5 & 6

NEED 2 OF EACH

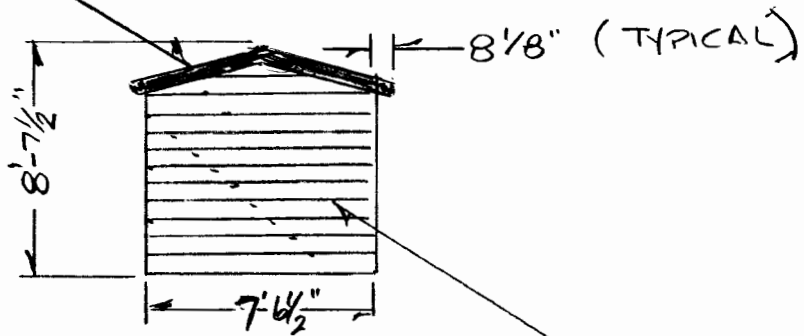
1/8"
"T" GIRDER - EVERGREEN #765

1/8"
"2" GIRDER - EVERGREEN #75A

STOCK CAR
END

1 OF

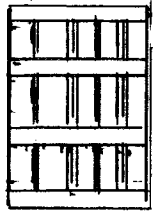
SCRIBED ROOF



2"X8" PLANKING
NO GAPS

NEED 2

STOCK CAR DOOR



NEED 2