

**2013 NMRA Convention – Atlanta, GA.**  
**July 14 – 20, 2013**  
**Steel Loads – Part 1A – Plate Steel**

By Gene and Benita Jameson



**A little history about this project:**

Steel loads are some of the most interesting loads that you will see on the railroad. Just about any open car can be used to carry a steel load. Regular flat cars, bulkhead flat cars, 89-foot flat cars, and gondolas all can carry steel loads. After starting the large I beam that will be covered in Part 2 of Steel Loads, I decided to do three different steel loads. These are a plate steel load, a normal size I beam load, and the very large I beam load.

In this part, Part 1A, we will build a 60-foot flat car with a plate steel load. This is a very straight forward project, and a good warm up for the other two loads.

## Materials

Evergreen .030 Styrene #9030	2 packages
Evergreen .010, .020, .040 (Assortment) Styrene #9008	1 package
RustAll	Optional
Model Master Gunship Grey #1923 (spray)	
Model Master Gunship Grey #1723 (brush on)	
Model Master Dark Slate Grey #2056 (brush on)	
Testors Brown #1240 (spray)	
Testors Dull Coat #1160 (spray)	
Testors Rust #1185 (brush on)	
Testors Wood #1141 (brush on)	
Testors Flat Tan #1167 (brush on)	
Testors Cream #1116 (brush on)	
Testors Red #1103 (brush on)	
Micro Scale #70211 N Scale Graffiti	Optional
Polly Scale TTX Yellow #F404067 (brush on)	
Model Master #2015 Flat Clear Finish (brush on)	
A-Line #29000 Style "A" Stirrup Steps	
Detail Associates #SY 2202 Grab Irons	
Weathering chalks	
Athearn 60 foot Flatcar #92694	1 per plate steel load
Kadee #5 couplers	Optional
Northeastern Scale Limber #3030, HO 4 X 4	1 Package
Walthers Goo	
Tenax-7R	
Super glue	
Pactra Trim Tape, Black	
.015 piano wire	
Blue Painters tape	

## Tools

X-Acto knife blades, #11 and #17	
Pin vise	
#80, #77, #76 drill bits	Several of each
NSW Chopper	
Touch-N-Flow glue applicator	
Exxact Socket tool	
NMRA HO scale gauge	
Postal scales	
Kadee coupler height gauge	
Small file set	
HO scale ruler	
Hair dryer	

## **Tools Continued**

Side cutter  
Tweezers

## **Let's Get Started!!**

Read this handout through completely before you start the project. That way you have an understanding of the complete project and may just save you from making a mistake.

I have seen plate steel on flat cars that ranged from an inch thick to six inches thick. Remember, the thicker the steel plate, the fewer number of plates that you can put on the car. A 60-foot flat car can carry about 90,000 pounds of load. Using .030 inch thick plastic for the plate steel will give you a 2 5/8 inch thick plate, and .040 inch thick plastic for the plate steel will give you a 3.91 inch thick plate.

Cut 10 pieces of .030 plastic, nine scale feet wide and 35 scale feet long. Cut two pieces of .040 plastic, nine scale feet wide and 43 scale feet long. File all edges to remove any burrs and artifacts from cutting the plastic. Wash with warm soapy water, rinse well and set aside to dry.

## **Modifications to the flatcar**

Remove the trucks from the car. Remove the wheel sets from the trucks and paint the trucks with the Testors #1240 brown paint and set aside to dry. Paint the outside wheel web of the wheel sets with the Testors #1185 Rust paint. Be careful not to get the paint on the wheel tread or the axle point. Keep the paint off of the lip of the wheel; this will leave a shiny rim that makes the wheel look like it has been through the retarders in the hump yard many times. After the brown paint on the truck has dried, spray the truck with Dull Coat and set aside to dry. Use the Exxact Socket tool to ensure that the truck has the correct shaped "point" for the axle of the wheel sets. This also gets any paint overspray out of the area on which the axle rides. I have found that by using this tool I have improved the rolling qualities of my rolling stock. Check the wheel sets with the NMRA gauge to make sure the wheels match the gauge. When the trucks are dry, install the wheel sets.

Paint the couplers with Testors #1185 Rust. Be careful not to get too much paint on the hinge area of the coupler.

Use an X-Acto #17 chisel blade to remove the cast-on grab irons from the sides and both ends of the flat car. Be careful not to mar the sides and end of the car when removing the cast-on grab irons. Remove the stirrups from the sides of the car also.

Use a #80 drill bit to drill the holes for the wire grab irons. Use the area where the paint has been removed as a guide to drill the holes nearest the corner of the car first. Using the wire grab irons as a guide, drill the other holes for the grab irons.

Use a #76 drill bit to drill the holes for the stirrups, using the area where the paint was removed with the plastic stirrups as a guide. Drill the holes closest to the ends of the car first. Using the wire stirrup as a guide, drill the other holes for the stirrups. Make sure that the stirrups sit squarely on the car and are the same distance out from the bottom of the car.

Install the two wire grab irons on the corner of the car. Use the super glue to attach the grab irons. Be careful not to get super glue into the holes for the stirrups. After the glue has set on the grab irons, install the stirrups and glue them in place.

After the super glue has set, paint the grab irons and stirrups TTX yellow. It may take two coats of paint to cover the wire and the bare plastic where the cast on grabs were removed.

Use a razor saw to distress the deck of the car. Remember, this deck is made out of wood and it really gets a lot of scratches and damage to it during normal use. Use a sharp #11 X-Acto blade to make a small cut to extend the lines between the deck boards to the ends of the boards (see Figure 1). Cut several boards on each side at an angle to make it look like the board was broken off (see Figure 2).



Figure 1



Figure 2

Use a sharp #11 X-Acto blade to score several boards cross ways on the center line of the car. Use Testors #1141, Wood, to paint the boards that you just scored from the center to the side of the car. Make sure that you paint the end of the board as shown in Figure 1. Paint the ends of the boards that you cut to look like they were broken with the Wood paint also.

Use Model Master #2056, Dark Slate Grey, to paint several boards to look like they were replaced a long time ago. Using Testors 1116, Cream, paint one board to look like it was just replaced and has not weathered yet. When you are satisfied with the looks of the deck, dry brush some of the Testors #1141, Wood, on to the deck where you scratched the deck with the razor saw. Make very thin lines with the Wood paint to bring out gouges in the deck. I used some Testors #1185, Rust, on the deck to add some color. This simulates where a load had rusted in the past and stained the deck (see Figure 2 and 3).



Figure 3

Turn the car on its side; apply a heavy coat of RustAll to the side of the car and to the center sill. Let it dry completely. Do the other side of the car and let it dry completely. Apply the RustAll to the ends of the car, doing one end at a time.

Using dark brown and black chinks; darken the sides and ends of the car. On the ends, I added a vertical line just inside of the grab irons to simulate grime thrown up from the wheels of the adjacent car. You can use light brown, dark brown and black chinks to add a bit of detailed weathering to the deck. Once you have the car looking like you want it, dull coat it to seal in the chinks.

### **Assembling the load**

Using the Tenax-7A; glue the second 43 foot plate to the first 43 foot plate. Glue the first 35 foot plate to the top of the two 43 foot plates. This plate should be centered lengthwise on the 43 foot plates. Add the rest of the plates to the stack.

The plates need to be flush on the sides. If you want to simulate a shifted load, have the plate stack lean to one end of the car. You can have several plates that are not perfectly stacked on the ends to add a bit of interest to the load, but the sides have to be lined up. Once the load is glued together, set aside to completely dry.



Figure 4

Cut eight pieces of .020 plastic .045 inches wide and three inches long for the load clamp straps. Be very careful doing this, as it doesn't take much to mess up this cut. Stack two of the load clamp straps on top of each other and clamp them together. Use a #77 drill bit to drill a hole in the strap three scale inches from end of the load clamp strap, and center. This hole is for the "threaded rod" that holds the load clamp straps together in the car. Repeat this step to make four clamp assemblies. Keep the clamp pairs together. Remove the clamp from the load clamp straps; reposition the clamp over the hole for the "threaded rod" that you just drilled. Leave three scale inches below the "threaded rod" hole. Turn on the hair dryer to the high heat setting. Bend the load clamps 90 degrees outward and let cool. Be careful with this step as the clamp is very fragile. Lightly mark the center line of the load with a pencil. Remove the clamp from the load clamp straps; remember to keep the load clamp strap pairs together.

Cut 7 pieces of Northeastern Scale Limber #3030 wood dunnage nine scale feet long. Position these on the flatcar deck; center them under where the load will go; tape them down with the Blue Painters tape. Tape the load to the flatcar with the Blue Painters tape.

Position one load clamp strap on the load about six inches from the center line. Use the hair dryer again, bending the clamp down 90 degrees over the edge of the load. Make sure the load clamp is perpendicular to the side of the load. Trim the end of the clamp even with the bottom of the load pocket on the flat car. Repeat this step for the other side of the load clamp strap. Then repeat for the other three load clamp strap sets.

Using the Touch-N-Flow glue applicator, and referring to Figure 7 and 8, start at one end of the car and install the clamps. Glue the clamps to the top of the load first, then to the sides. Hold the clamp against the side of the load keeping it square with the load until the glue sets. Again, make sure that it is square with the load. Install the clamp on the other side of the car in the same fashion. Cut a piece of .015 piano wire a scale two feet long. Using the tweezers, carefully insert the piano wire into one of the clamps, then carefully into the second clamp. Apply some super glue to the clamp and the rod, holding clamp vertically square with the load. After the glue has set, do the same thing with the other half of the clamp assembly. Assemble the other three clamp assemblies in the same fashion. Trim the load clamps even with the bottom of the stake pockets.

Remove the assembled load from the flatcar; paint the load with the Model Master Gunship Grey #1923. Set aside to dry. After the first side is completely dry, paint the other side. Make sure that you get the edges of the steel plates with the Gunship Grey paint. Set aside to dry. Inspect the plates, insure that the edges have paint on them. You may need to touch up the edges a bit with the Model Master Gunship Grey #1723.

Use the Micro Scale N scale Graffiti #70211 to put the dimensions of the plate (9 X 35 X 2) on one end of the top plate or down the side of the top plate. You can do the same thing on the end of the second (top) 43-foot plate (9 X 43 X 4). You can put just about anything you want on the plates, just don't get carried away with it. Don't be afraid to cover up the size markings with the banding. This is called layering the detail. It happens in real life and should happen on your models. If you want to put a small amount of light brown chalk to simulate surface rust on the top plate, now is the time to do it. Again, don't get carried away as this is "NEW" steel and will not have very much rust. Set the decals and dull coat all of the plates.

Use the 1/32 Pactra Trim Tape to band the load together. Cut seven pieces of the Trim tape about four inches long. Press the Trim tape to the bottom of the load, and then put a small amount of super glue on the end of the banding on the bottom of the load to hold it in place. Let the super glue dry, then pulling the banding tight; wrap the banding around the load. Make sure that the banding is square to the load. When you have the banding in place, put some super glue on the other end of the band that you just installed (see Figure 5). When all bands are installed, very carefully paint a red "crimp clip" on each of the bands using Testors Red #1103. This "crimp clip" should be about three scale inches long (see Figure 6).



Figure 5



Figure 6

### **Attaching the load to the car**

Remove the paint from the backside of the load clamps where they will contact the stake pockets. Remove the paint from the stake pockets where the load clamps will attach.

Using Walthers Goo and a toothpick, glue the seven pieces of dunnage to the bottom of the load. Space them evenly under the load. When the Goo is dry, glue the load to the car, making sure you center it on the car in both directions. The ends of the 43-foot plate should be at the second pocket from the end of the car (see Figure 7). Let the model sit over night so the glue has time to completely dry. Using the Touch-N-Flow glue applicator to attach the load clamps to the outside of the stake pockets.

Cut 10 pieces of Northeastern Scale Limber #3030 a scale 24 inches long. These are going to be used as stakes in the stake pockets to help keep the load from shifting. Use a sharp #11 X-Acto blade to taper one end of the bass wood. You want it to fit tightly into the stake pockets. Use the Walthers Goo and a toothpick to install the stakes as shown in Figure 7.

The finished model weights 4.5 ounces. A car of this length should weigh 5.25 ounces.

Cut several pieces of the sheet lead 7/16 inch by 7/16 inches. Glue them to the underside of the car to get the weight up to the recommended 5.25 ounces.

Check the coupler height with the Kadee Coupler gauge. Adjust the trip pin on the coupler as needed. The car is now ready to enter service on the railroad. Now you are ready to start the next car in the Steel Load series, the 60-foot bulkhead flat car with an I-Beam load!

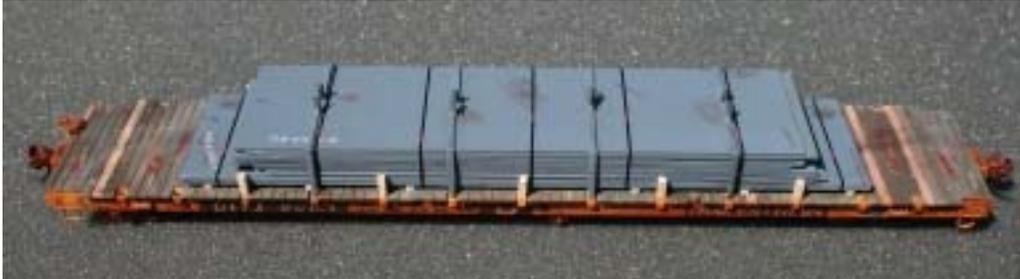


Figure 7

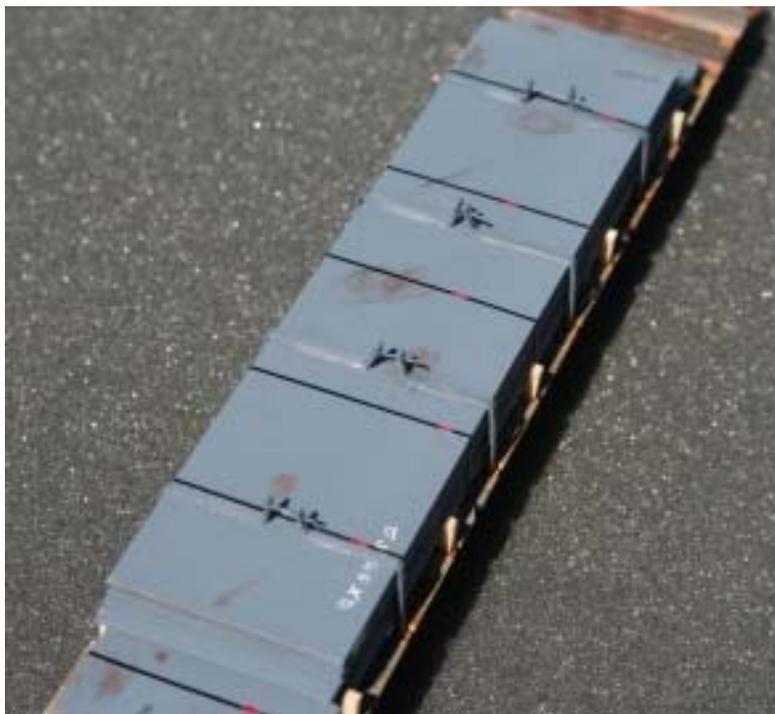


Figure 8

If you have any questions about doing these models, feel free to e-mail us at [b-n-ferrco@cfl.rr.com](mailto:b-n-ferrco@cfl.rr.com) or visit our website at [www.b-n-ferrco.com](http://www.b-n-ferrco.com)