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THE POTOMAC FLYER

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Car Float Operations

by Brian W. Sheron, MMR

As a result of attending the 2015 MER convention in New Jersey, I had the opportunity to see a beautiful HO scale car float module on the Free-Mo modular layout that was set up there. I was just about to retire after 42+ years with the Nuclear Regulatory Commission and had made plans to use my coming extra time to expand my Long Island Rail Road (LIRR) into the back half of the finished side of my basement. However, I was still trying to decide what to model. After seeing this beautiful car float module, I quickly made my decision to model a car float yard, with bridge and gantry crane, car floats (or barges), and a LIRR tugboat.

The LIRR had two car float yards on the Long Island side of East River; the yard in the Bay Ridge section of the borough of Brooklyn, and the Long Island City yard in the borough of Queens. The Bay Ridge yard was electrified with overhead catenary. Because I belong to an operations group, I did not want operators to have to deal with coupling and uncoupling cars (and perhaps re-railing them if they forgot to throw a switch) under catenary wires. Therefore I opted to model the car float operations in Long Island City. But where to start?

The first step was to do some research. I have a fairly extensive collection of books on the LIRR, so I began perusing them to find out what I could about the car float operations and, most importantly, to find pictures of the yard, the gantry cranes, and the car float bridges. I also needed to find out what the barges, or car floats, that transported the cars looked like, along with the tugboats that pushed the barges. In addition to my books, I also found a wealth of information on car floats, including the LIRR Long Island City car floats, on the internet.

A Quick History

Early on, there were no railroad bridges connecting Long Island with the mainland. In order to transport freight from the mainland to Long Island, trains had to travel up the west side of the Hudson River, cross over the river at Albany, travel down the east side of the river, and then cross over to Long Island in the Hell Gate area. This was a 340 mile round trip. The freight trains traveled at about 40 mph, so a trip from the mainland to Long Island took over 8 hours. In addition to the time and extra costs, it necessitated a crew shift change. Thus, the decision to transport freight to Long Island by barge was economic and efficient, with the overall transit time cut by more than half. Barges would be loaded with freight cars that arrived from the mainland, then towed across the lower part of New York Harbor and up the East River to the car float yards on the Long Island side of the East River. Figure 1 shows a LIRR tugboat pushing two car barges.

Pictures 8 and 9 by author, Figure 7 used by permission, others public domain.

Basic Operation

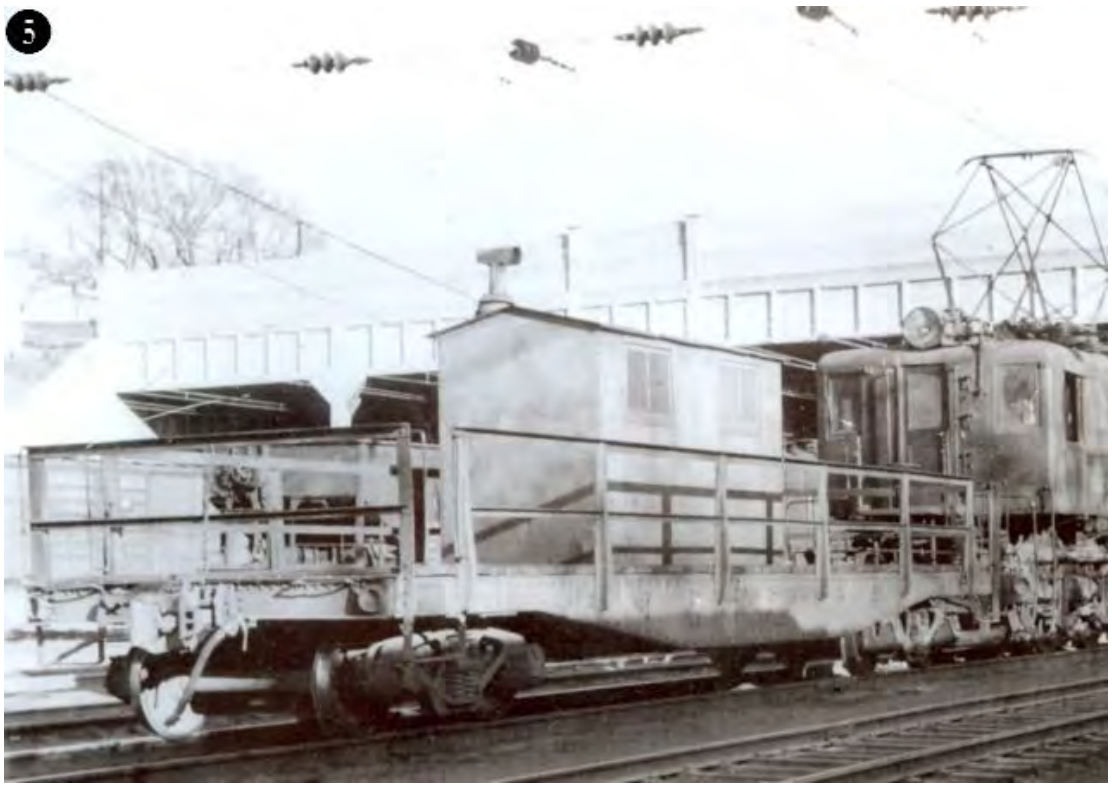
The basic operation of a car float is to load freight cars onto barges on one side of the body of water you want to cross, push or tow them across the body of water, usually with a tugboat, then dock them on the other side and offload the freight cars. However, in many areas where car floats are used, the body of water they cross is tidal, which means its level rises and falls with the tide.

What this means is that to align the tracks from the barge to the tracks on the mainland, a movable bridge with tracks on it is needed that can move up and down with the tide and connect the barge tracks with the tracks on the mainland. Obviously, a bridge that can support the weight of a freight car has to be solid and sturdy, which also means heavy. So in order to lift the bridge to align the barge tracks with the yard tracks, a large gantry crane was often used to lift and lower the float bridge. Figure 2 shows car floats docked at the Long Island City car float yard. Figure 3 shows the gantry crane and car float bridges.

Once a barge was docked and properly aligned with the tracks on the float bridge, large pins were slid into position to lock the barge to the bridge and assure the tracks would not become misaligned while cars were being moved (see Figure 4).

Moving the Cars

Although the float bridge was a massive component capable of supporting the weight of a loaded freight car, it was not massive enough to support the weight of a locomotive. This was also true of the barges as well. Therefore, in order to pull the freight cars off of the barge, or put them on the barge, they had to use "idler," or "reach" cars (see Figures 5 & 6). These were usually converted flat cars that the yard locomotive would couple up to and push onto the float bridge and then "reach" onto the barge, couple up to the freight cars, and pull them off the barge. With this method, the locomotive remains off of the float bridge, and only the lightweight reach car goes onto the float bridge and barge. Depending upon how far the locomotive had to "reach" to couple up to a freight car, several "reach" cars might be necessary.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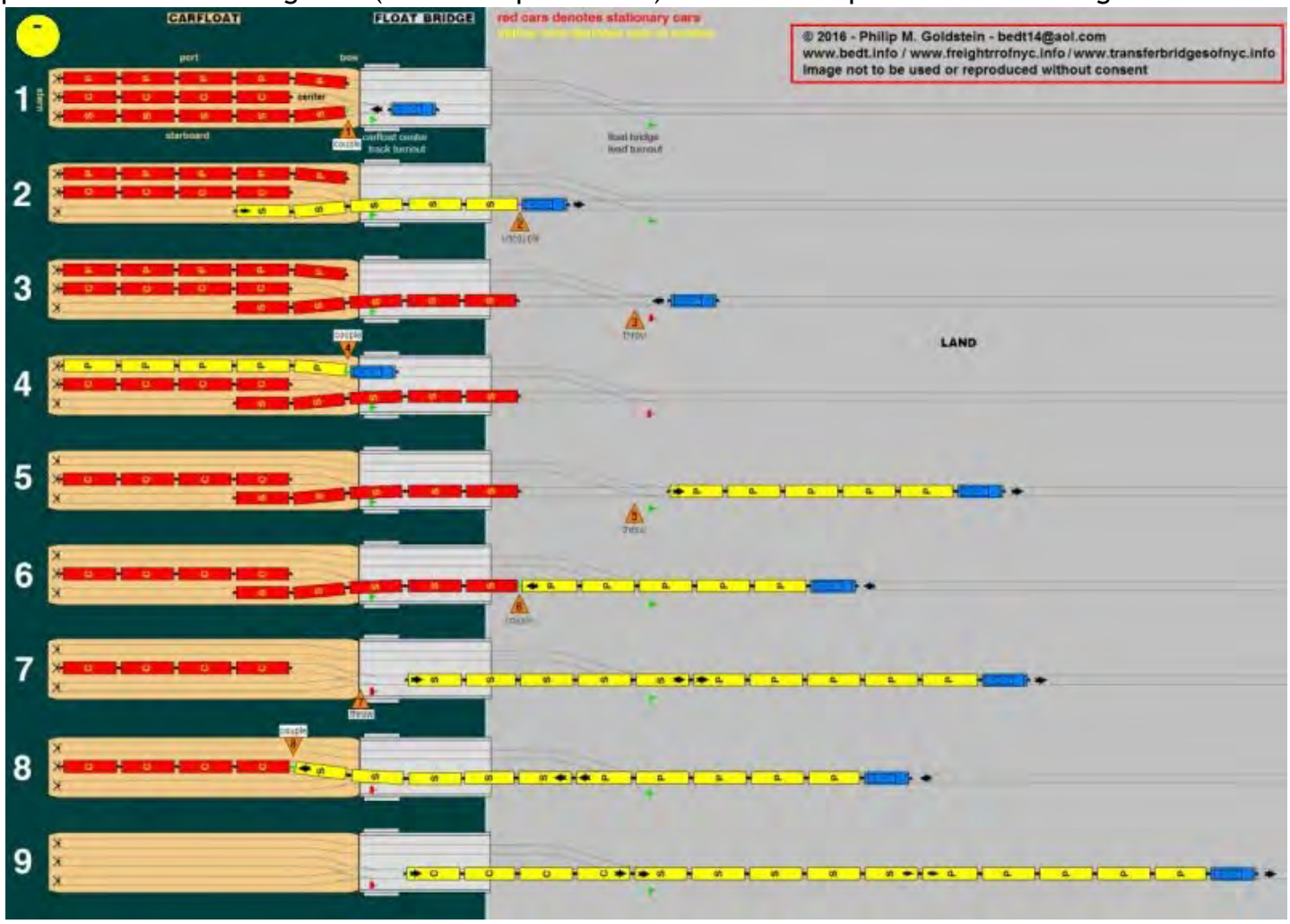
Sequencing the Moves

The barges are floating, so the weight on them must be evenly distributed so they do not list to one side or the other and over-stress or break the locking pins. If a barge loaded with three tracks full of freight cars has to be offloaded, the cars must be removed in a specific sequence in order not to have excessive weight on one side of the barge. This is also true when loading a barge.

To keep the barge as level as possible, the locomotive engineer must first pull the string of cars on one side of the barge halfway (but not all of the way) off the barge. The locomotive engineer then uncouples from these cars and couples up to the string of cars on the other side of the barge and pulls these cars all the way off. The locomotive engineer then backs up, couples up to the string that was first pulled half-way off of the barge, and now pulls them completely off of the barge. At this point, the only cars remaining are the cars on the center track, which keep the barge balanced. Finally, the locomotive engineer backs up, couples up to this last string of cars on the center track, and pulls them off. When loading a barge, the locomotive engineer would follow this process in reverse. Figure 7 (used with permission) shows this sequence for unloading a car float.

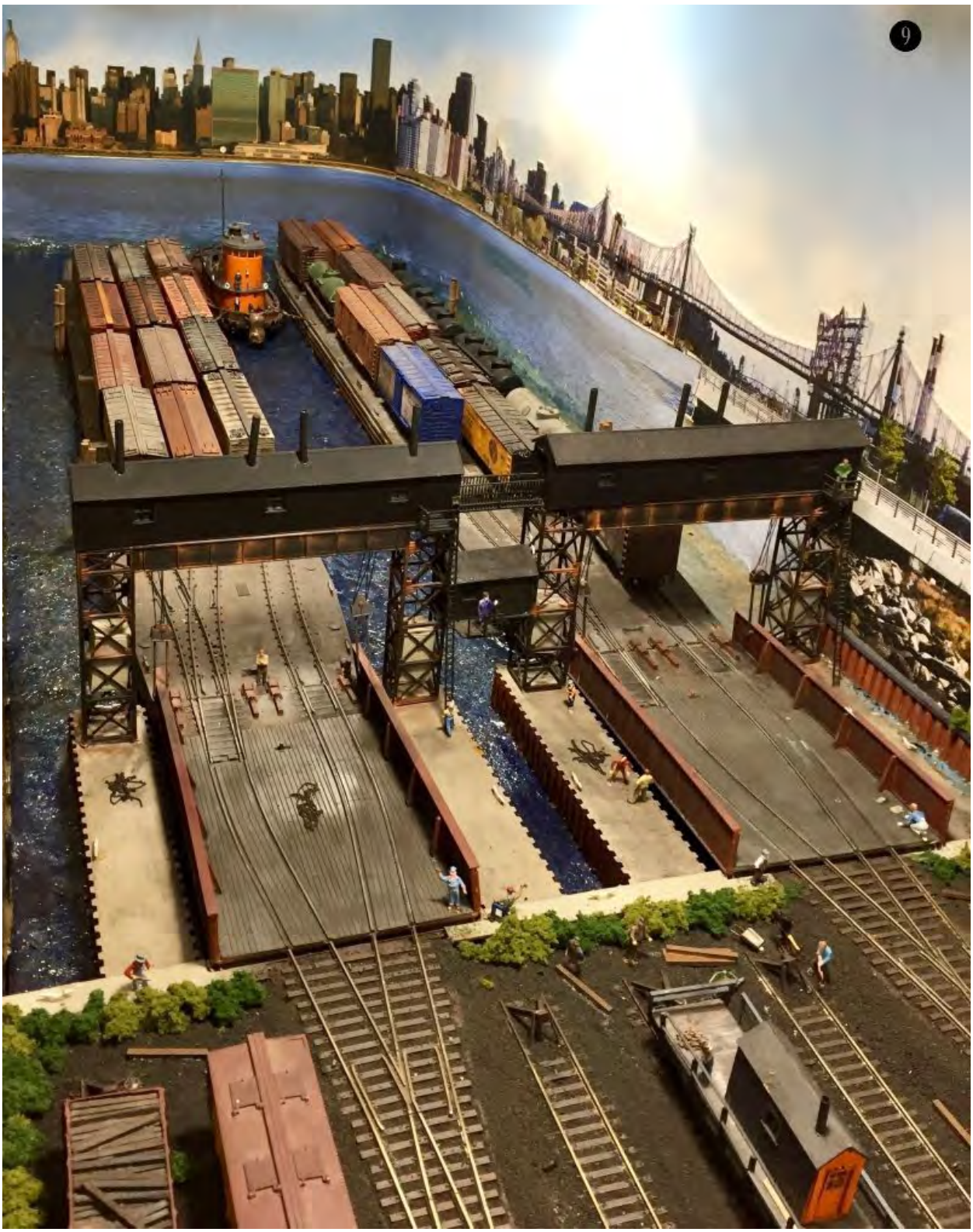


Modeling a Car Float Operation

The main components you will need to model a car float operation are a receiving yard, a car float bridge with a gantry crane, a car float, or barge, and several “reach” cars. Depending upon your modeling skills and/or your desire to scratchbuild versus build from a kit, there are numerous options for you to pursue. Most of the components you will need are available in kit form. For example, Walthers still sells a model of a two track car float bridge with a gantry crane (part #

933-3668). Frenchman River Models also sells a two track car float bridge, but does not sell a model of a gantry crane to lift the car float bridge.

Walthers used to sell a model of a car float. However, this has been discontinued, so finding the Walthers kit might be a bit difficult. Frenchman River Models sells a scale 169 foot car float. They also offer scale 64 foot extensions that can be added to the 169' barge. Looking at Figure 1, you can see that a prototypical barge used by the LIRR held seven 40' freight cars on the outer tracks, and four or five freight cars on the center track. Hence, a proportionately scaled barge in HO would be roughly 42" long! Many of us do not have this kind of space to devote to a single barge, so modeling a shorter barge to better fit in the available space would make sense.



Modeling a tugboat next to your barge (or barges) will make your car float scene more interesting, but it is not a mandatory component to model. There are many tugboat models available, and Walthers still has a railroad tugboat kit available (933-3153).

When designing your car float facility, make sure that you have a yard that abuts or is very near to the car float facility so that cars that are removed from the barge have a place they can be stored, and that cars waiting to be loaded onto the barge have a place to be stored as well.

Also, if you plan to load and unload the barges prototypically, your lead track to the float bridge must be at least long enough to hold the number of cars that can he held on the outer track of the barge. The longer the lead track, the better, otherwise you will have to move the cars you first pull off of the barge to another track before you can pull any more off.

Figure 8 is a photo of the Free-Mo car float module that inspired me to model the LIRR car float facility at Long Island City and Figure 9 is a photo of the Long Island City car float facility that I built on my layout. I kit-bashed two Walthers float bridge and gantry crane kits together and added some additional structures to try to replicate the LIRR Long Island City float bridges and gantry cranes (see Figures 2 & 3).

If you like to operate on your layout, adding a car float yard can greatly increase the fun of operations. Assigning a yardmaster to pull cars off of a barge in a prototypical sequence, sort then set them out for a pickup, then sort and load delivered cars onto the barge, again in a prototypic sequence, can be a fun operating challenge.

Return to Bill of Lading

Brian is a long-time model railroader who models the Port Jefferson and Atlantic Branches as well as the City Terminal Zone of the Long Island Rail Road in HO scale. He earned Master Model Railroader (MMR) certificate number 469 in 2011 and was formerly the Superintendent of the Potomac Division. Brian's layout was featured in the September 1997 issue of RailModel Journal. When he's not working on his trains, he enjoys playing bluegrass banjo and plays in a local band.