Operate a popular postwar accessory in a DCS environment.

Creative Extensions for Lionel's No. 350 Transfer Table

Article by Barry Broskowitz **Photos by Jim Barrett**

A few years ago I tore down my layout prior to moving to a new house. When I planned a layout for the new home, there were several requirements that had to be satisfied. Among them was a layout using MTH Digital Command System (DCS) throughout plus the ability to have a substantial number of my MTH Proto-Sound 2 diesel and electric engines on the rails and ready for running at all times. I considered various alternatives but found that a conventional yard with a ladder of sidings wouldn't fit well on my around-the-walls layout, and a turntable would require an excessively large amount of the available layout space.

I then took a look at the Lionel No. 350 Transfer Table and almost rejected it for two reasons. First, the table only handled two tracks unless Lionel's transfer table extensions were added, which are hard to find and fairly expensive. I learned that Lionel manufactured only one extension for each table produced. As a result, retailers were marking up the extensions to two or even three times the normal price of $50.00, and I would likely need as many as 10 or 12 for my proposed engine yard. Second, the Lionel table was designed for tracks

A Union Pacific SD-90MAC enters the modified and expanded Lionel No. 350 Transfer Table from the lead-in track at the far end of the yard.

The transfer table rides on five rails that replace the table base. These running rails can be any length you want.

spaced 5-1/2″ apart, center rail to center rail. This also would require more space than I could afford.

I decided on the transfer table after I spoke with *OGR*'s Associate Editor Jim Barrett. We discussed his idea for extending the transfer table's run *without* using Lionel's extensions. If it worked, the table would have the added benefit of spacing the sidings at whatever distance worked for the layout. I set out to implement this novel approach using Jim's suggestion for the rails and a wiring scheme I developed for the table. This project developed into three separate components: the track supporting the table, the individual sidings, and the wiring.

However, before constructing your engine yard and transfer table, I recommend temporarily setting up the table with its base and controls and wire it as instructed in the manual for conventional wiring. I did this to familiarize myself with the table's basic operation before constructing the yard.

Tracks for the Table Base

When you install the transfer table, don't use the base it comes with. Instead, use five lengths of GarGraves flex track to create a new base as follows:

1. Slide out the center rail. Be careful, the rail edges are sharp!
2. With the center rail removed, cut all the track ties down the center, which gives you two of the five rails needed for the transfer table platform's base.
3. Repeat steps 1 and 2 twice so you have six 37″ rails. (You actually need only five rails, so the sixth is an unavoidable extra.)
4. If the distance that the table has to travel is longer than 37″, cut additional rail sections as needed.
5. Measure the distances between the five rails on the Lionel base and lay your GarGraves rails using this same spacing. Attach each of the five rails directly to the firm, flat surface where the table will run. The transfer table runs back and forth on these five support rails. Do not use cork or other roadbed material under these rails.

Creating the Sidings

From an operational standpoint, there's no point for engine storage sidings longer than the length of the table plus allowances for a track end bumper and engine overhang from the table. An exception is a pass-through siding opposite of the lead-in track, which can be as long as space allows for holding an engine of any length. Determine the length of the storage sidings as follows:

1. Select the longest engine that will ride on the table. The determining factor is the length of the engine's wheelbase. All the engine's wheels must fit on the track on top of the transfer table. Anything fore or aft of those wheels can extend over the ends of the table.
2. Add the length of any bumper you put at the end of the siding to the coupler-to-coupler length of this engine. I used Lionel No. 6-62283 Die-Cast Bumpers, which are 3″ long.
3. With your longest engine sitting on the transfer table's track, measure how far the engine overhangs the ends of the table. As the transfer table moves, this overhang must clear any engine already sitting on the sidings. Increase the length of the sidings to accommodate the overhang. For example, if the longest engine to ride the table is 18″, its overhang at either end is 1-1/2″, and the bumper is 3″, then make each siding 22-1/2″ long (18″ plus 1-1/2″ plus 3″).

Now construct the engine storage sidings and lead-in tracks as follows:

1. Determine the number of sidings you want and the space between each of them. Track spacing on the Lionel base is on 5-1/2″ centers. That was too far apart for me, so I used 4″ centers. I left just enough room between my sidings so the "train crew" could walk between parked engines. Space between sidings need not be consistent so you can accommodate various objects such as engine houses or other structures.
2. Cut track to the lengths of your storage and lead-in tracks.
3. Raise the transfer table end of each siding and lead-in track to match the height of the rails on the table. I put cork roadbed under the length of each track, and at the table end, added a spare GarGraves tie under the rails and between the first and second ties. This created a very slight grade and, although I have no idea if this would be prototypical, it looked good to me. You might have to experiment to see what works for you.
4. Fasten the roadbed and track to the layout's tabletop and add any bumpers you want to complete the sidings.
5. At each end of the transfer table's travel path, construct stops or bumpers so the table will stop and line up with the last pair of sidings or lead-in tracks. I cut two GarGraves track ties in half and screwed each of two tie halves to the train table to act as stops for the transfer table. When moving in either direction, the leading edge of the transfer table moves against the ties and stops with the table and siding rails properly aligned.

Wiring

If you use the controls that came with the transfer table, you can skip this section. Simply wire the transfer table per the "Conventional

The light-colored wooden blocks at the far ends of table support rails 1 and 5 stop the table at that end of the yard and align the table with the yard's lead-in track.

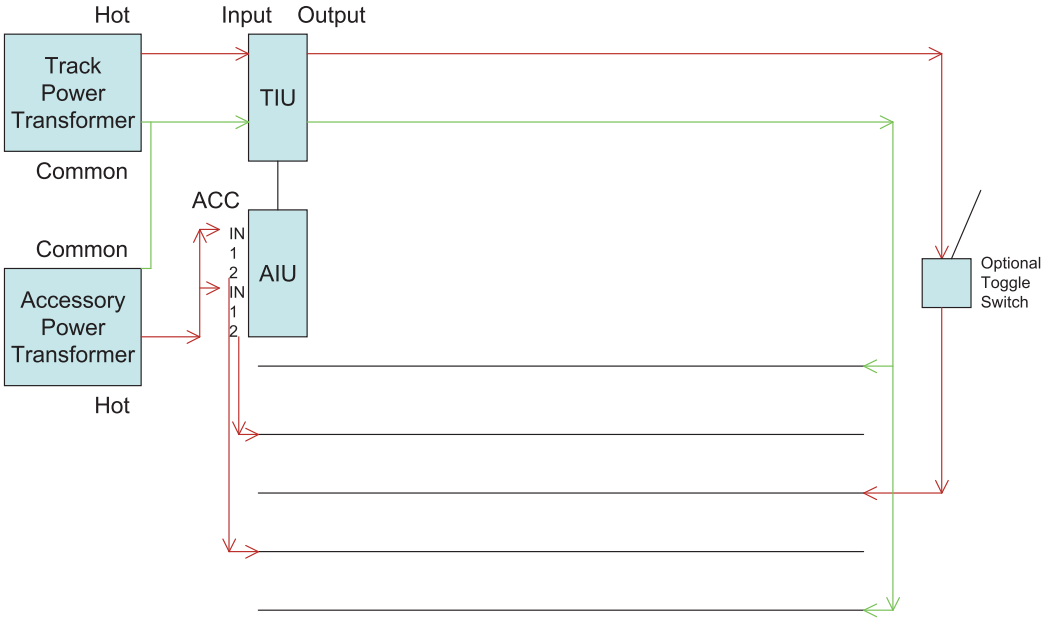
Wiring" instructions in its manual. If you choose to use the controls that come with the table, you must press the button the entire time that the table is moving. I found this less than desirable.

I chose to wire the table for use with a DCS Accessory Control Unit (AIU) as follows and shown in the diagrams. If you want to wire conventionally, but without the table's control box, substitute single-pole, double-throw, center-off toggle switches for each of the two AIU accessory ports.

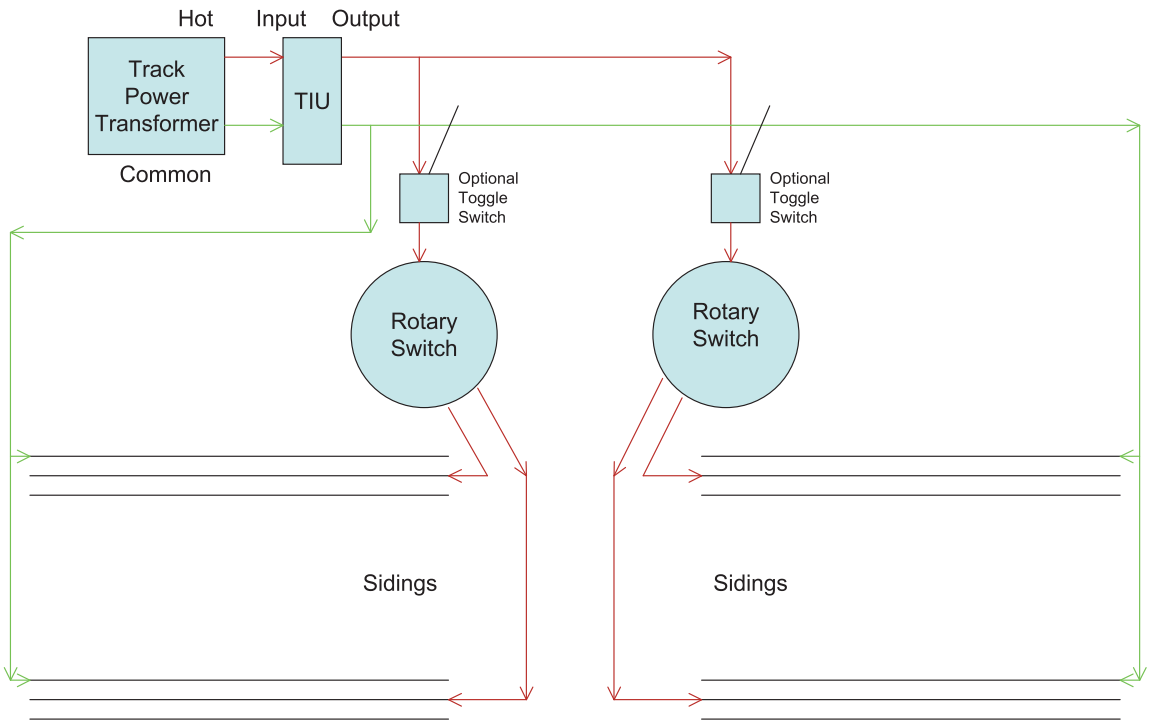
1. Connect the transformer hot lead from the DCS Track Interface Unit (TIU) channel controlling the yard to the center rail under the transfer table. This circuit also provides power to the center rail on top of the table. I used a toggle switch in this circuit to shut off power to the center rail, but this switch is optional.
2. Connect the transformer common lead from the same TIU channel to the outer two rails under the transfer table. This provides the electrical common for all table functions, including the outer rails on top of the table.
3. Connect the accessory transformer hot lead to the inputs (IN) of the two AIU accessory channels. I use approximately 14 volts for the motors that move the table.
4. Connect terminal 1 of one of the two AIU accessory ports to rail number 2 under the transfer table. Connect the other AIU accessory port terminal 1 to rail number 4. It doesn't matter which side of the transfer table you count the rails from.
5. Program the AIU so one of the two AIU ports is designated as Table Forward operation and the other is Table Reverse.
6. Wire each siding's center rail to one point on a rotary switch or to a separate toggle switch. To save panel space, I used two rotary switches, one for each side of the engine yard. However, if you want to have many of the engines powered up at the same time, you'll need to use toggle switches.
7. Wire the rotary switch input tab to the hot side of the TIU channel connected to the middle rail under the transfer table. If using more than one rotary switch or multiple toggle switches, wire the inputs of all the switches back to the same TIU channel hot lead.
8. Wire one outside rail of each siding back to the common side of the TIU channel connected to the two outer rails that support the table.

That's it for constructing the transfer table.

Transfer Table Wiring Diagram



Sidings Wiring Diagram



Operation

1. Turn on the power to the table and also to the siding holding the engine you want to run.
2. On the DCS remote, press ACC and scroll to the function for Table Forward or Table Reverse. Use the ON, OFF, and ACT soft keys to align the table with a siding. The ACT soft key will allow a "nudge" function for precise lineup. The table rolls at a very slow speed, so precise lineup is easy.
3. Press ENG, select the engine, start it up, and run it onto the table.
4. Press ACC and scroll to the Table Forward or Table Reverse. Use the ON, OFF, and ACT soft keys to align the tracks on top of the table with the lead-in track.
5. Press ENG and run the engine off the table. When the table's center rail has power, the red light on top of the table illuminates.

Living in central Florida, I tend to describe the transfer table's operating speed as being similar to the space shuttle as it moves from the vehicle assembly area to the launch pad. It's slow, rather majestic, and a real crowd pleaser. It's fun to watch the expressions on the faces of visitors to the layout when they realize that the 23 engines lined up in the engine yard aren't simply on display. These engines actually have access to the various main lines on the layout.

The significantly extended transfer table provides storage tracks for 23 locomotives without taking up a lot of valuable real estate on the layout.

About the Author

Barry Broskowitz is well-known and highly regarded in the hobby for his MTH DCS system expertise and his willingness to share his knowledge with others. He is also a regular contributor to *OGR*.