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Model Railroad Hobbyist | August 2017 | #90

GETTING REAL

column



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ANTHONY THOMPSON
.....

ENGINE SERVICING DETAILS | USING REAL-LIFE EXAMPLES FROM THE PROTOTYPE ADDS CREDIBILITY TO FREELANCED SCENES

IT IS A RARE MODEL RAILROAD THAT INCLUDES no facilities for locomotive servicing or any kind of engine terminal. The broad concept and prototype design of such facilities is a complex subject, not only because individual railroads differed in how they designed them, but also because even on a single railroad, few terminals were the same as any other such terminal on that railroad.

There have been many magazine articles on the modeling of engine terminals, and at least one quite good book, the Kalmbach softbound volume about *Locomotive Servicing Terminals*, by Marty McGuirk (see Bibliography). The book is a rich source of photos of prototype engine terminals. Just because that book is so good, I won't try to cover the full breadth of the subject in this column.

Instead, I want to talk about the details. My own layout, which represents a mythical Southern Pacific branch line, has only

► MODELING REAL RAILROADS AND WHAT THEY DO

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modest engine facilities. Most SP branch lines had a small engine facility, either at the junction with the main line or, more commonly, at the end of the branch. Some of the branches were operated by “turns” out of larger yards nearby. I chose to locate my engine facility at a junction.

I should also emphasize that my engine facility is proto-free-lanced. It is based on SP practice but not on any specific SP engine terminal. This is a strength, in that I am not bound to particular features, but also a weakness in that I don't get to research and duplicate a set of actual arrangements, which would not only be fun but can make for a striking model. My



1. The Banta Modelworks roundhouse as installed on my layout. For a description of building this kit, see the Bibliography. Offices, lockers and boiler room are along the left side of the structure. A gondola of new wheels is spotted at the machine shop behind the main roundhouse. The water tank is a standard SP 65,000-gallon design, produced in brass by Overland.

goal, then, is simpler in some ways: to try and replicate typical features that are found at SP terminals.

The basics

I want to show very briefly the scope of my own engine facility, not because it's important in itself, but simply to provide a canvas on which to show details. And by the way, I model in HO scale.

Roundhouse

I was still considering whether to build a rectangular engine house or a small roundhouse when the Banta Modelworks kit for the SP roundhouse at Port Costa, CA was released. This is not only an accurate kit for the prototype structure, but is typical of many smaller wood-frame SP roundhouses. I enjoyed building that kit and am happy with how it looks on the layout [1].

A roundhouse usually had the ability to generate steam, for moving dead locomotives, steam cleaning, and other tasks. Most importantly for oil-fueled steam locomotives, steam was used to keep the viscous oil warm enough to flow. That was true for the facility's storage tank, and even for the steam coils in the tank cars that delivered the fuel. And generating steam, of course, means a boiler. Boilers were installed in almost all SP roundhouses.

There would also be an office for the roundhouse foreman, and likely a storage area for materials and spare parts. And in many cases, a locker room would be included. If engine crews used the facility, they would ordinarily have a separate locker room from the machinists and boilermakers who worked in the roundhouse. There was space for all these functions in the Port Costa roundhouse, duplicated in the kit, so my branchline roundhouse has them too.

Even a small roundhouse normally was used for light repairs, and might either contain a machine-shop area inside the roundhouse itself, or have a connected building for that purpose. I decided

to add a small machine shop to the roundhouse, at the back, to reflect this practice [2].

In the 1950s era I model, many SP company facilities that needed portable fuel burned coal. This included section houses, depots, and cabooses, as well as stationary boilers, and sand houses. Accordingly, a coal pile outside the roundhouse should be included. I simply made a styrene bin and added coal to it. This one may look a little small, but is similar to what I have seen in photos of SP roundhouses and shops. The Port Costa roundhouse also had a coal storage area inside the building, next to the boiler.

At least some of the parts to be handled in a machine shop would be too heavy for manual movement or lifting, so a crane of some kind is likely outside the shop. There would likely be a crane inside



2. A side view of the Banta Modelworks roundhouse prior to adding some of the details described in this article. Its length accommodates small steam power such as Consolidations. The coal bin is in the middle of the side wall. The machine shop addition to the roundhouse is at the back, as is a loading dock for that shop. That's a pile of wheels by the shop track.

the shop also. I added the Tichy jib crane (see Parts list) to serve this purpose, and it is shown in a later photo in this article.

I hinted in my caption to [2] that wheels and wheelsets are handled at this facility. I described my modeling of wheel and wheelset operation in my column in the *Model Railroad Hobbyist* issue for September 2016 (see Bibliography).

Servicing

The classic servicing of steam locomotives involves fuel and water supply, along with sand and lubrication. It was common on

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the SP to use water and fuel cranes, with the storage tanks moved outside the immediate servicing area. This saves space in the busiest part of the terminal. To illustrate these services at a small-scale SP terminal, I include [3] to show the overall appearance.

The large water storage tank visible in [1] is of course the source of water for the water crane on my layout, and [4] shows the fuel



3. A view of the Wendel, CA engine terminal in the summer of 1951. Baldwin AS-616 no. 5233 is at left, not yet a year old. Behind it is the two-stall engine house. At right is Class AC-9 articulated no. 3811, last of the 12 engines in the class. Originally a coal burner, it has been converted to oil and is running out its final miles on the Modoc line. Just visible at right is the sand house, and that rickety-looking piping over the track is for sand delivery. There is a water crane, and a fuel crane which is in use. Note the duckboards on both sides of the tracks and between the rails, and note also the six visible barrels. *Richard Steinheimer photo, DeGolyer Library*

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and water servicing pad with minimal other details in place. The water crane is a Sheffield design, widely used across the SP system, and was imported in brass by Lambert.

My fuel supply is a Precision Scale brass oil column. Many SP facilities used the Rose oil column, available as a kit from Tichy Trains. But SP purchased its fuel and water columns from a variety of manufacturers, so modeling a specific terminal will require research.

Photos of SP engine terminals show a wide variety of ground treatments at servicing pads, in some cases paved (usually with concrete, sometimes asphalt), dirt or gravel, and sometimes duckboards, about which more in a moment. For my small terminal [4], I chose concrete for the basic support of the fuel and water cranes.

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I should mention that modeling a fleet of oil-burning steam locomotives does free one from coaling towers, ash pits, and other complications of coal fuel. Those “complications,” of course, can also be modeling opportunities, as is well illustrated in the McGuirk book.

Duckboards

One noteworthy aspect of the terminal in [3] is the presence of extensive working surface in the service area in the form of duckboards. These were used in many SP facilities. The purpose is to provide a walking surface above any puddles of spilled oil or water, and keep workmen’s feet a little cleaner. For a more dramatic view of such duckboards in service, the wash rack area



4. The minimum in fuel and water cranes, on my layout. The immediate pad area is shown as concrete paving. A caboose service building is at lower left. In this view, a water hose is at one end of the paved area. But there should be more details.

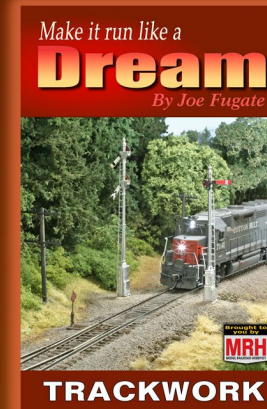
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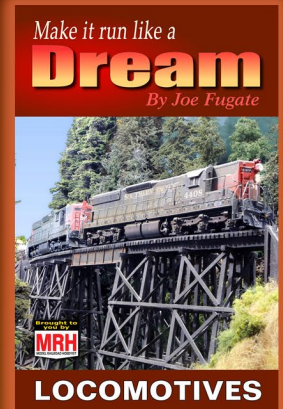
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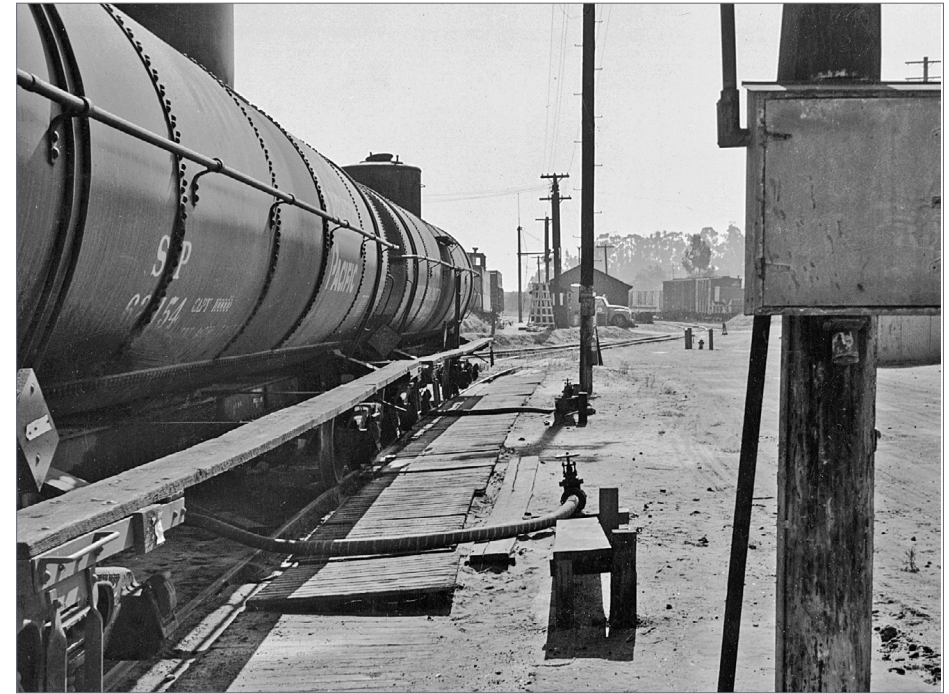
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5. This photo of the wash rack north of the roundhouse at SP's Taylor Yard in Los Angeles, taken in the summer of 1950, shows the duckboards provided so workmen's feet could mostly stay out of the accumulated oil and water in the area. *Richard Steinheimer photo, DeGolyer Library*



6. This is the SP fuel track at San Luis Obispo, CA in the late 1950s. Hoses are connected to the tank cars for gravity unloading. The duckboards for workmen alongside the track are evident. *Southern Pacific photo*

at Taylor Yard in Los Angeles is shown in [5]. Here the oily water from steam cleaning would be ubiquitous.

Another use of protective treatments such as duckboards is the surface where light repairs are made. This may or may not be near the fuel and water servicing pad. Most SP photos showing areas of repair work seem to be paved, with either asphalt or concrete.

The examples in [3] and [5] do show engine terminal areas, but of course duckboards might be used anywhere there might be spillage. Another example was the area for unloading locomotive fuel at San Luis Obispo, CA [6]. In all these photos, the duckboards

look fairly similar. They are wooden slats, not tightly fitted but with spaces to allow drainage, and they are not perfectly lined up in length, though pretty consistent in spacing. Modeling these would obviously require accomplishing a similar appearance.

These would not be difficult to model from scratch, using strip-wood or strip styrene, though it would be a tedious process and likely not easy to get the boards consistently parallel. I've adopted a much easier way. I make the duckboards from HO scale pallets. There is a convenient Preiser set of pallets, their number 17104, which contains 60 pallets.

I will observe in passing that actually these are "Euro-pool" or, as they are termed, EUR-pallets. They are narrower than standard American pallets, so are not really suitable to stack on loading docks of your layout industries, but they are fine for duckboards. (The EUR-pallet is 800 x 1200 mm; standard U.S. pallets are 40 x 48 inches, or 1020 x 1220 mm. Today there are several additional standard EUR pallet sizes. If this topic is of interest, Google "EUR-pallet" for more information.)

The Preiser pallets are molded in what is definitely a new-wood color, but of course duckboards in service would be quite different from that. I begin by lightly priming them, usually with gray or light brown, sanding the bottoms, and attaching a strip of thin styrene sheet or sometimes a scale 1x10-inch styrene strip, to hold them in alignment. A photo of this arrangement [7] shows one set of duckboards upside down to show the 1x10 strip I used in this case. They are not particularly well aligned; the irregularity is deliberate. One could certainly align them very precisely if desired.

Once I have an assembly of pallets, I paint them a medium to dark brown if that wasn't done on the sprue [7], varying along the length of the assembly. I then weather and dirty them heavily. An example is included here [8].

For my layout's engine terminal, because the fuel and water pad is represented as concrete, I didn't need duckboards for the service area. But I also model an unloading area for locomotive fuel just as in [6], so I have built duckboards for that area. I also added a storage tank for the fuel oil and a pump house next to it. Note in [6], incidentally, that the hoses are not very long, only long enough to just reach from the tank car to the pipe connection.

I model hoses several ways, usually with hook-up wire as a starting point. Stripping wire ends and painting the exposed end bronze color can represent connectors. An example using no. 18 wire is included in [8]. I have also used small brass tubing, glued over the stripped wire end, to represent hose couplings or connectors.

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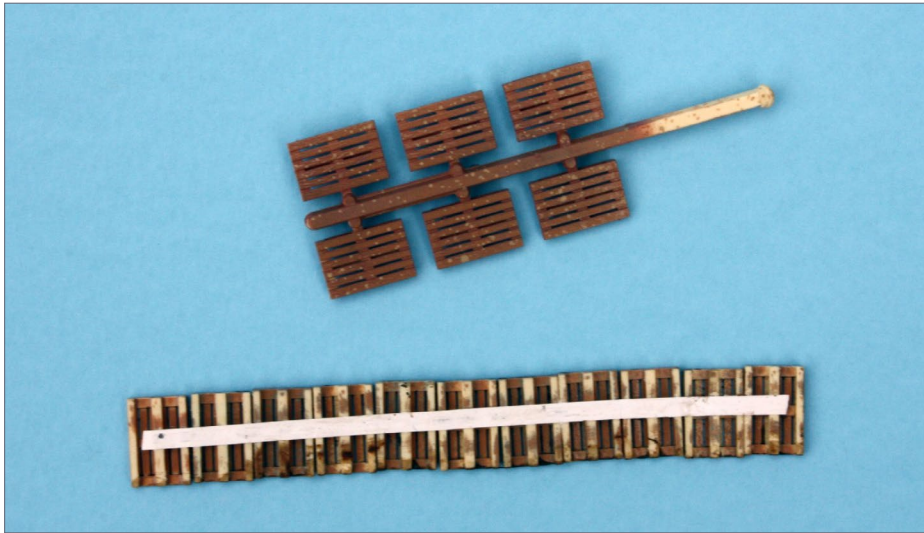
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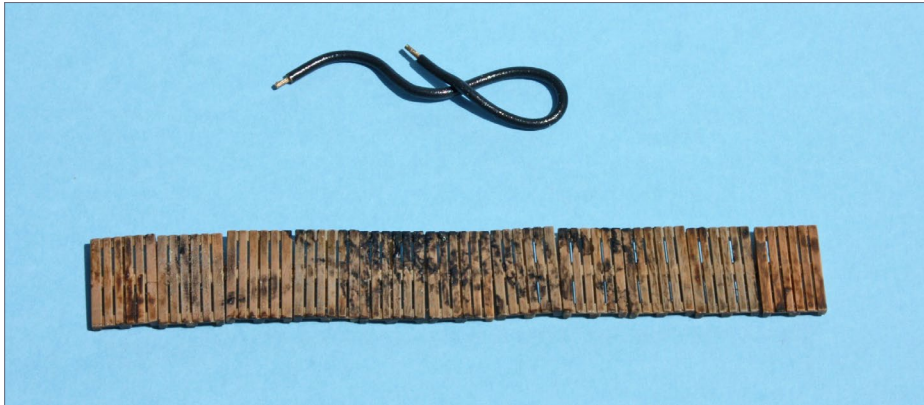
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7. The Preiser pallets come six to a sprue. The sprue here has been painted an aged-wood brown. At bottom are 11 pallets, tied together underneath with a strip of scale 1 x 10-inch styrene strip.



8. This photo shows a completed section of duckboards, suitably weathered and stained to represent fuel handling. Also shown is one kind of hose I make, reflecting the kind of hose lengths visible in [6].

Smaller hoses, perhaps similar in size to a garden hose, are visible in some prototype photos. I have modeled such a hose at my engine service area, using no. 24 hook-up wire. This can be seen in [4]. I made the hose bib by bending a length of stripped wire at the end of the hose, and painting it black. With most hoses, the appearance is improved if some time and effort is taken to achieve a realistic looking shape, either neatly coiled or simply left lying as it was last used. A hose reel is another modeling opportunity, though I have not been happy with how my attempts have turned out so far.

Additional details

A wide variety of smaller components that make up engine terminals are worth observing and modeling. It has long been “common modeling” to strew various kinds of locomotive parts and other “junk” around engine houses, but examination of prototype photos quickly reveals two vital points. First, any stored parts are neatly arranged or stacked, often on skids or other supports to keep them out of rainwater, etc. Second, “junk” simply is not present. It would be in the way. Even photos of railroad facilities on the verge of abandonment do not show random junk piles.

The Wendel, CA photo [3] is one example. For two more examples, which also show additional features I want to discuss, I show a pair of service-area photos from SP facilities in Los Angeles [9,10]. Both of these latter photos show that there is not “junk” lying around, though each working area does indeed contain a myriad of details. The areas are paved, and the number of carts, probably containing tools, materials, or parts, is striking. So is the frequency of ladders, stands, and other means of conveniently accessing work areas well off the ground. To be sure, there are a few minor items visible, such as an oil can in one photo, and a pipe and a box in another. But they are neatly placed out of the way.

Carts

In a range of SP engine terminal and shop photos I have seen, there are hardly any two carts alike; compare [9] and [10]. No doubt these are home-made in the shop for each specific purpose. Color images show them to be mostly dark colors, though orange and yellow can be found. Because they are so variable



9. This superb image shows open-air repair work on the garden tracks at the Taylor Yard roundhouse in Los Angeles, in the summer of 1950. In addition to cab-forward 4192 at right, 0-6-0 switcher 1244 is being serviced here. Note the several carts, the ladders and stands, and the general cleanliness of the area. *Richard Steinheimer photo, DeGolyer Library*

in shape, almost any small box shape will work for these. They almost always have wheels on one end. There have been commercial models of things like this, but they are easy to scratch-build also.

I have built several small carts, and described fairly thoroughly how I made some very simple styrene ones, in my blog (see Bibliography), so I won't go into the production process here. There are also some commercial kits for carts, such as the nice cast pewter metal one from B.E.S.T. (Bollinger Edgerly, see Bibliography). Examples are shown in the photo here [11].



10. Southern Pacific steam passenger power was usually serviced in Los Angeles at the Alhambra Street roundhouse, adjoining the Los Angeles General Shops. This 1948 view shows outdoor servicing with the usual numerous small carts, ladders, barrels, and generally orderly appearance. *Malcolm Gaddis photo*

Barrels

One thing often visible in photos of engine servicing areas and shops is barrels (often oil drums). Most are evidently in use as trash receptacles, though some may contain lubricants. If you examine the photo of the Wendel terminal [3] carefully, there are at least six barrels around the area. These are easily modeled with any of several commercial barrels, but I like the Grandt Line ones best because they are hollow, thus easily used for the kind of containers visible in many photos.

These barrels might be plain black or gray in color, or they might well have a color code stripe like many oil company barrels [12]. Several photos of SP facilities clearly show solid-color barrels, and color images have shown both orange and red ones. Some might contain sand for fire fighting or to scatter on oil spills. I have included a photo [13] of orange barrels.



11. Several work carts for engine terminal use. The three at left are built from scratch out of styrene, while the one at right is a pewter kit from BEST (see text).



12. The wheeled work cart near the center of this view has a gable top, though flat tops are far more common in SP photographs. The striped barrel is also noteworthy. The scene is at Tucson, AZ where power was changed on many trains, and minor repairs often made. *Al Phelps photo, August 1952, Signature Press collection*

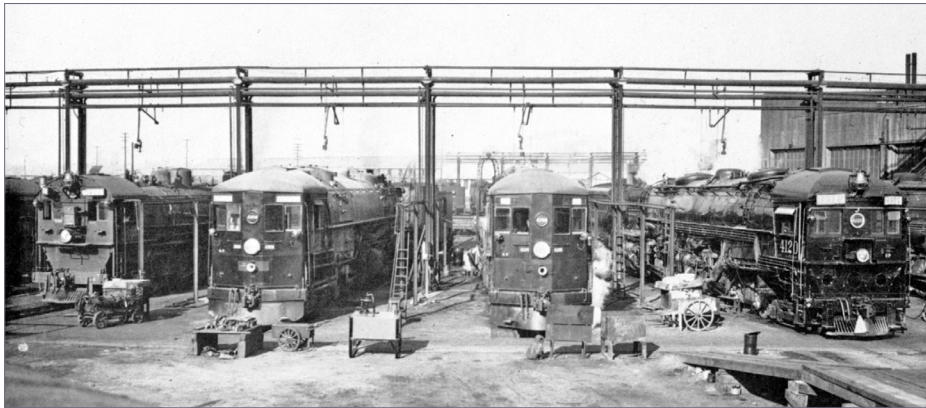


13. Color images show a mix of barrel colors. In this October 1955 view at West Oakland, CA there appears to be an orange barrel at the end of each garden track, and a group of both black and orange barrels at left. *Detail of a Dallas Gilbertson photo, courtesy Tom Dill*

Ladders

Another highly visible component in almost any photo like this is the ladders and stands, of all shapes and sizes, many doubtless home-made in the shop for specific needs. These sometimes are made of steel tubing, but most commonly are wood. Examples of all these can be found among the photographs here, such as [9, 10, and 14].

Modeling these can readily use commercial ladder material, such as the nice Central Valley set (see Parts list), which contains several styles of ladders. I like their 10-foot stepladder as typical of engine terminal ladders. I also used more of the ladder material in their set to make a 5-foot stepladder. Both are shown in [15]. Other ladders have been commercially available over the years. I have a couple of HO scale stepladders for which I no longer remember the origin.



14. Another photo of the garden tracks at Taylor roundhouse in Los Angeles, this one in 1939. There are four carts visible; at left is an unusual four-wheeled cart, and a couple of skids, and some ladders and stands. *Allan Youell photo, Arnold Menke collection*



15. The taller ladder is the stock Central Valley 10-foot step ladder from their set 1602. The shorter one is made from material in the same set. Both are quite similar to ladders seen in prototype photos of engine servicing.

Skids

These are less frequently evident in engine service areas for fuel and water, but are commonplace in shops and repair areas. They are all different shapes and sizes, and sometimes are labeled with what is supposed to be put in them. An example is in [16]. I have no suitable shop area to include a model skid, but they would be pretty easy to make from styrene.

Blue flags

Most modelers already know about blue flags, which are a system to prevent movement of equipment when such movement might be dangerous to someone working on the equipment or damaging to the equipment. The key point is, that only the person who placed the blue flag is entitled to remove it. The idea, of course, is that only that person can be sure that the work has been done, and that workers are out of danger. This is enshrined in most railroad rule books as Rule 26. I found it interesting that at one time, blue flags really were fabric flags [17]. More recently, they are metal rectangles.

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In a shop, blue flags are not as important, because equipment is often worked on for an extended time. But in a fuel and water servicing area, the opposite is true, and blue flags are routinely used. Most blue flags are metal rectangles on a steel rod post, and can be inserted between ties, or, if equipped with a channel base or clamp, can be set atop a rail [18]. Blue flags are used to warn about a wide variety of safety issues, as is evident from the range available [19].

There is also a style of blue flag with a hook at the top end, and the hook can be engaged onto a small loop on the side of a locomotive cab. The blue flag in that case is visible from inside the cab, reminding the engine crew of its presence [20]. I happen to



16. This 1955 view inside the Erecting Hall at Sacramento General Shops shows cab-forwards undergoing class repairs. In the foreground is a skid for brake shoes, labeled "SP CO STORES DEPARTMENT," as well as indicating the desired contents. *Ken Yeo photo, Bob Church collection*

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17. Originally the "blue flag" was just that, a fabric flag. In this photo from a snowy day in March 1943, John Paulinski, a Santa Fe car inspector, is blue-flagging a train for inspection at Corwith Yard, Chicago. *Jack Delano photo, Library of Congress, image LC-USW 361-609*



18. There are several types of commercial blue flags for the prototype, including these two. At left is a flag which clamps to the rail; at right is one which has a pointed staff for insertion into ballast. There are also motorized flags that can be raised and lowered by remote control. *Photos from the Western-Cullen-Hayes catalog*



19. Here is the array of available blue flags from Western-Cullen-Hayes, including a blank blue sign to which the buyer can affix any chosen wording. They also produce custom signs.

have such a blue flag, given to me by an SP carman years ago. The flag part is an aluminum rectangle, about 12 x 13 inches, a more or less typical size, and this particular flag does have the hook at top for locomotive cabs.



20. In this photo at San Luis Obispo, 2-10-2 helper no. 3711 is about to help the westward Daylight, no. 99, over Cuesta. The engines are coupled up and all servicing has been completed, so the worker on the ground is about to remove the metal blue flag from its place on the cab side (just to the right of the engineer). The flag reads "MEN AT WORK," and Rule 26 provided that it be placed on engineer's cab side. *Richard Steinheimer photo, De Golyer Library*

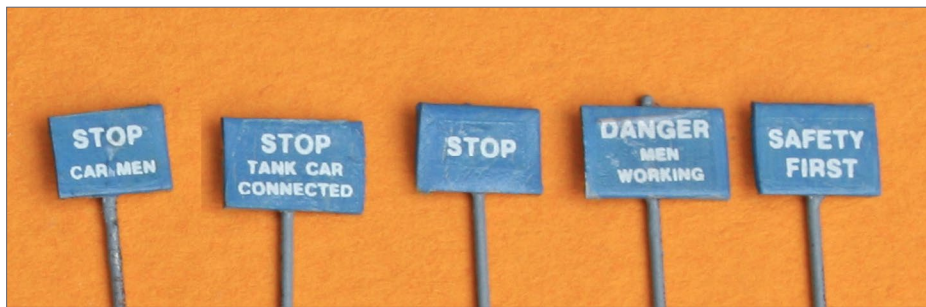
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There have been model blue flags available from a variety of sources over the years. I have mostly made my own from brass sheet, soldered to a brass wire staff. Construction of these flags, and some additional background on the prototype, has been presented in my blog (see Bibliography). Some of my model blue flags are shown in [21].

The simplest way to use model flags on the layout is by drilling a hole to accept small tubing between the rails, so that the flagstaff can be inserted or removed easily. I have found this to work well. An example of a model flag in use is [22], showing one of the many applications of blue flags in railroad operations. Because it is merely inserted into tubing, it is easily removed when appropriate.

Firefighting equipment

One thing that can be found in many photos of locomotive service areas is a cabinet or box containing fire hoses or extinguishers. See [12], just to the right of the barrel. These are often painted red for identification.. There may also be fire barrels of sand, as can be seen in some photos.



21. Examples of blue flags I use on my layout. Construction of them was described in a post to my blog (see Bibliography). They may be compared to the prototype range shown in [19].

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22. A blue flag warning of a connected tank car, in use at the Richfield bulk oil dealership on my layout.

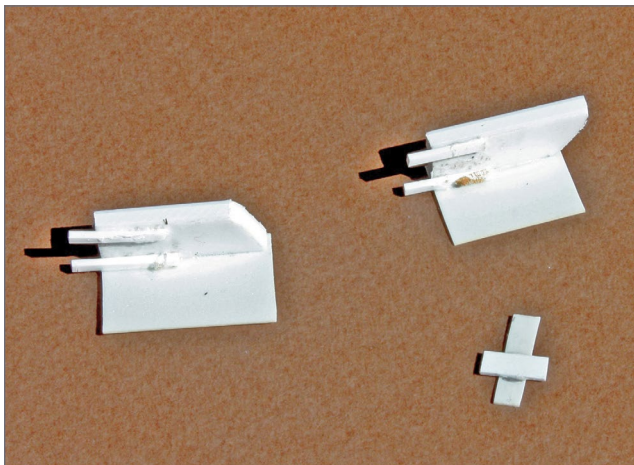
Southern Pacific seems to have had two kinds of firefighting boxes. One was mounted on a post and contained a hose. Sometimes this type was simply labeled "FIRE" but examples exist of such a box labeled "FIRE HOSE." The larger boxes, standing on the ground, ranged from slender cabinets to small sheds, usually labeled "FIRE" though sometimes simply painted red. An example is presented here as [23].

A cabinet like this is easily made from sheet or strip styrene to suitable size and shape. Few SP photos show consistent designs. I formed the sides of one cabinet with Evergreen styrene strip, 0.125×0.188 inch. I used 0.20-inch styrene sheet for the faces and roof, with scale 4x4 inch styrene legs. I made it in halves, as you seen in [24]. The cabinet was assembled, then primed, painted red, and lettered with a decal alphabet set. A completed one is shown on the side wall of my roundhouse [25].

I mentioned hose reels earlier in this article. A hose reel near a fire equipment cabinet would make sense, and would be an additional feature to model.



23. The south end of the SP sand house at Dunsmuir had a fire equipment cabinet, indicated by the arrow, and it was painted bright red. Notice it is supported off the ground. This is the type of cabinet I decided to model. *SP photo, Shasta Division Archives, courtesy Bob Church*



24. Two styrene halves of a fire cabinet (materials in text). Height of the body of the cabinet is 6 scale feet. At bottom right is the small fixture I made to ensure that all legs extended the same distance (1 scale foot, the lower end of the fixture) below the cabinet.

foot, the lower end of the fixture) below the cabinet.

Putting it together

I have added many of the details mentioned above to my model engine service area, shown in its original form as [4]. Including work carts, barrels, and ladders definitely makes this a more realistic and interesting scene [26]. There is also a blue flag capability here, as would be needed whenever locomotive servicing involves workers around or under a locomotive. One suitable flag is presented in [27]. I have already learned that these model flags are not as visible to visiting operators as one might like, so warnings are very much in order. Don't ask how I learned this.

Concluding remarks

Both railroad engine terminals and repair areas contain details typical of each railroad. Modeling these requires study of relevant



25. A completed fire equipment cabinet beside my roundhouse. The jib crane mentioned in the text is at left. A pile of car wheels is in the left foreground. The machine shop addition to the roundhouse, and its loading dock, are behind the crane. The doors onto that loading dock were also additions to the roundhouse kit. The coal bin is at photo center.

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period photographs, and awareness of commercial products that may match those details. Many simple components are easily made from styrene or other materials. However they are made, such details can add considerable interest to a model engine service area. Modelers are usually very interested in locomotives, making an engine terminal one of the most-viewed parts of any layout. It deserves realistic details. ✓



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26. The same engine terminal seen in [4] with added ladders and work carts, along with a typical oil drum used as a barrel. A workmen's tool house is also planned for the far (left) end of this area. Note the coiled unloading hose at the tank car spot in the right background.

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27. A "MEN WORKING" blue flag in place at the engine servicing terminal. This is placed in brass tubing between the ties, as in [22]. The roundhouse and other facilities are in the distance.

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Thompson, Tony, "Accurate Modeling of Individual Trucks Requires Knowing the Prototype," *Model Railroad Hobbyist*, September 2016 (available at: mrhmag.com/magazine/mrh-2016-09-apr)

Thompson, Tony, building the Banta Modelworks roundhouse kit, series of posts concluding with: modelingthesp.blogspot.com/2014/02/a-roundhouse-for-shumala-part-5.html

Thompson, Tony, building work carts, blog post at: modelingthesp.blogspot.com/2017/04/building-work-carts.html

Thompson, Tony, modeling blue flags, blog post at: modelingthesp.blogspot.com/2017/04/blue-flags-part-2-modeling.html



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PARTS

Banta Modelworks, "Southern Pacific's Port Costa Roundhouse," kit no. 2097.

Bollinger Edgerly Scale Trains (B.E.S.T.), extensive line of detail parts: see besttrains.com/products_4-0000.html.

Central Valley, "Steps and Ladders," set no. 1602.

Century Foundry (now part of **Showcase Miniatures**), oil column, white metal, kit no. 2120.

Evergreen styrene strip, scale 4 x 4-inch, no. 8404; scale 1 x 10-inch, no. 8110; 0.125 x 0.188 inches, no. 389; styrene sheet, 0.015-inch thick, no. 9015

Grandt Line, 55-gallon drums, no. 5041.

Overland Models, brass, 65,000-gallon Harriman water tank.

Preiser pallets, set no. 17104.

Tichy Trains, jib crane, kit no. 8007; Rose oil column, kit no. 8169.



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