

Fig. 1 DIMENSIONS OF ENGINEHOUSE AND TURNTABLE

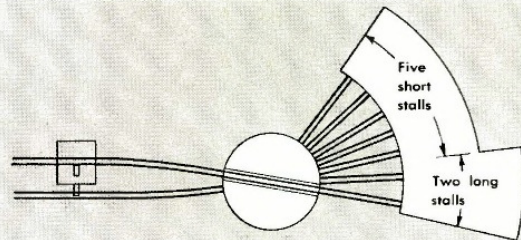


Fig. 2 PROVISION FOR SERVICING LONG LOCOS WITHOUT MAKING TURNTABLE AND OTHER PARTS OF ROUNDHOUSE EXCESSIVELY LARGE

# Planning a roundhouse

How to lay out the walls and turntable so they will accommodate your engines

THE most important factor in laying out an enginehouse arrangement is the length of the locomotives to be serviced. Any engine that will be turned on the turntable will have to be no longer than the table. In a pinch, you can let the pilot and tender couplers overhang as long as the wheelbase is shorter than the table. Normally, the stalls in the enginehouse will have to be considerably longer than the turntable. This is to provide for an aisleway at the rear: see upper right of fig. 1. Clearance is also needed behind the tender coupler near the doors.

In modelwork it is often unwise to make the turntable and roundhouse stalls large enough to provide for all sizes of locomotives. This can increase the size of the engine terminal area too much, wasting valuable layout space where it is most needed — near the yard and terminal. Instead, the turntable can be made shorter than the very longest locomotives but with provisions so that long locos can run directly across the table into longer than normal stalls in the enginehouse, as illustrated in fig. 2. If the enginehouse model will not be furnished inside, additional space can be saved by omitting the aisleway along the rear windows.

Before 1921, turntables were made as a single span, cantilevered from the center pivot. The rail in the pit which supported the wheels at the end of this type of table served merely to support the weight of the engine when getting onto and off of the turntable. When the hostler moved an engine onto the table he watched and listened until he knew the locomotive was balanced over the center. Because the engine weighed more than the tender, the balance position left an open space behind the tender. Thus, turntables of the center-support type were made 10 to 12 percent longer than the engines they had to accommodate.

The center-bearing carriages became an engineering problem as engines got longer. Pits had to be quite deep or else trusswork or girder sides had to extend well above track level. Also, that poor center bearing had to carry all of the weight of the giant locomotives plus the weight of the turntable.

## BY SPIKE TRAIL

In 1921 the Chesapeake & Ohio built a turntable on a two-piece principle. Its two ends were hinged at the center over a pivot, and the wheels on the ring rail were allowed to bear half of the weight of each end. The table was now supported at three points; balancing the engine was no longer necessary and there was no longer need to make the turntable longer than the engine. As long as the wheels were on the table it could be turned.

The critical dimensions for the terminal layout are:

- L—The turntable length.
- F—The setback to the front of the house.
- S—The stall length, including wall thicknesses.
- W—The stall spacing or width at their front ends.

A turntable length of 60 feet will handle most locomotives built before 1900, especially the 4-4-0, 4-6-0, and 2-8-0.

A length of 90 feet will handle locomotives used in the 1920's, except for some of the longest articulateds. It will not handle these articulateds or some other engines when they are equipped with extra-long tenders.

A length of 100 feet handles more modern engines of 4-6-4 variety, and even the shorter of the 4-8-4 machines. It will handle UP's 4-12-2. Increased lengths accommodate more and more types, but you need 133 feet to take every steamer, the longest of which are 4-8-8-4 engines

of UP and the 2-8-8-4 of DM&IR. The SP cab-forward 4-8-8-2 engines need 125 feet. Study of the drawings in *MODEL RAILROADER CYCLOPEDIA — VOLUME 1: STEAM LOCOMOTIVES* will give you a very good idea of the loco length situation in case you don't have actual models to measure.

We used a length of 90 feet for the turntable length, L, of our published design, and used 100 feet for the roundhouse stall dimension, S (omitting the aisleway). You can, of course, vary these as you wish.

Dimension W can usually be about 14 feet for standard-gauge North American locomotives. This allows up to 11 feet over handrails for engines, 9" clearance on each side for open doors and their hinges, and 18" for the pillar between doorways. You could reduce this to 13 feet by using 12" pillars and avoiding locos wider than 10½ feet over handrails. On some roundhouses the W dimension can be as much as 15 feet.

Dimension F, the frontage setback from turntable pit to roundhouse front, is optional. It has to be at least enough to allow any doors to swing open without fouling an engine being turned. If it is made too long, a great amount of layout area is wasted: see fig. 3. Another problem with its being long is that the turntable approach tracks may have to have frogs for overlapping rails, as in fig. 4. This happens when F is made greater than L. A nice-looking length is to make F about equal to L, but usually this is too much for space reasons. If F plus ½L equals S, you have the construction advantage that the bays of the rear wall will be just

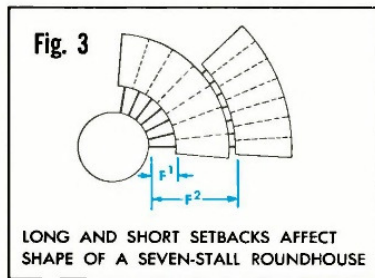


Fig. 3 LONG AND SHORT SETBACKS AFFECT SHAPE OF A SEVEN-STALL ROUNDHOUSE

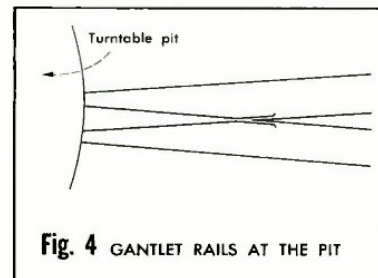


Fig. 4 GANTLET RAILS AT THE PIT

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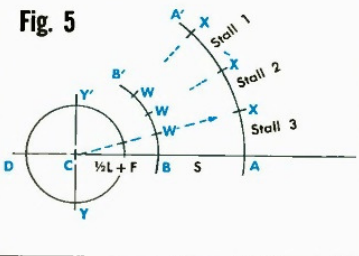
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Fig. 5



double the width of the pillar spacing, W, at the front wall of the roundhouse. For the published drawings we used these dimensions in scale feet:

- L—90
- W—14
- S—100
- F—55

You are, of course, perfectly free to change any of these dimensions to suit the equipment and site of your own layout.

The model Kunzelmann made—see page 65—is for older, smaller engines. His dimensions were approximately:

- L—68
- W—14
- S—90
- F—55

In laying out the lines, it is a good idea to do the work full-size on a sheet of smooth paper. Then the paper can be cut out and slid around on the baseboard for best positioning. Cement it down and use it as a template for further work. Ballast and soil will eventually hide it.

First, lay out the line of the first wall of the roundhouse, CBA, as in fig. 5. Next, lay out  $\frac{1}{2}L + F$  to find the front wall of the roundhouse at B. The rear wall is distance S behind this. Mark it at A. Point C is the center of the turntable site.

Then, with pencil and string, strike arcs BB' and AA' and also the edge of the turntable pit, which will be distance  $\frac{1}{2}L$  plus a clearance from the center. Another scale foot will do. If you are going to line the pit sides with ties, molded plaster, or other thicker wall material, the pit cutout line will have to be still farther from center by the thickness of the wall to be provided. Don't cut the pit out.

Next, strike off distances WWW' corresponding to the stall boundaries along the inner core. Draw lines from the turntable center through these points and extended to points XXX on the outer wall. These determine the centers of any walls between and at the ends of the roundhouse, and also of lines of any supporting columns under the roof.

Draw a line, YY', across the turntable pit and also extend line CBA backward to D. These points, Y and D, are needed to relocate the pit center after you have cut out the material. Only now is it safe to cut out the hole for the pit. Joe explains how in his next story; in March MR.

Please note that the radial lines indicate centers, not edges, of walls, while the circumferential lines do indicate the outside of the front and rear walls. You might want to add extra lines at the end walls of the layout work to show the outside of these walls.



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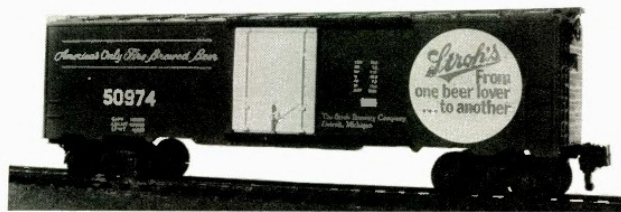
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