

NMRA RECOMMENDED PRACTICES		
TURNOUTS GENERAL		
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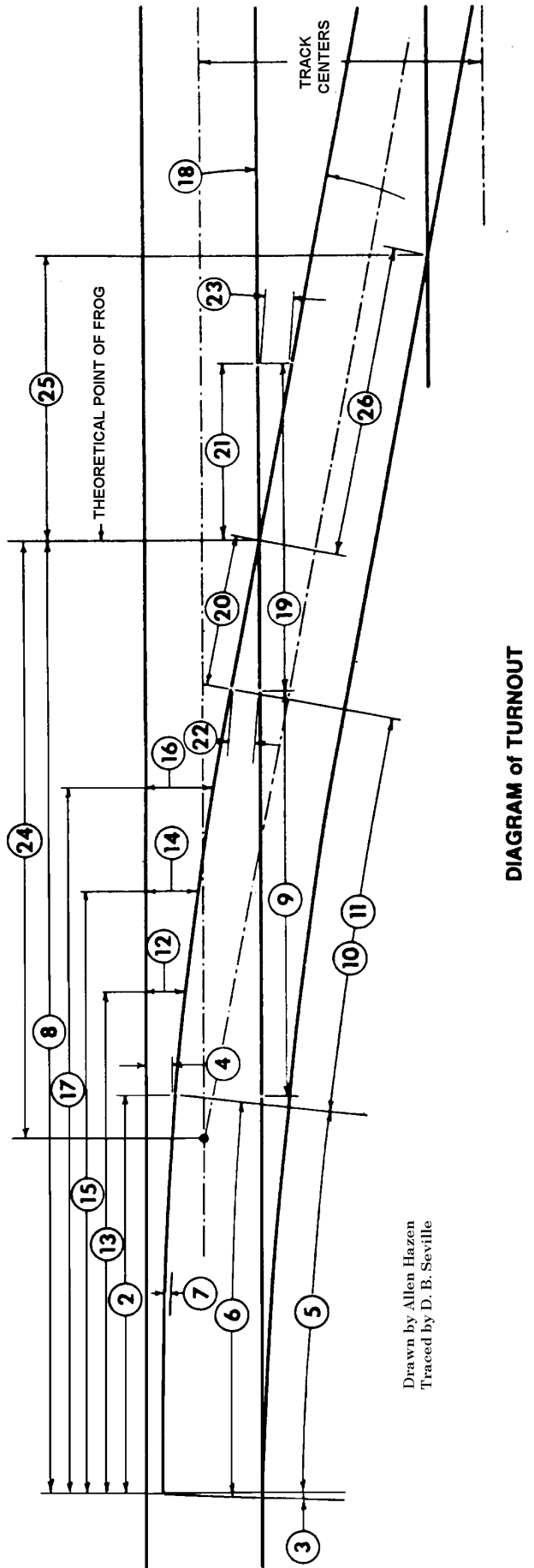
NMRA RECOMMENDED PRACTICES RP-12 Turnouts General

See reverse for diagram and key numbers to dimensions given for the scales shown in **RP-12.1, 12.2**, etc.

See **DATA SHEET D3e** for Turnout Types and Terminology.

See **RP-13** series for details and dimension of turnout components supplementing this series.

1. Dimensions in this series have been computed expressly for model railroad use, considering the special problems of oversized rail, oversized flangeways, and the sharp curvature of the model. They can be used for either two-rail or three-rail systems. Frog angles are the same as the prototype, and the length of lead and radius of curvature are comparable to scaled down figures. Because of oversized flanges and rail exact scaling down of prototype dimension is not practicable; the dimensions herein will provide prototype appearance and performance for the scales shown by **RP-12.1, 12.2**, etc.
2. Turnouts and Crossovers Recommended: See **RP-11** for minimum turnouts permissible. Turnouts longer than the minimum are recommended wherever space permits, particularly if high speeds and/or long trains are operated. Preference should always be given a longer turnout with minimum Gage over a shorter turnout with widened Gage.
3. Lead dimensions shown for each scale are to the theoretical point of the frog, which is some distance ahead of the actual point, the distance being the frog number times the width of the actual point. Both gage lines of the frog are straight for the entire distance from toe to heel. Frog toe and heel lengths are shown for built-up frogs and permit common slip-on rail joiners, lined with paper or other insulation if desired. Cast or other frogs which are shorter may be used by lengthening the closure rails to conform, or the closure rails and frog wing rails may be made in one piece, the gage lines remaining straight between the points corresponding to those shown for frog toe and heel. Additional details and dimensions for frogs, wing rails and guard rails are shown in the **RP-13** series of sheets.
4. Dimensions shown here are computed for turnouts out of straight normal gage track, the scales and gages being those shown in **STANDARD S-1**. If the wheelbase of the equipment to be used requires wider Gage for the switch alinement or curvatures shown, the lead and alinement of the curved closure rail shall be maintained, and the inside stock rail and curved rails shall be moved to the required wider spacing as detailed in paragraph 5 immediately following.
5. Thruout the construction of the turnout, all the limitations of **STANDARD S-3** must be scrupulously observed, using the **NMRA STANDARDS GAGE** of **RP-2** to make these checks. For best results it is recommended that construction start with location of the frog, wing rails and closure rails assembled. Then locate the straight stock rail at close to minimum Track Gage G from the straight closure rail and frog rail. Next locate the guard rail at close to minimum Check Gage C from the frog rail, and in the relationship specified in **RP-13**. Use the GAGE across guard and wing rails to ascertain that maximum Span S has not been exceeded. The curved side of the turnout follows the same sequence, except that Gage may have to be widened to pass long wheelbase equipment thru the curve. In this case, increase Gage G, Check Gage C and both Flangeways F as necessary to accommodate the long equipment without exceeding the maximum limits of G, S, or F. These limitation will automatically control the maximum limit of C. Any such widening of Gage must carry the entire length of the curved sections, including the Switch Point, so G must be widened even for the straight side of this point. Adjust the straight closure rail accordingly, bending it to true alignment in advance of the frog.
6. At the switch end of the turnout note that the curved stock rail must be bent by the amount of the Point Angle of the tables. Similarly, each point rail must be tapered by this same angle so that is tapered length can lie parallel to and be supported by the stock rail. The spread between point rails must not exceed dimension P of **STANDARD S-3** lest the back of a wheel contact the back of the open point rail.
7. Turnouts from curved track should be avoided whenever possible. If necessary to place a turnout leading from the outside of a curve, the dimensions shown for the length of lead and gage line offsets may be used, but the closure rail radius shown will not apply. Good results may be obtained by choosing a turnout whose closure rail radius approximates that of the main track curve, in which case the sidetrack lead will be virtually straight. Turnouts based on these dimensions should never be placed on the inside of a curved main track unless the radius of the main track is at least three times the radius shown in the data for the curved closure rail for the turnout selected.
8. A Crossover consists of two turnouts placed in adjacent parallel tracks, facing in opposite directions, with a short connecting track between the frogs. The data given herein for crossovers apply to tangent track only, with both frogs being the same number, and the connecting track is straight the entire distance between the toes of the two frogs. Crossovers between concentric curved tracks should be used only when unavoidable, and subject to the limitation of paragraph 7 above; crossover dimensions as shown in these data will not apply, and special study must be made of each case. Consideration should be given to the use of a smaller numbered frog in the inside curved main track.
9. These data are not intended to replace special trackwork, where each piece is especially designed and handmade to fit a particular situation.



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**DIAGRAM OF TURNOUT
ALL TRACK GAGES
CURVED SWITCH RAILS**

The heavy lines of this diagram represent gage lines only and not the head of the rail.
(Not drawn to scale)

Circled numbers refer to line numbers on the Dimensional RP Sheets following.

Turnouts with continuous curved closure rail and switch rail use Switch Rail Length (item 2) for the straight leg only. All other dimensions apply with the switch in thrown position.

'High Speed' turnouts with closed frog points should follow these dimensions for the thrown position.

Stub switches are considered special work and are not covered by these specifications.

The RP-13 series detail and dimension Frogs, Wing and Guard Rails and their Flares, supplementary to this series.