



Track Inspection Guideline

This track inspection outline provides guidelines to CN customers on how to maintain track conditions.

Track Measurements

Track Gauge

Standard track gauge is 56 ½ inches. Gauge must be a minimum of 56 inches. Maximum gauge is 58 inches. Gauge is measured ⅝ inches below the top of the rail. When measuring, the following additional factor should be taken into account to determine total measurement of gauge.

- Check conditions of ties to determine any movement. If movement is evident, add the amount measured to the initial gauge measurement.

Gauge rods are permitted to maintain gauge but are not recommended. When gauge rods are required, ties should be replaced.

Alignment

Alignment describes track that has moved from its original position. It is measured by stretching out a 62-foot string measuring the deviation at the middle. The deviation should not be more than 5 inches. This can be caused by heat expansion of the rail or equipment striking the track and moving it out of alignment.

- Track should be aligned to avoid a difference in gauge measurement.

Crosslevel

On tangent tracks, we want the tracks to be level and ½ inch of elevation on the outside rail if the track is curved. The max difference in crosslevel between the 2 tracks is 3 inches when the track is tangent.

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Ballast

Good ballast will ensure that tracks have a good foundation, maintain good alignment, and allow for proper drainage. When inspecting track, check for fouled or muddy ballast. Poor ballast conditions causes uneven working surfaces and poor track conditions.

- Replace the ballast at fouled or muddy locations.

Ties

Cross ties hold gauge and help maintain track surface. Problems that could arise with ties are split ties where ballast could work through, broken ties, deteriorated ties, and ties cut more than 40% by the tie plate.

- There should be at least 5 non-defective ties within a 39-foot tangent section of the track or 6 in a curve greater than 4° degrees.



Joins

Joint bars must be replaced when cracked or broken between the middle two bolt holes. When bolts are missing they should be replaced immediately. At a minimum, there must be at least one bolt in each rail end at all times. Ensure that joints bolts are tight. At the joint, the end of the rail must not be mismatched by more than $\frac{1}{4}$ -inch.

Turnout Inspection

Switch stands, switch plates and connecting rod bolts shall be kept lubricated to provide easy and safe switching. Good tie conditions should be maintained under major components of the turnout.

Switch Stand

Switch stands should be plumbed and securely spiked, bolted, or lagged to the head block ties. Make sure head block ties are in good condition so there will no be movement. If the switch or connecting rods are bent, broken, or corroded to a depth exceeding $\frac{1}{8}$ -inch, they must be replaced. To assure the switch closes correctly and tightly, insert a $\frac{1}{8}$ -inch shim between the stock rail and switch point. If you are able to lock the switch in place with the shim inserted the switch must be adjusted.

Switch Points

There should be no gap that between the stock rail and the point. The switch points must be repaired or replaced if they have the following conditions:

- Chipped deeper than $\frac{7}{8}$ -inch below the top of the stock rail.
- Chipped $\frac{3}{4}$ -inch deep longer than 4 inches.
- Chipped $\frac{5}{8}$ -inch deep longer than 7 inches.
- Chipped and has unprotected vertical surface that is $\frac{5}{16}$ -inch or wider, $\frac{3}{4}$ -inch below the top of the stock rail for a Samson Switch.

Note, when the switch points are to be replaced the associated stock rail must be replaced also.

Frogs

Frogs should be inspected thoroughly to assure that no bolts are missing or loose. Frog plates should be securely attached to the ties. If a frog point is chipped, broken, or worn more than $\frac{5}{8}$ -inch down and 6 inches back, then the frog should be replaced. Assure the guard rail firmly attached to the rail, bolts and fasteners are intact and tight, and the surfaces are not worn down.



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Other

Drainage

Adequate roadbed and drainage must be maintained at all times. Drainage must be given special attention at the following locations: switches, frogs, diamond crossings, grade crossings, and other places with limited vertical and side clearance.

Vegetation

Vegetation must be kept to a minimum. A weed control program should be in place to control vegetation growth in and around tracks. Excessive brush and weeds should not be allowed.

Clearances

Horizontal and vertical clearances to be maintained as per CN's requirements.

Fencing

Fencing to be maintained to secure the property where required. Access by CN crews to be provided as required to perform switching and inspections.

Derails

Derails should be properly secured in accordance with the manufacturer's recommendations where required. CN recommends the use of either the Hayes EB (hinged type derail) or the Hayes HB (sliding type derail).

Bumping Posts

Bumping posts shall be properly maintained. CN recommends the use of Hayes Type WG or HD (or equivalent) for the designated rail section. If earthen bumping posts are used, they should be located 10 feet from the end of track, with 10 ties in front of and all ties behind it fully anchored.

Road Crossings

For road crossings, rail joints shall be kept clear of crossings and where practicable should not be located closer than 25 feet from the edge of the crossing. Drainage of the track at crossings must be properly maintained at all times. Maintain a flangeway space of not more than 3 inches or less than 2 inches deep, and not less than 2 ½ inches or more than 3 inches wide. Crossing sightlines are to comply with all regulatory requirements.