



U.S. Department
of Transportation

Federal Railroad
Administration

Memorandum

Date:

MAY 6 1996

Reply to Attn of: T-95-04 Revised

Subject: Measurement of a Track Heave
Revised

From:

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To: All Regional Administrators, Regional Track Specialists and
Federal and State Track Inspectors

This memorandum revises T-95-04 by deleting the "alternative method" to measure a frost heave using a string level. The string level method is impractical except on level track.

In 1994, the Track Technical Resolution Committee (TRC) recommended a method to measure the deviation from uniform profile for a track heave when determining compliance with Section 213.63, Track Surface, deviation from uniform profile on either rail at the midordinate of a 62-foot chord. This bulletin outlines the method recommended by TRC.

Track heaves, often described as frost heaves, occur during periods of cold weather in northern latitudes. The heave is often the result of the freeze/thaw cycle. Where needed, railroads sometimes shim the approaches to run off the hump.

The heave is not as readily measured as the more common low spot where inspectors usually stretch a 62-foot string across the location

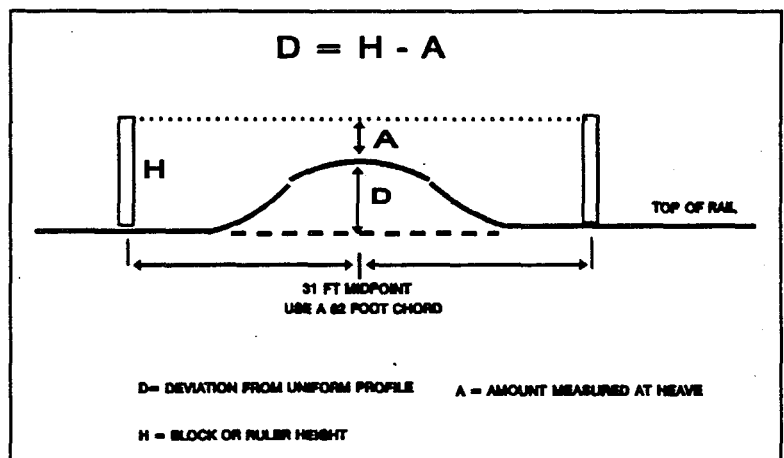


Figure 1 Determination of deviation from uniform profile on either rail for a frost heave.

and measure the distance from the string to the top of the rail. A useful way to envision the heave is to view it as an "upside-down" normal profile deviation.

Figure 1 depicts the TRC method to measure profile on a heave. The inspector placed a block on both sides of the high spot. The two blocks must be of equal height, sufficient to clear the heave. Rulers may also be used for this purpose. While both ends of the 62-foot string are held or clamped, the inspector measures the distance from the string down to the top of the rail. As shown in Figure 1, the amount of deviation from uniform profile ("D") on the rail can be easily calculated by subtracting the distance from the string to the rail ("A") from the block height ("H").

For example, if the block height is 5 inches and the inspector measures 2 inches from the string to the top of the rail, the deviation from uniform profile for this rail is 3 inches.

Inspectors may use other reasonable methods to attain the correct deviation from uniform profile when evaluating a frost heave.

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