



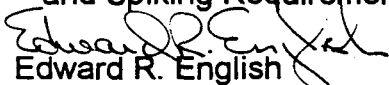
U.S. Department  
of Transportation

**Federal Railroad  
Administration**

# Memorandum

Date: MAY 6 1996 Reply to Attn of: T-95-05 Revised

Subject: Frog Guard Rails - Cracks or Breaks  
and Spiking Requirements

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

In 1994, the Track Technical Resolution Committee (TRC) recommended that FRA establish a defect code for cracked or broken guard rails. TRC also concluded that, in most cases, spiking of the running rail in the guard rail area is not critical; however, spiking should be required under some conditions. This Technical Bulletin addresses both issues. In 1996, TRC voted to revise this bulletin to provide additional information concerning cracks or breaks in guard rails.

### Cracked or Broken Guard Rails:

Broken guard rails occur infrequently, since they do not support the vertical wheel loads of passing trains.

When evaluating a crack or break in a guard rail, the inspector should be aware that cracks or breaks exist which do not affect the ability of the guard rail to function as intended. If the integrity of the guard rail is affected the inspector will cite the defect using code 143.03, Cracked or Broken Guard Rail Opposite Frog.

### Spiking of Frog Guard Rail:

Frog guard rails come in many different types and designs. Some guard rail plates are recessed to seat the running rail while others are flat. Some guard rail plates are punched with spike hole slots; others are not. Still other guard rails are bolted to the running rail. Figure one shows a design that has bolted separator blocks or adjustable clamps.

On some railroads, it is normal practice not to spike the gage side of the running rail through the guard rail area; indeed, some guard rail plates do not have holes punched for this purpose.

The American Railway Engineering Association's (AREA) Recommended Practices contains a design for a one piece guard rail which does not have spike holes for the gage side of the running rail.

The photograph in Figure 2 shows a new design on one railroad where there are no spike holes on the plates on the gage side of the running rail. Note the heavy bracing which is intended to prevent overturning of the guard rail.

FRA has no record of serious safety problems which have developed as a result of not spiking the running rail through the guard rail area.

Considering the vertical load applied to the running rail under traffic and that the opposite wheel flange is constrained by the frog's flangeway, there is no apparent need to require spiking in this area.

If inspectors encounter a particular situation such as a problem in CWR where the running rail has moved to create an unsafe condition, the inspector should use "insufficient fasteners" as the defect code. Inspectors should discuss unique situations with the Regional Track Specialists.

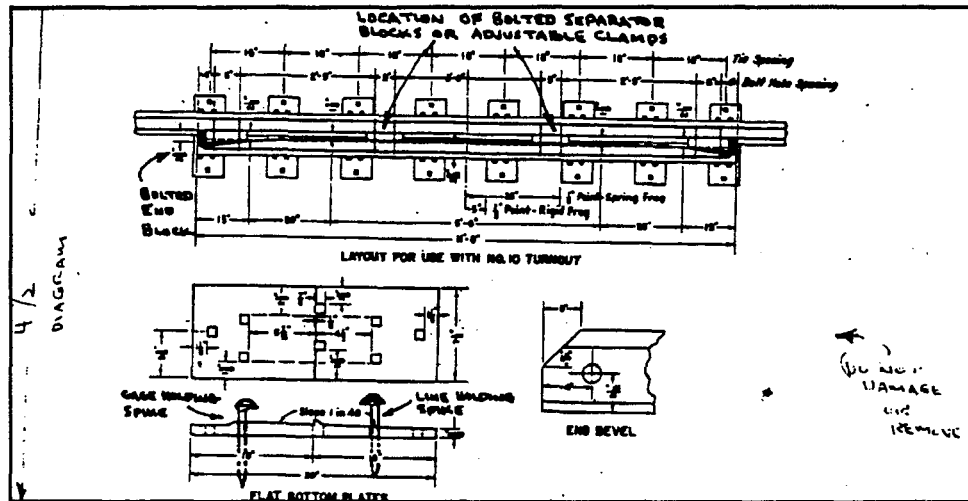


Figure 1 Guard rail with bolted separator blocks or adjustable clamps with plates that are punched for spikes on the gage side of the running rail.

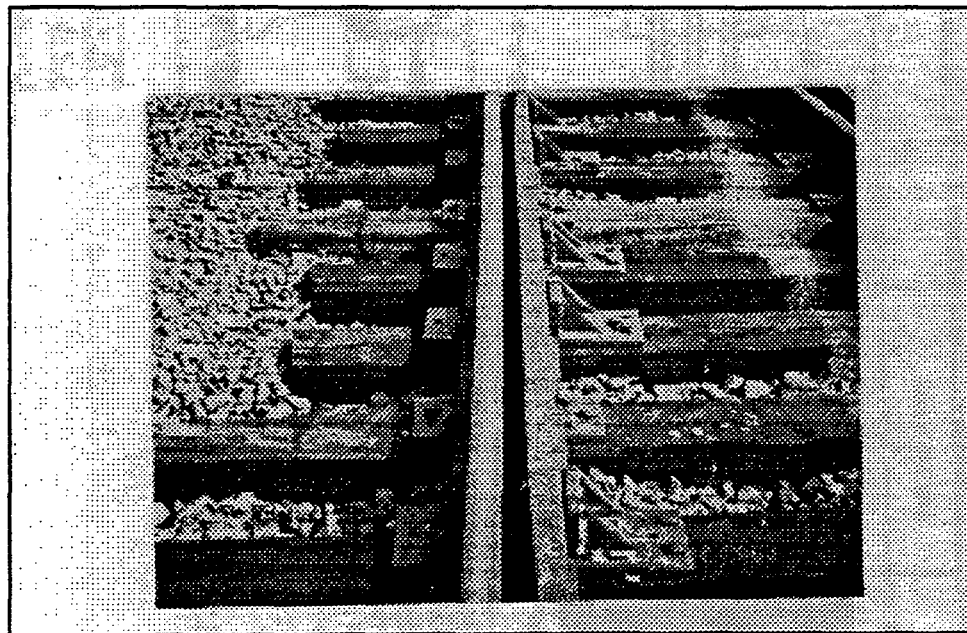


Figure 2 Photograph of new style guard rail with no spike holes punched on the gage side of the running rail.