

**A Method of Preventing Hanging Sleepers on Rail Joints
using Automatic Irregularity-Correcting Short Sleeper**

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In ballasted track, when sleepers are hanging from the rails without contacting the ballast under no train loads they are called hanging sleepers. When a train passes on the track under these conditions, the hanging sleepers contact the ballast below and generate impact loads that can break ballast and/or cause mud pumping. This causes track conditions to deteriorate quickly. Hanging sleepers tend to occur mostly in the vicinity of rail joints and the boundary between ballasted and ballastless tracks, and at other places where the settlement of ballasted track is discontinuous.

RTRI has been developing different versions of automatic irregularity correcting sleepers (AICS) that will automatically compensate for discontinuous settlement of ballasted tracks and minimize the occurrence of hanging sleepers. This paper introduces one version; a low cost short sleeper type (hereinafter referred to as "AICS SS"), which will soon be commercialized. Authors performed repeated loading tests on life size track models, which simulated the rail joint zone. The authors, thereby, clarified that AICS SS have the enough potential to prevent hanging sleepers even under high axle load conditions on deteriorated ballasted tracks.