

A Study of Anomalous Characteristics Exhibiting Between Fixing Force of Switch and Tongue Rail Opening Force

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Tongue rail opening force of turnout is measured to indirectly estimate fixing force of turnout. Although the tongue rail opening force is known to be proportional to fixing force, it is also known that the proportional relationship sometimes does not hold. In that case, the non-proportionality sometimes leads to misestimation of the fixing force, so that it induces a switch malfunction due to high fixing force. In order to solve this problem, we clarify the mechanism and causes of the misestimation related to the gap between rails. With results of field investigation, tests in a test bed and motion simulation using a flexible multibody model of switch, we developed maintenance methods and a measurement tool for avoiding the misestimation.