

Clarification of Generation Mechanism of the Head Checks on Low Rail

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Head checks occur on the rail surface of gauge corner in high rail of curved section with radius of about 800m and the generation mechanism is already clarified. On the other hand, it has been recently reported that head checks also occurs on low rail of curved section. However, the cause of the head checks on the low rail are not clarified yet. Therefore, we conducted the on-site investigation and the analysis of the rail which is confirmed the head checks appearance in order to clarify the generation mechanism of the head checks on low rail. In addition, we conducted contact analysis between wheel and rail by using multi-body dynamics and the measurement of wheel and rail contact forces in commercial line. As a result, it is found out that the small wheel load loaded on low rail and the very large difference between the wheel diameters of the left and right wheels are the causes of the head checks on low rail.