

## **Rail Broken Detection System from Vehicle as an Alternative to Track Circuits**

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In order to develop a method for detecting rail breakage from vehicle, we focused on non-contact air coupled ultrasonic wave, accelerometer, and sound level meter, to conduct a basic study on their applicability. Furthermore, we optimized the detection conditions such as frequency of ultrasonic sensor and probe size so on to utilize the non-contact air coupled ultrasonic technology to rail broken detection. Also, we analyzed axil box acceleration when vehicle run through rail opening and the noise from the sound level meters installed on both sides of vehicle body. This paper describes the results of these basic studies and rail broken detection method developed based on them.