

**Quantitative Evaluation on Flaw Echo of Railway Axle in Consideration of
Contact Pressure with a Wheel**

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For railway axles, the wheel seat is periodically inspected by the ultrasonic testing. When the ultrasonic axle inspection is performed with wheels being mounted, the flaw echo height may vary according to the fitting condition. For the inspection performed in the in-service condition, the echo height may also vary according to the bending load acting on the axle due to the car weight. In this study, the variation of echo height due to the contact pressure with the wheel was quantitatively evaluated by the simulation of ultrasound propagation. And the echo-height variation during cyclic rotating bending in a full-sized wheelset was investigated experimentally from the viewpoint of the variation of normal stiffness at the axle-wheel interface.