

**Development of the Crushable Stopper with Automatic Restoration Function for  
Seismic Countermeasures**

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We had developed a mechanical crushable lateral displacement stopper of which gap between a center pin and a bogie can be expanded only when it receives a strong impact such as earthquake. Thank to a simple mechanism, a motion of the mechanical crushable stopper is stable, but in the state where the gap is expanded there is a possibility of exceeding a limit for rolling stock moving dimensions during dead-heading to a car depot. For smooth dead-heading, it is necessary for crushable stopper to have a restoration function after expanding motion. Thus we have developed a hydraulic crushable stopper expanding the gap by a hydraulic circuit with automatic restoration function after expanding motion and the performance of the hydraulic crushable stopper has been confirmed by bench test.