

Research for Ensuring Safety in the Event of Train Collision

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Railway Technical Research Institute has conducted a variety of research and development for ensuring safety in the event of train collision. There are two types of collision (primary collision and secondary collision) in these studies. The primary collision is between an obstacle and a carbody. The secondary collision is between interior facilities and passengers (and drivers). About the primary collision, we have developed an analytical method for the evaluation of the deformation behavior and the energy absorption amount of the carbody, following several fatal accidents. About the secondary collision, we evaluated the driver's injury quantitatively and proposed the desirable principles of the carbody-structure design for improving crashworthiness. Furthermore, we have developed a method of evaluating passenger's injury accurately using a FE model. This paper introduces these topics briefly.