

Tilt Control Mechanism with a Rotary Actuator and an Anti-Roll Bar

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This paper describes the development of a bogie equipped with a new type of tilt mechanism capable of providing the tilt up to 5 degrees which is the same maximum tilt angle as the conventional bolster type of tilt mechanism, although its structure is simpler than that of the conventional bolster type. The tilt mechanism proposed is worked in such a manner as to give tilting forces to the carbody by adding torsional torque to the torsion bar of the anti-rolling device. The rotary actuator, which is inserted between the torsion bar and the arm in series, generates the torsional torque. The arms and the vertical links transmit the torque to the carbody. A bench test for simulating running on a curve and carbody tilting was conducted. The results demonstrate that it is possible to tilt the carbody with high responsiveness according to the target tilt pattern up to 5 degrees.