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A system for improving directional stability involving individual braking of 1, 2, or 3 wheels of articulated rigid body vehicles

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Abstract: Road-safety of wheeled vehicles depends on the systems used to assist the driver while operating the vehicle. For commercial vehicles, i.e. cars and trucks, numerous systems supporting the driver and influencing the trajectory of vehicle motion are developed. Stiffness of the articulated vehicles' steering systems is relatively low. Consequently, in order to meet normative requirements for the steering system the maximum velocity of vehicles of this type is very limited. The article presents the results of both computer simulation tests and tests carried out on a real vehicle of the control system which involves individual braking of 1, 2 or 3 wheels of the vehicle in order to improve its directional stability. The principles of operation of various motion stabilization systems were also compared. Furthermore, the article presents a method for measuring the motion trajectory of a vehicle.

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