Abstract

In this Paper, the vehicle equipped with electromechanical brakes are taken as research objective, and the simulation and research on the control strategy of Anti-Lock braking system is done. The force acting upon the wheels is analyzed first using quarter vehicle model and simulated in order to understand the vehicle dynamics. Next, the performance characteristics of the hydraulic unit were analyzed. Finally, a closed loop feedback control algorithm is developed to modulate the pressure in accordance with the force acting on the wheels. The result shows that the actual wheel slip and force can be tracked by estimating the angular velocity of the wheels with an allowable pressure error.

References

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Index Terms

Computer Science  Control Systems

Keywords
Automotive engineering, braking, hydraulic control unit, pressure estimation, estimation force, single channel anti-lock braking system, force estimation, quarter vehicle model, mathematical model, Slip of wheel.