

电子驻车制动系统

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摘要: 在对电子驻车制动系统的结构和工作原理进行分析的基础上, 对电子驻车制动系统执行机构进行了动力学分析。从实际应用的角度出发, 设计了一套电子驻车制动系统, 该系统的中央控制器采用Philips 592单片机, 由同步带传动机构、少齿差行星齿轮传动机构和蜗杆传动机构组成的执行机构由直流电动机驱动, 以达到实施或解除驻车制动的目的。针对某一具体车型, 用台架实验验证了所设计的电子驻车制动系统的有效性。台架实验结果表明: 电子驻车制动系统的静态特性和动态特性均满足理论计算要求。The structure and the mechanism for the electric park brake (EPB) were analyzed first. Then, the dynamical analysis for the executive device of EPB was done. After that, an EPB system was designed in the viewpoint of practical application. Aimed at applying or releasing braking, the electric control unit (ECU) adopted a single-chip microprocessor (SCM) named Philips 592 and the executive device, which was driven by a direct current motor that adopted a synchronous belt driven mechanism, a planetary gear mechanism with small teeth difference and a screw-driven mechanism. Lastly, the efficiency of the EPB system was validated by bench tests for a detail automotive model. The results of the bench tests showed that the static characteristic and the dynamic characteristic of the EPB met the requirement of theoretical calculation.

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