

电控液压力转向系统液压管路建模与特性

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摘要: 用键合图方法建立了电控液压力转向系统(EHPS)液压管路的数学模型并得到管路的状态空间方程。在建模的过程中考虑了液压管路的动态摩擦阻力,通过实验,验证了模型的准确性。应用Matlab/Simulink工具,对管路液阻、液容、液感各参数对管路工作特性的影响进行了仿真分析,结果表明,在条件许可范围内,增大液阻和液感,减小液容可以增强管路工作的稳定性。 The mathematical model of hydraulic of electro-hydraulic power steering system(EHPS) line was established by using bode graph theory and the state space equation was attained. Dynamic fluid friction of the line has been considered when modeling so the simulation results more agreed with reality. A simulation was carried out to analyze how the fluid resistance, induction and capacity impacted the work performance of the hydraulic line. The result is that, increase the fluid resistance and induce or decrease the fluid capacity could all boost up the stability.

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