共轨柴油机缸压反馈电控技术

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摘 要： 在简要分析气缸压力物理意义的基础上，提出了共轨柴油机以气缸压力为反馈的闭环控制系统原理和方案，确定了面向控制的压力特征量，采用多项式拟合的方法提取压力反馈量；提出了基于MPC555和DSP56F807的双微处理器的电控系统，引入光纤压力传感器实现柴油机气缸压力的动态采集，并在4100型共轨柴油机上进行了初步试验，试验结果验证了共轨柴油机缸压反馈电控技术的可行性。 On the basis of brief analysis for cylinder pressure physical meaning, mechanism and sketch of electronic control based on cylinder pressure feedback was presented, pressure characteristic variable orienting to control was provided, cylinder pressure feedback has been obtained by means of polynomial fitting. Electronic control system with dual micro-processor based on MPC555 and DSP56F807 was designed, fiber-optical pressure sensor has been introduced to perform dynamic acquisition of cylinder pressure. Primary test on model 4100 diesel engine with high pressure common rail was made, testing result showed an availability of electronic control of common rail diesel engine based on cylinder pressure feedback.

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