

低压油路对电控单体泵循环变动的影晌试验 Effect of Fuel Supply Loop for EUP' s Cyclic Variation Characteristics

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关键词: 柴油机 电控单体泵 燃油喷射系统 循环变动 供油压力

摘要: 进行单缸单体泵的油泵台架试验, 获得了不同转速下油泵入口端的低压供油压力和高压油管内的 高压压力。分析了循环变动时 低压和高压对应的压力曲线特点。研究表明: 单体泵控制阀打开过程中, 供油柱塞下行吸油使得低压油路内压力降低, 同时高压油腔内燃油回流到 低压油路时形成压力波, 这两个因素导致高转速时 低压油路的供油压力在部分循环内出现负压, 产生单体泵循环变动。试验证明, 提高输油压力和增大 低压油路的流通面积能够降低单体泵循环变动。By experimental studies for the single EUP on test bench, the low fuel supply pressures near the EUP and the high pressures in high pressure fuel pipe at different cam speeds were acquired. The high and low pressure curves of the EUP' s cyclic variation circles were analyzed. Test results showed that when the cam shaft speed is very high, the supply pressure instantaneous decreased as the plunger move downward, and the pressure wave which results from the backward flow of high pressure fuel appears in low fuel supply loop. The above two factors cause the negative pressure at low fuel supply loop, and leads to the cyclic variation. Increase in fuel supply pressure and the fuel supply pipe line' s flow area is advantageous in reduction the cyclic variation of EUP.

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