柴油机燃烧噪声增压影响机理试验分析 Effect of Turbocharged Condition on Combustion Noise of Diesel Engine

李兆文 舒歌群 卫海桥 梁兴雨 张祚

天津大学

关键词： 直喷式柴油机 燃烧 噪声 增压条件 试验

摘 要： 研究了直喷式柴油机增压对燃烧噪声的影响机理。通过测量稳态和恒转矩增转速瞬态工况增压前后影响燃烧噪声的参数，得出增压前后柴油机燃烧噪声的变化规律。从燃烧室壁面温度、气体动力载荷和压力高频振荡等方面对试验结果进行分析。结果表明：增压后燃烧噪声降低，增压对稳态工况燃烧噪声的降低比对恒转矩增转速瞬态工况更明显，增压在中速中负荷工况下，对燃烧噪声的控制效果较好。 This paper studied the influencing mechanism on combustion noise in DT-diesel engines for turbocharged conditions. By measuring parameters of influencing combustion noise between natural aspirated and turbocharged diesel engine in constant torque and increasing speed transient and steady conditions, the change law of combustion noise in diesel engines was clarified. The testing result was thoroughly analyzed from the point of the combustion chamber’s wall temperature, aerodynamic load and high-frequency oscillation of combustion pressure. The result showed that the combustion noise of DI-diesel with turbocharger is reduced, and the reduction under turbocharged condition in steady condition is more obvious than that in constant torque and increasing speed transient condition, the effect of turbocharged condition on combustion noise is better in intermediate speed and middle load.

查看全文（请使用Adobe Acrobat 6.0版本浏览） 返回首页 引用本文