The Study on Using Mixed Hydrogen Fuel in Multi-point Injection SI Engine

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ABSTRACT

Due to the impending depletion of fossil fuels on earth, new and alternative energy sources are important issues both for industry and household. Among the frequently addressed alternative fuel, hydrogen energy definitely deserves the most attentions. There are two problems to overcome before it can be commercially accepted：1.high cost in the production of hydrogen, 2.safety and reliability in the storage and transportation of hydrogen. Hydrogen is a secondary energy fuel. It can not be obtained directly from the planet. The industrial production of hydrogen is energy consuming and therefore expensive. The low boiling temperature, volatile and flammable become the keys to the storage and transportation of hydrogen energy. In this thesis, the performance of a multiple injection spark ignitron engine with the introduction of hydrogen fuel mixed with the original fuel-gasoline or LPG was studied. It is found that the introduction of hydrogen into the fuel supply system improves the combustion inside the combustion chamber. Without reducing the output horsepower and torque, the emission in 1%~2% CO, 1%~20% CO2 and 15%~24%HC etc. is decreased. It is demonstrated that the use of hydrogen fuel can increase the power output and help to decrease the global warming of the earth in the long term.

Keywords : Alternative fuel, hydrogen combustion, LPG (liquefied petroleum gas), Methanol Reformer

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