

Thesis Title	performance study and improvement of gasohol engine.
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ABSTRACT

The paper studied on the enhancing of gasoline engine's performance by using gasohol as a fuel comparing with those using gasoline. A performance test was conducted by using Mitsubishi's engine G13.BEP 7606. At first step, we used gasoline fuel and to control spark-ignition value at 8° BT.D.C (before top dead center) . In the engine and then, replaced it with blended gasohol at 10, 15, 20, 25, 30, and 40% respectively. Eddy current test bed is used as an instrument for performance test. Engine's revolution was set up between 1500 to 6000 rpm at full load and fuel was consumed 200 c.c. per testing time. Then we chose 30% gasohol that was expected to give the best performance to the modified engine. The modification was done by setting up engine's revolution at 850 rpm and changing main fuel jets in the carburetor from no.102 and 155 to 115 and 160, respectively. In order to adjust stoichiometric air fuel ratio at 12.85:1 and to control spark-ignition value at 12° BT.D.C. degree to optimize output power.

Considering the performance test, it was found that the modified one giving 2% higher average torque value, 4% higher average break power value, and 20% higher bread thermal efficiency than the gasoline engine. The modified engine decreased 3% rate of break specific fuel consumption, and reduced 60-70 % of CO and 20-26 % of HC from engine's emission.

During the performance test, the operation of modified engine using 30% gasohol run smoothly. Torque and break powers measured at different revolutions were higher than the unmodified engine. It was because the engine using gasohol has higher volumetric efficiency and use high-octane fuel. So when adjusted the spark-ignition B.T.D.C., it can increase the combustion time and enable more complete combustion. Also the increase of break thermal efficiency can reduce fuel consumption rate.

Keywords : Gasoline Engine / Gasohol / Performance / Carburetor / Spark- ignition degree