ABSTRACT

Available ethanol in premium gasoline make power drop. Power drop is caused mixture still lean because ethanol’s stoichiometric air fuel ratio is smaller than premium gasoline. Ethanol have stoichiometric air fuel ratio 9 and premium gasoline have stoichiometric air fuel ratio 14.7. The main objective is getting better performance with add more blended fuel by variation main jet diameter.

This experiment that did at Motor Bakar Laboratory of Mechanical Engineering ITS used four stroke single silinder Mahator 107 cc engine with main jet diameter variation, that was 0.74 mm (standard), 0.85 mm, 0.90 mm and 0.98 mm. This experiment was used premium gasoline-30 % ethanol fuel. Comparasion of performance engine and emissions on standard main jet (0.74 mm) for premium gasoline.

These result indicate that where main jet diameter 0.90 mm have optimal performance. Power, specific fuel consumption, thermal efficiency increasing each 0.78 %, 13.24 % and 2.65 % whereas CO and HC emissions decrease 12.09 % and 12.79 %.

Keyword: ethanol, main jet, air fuel ratio, performance, emissions