ABSTRACT

Diesel engines are used mainly in heavy duty machines and vehicles. Diesel engines have many advantages such as high fuel efficiency, reliability and durability. The performance of diesel engines depends on many parameters. One of the important parameters which influence the performance of diesel engines is fuel injection pressure. Fuel injection pressure plays an important aspect of power performance of the engine to obtain combustion treatment. The objective of this project is to study the effects of fuel injection pressure on the performance for diesel engine. Mathematical formulation for fuel injection system developed to obtain the result to analyse the performance of diesel engine based on fuel injection pressure. The results by using simulation are shown in Chapter 4 from Figure 4.1 to Figure 4.6 and it can be concluded that the simulation results can be used to predict and study the effect of fuel injection pressure on performance for diesel engine.

ABSTRAK

Enjin diesel digunakan secara meluas pada jentera dan kenderaan berat. Enjin diesel mempunyai banyak kelebihan seperti kecekapan bahan api yang tinggi, ketahanan dan kemampuan. Prestasi enjin diesel bergantung kepada beberapa aspek. Salah satu aspek penting yang mempengaruhi prestasi enjin diesel ialah tekanan suntikan bahan api. Tekanan suntikan bahan api memainkan peranan penting kepada prestasi kuasa enjin untuk mencapai pembakaran terawat. Objektif projek ini ialah untuk mempelajari kesan-kesan tekanan bahan api pada prestasi enjin diesel. Formulasi matematik untuk system penyuntik bahan api telah dibangunkan untuk mendapatkan hasil untuk menganalisis prestasi enjin diesel berdasarkan tekanan suntikan bahan api. Keputusan simulasi ditunjukkan di Bab 4 dari Rajah 4.1 hingga Rajah 4.6 dan dengan ini dapat disimpulkan bahawa keputusan simulasi dapat digunakan untuk menganggar dan mengkaji kesan tekanan suntikan bahan api untuk prestasi enjin diesel.