

**Mr Maja Matejić,
Dr Zoran Filipi,
Prof. dr Stojan Petrović,
Dr Miroljub Tomić,
Faculty of Mechanical Engineering, University of Belgrade.**

CALIBRATION AND VALIDATION OF SPARK IGNITION ENGINE MECHANICAL LOSSES MODEL

UDK: 621.430.05

The paper presents the results of mechanical losses modeling in four cylinders overhead valve spark ignition engine with swept volume of 1000 ccm. The comparison of experimentally measured friction losses and calculated values obtained with a comprehensive friction model, capable of simulating effect of all design factors on mechanical losses, has been carried out. The results show that many corrections had to be made in the model to obtain good agreement. After calibration, modified model gives results that are in very good agreement with measured data and can be used with great confidence to simulate this or similarly designed engine.

Key words: engine, friction losses, measurement, modeling.

KALIBRISANJE I VALJANOST SAGOREVANJA U MOTORU SUS KORIŠĆENJEM MEHANIČKOG MODELIRANJA GUBITAKA

U radu su dati rezultati modeliranja mehaničkih gubitaka četvorocilindričnog ventilskog motora, radne zapremine 1000 cm³. Dato je poređenje eksperimentalno izmerenih gubitaka trenja sa vrednostima izračunatim na osnovu frikcionog modela kojim su simulirani efekti svih faktora uticajnih na mehaničke gubitke. Rezultati pokazuju da treba izvršiti mnoge korekcije na modelu u cilju boljeg slaganja rezultata. Posle kalibrisanja, modifikovani model daje rezultate čije je slaganje sa eksperimentom veoma dobro tako da isti mogu da se koriste sa velikom pouzdanošću u cilju simulacije ovih ili sličnih motora.

Ključne reči: motor, gubici trenja, merenje, modeliranje.