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COMPUTER MODELING AND SIMULATION
OF A SINGLE CYLINDER, 4-STROKE CYCLE,
GASOLINE FUELED
SPARK IGNITION ENGINE

701000

A Thesis

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by

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ABSTRACT

The simulation model developed is a quasi-static, frictionless piston, semi-perfect gas working fluid with transient heat, mass, and work transfer ICE model. It runs on the Interactive Simulation (ISIM) software. Simulation test runs were made to evaluate effects of engine speed, air-to-fuel ratio, extent of combustion, and intake and exhaust valve timing.

The model is limited by the exclusion of momentum effects from the set of constraints considered. Moreover, actual fuel flow control, i.e. during governing, is not integrated in the model. This may be seen from the results of engine test runs on the 3 hp, 63.2 mm bore x 46.8 mm stroke, single cylinder, horizontal, air-cooled Tecumseh engine whose parameters are used in the simulation runs.



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