

Determination of Optimum Torque of an Internal Combustion Engine by Exergy Analysis

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Abstract : In this study, energy and exergy analysis are applied to the experimental data of an internal combustion engine operating on conventional diesel cycle. The experimental data are collected using an engine unit which enables accurate measurements of fuel flow rate, combustion air flow rate, engine load, engine speed and all relevant temperatures. First and second law efficiencies are calculated for different engine speed and compared. Results indicate that the first law (energy) efficiency is maximum at 1700 rpm whereas exergy efficiency is maximum and exergy destruction is minimum at 1900 rpm.

Keywords : diesel engine, exergy destruction, exergy efficiency, second law of thermodynamics

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