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Mechanical and Computational Analysis of Engine Torque and Dynamic Properties JI WON JUNG, RICHARD KYUNG, Choice Research Group — Recently, the demand for the development of dynamic properties of internal combustion engine is continuously rising in order to find a new and efficient engine model. This research presents mathematical and computational analysis for a motion of a non-offset piston connected to a crank through a connecting rod in internal combustion engine This paper shows how the engine torque and other dynamic properties are found, and also shows the outcomes as different graphs. The force resulting from the pressure in the cylinder was calculated using factors such as the area of the piston, the indicated cylinder pressure, and the atmospheric pressure. Also the inertial forces of moving parts are considered in the calculation the total force, because it was necessary to know the effect of moving mass as well. Torque was found after checking the force acting in the axial direction of the cylinder, and the force acting on the connecting rod axis was found in terms of connecting the rod angle. To obtain the torque of an engine, a coding was written using the Matlab software.

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