



Title: Environmental Pollution Assessment of Different Diesel Injector Location Of Direct-Injection Diesel Engines: Theoretical Study

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Abstract: An Analytical investigation on the effect of injector location of a four-stroke DI diesel engine on its pollutants' emissions was carried out under different injector locations ranging from central to peripheral at different engine speeds ranging from 1000 rpm to 3000 rpm. The simulation results clearly indicated the advantages and disadvantages of the central location over the peripheral one. It revealed that near central location gave less carbon dioxide, smoke level and particulate matter on one hand, and higher levels of NO_x, cylinder temperature and pressure (hence increased the mechanical and thermal stresses) on the other hand. Further, near central location resulted in more rapid rate of burning and less duration of combustion and rapid rate of NO_x formation per crank angle.