

Investigation Effect of External Flow to Exhaust Gas Flow at Heavy Commercial Vehicle with CFD

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Abstract : Exhaust systems plays an important role in thermal heat management. Exhaust manifold picks burned gas from engine and exhaust pipes transmit exhaust gas to muffler, exhaust gas is reacted chemically to avoid noxious gas and sound is reduced in muffler then gas is threw out with tail pipe from muffler. Exhaust gas flows out from tail pipe and this hot gas flows to many parts that available around tail pipe and muffler, like spare tire, transmission, pipes etc. These parts are heated by hot exhaust gas. Also vehicle on ride, external flow effects exhaust gas flow and exhaust gas behavior is changed. It's impossible to understand which parts are heated by hot exhaust gas in tests. To understand this phenomena, exhaust gas flow is solved in CFD also external flow due to vehicle movement must be solved with exhaust gas flow. Because external flow effects exhaust gas flow behavior with many parameters. This paper investigates external flow effects exhaust gas flow behavior and other critical parameters effect exhaust gas flow behavior, like different tail pipe design, exhaust gas mass flow in critic vehicle driving situations.

Keywords : exhaust, gas flow, vehicle, external flow

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