

Experimental Study of Exhaust Muffler System for Direct-Injection Gasoline Engine

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Abstract : Engine exhaust noise is considered one of the largest sources of vehicle exterior noise. Further reduction of noise from the vehicle exhaust system will be required, as the vehicle exterior noise regulations become stricter. Therefore, the present study has been carried out to illustrate the role of engine operating parameters and exhaust system construction factors on exhaust noise emitted. The measurements carried out using different exhaust systems, which are mainly used in today's vehicle. The effect of engine speed on the spectra level of exhaust noise is recorded at engine speeds of 900 rpm, 1800 rpm, 2700 rpm, 3600 rpm and 4500 rpm. The results indicate that the increase of engine speed causes a significant increase in the spectrum level of exhaust noise. The increase in the number of the outlet of the expansion chamber also reduces the overall level of exhaust noise.

Keywords : exhaust system, expansion chamber, engine speed, spectra

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