Thesis Title	A Study of Effect of Catalytic Converter on Engine Exhaust of Two Stroke Engine
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Abstract

The objectives of this thesis are to study an effect of wave motion in exhaust pipe of two stroke engine and to develop its simulation. The wave used in this study was generated by single pulse generator developed from the real two stroke engine. It then propagated along the pipe with catalytic converter. Wave profile was measured by pressure transducers located at certain points along the pipe. The result was then compared with wave profile calculated from computer simulation to study parameters affecting a size of pressure wave. Moreover, simulation can predict an overall wave profile along the system which facilitates a study.

From the well satisfying simulation-compared result, it was found that the amplitude of pressure wave was reduced while moving along the pipe due to a friction force and was much more reduced when catalytic converter was added to the system. The reflection at catalytic converter and the reduction of pressure wave due to an internal friction of catalytic converter are the reasons for this. The mass of an exhausted gas which is largely effected by pressure wave was lower for the system with catalytic converter. In the case of catalytic converter with cell density of 400 cell per inch square (CPI) and the length of 0.15 meter, the exhausted gas mass was reduced by 7.34 percent. However, when cell density decreased to be 300, 200 and 100 CPI while the length was held constantly, this reduction in exhausted gas mass decreased to be 17.24, 11.60 and 3.18 percent respectively. When the contact area of catalytic converter was fixed while cell density and the length were varied to be 400 CPI with 0.114 meter long, 200 CPI with 0.150

meter long, 300 CPI with 0.128 meter long and 100 CPI with 0.203 meter long, the reduction in exhausted gas mass was decreased to be 23.19, 19.03, 11.60 and only 8.75 percent respectively. The latest factor studied here was the position of catalytic converter. The computer model revealed the fact that the installing of catalytic converter behind muffler affects nothing on gas exhausting ability of two stroke engine.

Keywords : Catalytic Converter / Finite Amplitude Wave / Two Stroke Engine