

***Design And Build Of Aluminum Catalytic Converter  
With The Addition Of Cooling Circulation  
To Pressure And Smoke Concentration***

***Diesel Motor***

Ahmad Robiul Awal Udin ST. M.T (*First Supervisor*)

Mochamad Irwan Nari, ST, MT (*Second Supervisor*)

Muhamad Muhadil Fuat

*Mechanical And Automotive Engineering Programs*

*Departemen Of Engineering*

***ABSTRACT***

*The exhaust emission of motor vehicles is one of the biggest contributors for air pollution. The highest air pollution is produced by motorized vehicles in the form of diesel. Diesel-engined vehicles emit carbonized combustion gases which can damage the environment and human health. The aim of this researcher is to apply an innovative exhaust by utilizing aluminum material as a catalyst and adding cooling circulation to exhaust emissions. Tests were carried out at 1500 RPM, 1800 RPM, 2100 RPM, 2400 RPM and 2700 RPM engine speeds. The results of the research of exhaust catalytic converter aluminum with the addition of cooling circulation showed that the design results of the exhaust catalytic converter resulted in an increase in exhaust gas pressure before the catalytic converter with average of 8.8 mm H<sub>2</sub>O and subjected to exhaust gas in the after catalytic converter with an average of (-) 8.6 mm H<sub>2</sub>O. The result of exhaust emission testing is the concentration that applying catalytic converters made of aluminium can decrease the smoke concentrations in diesel motors with an average percentage decrease in opacity of 21.49%. The use of cooling circulation can reduce excess heat in the exhaust gases, this will make it easier for aluminum catalysts to bind or filter particulates.*

***Key word*** : catalytic converter, aluminum catalyst, cooling circulation, emission