

Research of Applying Turbocharger on 4 Stroke Single Cylinder Engine for Torque and Fuel Consumption

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ABSTRACT

One way to improve performance on a motorcycle is to apply supporting components such as turbocharger. Turbocharger is a gas compressor. It is used to force air into an internal combustion engine. It increases the amount of air entering the engine to create more power. This research designed a simple turbocharger mechanism by utilizing an electric fan with 12VDC power supplied from the battery. This simple turbocharger mechanism mounted on motorcycle filter with single cylinder engine, it start operating at 3000, 3500, 4000, 4500, 5000, 5500 and 6000 RPM of the engine, then tested the torque and fuel consumption using the dynotest. From the results of the testing that has been done in standard condition motorcycle produced maximum torque 6,85 N.m, while the motorcycle which uses turbocharger produced maximum torque 7,53N.m, that value reached when the turbocharger start operating at 5000RPM. For the minimum specific fuel consumption on a motorcycle also decrease from 0.12 Kg / HP.hour at 5000 RPM in standard condition become 0,099 Kg/HP.hour at 5500RPM when motorcycle using turbocharger .

keywords: *single cylinder, torque, turbocharger,*