

## Studi awal unjuk kerja pendingin udara pada air duct sepeda motor tipe skutik = Initial study for air cooler work on air duct motorcycle automatic scooter type

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### Abstrak

Pada penelitian ini, telah dirancang alat pendingin udara dengan tujuan untuk melakukan perbaikan udara masuk ke ruang bakar kendaraan dengan cara menurunkan suhu sehingga kerapatan partikel udara akan meningkat. Dengan perbaikan ini diharapkan dapat berpengaruh pada kondisi campuran udara dan bahan bakar sehingga akan terjadi peningkatan performa kendaraan. Daya roda belakang, konsumsi bahan bakar dan emisi kendaraan dipantau selama pengujian menggunakan chassis dyno tester.

Hasil penelitian ini, suhu udara dapat diturunkan menjadi 25C dari 30C pada kondisi udara bergerak mesin putaran idle, akan tetapi performa kendaraan masih mengalami penurunan 28% dibawah kondisi standar. Hal ini disebabkan adanya tahanan aliran udara akibat pemasangan sirip dan pipa pada saluran udara. Namun demikian didapatkan manfaat yang lain yaitu penurunan kadar emisi karbon monoksida sebesar 9,8% dari kondisi standar.

.....In this study, air-conditioning equipment has been designed in order to do improving the air condition by lowering the temperature so that the density of the air particles which is flow into the vehicle combustion chamber will increase. With these improvements, expected there are some effects to the conditions of airfuel mixture so it will increase the vehicle performance. Rear wheel power, fuel consumption and vehicle emissions were monitored during testing using a chassis dyno tester.

The results of this study, the temperature of the air has been reduced to 25 C from 30 C in the air flowing condition during engine idle, but the vehicle's performance still fell 28% under standard conditions. This is due to air flow resistance which is caused by the installation of the fin and tube in the air duct. However, another benefit is obtained, the decreasing levels of carbon monoxide emissions by 9,8% from the standard conditions by using this equipment.