

## ABSTRAK

Nama : Siswadi Aru Widodo  
Program Studi : Teknik Mesin  
Judul : “Kaji Eksperimental Kekasaran Intake Manifold Terhadap Performa Dan Emisi Gas Buang Pada Motor Bakar 4 Langkah”

Intake manifold atau bagi kalangan pengguna motor biasa disebut leher angsa adalah suatu alat dalam kendaraan yang berguna untuk menyalurkan campuran antara udara dan BBM (Bahan Bakar Minyak) sebelum nanti akan dimasukkan ke dalam combustion chamber (ruang bakar) untuk dilakukan pembakaran. Pengujian dilakukan dengan metode eksperimental dengan tujuan mengetahui kekasaran intake manifold standar dan intake manifold yang telah dimodifikasi, konsumsi bahan bakar, dan emisi gas buang pada motor bensin. Tingkat kekasaran pada intake manifold standar  $18.83 \mu\text{m}$ , intake manifold porting 1  $10.44 \mu\text{m}$  dan intake manifold porting 2  $8.64 \mu\text{m}$ . Dari hasil penelitian ini didapat nilai maksimum wheel power pada intake manifold porting 1 sebesar 9.2 hp pada putaran 7530 rpm dan minimum wheel power pada intake manifold standar sebesar 9.1hp pada putaran 7409 rpm. Sedangkan nilai maksimum dari wheel torque pada intake manifold standar sebesar 9.61 N.m pada putaran 6048 rpm dan minimum wheel power pada intake manifold porting 1 intake manifold porting 2 sebesar 9.54 N.m pada putaran 5869 rpm. Pada hasil pengujian konsumsi bahan bakar intake manifold standar memiliki nilai rata-rata 14.77 ml/menit, intake manifold porting 2 memiliki nilai rata-rata 13.98 ml/menit dan intake manifold porting 2 memiliki nilai rata-rata 13.23 ml/menit.

Kata kunci :

Intake manifold, kekasaran intake manifold, daya, torsi, konsumsi bahan bakar, emisi.

## ABSTRACT

*Name* : Siswadi Aru Widodo  
*Study Program* : *Mechanical Engineering*  
*Title* : “*Assess Against Experimental Roughness Performance Intake Manifold And Exhaust Emission Motor cycle Fuel In 4 Steps*”

*For the intake manifold or engine users commonly called goose neck is a useful tool in the vehicle for channeling a mixture of air and fuel (fuel oil) before later be incorporated into the combustion chamber (combustor) to do the burning. Tests carried out with experimental methods in order to know the roughness standard intake manifold and intake manifold has been modified, fuel consumption, and exhaust emissions in gasoline motor. The level of roughness at 18.83  $\mu\text{m}$  standard intake manifold, ported intake manifold and intake lm 1 10.44  $\mu\text{m}$  and manifold ported 2 8.64  $\mu\text{m}$ . From these results obtained maximum value of the power wheel on the intake manifold ported 1 at 9.2 hp on rotation 7530 rpm and minimum wheel power on a standard intake manifold of 9.1hp on rotation 7409 rpm. While the maximum value of the torque at the wheel of a standard intake manifold 9.61 N.m on rotation 6048 rpm and minimum power wheel on the intake manifold ported intake manifold ported 1 2 at 9.54 N.m on rotation 5869 rpm. On the test results of fuel consumption standard intake manifold has an average value of 14.77 ml / min, 2 ported intake manifold has an average value of 13.98 ml / min and intake manifold ported 2 has an average value of 13:23 ml / min.*

*Keywords :*

*Intake manifold, intake manifold ruggedness, power, torque, fuel consumption, emissions.*