SUMMARY

PENGARUH TAMBAHAN KATUP PADA PIPA GAS BUANG TERHADAP UNJUK KERJA MESIN OTTO SATU SILINDER

THE EFFECT OF ADDITIONAL VALVE ON EXHAUST PIPE FOR THE PERFORMANCE OF OTTO ENGINE SINGLE CYLINDER

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Subject : Internal Combustion Engines -- Mufflers

Subject Alt : Mesin pembakaran

Keyword : : Otto engine single cylinder; exhaust system

Description :

Telah banyak dilakukan penelitian mengenai knalpot yang bertujuan untuk memanfaatkan energi yang terbuang. Salah satu cara dengan menambahkan alat yang disebut katup pada pipa gas buang. Penggunaan katup ini telah banyak diaplikasikan pada mesin sepeda motor ber-cc besar dan multi silinder. Hal ini telah dilakukan oleh : Suzuki (S.E.T.), Yamaha (E.X.U.P.) dan Honda (H-V.I.X.). Pada penelitian ini ingin diketahui apakah penambahan katup pada pipa gas buang dapat meningkatkan unjuk kerja dari mesin Otto satu silinder.
Metode penyelesaian dilakukan pada knalpot dari sepeda motor silinder tunggal Honda Legenda, dengan variasi bukaan katup dari 00 - 600 pada putaran 4000-8000 rpm dengan interval 500 rpm dan dibandingkan dengan knalpot standar. Penelitiannya dilakukan di Laboratorium Bahan Bakar dan Motor Pembakaran Dalam Jurusan Teknik Mesin FTI – ITS.
Setelah melakukan analisa data yang diperoleh dari hasil pengujian, maka didapatkan kenaikan torsi, daya, bmep dan efisiensi pada putaran ≤ 6000 rpm masing-masing sebesar 2,51 %, 2,95 %, 3,87 % dan 2,97 %. Sfc mengalami penurunan sebesar 2,8 % pada putaran ≤ 6000 rpm. Sedangkan pada putaran 4000-8000 rpm, HC dan CO masing-masing mengalami penurunan sebesar 11,57 % dan 18,09 %.

Description Alt:

Several research about exhaust system have already been done with the main purpose to utilize energy that has already lost. One of the ways is adding a tool which is called valve on exhaust pipe. The using of this valve has already applied to multi cylinders and big-cc motorcycle. This application has already been done by Suzuki (S.E.T.), Yamaha (E.X.U.P.) dan Honda (H-V.I.X.). In this research, it is wants to be known wether additional valve on the exhaust pipe of Otto engine single cylinder able to increase its performance.
Solving method for this research is done to the exhaust system of single cylinder motorcycle Honda Legenda, which has variation of open valve 00 - 600 on the rotation of 4000–6000 rpm with interval of 500 rpm, and compared with the condition of standard exhaust system. The research is done in The Fuel and Internal Combustion Engine Laboratory, Department of Mechanical Engineering, Faculty of Industrial Technology, Sepuluh Nopember Institute of Technology.
Data analysis which is taken from experiment, gained several result which are: increasing of torque : 2,51 %, increasing of brake horse power : 2,95 %, increasing of bmep : 3,87 %, increasing of effeciency : 2,97 % on rotation of ≤ 6000 rpm. Sfc is reducing : 2,8 % on rotation of ≤ 6000 rpm. While on the rotation of 4000 – 8000 rpm, HC is reducing : 11,57 % and CO is reducing : 18,09 %.

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Thank You,

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