شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

HOSSAM MAGHRABY

شبكة المعلومات الجامعية

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها

علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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بالرسالة صفحات

لم ترد بالأصل

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بسم الله الرحمن الرحيم

قالوا سبحانك لاعلم لنا إلا ماعلمتنا إنك أنت العليم الحكيم

صدق الله العظيم

" البقرة ٣٢ "

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ABSTRACT

The growth in population plus the growth in energy consumption per person have combined together to give dramatic increases in air pollution problems.

The automotive vehicle has been a significant contributor to air pollution, so the advanced country governments made regulations for controlling this problem whereas the developing countries such as Egypt do not have sufficient feeling of danger.

The aim of this work was to show the importance of engine adjusting and maintenance according to the manufactures recommendations in idling mode, especially the major concentration of pollutants emitted in an idling mode.

One of the common type engines in Egypt was chosen to conduct a group of experiments to investigate the effect of some parameters belonging to engine, such as, the effect of mal adjustment of idle mixture metering screw, static spark timing, spark plug gap, contact breaker points clearance, spark plug seat, float carburettor clearance and inlet and exhaust valve clearances, on hydrocarbon (HC) and carbon monoxide (CO). Also, a comparison was carried out between HC and CO emissions for both conventional and the electronic ignition systems.

Experiments showed that deviations from the standard settings resulted in relative rates of increase in HC and CO emissions. This means an increase in pollutants in crowded streets due to neglecting maintenance and ill-adjusting.

Finally, if under- developed countries get rid of old, overworked engines, or if they install new devices of controlling emissions such as catalysts, they have to take much interest in maintenance and net adjustment of engines.

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NOMENCLATURE

Symbol	Quantity	Units
A	Cross section area of pipe	m^2
A/F	Air fuel ratio	
ASC	Axially stratified charge	
BDC	Bottom dead center	
BTDC	Before top dead center	
^{0} C	Centigrade temperature scale	
CCS	Controlled Combustion System	
CO	Carbon monoxide	%
CO_2	Carbon dioxide	%
D	Pipe diameter	m^2
Deg	Crank angle degree scale	
ECE	Economic Commission of Europe	
EFE	Early fuel evaporization	
EGR	Exhaust gas recirculation	
EPA	Environmental protection agency	

F_C	Rate of fuel consumption	cm^3/s
FTP	Federal test procedure	
g	Acceleration due to gravity	m/s^2
h	Water level difference in manometer	m
HC	Hydrocarbon	ppm
ICEs	Internal combustion engines	
I/M	Inspection and maintenance	
L	Minimum length calculate of a cubic shape air box	Cm
M	Minimum amount of air flow rate	kg/h
$m_{LEAKAGE}$	Mass flow of leakage	kg/h
M_{LM}	Maximum acceptable leakage rate	kg/h
MBT	Mean best torque	kg.m
MIRA	Motor industry research association	
MMT	Methylcyclopentadienly manganese tricarbonyl	
NDIR	Nondispersive infrared	
N_2O	Nitrous oxide	
NO_X	Nitrogen oxides	