



**INVESTIGATION ON THE EFFECTS OF SPARK PLUG ON ENGINE
PERFORMANCE**

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A thesis submitted in partial fulfillment of the requirements for the award of
Bachelor Engineering (Hons) (Mechanical)

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NOVEMBER 2009

“I declared that this thesis is the result of my own work except the ideas and summaries which I have clarified their sources. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any degree”

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ACKNOWLEDGEMENT

First and foremost, I would like to thank God for giving me this opportunity to further my studies to this level and for giving me the strength that I needed to soldier on. I would also like to thank my family for the support and encouragement that they have given me. My deepest gratitude for my project supervisor, Mr. Ramlan Kasiran, for his knowledge and experiences that were used to guide and assist me to prepare and complete this project. And last but not least, I would like to thank all my colleagues in UiTM and friends at home who has been supportive and given me ideas for this project.

ABSTRACT

In this project entitled “Investigation of The Effects of Spark Plug on Engine Performance”, investigation of the effects of different types of spark plug on internal combustion engine was conducted. This investigation focuses on the comparison of performances of an internal combustion engine fitted with the original spark plug (as the benchmark), and aftermarket or performance spark plug, such as the iridium and platinum spark plugs. The performances measured were the engine power, fuel consumption, and gaseous emissions. The engine performances were tested on a chassis dynamometer and the data obtained from the chassis dynamometer and other measuring devices were recorded.

The tests were carried out in accordance closely to the ISO 1585-1982 standards with some modifications due to equipments limitation. The method used to measure the engine power is by running the engine in a range of engine speed, which is from 2000 rpm to 6000 rpm. The peak power and torque curve was then recorded. For the gaseous emissions tests, a flue gas analyzer was used to measure the gaseous emissions such as HC, CO, CO₂, and O₂ produced in the exhaust gas. The test was done at three different engine speeds, which are idling speed, 2000 rpm and 3000 rpm, in one minute interval for three times. Lastly, for the fuel consumption test, the test was done for a constant speed of 50 km/h. The car was filled with 500 ml of fuel and the distance covered by the car before the engine died was measured.

The results showed that the iridium spark plug gives more power and is more fuel efficient compared to the original and platinum spark plugs, but the original spark plug was giving better emissions.

Therefore, based on the results, it is concluded that not all the claims by spark plug manufacturers are true. It is recommended though that car manufacturers and

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