

FINAL PROJECT**COMPARISON ANALYSIS OF ENGINE
PERFORMANCE USING VVT-i SYSTEM AND
ENGINE WITHOUT VVT-i SYSTEM**

Submitted as a Partial fulfillment of The Requirements
for Getting Bachelor Degree of Engineering
in Mechanical Engineering Department

by

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MUHAMMADIYAH UNIVERSITY OF SURAKARTA
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APPROVAL

The research paper entitled “**Comparison Analysis of Engine Performance Using VVT-i System And Engine Without VVT-i System**”, has been agreed by supervisor and authorized by the Director of International Program as partial fulfillment of the requirements for getting the Bachelor Degree of Engineering in Automotive Department of Muhammadiyah University of Surakarta.

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TESTIMONY

With this, I state that there is no plagiarism of the previous works which have been made to get bachelor degree of university and as long as the writer knows that there is also no work or opinion that ever been composed or published by other people, except referred written in this research paper mentioned in bibliography.

Hence, if it is proved that there is mistake in the writer's statements I will be wholly responsible.

Surakarta, November 2011

The writer

Ali Fikri
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MOTTO

"dare do dare to be responsible"

(The writer)

Let there arise out of you a group of people inviting to all that is good (Islam), enjoining Al-Ma'ruf and forbidding Al-Munkar. And it is they who are the successful. (QS Ali Imran:104)

Allah will not change the condition of a people until they change what is in themselves. (Q.S. Ar-Ra'd : 11)

The best person is the person who is the most beneficial for others

(Narrated by Bukhari)

DEDICATION

This research paper is dedicated to:

Allah SWT,

Thanks for the best everything that You have given for me and thanks for Your love that always make me to never give up to do the best.

I believe that You will always give me the best for everything.

My beloved Mom and Dad,

Thanks for your prayer, love and support.

You always give me happiness but often I made you disappointed.

I am sorry and I promise to give you the best in the future.

My all family,

Thanks for your prayer, love, support and everything.

All my friends,

Thanks for your support and love me.

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The writer realizes that this research paper is far from being perfect, so the writer welcomes any constructive comment, criticism, and suggestion from anyone. Finally, he hopes that this research paper would help the other researchers who are interested in studying translation and enrich the reader's knowledge.

Wassalamualaikum Wr. Wb.

Surakarta, November 2011
The writer

Ali Fikri

ABSTRACT

ALI FIKRI. D 200 080 204. COMPARISON ANALYSIS OF ENGINE PERFORMANC USING VVT-i SYSTEM AND ENGINE WITHOUT VVT-i SYSTEM. MUHAMMADIYAH UNIVERSITY OF SURAKARTA. 2011.

Nowadays, many demands from consumers to have a car with powerful engine and low of gasoline so vehicle manufactures think how to make engine like that. Vehicle manufactures develop technology which can increase of performance and the engine can have a great power and torque. Variable Valve Timing (VVT) can be used to problem solve above because variable valve timing can control timing valve. VVT can increase engine performance that can make the gasoline engine will increase power and torque.

Research target that is to kwon influence variable valve timing to engine performance at four stroke engine 1298cc. Research uses four stroke engine with two types of engine use VVT-i and engine without using VVT-i. Two types of four stroke engine will testing above engine dynamometer. Calculation is conducted after got data of testing result.

Base testing and analysis can be concluded that engine use VVT-i have higher performance than engine without VVT-i. From dynamometer test was get maximum torque from engine use VVT-i is 138.6 N.m at 4500rpm and maximum torque from conventional engine is 124.6 N.m at 4500 rpm. Maximum torque from engine use VVT-i is 107.3 BHP at 6000rpm and maximum torque from conventional engine is 94.5 BHP at 6000rpm. VVT-i organizes timing of valve which can make overlapping on the machine. Overlapping make number of air-fuel mixture in combustion chamber will increase which can make performance will increases.

Key words: gasoline engine, VVT-i, performance, power and torque

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