FINAL PROJECT

COMPARISON ANALYSIS OF ENGINE PERFORMANCE USING I-VTEC SYSTEM AND ENGINE WITHOUT I-VTEC SYSTEM HONDA CR-V

Arranged by :

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DECEMBER 2014

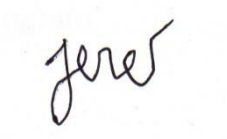
DECLARATION OF RESEARCH AUTHENTICITY

I assert verify that the research entitles:

COMPARISON ANALYSIS OF ENGINE PERFORMANCE USING I-VTEC SYSTEM AND ENGINE WITHOUT I-VTEC SYSTEM HONDA CR-V

that made to fulfill some of requirements to get bachelor degree of Engineering in Automotive Department of Muhammadiyah University of Surakarta, as far as I know it is not a plagiarism of a research that has been published, except the information source that used to solve the problem.

Surakarta, 22 December 2014
Researcher



Jonas Suhardi

APPROVAL

The Final Project entitles "Comparison Analysis of Engine Performance Using i-VTEC System and Engine Without i-VTEC System HONDA CR-V" has been approved by Supervisors and authorized by Secretary of International Program as partial fulfillment of the requirements for getting the Bachelor Degree of Engineering in Automotive Department of Muhammadiyah University Surakarta.

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Day : Thursday

Date : 18 December 2014

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Admitted by:

Secretary of International Program

Wijianto,ST.M.Eng.Sc.

VALIDATION

The final project entitles "Comparison Analysis of Engine Performance Using i-VTEC System and Engine Without i-VTEC System HONDA CR-V" has been defended in front of examiners team and approved as a partial fulfillment of the requirements for getting the Bachelor Degree of Engineering in Automotive Department of Muhammadiyah University of Surakarta.

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COMPARISON ANALYSIS OF ENGINE PERFORMANCE USING I-VTEC SYSTEM AND ENGINE WITHOUT I-VTEC SYSTEM HONDA CR-V

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ABSTRACT

Vehicle manufactures develop technology which can increase of performance and the engine can have a great power and torque. One of this technology is using Intelligence Variable Timing and Lift Electronic Control (i-VTEC) that can be used to solve problem above because it can control timing valve. i-VTEC can increase engine performance that can make the gasoline engine will increase power and torque. The aim of this research is to compare power and torque on active i-VTEC and non-active i-VTEC system on Honda CRV.

This test was done by installing Honda CR-V 2.4 with active i-VTEC and non-active i-VTEC on Dynamometer. The Dynamometer presented the data of power and torque based on engine rotation.

The result from Dynamometer test showed that maximum torque from engine use active i-VTEC is 211.7 Nm at 4900 Rpm and maximum torque from engine non-active i-VTEC is 202.8 Nm at 5350 Rpm. The engine torque using active i-VTEC is 3.67% higher than non-active i-VTEC engine. The maximum power from engine use active i-VTEC system is 181.5 Hp at 6910 Rpm and maximum power from engine non-active i-VTEC system is 167.7 Hp at 7020 Rpm. The engine power using active i-VTEC is 9.33% higher than non-active i-VTEC engine. I-VTEC 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.

Keywords: ***gasoline engine, i-VTEC, Dynamometer, power, torque.***

MOTTO

No matter how hard the situations. Don’t Give up. Do it not for Myself but for people I love because I exist for them.

(Jonas Suhardi)

Our task is not to succeed. Our task is to try, because in trying that we find and learn to build an opportunity to succeed.

(Mario Teguh)

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 I often made you disappointed.

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

All of my family,

Thanks for your prayer, love, support and everything.

All of my friends,

Thanks for your support and love me.

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Alhamdulillahhirobbil'alamin. Praise and gratitude to Allah SWT, The Lord of The Universe, because of His blessing and guidance the Research paper can be done.

The final project entitles "Comparison Analysis of Engine Performance Using i-VTEC System and Engine Without i-VTEC System HONDA CR-V" can be done because of helping and supporting from other people. Therefore, writer sincerely would like to say thanks and appreciation to:

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2. Dr. Tri Widodo Besar Riyadi., as the Head of Mechanical Engineering of Muhammadiyah University Surakarta.
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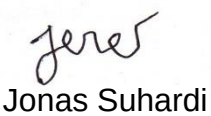
10. My Classmates Automotive engineering, thanks for you laugh and funny moments.
13. Those who cannot be mentioned one by one, writer want to say thanks and appreciation to all of them.

The writer realizes that this research paper is far from being perfect, so the writer sincerely welcomes any constructive comment, criticism, and suggestions from anyone.

Wassalamu'alaikum Warohmatullahi Wabarokatuh

Surakarta, 22 December 2014
Writer



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