

FINAL PROJECT

**THE EFFECT OF RESISTANCE COIL ON THE
PERFORMANCE ENGINE 4 STROKE OF SUZUKI
SATRIA FU 150**



Submitted As Partial Fulfillment of the Requirements for Getting Bachelor
Degree of Engineering in Mechanical Engineering Department

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UNIVERSITAS MUHAMMADIYAH SURAKARTA**

2016

DECLARATION OF RESEARCH AUTHENTICITY

I assert verity that the research entitles:

“THE EFFECT OF RESISTANCE COIL ON THE PERFORMANCE ENGINE 4 STROKE OF SUZUKI SATRIA FU 150”

That made to fulfill some of the requirements to get Bachelor Degree of Engineering in Mechanical Engineering Department Universitas Muhammadiyah Surakarta, as far as I know is not a plagiarism of a research that has been published, except the information source that to solve the problem.

Surakarta, September 2016



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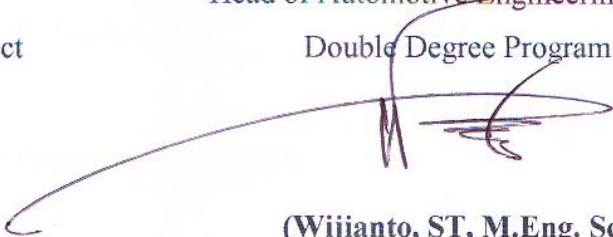
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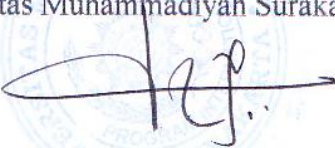
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DEDICATION

This research paper is dedicated to:

Allah SWT,

Thanks for the best everything that Allah SWT given for me and thanks for love that always make me to never give up to do the best. I believe that Allah SWT will always give me the best for everything.

My Beloved Mother (Hj. Sri Sukemi) and Father (H. Sugianto)

Thanks for your prayer, love, care, support and affection,
You always give me happiness but often I made you disappointed,
I am sorry and promise to give you the best in the future.

My Sisters and Brothers (Retno Ambar Sari, Yuli Ambarrini, Fitria Nina Misliha, Agus Wirai, Wagiyanto, Anas Maulan and Puputyo Wibowo)

Thanks for your support, it is make me strong to get something better.

All my Family

Thanks for your prayer, love, support and everything.

All my friends

Thanks for your love, support and everything.

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

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Surakarta, September 2016

Researcher

Reno Abdurrahman

MOTTO

*“ORANG YANG CERDAS ADALAH ORANG YANG SELALU INTROFEKSI DIRI
DAN BERAMAL UNTUK BEKAL SETELAH MATI.”*

(SALMAN AL FARISY).

*“ALLAH AKAN MENINGGIKAN DERAJAT ORANG-ORANG YANG BERIMAN
DIANTARA KAMU DAN ORANG-ORANG YANG DIBERI ILMU
PENGETAHUAN BEBERAPA DERAJAT.”*

(Q.S AL-MUJADDALAH AYAT 11)

*“NIKMATILAH HIDUP SELAMA ANDA MASIH MEMILIKINYA DAN TERUS
BELAJAR UNTUK BERSYUKUR DENGAN KEADAANMU.”*

(BOB SADINO)

“KENDEL RA NYENDEKNE UMUR, JIREH RA NDAWAKNE UMUR.”

(H NUR HASAN AL UBAIDAH)

“SERIBU KATA TAK AKAN BERARTI TANPA ADA LANGKAH NYATA.”

(R.A SUBANGKA)

CONTENTS

TITLE PAGE	i
DECLARATION OF RESEARCH AUTHENTICITY	ii
APPROVAL PAGE	iii
VALIDATION PAGE	iv
DEDICATION	v
ACKNOWLEDGMENT.....	vi
MOTTO	viii
CONTENTS.....	ix
LIST OF TABLES	xii
LIST OF FIGURES	xiii
LIST OF SYMBOLS	xiv
ABSTRACT.....	xv
CHAPTER I INTRODUCTION	
1.1. Background.....	1
1.2.Problem Formulations	2
1.3.Problem Limitation	2
1.4.Objective and Benefit Research	2
1.4.1. Objectives.....	2
1.4.2. Benefit.....	3
1.5. Systematical of Writing	3
CHAPTER II BASIC THEORY	
2.1.Definition of Combustion Engine	4

2.2. Ideal and Actual cycle combustion engine 4 stroke	7
2.3. Engine Performance	10
2.3.1. Torque	10
2.3.2. Power	10
2.3.3. SFC (Specific Fuel Consumption)	11
2.4. Ignition System.....	12
2.4.1. Ignition System CDI – AC.....	13
2.4.2. Ignition System CDI – DC.....	14
2.4.3. Coil.....	14
2.4.3.1. Standard Coil.....	15
2.4.3.2. Racing Coil	16
2.4.4. Spark Plug	17
2.5. Dynamometer	18

CHAPTER III RESEARCH METHODOLOGY

3.1. Flow chart of Research	22
3.2. Equipment and Metter	23
3.2.1. Equipment	23
3.2.2. Metter	24
3.3. Variable Measurement.....	25
3.3.1. Free Variables	25
3.3.2. Bound Variables.....	25
3.4. Research Procedure.....	26
3.4.1. Research Tools Compilation	26

3.4.2. Stage of Research	26
3.5. Scheme of Equipment Test	28
CHAPTER IV RESULT AND DISCUSSION	
4.1. Result	29
4.2. Discussion	32
4.2.1. Torque	32
4.2.2. Effective Power	34
4.2.3. Graph of correlation between Power and Torque	36
CHAPTER V CLOSING	
5.1. Conclusion	38
5.2. Suggestion	38
REFERENCES	40
APPENDIX	42

LIST OF TABLES

Table 4.1 Variation of resistancecoil.....	29
Table 4.2 Power and Torque data on Coil 1	29
Table 4.3 Power and Torque data on Coil 2.....	30
Table 4.4 Power and Torque data on Coil 3.....	30
Table 4.5 Torque data on coil 1, coil 2 and coil 3.....	32
Table 4.6 Power data on coil 1, coil 2 and coil 3.....	34

LIST OF FIGURES

Figure 2.1 Two Stroke Engine	5
Figure 2.2 Four Stroke Engine	6
Figure 2.3 Combustion process on gasoline engine	7
Figure 2.4 Combustion process on diesel engine	7
Figure 2.5 Ideal cycle engine 4 stroke	8
Figure 2.6 Correlation between Torque, Power and fuel consumption to RPM on diesel engine.....	12
Figure 2.7 Scheme coil.....	15
Figure 2.8 Coil	16
Figure 2.9 Cross section of the spark plug	18
Figure 2.10 Engine Performance Test by Dyno Test	18
Figure 2.11 hydraulic dynamometer	21
Figure 2.12 Scheme of Electric Dynamometer	21
Figure 3.1 Flowchart ofResearch	22
Figure 3.2 Scheme ofTest	28
Figure 4.1 Correlation between Torque and Engine Rotation chart	33
Figure 4.2 Correlation between Power and Engine Rotation chart.....	35
Figure 4.4 Correlation between Power and Torque on the coil 1	36
Figure 4.5 Correlation between Power and Torque on the coil 2	36
Figure 4.6 Correlation between Power and Torque on the coil 3	37

LIST OF SYMBOLS

T	= Twisting Moment (Nm)
P	= Loading (Watt)
n	= Engine rotation (rpm)
N	= Power (Hp)
SFC	= Specific fuel Consumption (kg/hour.Hp)
Kbb	= Consumption of fuel (cc/minute)
ρ	= Specific mass of diesel fuel (kg/m ³)
Mep	= Mean Effective Pressure (kPa)
i	= Number of cylinder
W_{nett}	= Netto Work
V_d	= Cylinder Volume
Ng	= Power friction
Na	= Accessories Power
Ne	= Effective Power
TDC	= (Top Dead Point)
BDP	= (Bottom Dead Point)
CDI	= (Capacitor Discharge Ignition)

**THE EFFECT OF RESISTANCE COIL ON THE PERFORMANCE
ENGINE 4 STROKE OF SUZUKI SATRIA FU 150
UNIVERSITAS MUHAMMADIYAH SURAKARTA**

Abstrak

Tujuan dari penelitian ini adalah untuk mengetahui perbedaan daya dan torsi yang dihasilkan sepeda motor 4 langkah dengan 3 koil diberikan variasi hambatan, koil 1 dengan 8.63 k Ω , koil 2 dengan 7.16 k Ω , koil 3 dengan 3.12 k Ω . Penelitian ini menggunakan metode eksperimental, dengan menggunakan sepeda motor Suzuki Satria fu 150. Penelitian data dilakukan dengan pengamatan langsung kemudian disimpulkan dan hasil penelitian dimasukkan ke dalam tabel dan grafik. Percobaan menggunakan perangkat dinamometer untuk menemukan daya dan torsi. Hasil penelitian menunjukkan ada perbedaan daya dan torsi oleh tiga koil. Daya maksimum dihasilkan oleh koil 3 dengan 8,05 Hp, sementara daya minimum dihasilkan oleh koil 1 dengan 5.1 Hp. Torsi maksimum dihasilkan oleh koil 3 dengan 12,99 Nm, sedangkan torsi minimum dihasilkan oleh koil 1 dengan 4,8 Nm.

Kata kunci: Hambatan koil, torsi, dan daya.

Abstract

The purpose of this research were to knew the differences of power and torque output of four stroke motorcycle which given coil resistance variances between coil 1 with 8.63 k Ω , coil 2 with 7.16 k Ω , coil 3 with 3.12 k Ω . The research used experimental methods, given to a Suzuki Satria fu 150 motorcycle. Output data research analyzed by direct observation experiment output data then concluded and determinate output data research into table and graph. The experiment used dynamometer device to found the power and torque. The research result showed there were differences power and torque by three coil. The maximum power output obtained at coil 3 with 8.05 Hp, while the minimum power output obtained at coil 1 with 5.1 Hp. The maximum torque output obtained at coil 3 with 12.99 Nm, while the minimum torque output obtained at coil 1 with 4.8 Nm.

Keywords : Coil resistance, torque, and power.