

DESIGN AND DEVELOPMENT BRAKING SYSTEM
FOR PATROL MOBILITY DEVICE

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UNIVERSITI TEKNIKAL MALAYSIA MELAKA

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PATROL MOBILITY DEVICE

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This report is presented in
Partial fulfillment of the requirements for the
Bachelor of Mechanical Engineering (Automotive)

Faculty of Mechanical Engineering
Universiti Teknikal Malaysia Melaka

MAY 2010

“I declare this report is on my own work except for summary and quotes that I have mentioned its sources”

Signature :.....

Name of Author :.....

Date :.....

To my family

for

their love

ACKNOWLEDGEMENTS

Praise is to Allah S.W.T to Whom seek help and guidance and under His benevolence we exist and without his help this project could not have been accomplish.

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ABSTRACT

This project will study briefly to design and development braking system for patrol mobility device. Analysis was done to obtain the safety factor of bracket component which will be attached disc and caliper brake due to weight, material and chassis structure design. There are several approach have been made to design brake system of this device included the study of conventional braking system and to design the bracket of disc and caliper. The analysis of brake performance test with several equations that related has been made to design braking system. CATIA software part design been used in this project to design the bracket of caliper and disc brake. From CATIA part modeling, the bracket structure analysis will be performed to seek stress concentration on the bracket structure for static load condition. This project also investigates how to reduce failure phenomenon on chassis structure and the Safety Factor (SF) as a benchmark for a better improvement to the bracket structure overall. With all this research, the new improvement brake system produced with all aspect has been count suitable to patrol mobility device operation and environment.

ABSTRAK

Projek ini akan melakukan kajian secara menyeluruh terhadap rekaan dan fabrikasi sistem brek untuk kenderaan rondaan bagi pihak berkuasa. Walaubagaimanapun projek ini merangkumi kajian terhadap komponen breket di mana untuk di letakkan disk dan kaliper brek akan dilakukan dari segi berat, bahan yang digunakan dan juga rekaan struktur casis. Terdapat beberapa pendekatan yang telah digunakan untuk mereka bentuk sistem brek untuk kenderaan termasuklah kajian tentang brek sistem sedia ada dan mereka bentuk breket disk dan kaliper brek tersebut. Analisa untuk ujian perlaksanaan brek dijalankan dengan menggunakan beberapa persamaan yang berkaitan untuk mereka bentuk sistem brek. Aplikasi program CATIA digunakan dalam projek ini untuk mereka bentuk breket kaliper dan disk. Daripada aplikasi program CATIA, struktur breket dianalisa untuk melihat tumpuan tekanan pada struktur breket dalam keadaan bebanan statik. Projek ini juga akan menyiasat kaedah yang sesuai untuk mengurangkan fenomena kegagalan terhadap struktur casis dan Faktor Keselamatan (SF) sebagai pananda aras untuk menghasilkan penambahbaikan yang lebih baik terhadap struktur casis secara kesuluruhannya. Dengan segala kajian ini, sistem brek yang lebih baik akan dihasilkan dengan segala aspek diambil kira bersesuaian dengan keadaan semasa operasi kenderaan rondaan ini.

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