ADVANTAGES OF X-BOW HULL AGAINST CONVENTIONAL HULL

LIONEL WONG ZHI LIANG

FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU

2012

bpd
LP 13 FMSM 2 2012

Advantages of x-bow hull against conventional hull / Lionel Wong Zhi Liang.

ADVANTAGES OF X-BOW HULL AGAINST CONVENTIONAL HULL

By
LIONEL WONG ZHI LIANG

A thesis submitted in partial fulfillment of
the requirements for the award of the degree of
Bachelor of Applied Science (Maritime Technology)

DEPARTMENT OF MARITIME TECHNOLOGY
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU
2012

DEPARTMENT OF MARITIME TECHNOLOGY

FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU

DECLARATION AND VERIFICATION REPORT
FINAL YEAR RESEARCH PROJECT

It is hereby declared and verified that this research report entitled: Advantages of X-Bow Hull Against Conventional Hull by Lionel Wong Zhi Liang, Matric No. UK 16922, have been examined and all errors identified have been corrected. This report is submitted to the Department of Maritime Technology as partial fulfillment towards obtaining the degree of Bachelor of Applied Science (Maritime Technology), Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

Verified by:

Principal Supervisor

Name: FERRY MANUHUTU

Official stamp: JABATAN TEKNOLOGI MARITIM
FAKULTI PENGAJIAN MARITIM DAN SAINS MARI
UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU

Date: 26/06/2012

Second Supervisor (where applicable)

Name: MOHD AZLAN BIN MUSA

Official stamp: LECTURER
DEPARTMENT OF MARITIME TECHNOLOGY
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU

Date: 8/7/12

Head of Department of Maritime Technology

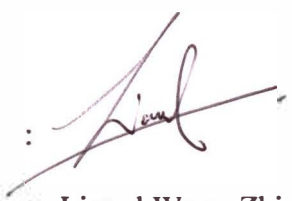
Name: DR. AHMAD FAISAL MOHAMAD AYOB

Official stamp: LECTURER
DEPARTMENT OF MARITIME TECHNOLOGY
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU

Date: 8/7/2012

DECLARATION

I hereby declare that this thesis entitled "Advantages of X-Bow Hull Against Conventional Hull" is my own research except as cited in the references.

Signature : 

Name : Lionel Wong Zhi Liang

Matrix. No. : UK 16922

Date : 31st May 2012

ACKNOWLEDGEMENTS

First of all, thank you the Almighty God for pouring grace blessing for all of us every now and then. The effort of completing this project is done by various intelligent people. I would like to express my gratitude to my both supervisors and co-supervisor; Mr Ir. Ferry Manuhutu and Mr. Mohd. Azlan Musa. It is because they are the people who gave precious comment and guidance. I would also like to thank our final year project coordinator, Dr. Ahmand Faisal Mohammad Ayob for paying attention throughout the process of final year project. Furthermore, I would like to thank S.L Shipbuilding contractor Sdn. Bhd for supplying the data needed in this project. Finally, I would also like to thank my friends for their giving their sharing and support to me to complete my project.

ADVANTAGES OF X-BOW HULL AGAINST CONVENTIONAL HULL

ABSTRACT

Due to the increase in international oil prices and higher operating expenses, a new design with less resistance hull against water is needed. To reduce the hull resistance, X-Bow hull is introduced. X-bow is claimed to have less resistance against water and better stability. This study is mainly concerned about the resistance of X-Bow against the conventional hull. The methodology to achieve the finding of resistance and has been presented. Basically, literature comparison between X-Bow hull and conventional hull has been done. This followed by data collection of offset table and lines plan. The data which has collected is used in MAXSURF version 13 PRO for simulation. From the result of simulation, some calculation of resistance of ship against water and has been carefully evaluated. Finally, the comparison has been done to ensure which has less resistance against water while sailing. Outcome of the X-bow hull is proven to have 14%less resistance as than the conventional hull.

KELEBIHAN HULL X-BOW TERHADAP HULL KONVESIONAL

ABSTRAK

Isu kenaikan harga minyak antarabangsa dan kos operasi kapal yang tinggi, hull kapal yang lebih stabil dan rintangan terhadap aliran air diperlukan. "X-BOW hull" diperkenalkan untuk meminimumkan masalah tersebut. "X-Bow" menawarkan rintangan terhadap aliran air yang rendah berbanding dengan kapal konvensional. Dalam kajian ini, kami telah menumpu perhatian dalam perbandingan rintangan terhadap air untuk "X-Bow" dengan kapal konvensional. Metodologi untuk mencapai objektif telah dibentang dalam kajian ini. Data jadual offset akan ditentukan dalam kajian ini. Perisian Maxsurf versi 13 Pro telah diguna untuk menjalani simulasi rintangan kapal terhadap aliran air. Perbandingan telah dilakukan sepanjang experiment. Hasil dalam rekaan X-BOW telah dikenal pasti bahawa ia mempunyai rintangan terhadap air yang rendah sebanyak 14% berbanding dengan kapal konvensional.