

**HULL FORM DESIGN OF DOUBLE STEPPED HULL USING CFD:
A CASE STUDY WITH A 15 METER FAST PATROL BOAT**

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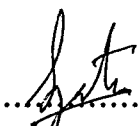
A thesis submitted in partial fulfillment of the requirements for the award of
Bachelor Engineering (Hons) (Mechanical)

Faculty of Mechanical Engineering

Universiti Teknologi MARA (UiTM)

MAY 2010

“I declared that this thesis is the result of my own work except the ideas and summaries which I have clarified their sources. This thesis has not been accepted for any degree and is not concurrently submitted in candidature of any degree.”

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ACKNOWLEDGEMENT

Alhamdulillah, in the name of Allah, the almighty, the most gracious and the most merciful, I have been given strength to complete this final year project thesis to fulfill the requirement of the Bachelor (Hons) Mechanical Engineering in Universiti Teknologi Mara (UiTM) Shah Alam.

Foremost, I would like to express my sincere gratitude and appreciation to my supervisor, Encik Mohd Azahari Bin Johan, for his continuous support, advices, guidance and patience upon completion of this final year project thesis.

Next I would like to extend my special thanks to my friends who work together in this project and gave their aids. Without them, it will be difficult for me to complete this project. Besides, special thanks to my family for their encouragement and supports in term of moral supports and financial.

Finally to all individual who involved directly or indirectly upon completing this project, I'm really grateful for your help. Your contribution and efforts are well appreciated and well remembered. May Allah bless you. Thank you very much.

ABSTRACT

The resistance and the drag reduction which associates with the speed, has become the key point when designing boat. This paper focuses on the double Stepped Hull concept applied on 15 meter length of fast patrol boat. The goal is to design the transverse step on the hull and analyze the performance of the fast patrol boat in terms of resistance. Simulation were carried out with a model drawn using MAXSURF and then applying the stepped hull concept via CATIA. The Double Stepped Hull then will be analyzed by using the Computational Fluid Dynamics. Computational Fluid Dynamic simulation was performed to calculate the resistance of model double step hull on different position of transverse hull ranging from rear until to the middle of the boat using different speed. The numerical simulation indicates that the fast patrol boat with applied stepped hull concept can reduce the drag coefficient in comparison with the original hull form. From the result and the discussion, it is determined that the best location and height that gives higher percentage of reduction compared to the original planning hull is at the midship of the boat (half of the boat length) with the height of 5 inches.

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