TO STUDY THE EFFECTS OF HEAT TREATMENT ON THE MECHANICAL PROPERTIES OF WEAPON BARREL

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

Signed: .....

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ABSTRACTS

This project paper is a study of the mechanical properties on heat treatment of weapon barrel for engineering utilization. The objectives of the study is to analysis the effect of mechanical properties of weapon barrel using specimen samples. The raw material which is the OTO- MELARA 105mm Model 56 Pack Howitzers was given by the Ministry Of Defence, Malaysia.

This study consists of two different temperature (800 C and 900 C) using pack carburizing process. From this two different temperature, we analysis the specimen samples using rotating banding machine to get the fatigue limit, S-N curve and Beach Mark on surface fatigue failure. We used Insron 8032 Machine to determine tensile properties to analysis the ductility and toughness of the specimens. We also using this two temperature and unheatreated metal to studies the different of the hardness using Series 600 Rockwell Hardness Tester.

Microstructure analysis in pack carburizing process using this two different temperature shows that the higher temperature give good carbon penetrations but the specimen become more brittle.

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