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IMPROVEMENT OF LOWER ARM ASSEMBLY SUSPENSION PART BY DESIGN OF EXPERIMENT

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Today, the manufacturing industry has become one of the most important industries in the world. Manufacturing industries involved in any production of products. In other words, this industry has contributing many inputs to the growth of economy of a nation. Nevertheless, fail or incomplete products are not acceptable due to the high-quality demand in industries. The manufacturers should be alerting to ensure all the products they produce are high quality and meet the customer's expectations. To obtain the high-quality production, the manufacturers need to take up the challenges of cost and time. In this experiment, the key subject that will be debated is the effect of materials and process parameters on lower arm defect. The sheet metal processes that involved in this experiment is punching area of the lower arm. The process is used to test the specific materials. This report will discuss on using the Box-Behnken Method which is under a Design of Experiment method to improve on the lower arm assembly suspension part. By implanting such method, time and cost can be significantly be efficient. Furthermore, metal stamping process is explained along with the defects cause by those processes in this report. The effect of parameters on the lower arm is evaluating by the optimization method (DOE). Optimization method (DOE) is used to identify and determine the significant process parameters the influence the lower arm punching area.

Keyword: Sheet Metal Process, Box-Behnken, Design of Experiment (DOE);

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